27 July 2017

Senator Malcolm Roberts
Chairman, Select Committee on Lending to Primary Production Customers
Department of the Senate, Parliament House
PO Box 6100
CANBERRA ACT 2600

Email: primaryproductionlending.sen@aph.gov.au

Submission from LibertyWorks re: Select Committee on Lending to Primary Production Customers

Dear Chairman,

Thank you for the opportunity to make a **submission** to the Select Committee on Lending to Primary Production Customers. This submission addresses the 'macro' level issues of Australian and international money and banking that, in turn, ultimately drives and sustains most if not all of the 'micro' level problems in lending to primary production customers. We believe this is within the following aspects of the **Terms of Reference**:

> "… to inquire into and report on the **regulation** and **practices** of financial **institutions** in relation to primary production industries, including agriculture, fisheries and forestry, with particular reference to:
>
> a. the **lending**, and foreclosure and default practices, including constructive and non-monetary default processes;
>
> b. the roles of **other** service providers to, and agents of, financial institutions, including valuers and insolvency practitioners, and the impact of these services;
>
> d. the appropriateness of loan **contract** terms particular to the primary production industries, including loan-to-value ratios and provision of reasonable written notice."

Background

From our website (https://libertyworks.org.au/vision-mission/): "**LibertyWorks Inc** is an Australian based not-for-profit organisation that advocates for a drastic reduction in government control over people's economic and personal lives. We celebrate liberty where it exists and fight the erosion of liberty when it's under threat. We do this because liberty is the essential element in human progress."

For clarity, the **Big 5 banks** in Australia referred to in this submission are ANZ, Commonwealth, National Australia, Westpac and Macquarie.

Issues

The key **'macro' level issues** arise as a result of government failure not of market failure – ie government control over market freedom. These issues primarily emanate from a plethora of government legislation/regulation especially that to establish and/or maintain an exclusive:

- A) 'monopoly' on currency-based money by the **Reserve Bank of Australia** (RBA);
- B) 'license' to create credit-based money not properly backed by sound money and deposit assets (or 'out of thin air', as renowned economist Murray Rothbard has put it in Appendix C) through Australian **fractional reserve banking**; and
- C) 'situation' for the **cartelisation** of the **banking industry** by a Big 5 of Australian banks.

The above three 'macro' level issues (of #A, #B and #C) drive the **'micro' level problems** in primary production lending by:

- i) making available to banks **'easy' money** and **credit** (through #A and #B) and thus strongly dis-incentivising them to behave efficiently and ethically as though money and credit are 'scarce' and that they have significant 'skin-in-the-game';
- ii) dis-incentivising banks further to behave efficiently and ethically (through #C) by granting **anti-competitive favours** to the Big 5 over the rest and imposing anti-competitive barriers on the rest under the Big 5; and
- iii) facilitating #i and #ii as well as **unfair contracts and other** anti-social behaviour through the plethora of government legislation/regulation which in particular 'crowds out' the common law of property, contracts and tort. Such common law was created by the people, was win-win and formed the basis for the rule-of-law. On the other hand, government legislation/regulation is created by the elites, is win-lose (by picking winners and losers, and by redistributing power and wealth) and has formed the basis for being ruled-by-laws.

In a 'nut shell', an anti-competitive and anti-consumer '**pyramid or Ponzi scheme**' has been established and maintained by government legislation/regulation. Besides government itself, the key players in this scheme' are the RBA (through #A as well as #i and #ii) and Big 5 banks (through #B and #C as well as #i, #ii and #iii). This scheme grants uneconomic and unethical power to not just the RBA (to print unsound money) but to the Big 5 banks as well (to lend yet more unsound money). And therefore, as the old saying goes, "power corrupts".

Note that former Australian **Treasurer Peter Costello** was quoted in July 2017 as saying: "Sometimes I wonder whether those running the banks realise how important the government is to their business. Who benefits from this tightly regulated enterprise? Well, the government does, the shareholders of course, and the senior executives employed on handsome salaries to keep their operation ticking over. It's the consumer that is feeling unloved."

Analysis

These 'macro' level issues arise, and the resulting 'micro' level problems, due to government failure not market failure – ie government control over market freedom. **Government failure** is very common and arises for a number of **reasons**. Professors Susan Dudley and Jerry Brito of the Mercatus Center provided some of the reasons in a book entitled *Regulation* from a **Public Choice Theory** perspective: "[P]olicymakers cannot always predict the consequences of different policy choices, so market interventions may produce government failures. That is, even when a market failure is observed, a particular government intervention may produce even more inefficiency than the *status quo* as a result of the rent-seeking problem, unintended consequences, or both." Eminent economist **Ludwig von Mises** wrote many decades before in his book *Socialism* that: "[S]ocialism [and government interventionism] suffers not only from a problem of incentives, but also from a problem of knowledge … [ie] government planners cannot engage in economic calculation." He added in his later book of *Bureaucracy* that: "The main concern [of the regulators and the regulated] is to comply with the regulations, no matter whether they are reasonable or contrary to what was intended. The failure … was certainly not due to incapacities of the personnel. It was an outcome of the unavoidable weakness of any administration of public affairs [ie] [t]he lack of [profit-and loss, price and customer oriented] standards [which] … destroys initiative."

Many of the greatest economists of 'all time' have recognised the massive economic dangers from large increases in the money supply, sometimes known as simply printing money … usually accompanied by the legalised counterfeiting known as fractional reserve banking (or fractional reserve lending). These dangers include causing, or at least making far worse, both economic booms and the resulting busts (mistakenly called the business cycle), as well as the rising cost-of-living (also called inflation). This cycle is mistakenly called "business" as it is primarily caused by government interventions in money and banking, and is not a natural and unavoidable feature of free market capitalism. This was recognised in the award of the Nobel Prize in Economics to **Friedrich von Hayek**. **Business cycles and inflation** are actually 'flip-sides of the same coin' of artificially rising values and prices effected by the cause of artificially rising quantities of moneys or money inflation. The boom-bust cycle typically happens first, with its uneven and less general price rises, followed by price inflation. The latter is a general price rise and thus a loss of the purchasing power of money for all, especially the poor and middle class. Both of these phenomenon redistribute and destroy wealth and jobs, and thus create winners and losers. The winners are mainly the Big Banks, Big Business and Big Government (along with their 'mates' in the media, NGOs and academia), and the losers of course being the rest of us.

Regarding the winners and losers from **inflation**, Lord John **Maynard Keynes** once said: "By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and, while the process impoverishes many, it actually enriches some."

Noted economist **Bob Murphy** wrote regarding **inflation** in *Lessons for the Young Economist*, that although a rising stock of money and a general rise in prices typically go hand-in-hand, there is not a precise one-to-one connection between money and prices: "For

example, if the amount of money goes up by 10% in one year, one can't automatically assume that the prices of all (or even most) goods and services will rise by a comparable amount."

Australian-Israeli economist **Frank Shostak** highlighted regarding **inflation** that: "Most economists believe that a growing economy requires a growing money stock, on grounds that growth gives rise to a greater demand for money which must be accommodated." This is because: "In a free market, in similarity to other goods, the price of money is determined by supply and demand. Consequently, if there is less money, its exchange value will increase. Conversely, the exchange value will fall when there is more money. In short, within the framework of a free market, there cannot be such thing as 'too little' or 'too much' money." Furthermore: "When we talk about demand for money, what we really mean is the demand for money's purchasing power. After all, people don't want a greater amount of money in their pockets so much as they want greater purchasing power in their possession. Individuals who are striving to preserve their life and well-being will not choose a commodity that is subject to a steady decline in its purchasing power as money." But: "The government can, however, bypass the free-market discipline. The main purpose of managing the supply [of currency money] is to prevent various competing banks from over-issuing [credit money] and from bankrupting each other. This can be achieved by establishing a monopoly bank – ie a central bank – that manages the expansion of money. The central bank money, which is declared as the legal tender, also serves as a reserve asset for banks. This enables the central bank to set a limit on the credit expansion by the banking system." Thus: "[I]n the free market, people will not accept a commodity as money if its purchasing power is subject to a persistent decline. [I]n the present environment, central authorities are coercively imposing money that suffers from a steady decline in its purchasing power."

Furthermore, prominent economist Dr **Gary North** argued in his book *Honest Money* regarding **inflation** that, in the face of easy and rising money and credit, businesses (or labour) face three main choices in trying to remain competitive:

- firstly, selling the same good/service (or labour) at the **same price** (or wage) and getting stuck with the now inflating and devaluing currency;
- secondly, selling the same good/service (or labour) at a **higher price** (or wage) and risk losing sales, revenues and profit (or jobs); or
- thirdly, selling a **lower quality** of good/service (or labour) at the same price (or wage).

Economic **incentives** are strongest for the third choice (especially in the shorter term) or for some combination of choices two and three (especially in the longer term). Note that **ethics** comes into play most strongly for choice three – ie low-quality-fraud (by businesses and labour) prompted by money-supply-fraud (by governments, central banks and big banks).

Appendices

Supporting information is provided in the appendices to this submission – ie Appendix I: Suggested Reading, Appendix II: Relevant Statistics, and Appendix III: Banking T-Accounts. A few key **highlights** from each appendix are provided next.

- **Appendix I re Suggested Reading**: Twenty suggested further reading sources on money and banking are listed here. Our suggested best three of these are: Friedman, *Money Mischief*; Leithner, *The Evil Princes of Martin Place*; and Rothbard, *The Mystery of Banking*. **Murray Rothbard**'s book is discussed below and extensively in Appendix III. In the book by Nobel laureate economist **Milton Friedman**, he wrote: "Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output." Australian financier **Chris Leithner** concludes in his book that the RBA "doesn't fight inflation, it manufactures and maintains it".

- **Appendix II re Relevant Statistics**: Relevant Australian statistics are provided here, sourced from the Australian Bureau of Statistics (ABS), Australian Prudential Regulation Authority (APRA), Parliamentary Library and RBA. **Price inflation**, as measured by the consumer price index (CPI), appears to highly correlate with money inflation, as measured by M3 (money supply). However, CPI regularly understates price inflation each year by approximately half compared to M3 due to: flaws with the CPI measure; and money inflation in the short-to-medium term not equating (one-to-one) to price inflation. Under fractional reserve banking, approximately $9 extra is created by the Big 5 banks 'out of thin air' for every $1 created 'out of thin air' by the RBA. This is made worse by the Big 5 domination of the banking market. Such **money inflation** causes prices inflation and facilitates government inflation. Money inflation works through the demand-side for goods and services by increasing demand. **Government inflation** (through taxation, expenditure, debt and regulation … red tape, green tape and blue tape) makes prices inflation worse through the supply-side for goods and services by decreasing supply.

- **Appendix III re Banking T-Accounts**: Professor Murray Rothbard made extensive use of T-accounts in his book *The Mystery of Banking* to best illustrate **loan banking**, **deposit banking**, **fractional reserve banking**, **free banking**, **central banking**, **money supply**, **market banking**, **government banking** and **reformed banking**. As he wrote in this book: "A must in making any sense whatever out of the banking system is to become familiar with the common accounting device of the T-account, or balance sheet [using] the *Asset = Liability + Equity* equation." This book, as Douglas French explained, also: "[C]ontinues to be the only book that clearly and concisely explains the modern fractional reserve banking system, its origins, and its devastating effects on the lives of every man, woman, and child." Professor Joseph Salerno added: "[The other] institution under scrutiny is central banking as historically embodied in the Federal Reserve System—the 'Fed' for short—the central bank of the United States." Professor Rothbard importantly shows that after a series of British judicial decisions in the 19th century, deposits henceforth belonged to the banks as loans rather than bailments for safekeeping. Amongst other things, this facilitates the massive mismatch between the time structure of bank assets and liabilities – ie shorter term deposits-on-demand and longer term credit-on-loan. In this regard, Rothbard said: "To [these judicial] decisions must be ascribed the major share of the blame for our fraudulent system of fractional reserve banking and for the disastrous inflations of the past two centuries." He also said: "[E]very business cycle is marked, and even ignited, by inflationary expansions of bank credit." As well as: "The Central Banks enjoy a monopoly on the printing of paper money, and through this money they control and encourage an inflationary fractional

reserve banking system which pyramids deposits on top of a total of reserves determined by the Central Banks." And: "The mere existence of bank competition [through free banking] will provide a powerful, continuing, day-to-day constraint on fractional reserve credit expansion." He concludes: "The essential purpose of central banking is to use government privilege to remove the limitations placed by free banking on monetary and bank credit inflation. … The mystery of the inflation process in the modern world has finally been unraveled."

Recommendations

Our suggested recommendations are therefore as follows:

- **by August 2018**, complete a **Royal Commission** into Australian and international money and banking focussing on the performance to-date and regulatory drivers of central banking, fractional reserve banking and banking cartelisation … with the aid of an Australian National Audit Office (ANAO) 'blue team' and an *Austrian School* free market 'red team';
- **by August 2019**, **legislate** for a comprehensive **reform** agenda of Australian money and banking focussing on removal of regulatory (and international treaty) barriers to 'sound money', 'free banking' and banking competition … with the aid of a Productivity Commission (PC) 'blue team' and an *Austrian School* free market 'red team'; and
- **by August 2022**, **complete** the comprehensive **reform** agenda of Australian money and banking … including National Competition Policy (NCP) style compensation and transition payments with the aid of a National Competition Council (NCC) 'blue team' and an *Austrian School* free market 'red team'.

We are highly confident that our suggested reforms will not only restore accountability, integrity and fairness to rural banking in Australia but also be a catalyst to far greater stability, competition and innovation for the **entire Australian economy** for not only this generation of Australians but for many generations to come.

Contact

For **more information** regarding this submission … as well as to organise our attendance and testifying at the upcoming **Sydney hearing** on 11 August 2017

Yours faithfully,

Andrew Cooper
President
LibertyWorks

Appendix I: Suggested Reading

Twenty suggested further reading sources on **money and banking** are listed here:

1. French, *Early Speculative Bubbles and Increases in the Supply of Money*, https://mises.org/library/early-speculative-bubbles-and-increases-supply-money
2. Friedman, *Free to Choose: A Personal Statement*, https://www.amazon.com/Free-Choose-Statement-Milton-Friedman-ebook/dp/B004MYFLBS/
3. Friedman, *Money Mischief: Episodes in Monetary History*, https://www.amazon.com/Money-Mischief-Episodes-Monetary-History-ebook/dp/B003WUYQ6Y/
4. Hayek, *Choice in Currency*, https://mises.org/library/choice-currency-0
5. Hayek, *Denationalisation of Money: The Argument Refined*, https://mises.org/library/denationalisation-money-argument-refined
6. Hayek, *Prices and Production*, https://mises.org/library/prices-and-production
7. Leithner, *The Evil Princes of Martin Place: The Reserve Bank of Australia*, https://www.amazon.com/gp/product/1463649797/
8. Machlup, *The Stock Market, Credit, and Capital Formation*, https://mises.org/library/stock-market-credit-and-capital-formation
9. Menger, *On the Origins of Money*, https://mises.org/library/origins-money-0
10. Mises, *Human Action: A Treatise on Economics*, https://mises.org/library/human-action-0
11. Mises, *The Theory of Money and Credit*, https://mises.org/library/theory-money-and-credit
12. North, *Honest Money: The Biblical Blueprint for Money and Banking*, https://www.amazon.com/Honest-Money-Biblical-Blueprint-Banking-ebook/dp/B0052ZRBX2/
13. Paul, *End the Fed*, https://www.amazon.com/End-Fed-Ron-Paul-ebook/dp/B002N0ADQG/
14. Rothbard, *America's Great Depression*, https://mises.org/library/americas-great-depression
15. Rothbard, *History of Money and Banking in the United States: The Colonial Era to World War II*, https://mises.org/library/history-money-and-banking-united-states-colonial-era-world-war-ii
16. Rothbard, *Man, Economy, and State, with Power and Market*, https://mises.org/library/man-economy-and-state-power-and-market
17. Rothbard, *Origins of the Federal Reserve*, https://mises.org/library/origins-federal-reserve
18. Rothbard, *The Mystery of Banking*, https://mises.org/library/mystery-banking
19. Rothbard, *The Panic of 1819: Reactions and Policies*, http://store.mises.org/Panic-of-1819-Reactions-and-Policies-P388C18.aspx?utm_source=Mises_Daily&utm_medium=Embedded_Link&utm_campaign=Item_in_Daily
20. Rothbard, *What Has Government Done to Our Money?*, https://mises.org/library/what-has-government-done-our-money

Appendix II: Relevant Statistics

Relevant Australian statistics are provided in this appendix, in the form of original Microsoft Excel charts, that provide the **important broader context** for rural banking in Australia. This appendix goes through the key impacts, drivers and causes of the high and rising cost-of-living in Australia. Note that: growth, prices and markets are key measures of economic impacts; and regulation, taxation and money are both key measures of economic drivers and key indicators of economic causes. The sources for the graphs are the Australian Bureau of Statistics (ABS), Australian Prudential Regulation Authority (APRA), Reserve Bank of Australia (RBA) and Parliamentary Library. The sources for the diagrams are from books by economics professors Arthur Laffer, Jack Hirshleifer and Murray Rothbard.

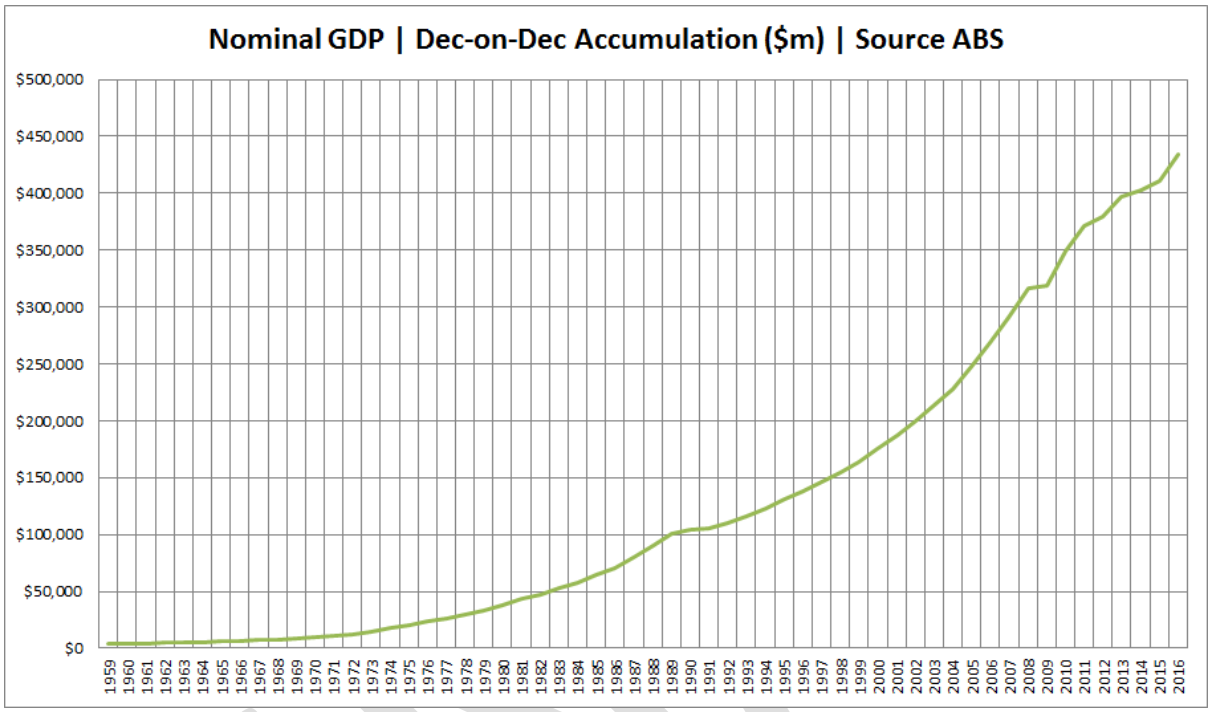
In **summary**:

- **nominal growth** in the Australian economy looks pretty healthy since 1959 and especially since 1990, despite some ups-and-downs along the way;
- **real growth** doesn't look so healthy after being adjusted downwards for money inflation, and this also shows a lot more downs than ups along the way;
- even though **price inflation** doesn't look as bad as money inflation, it is still not a pretty sight;
- **money inflation** is a government-backed phenomenon which not only drives most of price inflation and much of nominal growth but also makes it easier for government inflation through taxation, regulation and other related interventions in the economy.

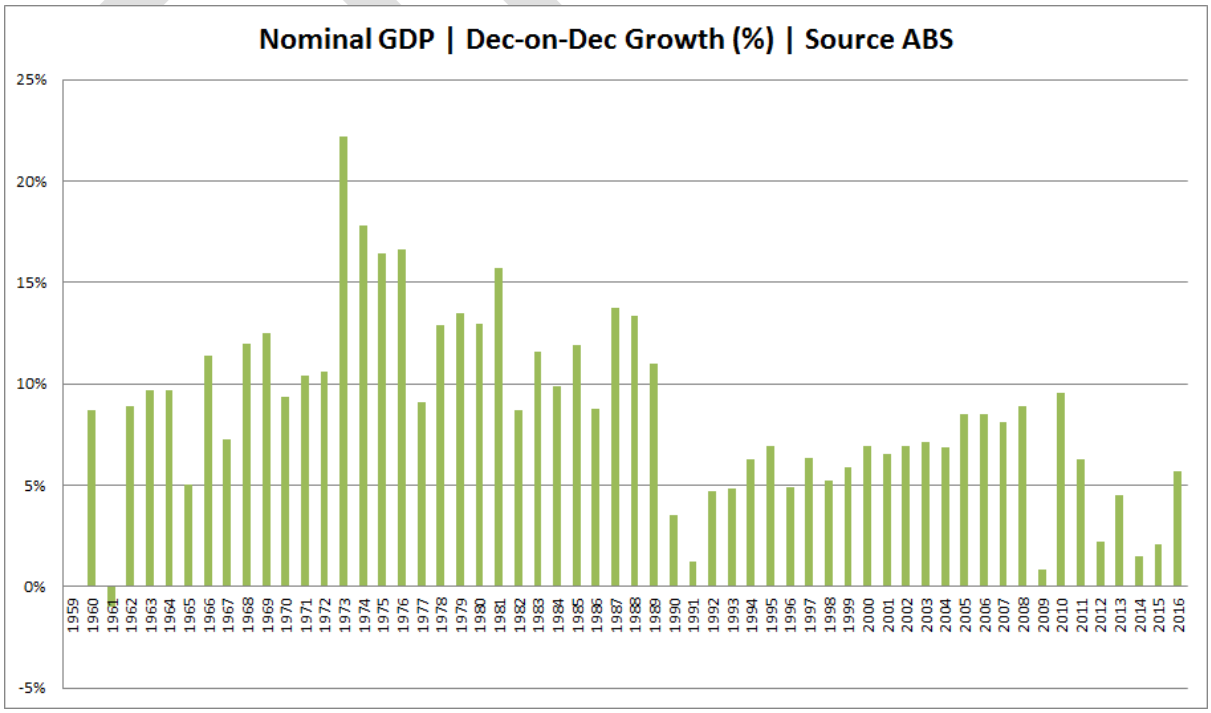
It is very important to note that, in a more general sense, all government policies either: A) reduce or remove market interventions; or B) add to them. "A" reduces the cost-of-living, whilst "B" raises it. Or as former President Ronald Reagan once stated: "In this present crisis, **government** is **not** the **solution** to our problem, government is the problem." Sociologist **Franz Oppenheimer** pointed out that (noting "1" is consistent with "A", and "2" with "B"): "[T]here are fundamentally two ways of satisfying a person's wants: (1) by production and voluntary exchange with others on the market; and (2) by violent expropriation of the wealth of others. The first method is the 'economic' means for the satisfaction of wants; the second method is the 'political' means. The State is trenchantly defined as the organization of the political means." Economist **Murray Rothbard** reminded that, in many ways, the history of humanity can be seen as a 'race' between 'free markets' (and "A") versus 'Big Government' (and "B"): "Always [people] – led by the producers – [have] tried to advance the conquest of [their] natural environment. And always [people] – other [people] – have tried to extend political power in order to seize the fruits of this conquest over nature. … In the more abundant periods, eg after the Industrial Revolution, [freer markets took] a large spurt ahead of political power [including over government intervention], which ha[d] not yet had a chance to catch up. The stagnant periods are those in which [such] power has at last come to extend its control over the newer areas of [freer markets]." To win this 'race' over time for freedom over control will require not only winning 'minds' through sound economics but also 'hearts' through sound 'ethics' … and maybe sadly taxpayers 'wallets' through buying off cronies (eg taxis), threatening governments (eg secession) and/or bypassing cronies and governments (eg Uber).

Impacts: Growth

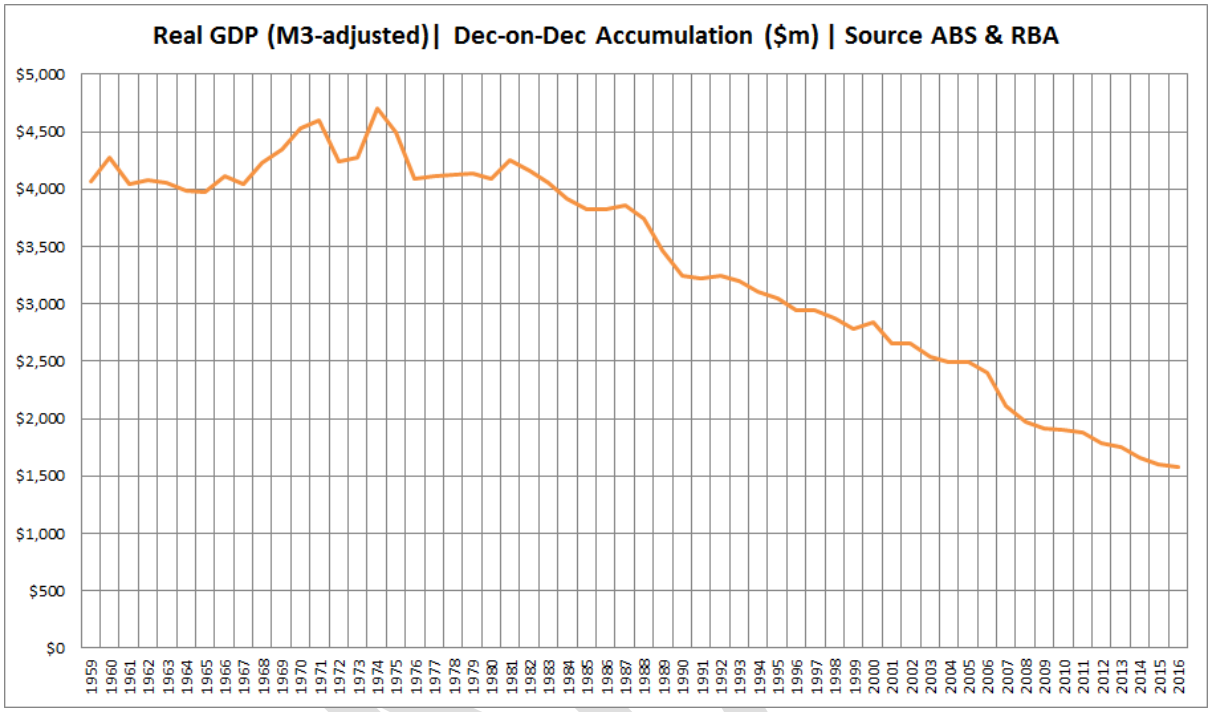
The growth of Aussie gross domestic product (GDP) looks pretty healthy, but doesn't always feel that way given the price (P) side of the GDP equation of P x quantity (Q).



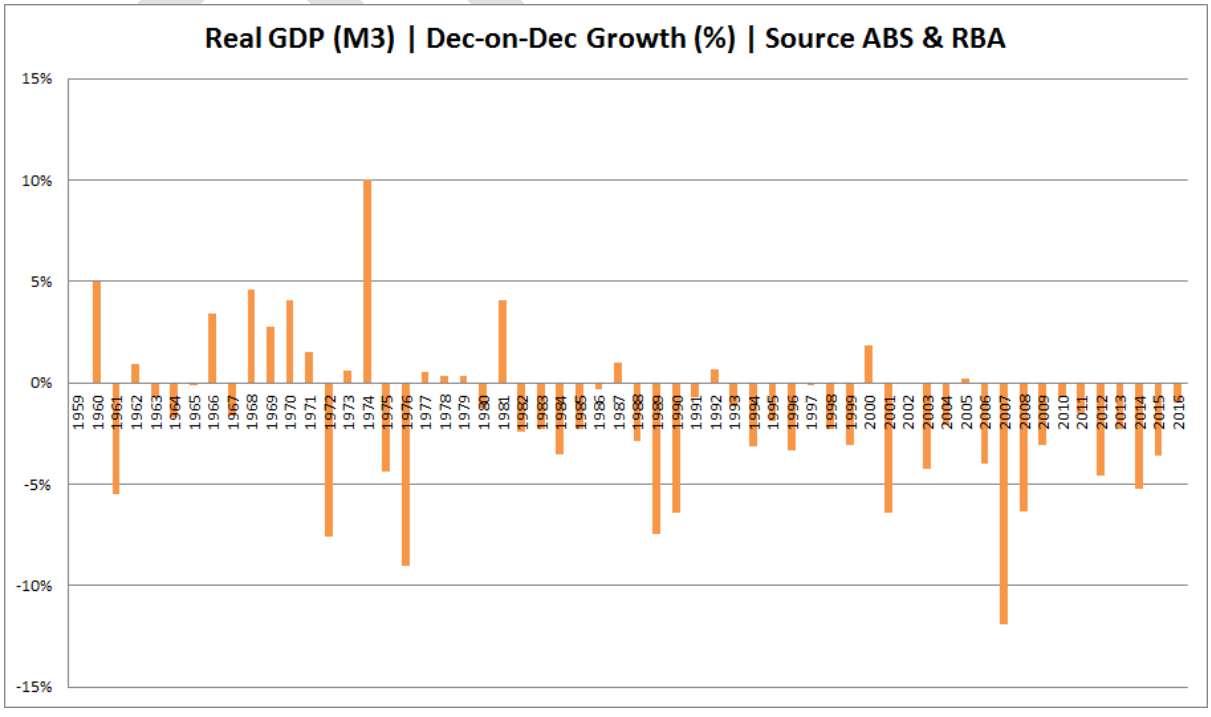
The ups-and-downs of annual GDP growth also don't look too bad. This is mistakenly called the "business cycle", a cycle caused by money inflation on P.



Adjusting nominal GDP for money inflation, ie real GDP, shows mainly a sickly story of long periods of stagnation followed by longer periods of decline.

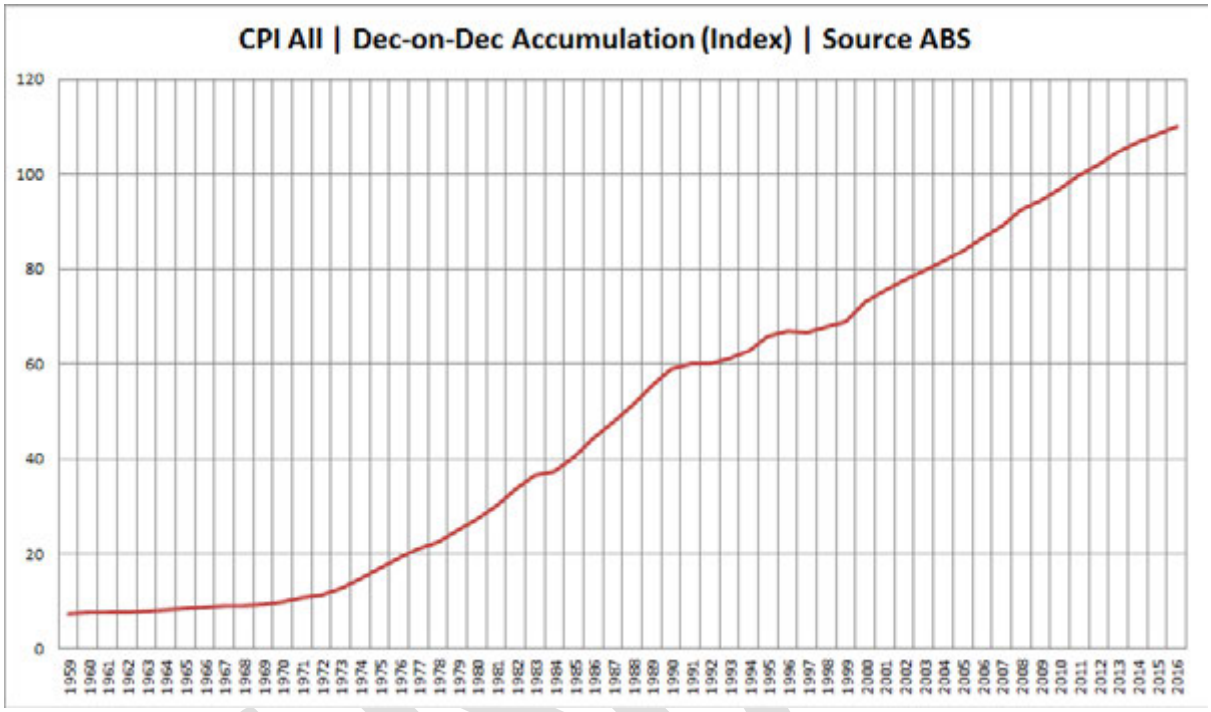


The annual ups-and-downs of nominal GDP growth, more properly called the "boom-bust" cycle, are more downs than ups when using real GDP growth – ie P more than Q.

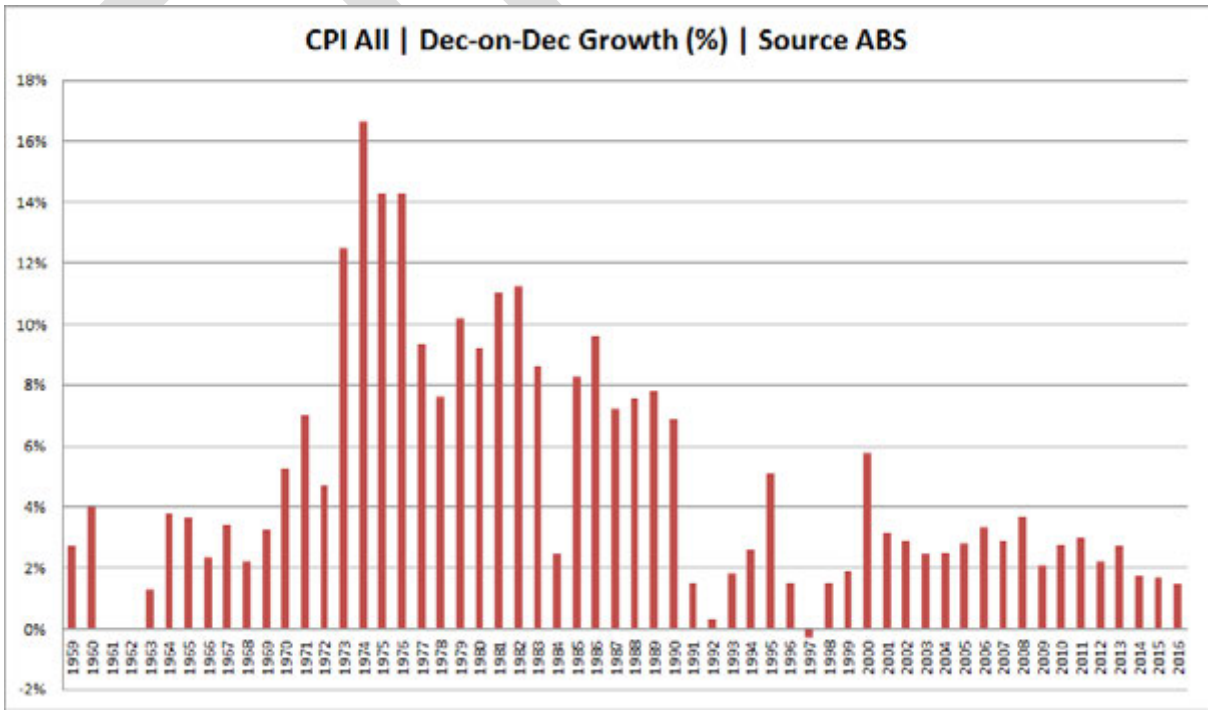


Impacts: Prices

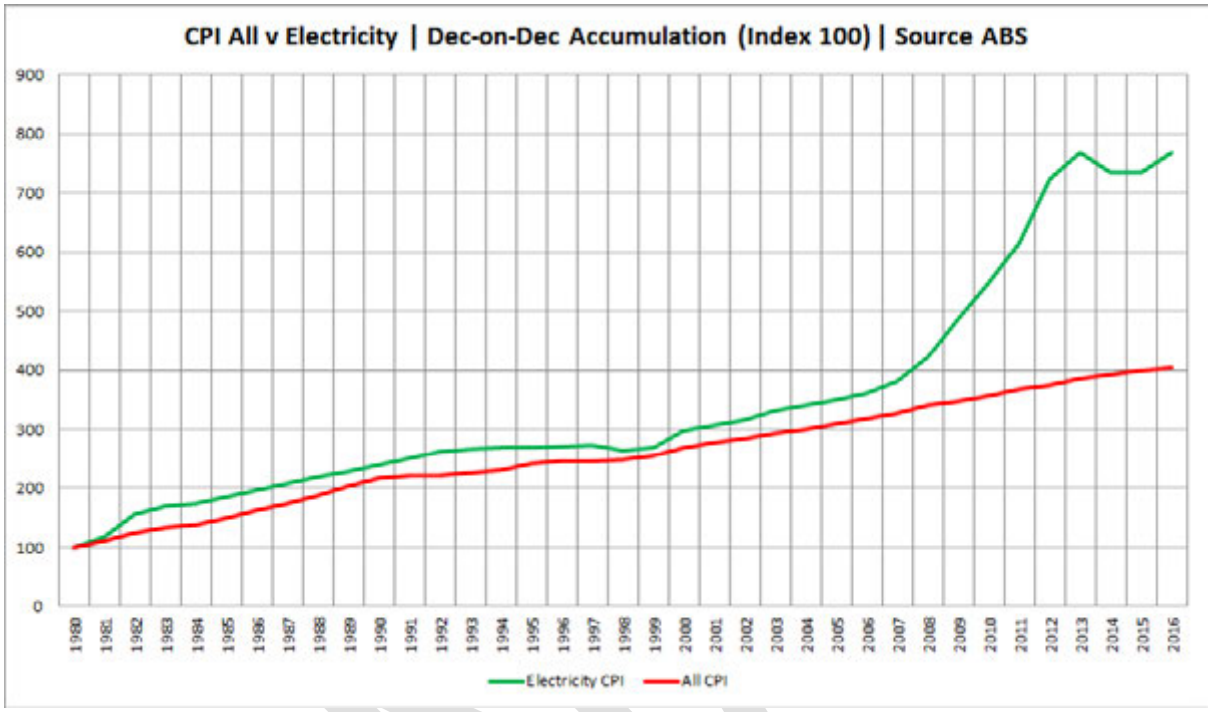
Price inflation, even as measured by Consumer Price Index (CPI), has been largely and shockingly accumulating like compound interest since the early 1970s.



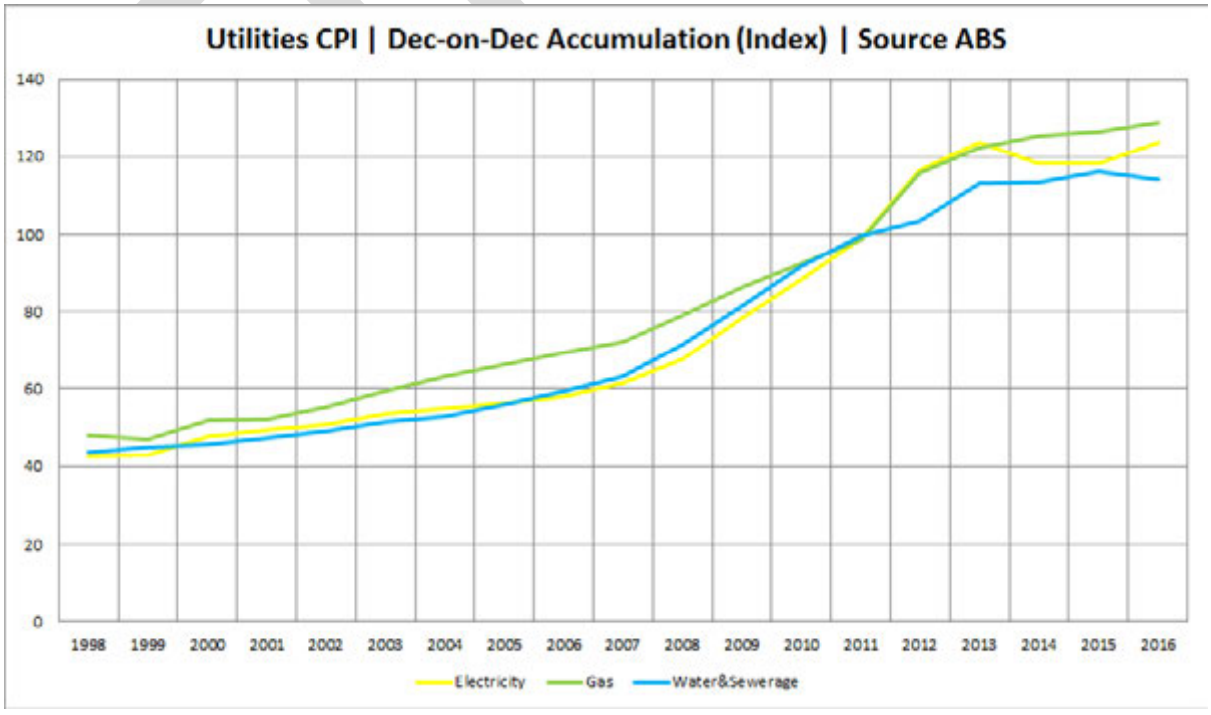
The annual ups-and-downs of real GDP obviously correlate to CPI as well as, less obviously, to M3 (money supply). M3 money inflation drives CPI price inflation.



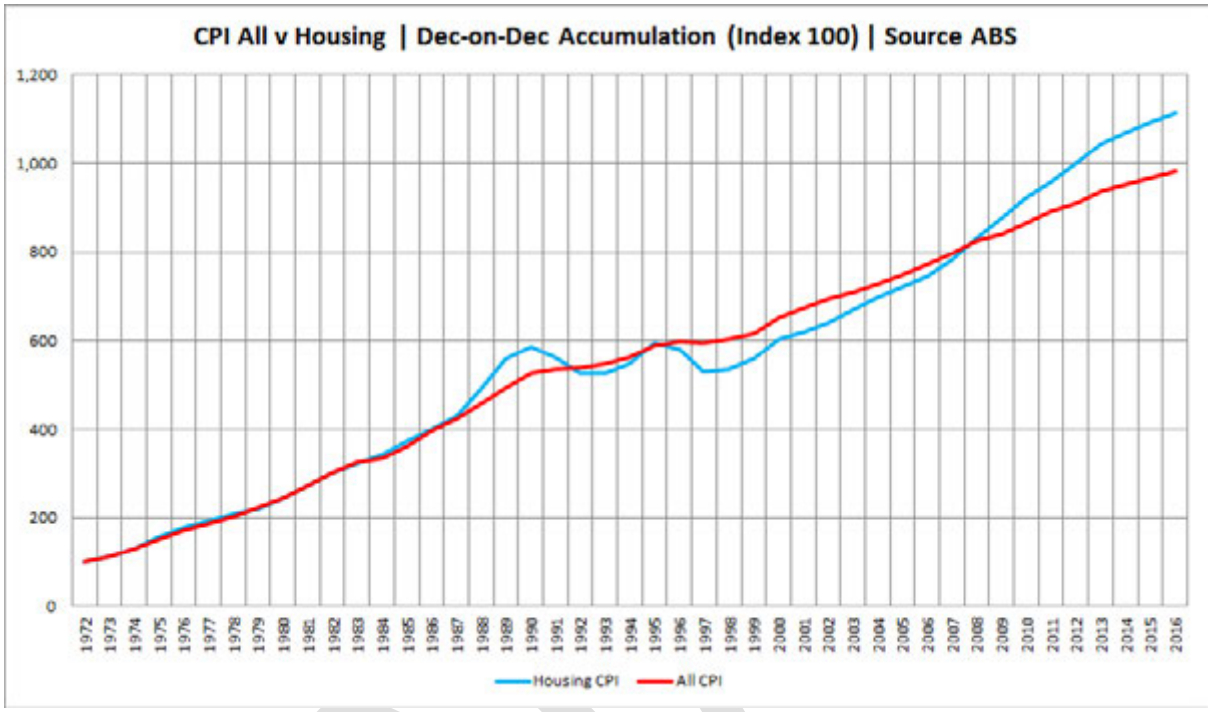
The shocking rise in electricity CPI since 2008 has almost exclusively been driven by government regulations and taxpayer subsidies in solar and wind.

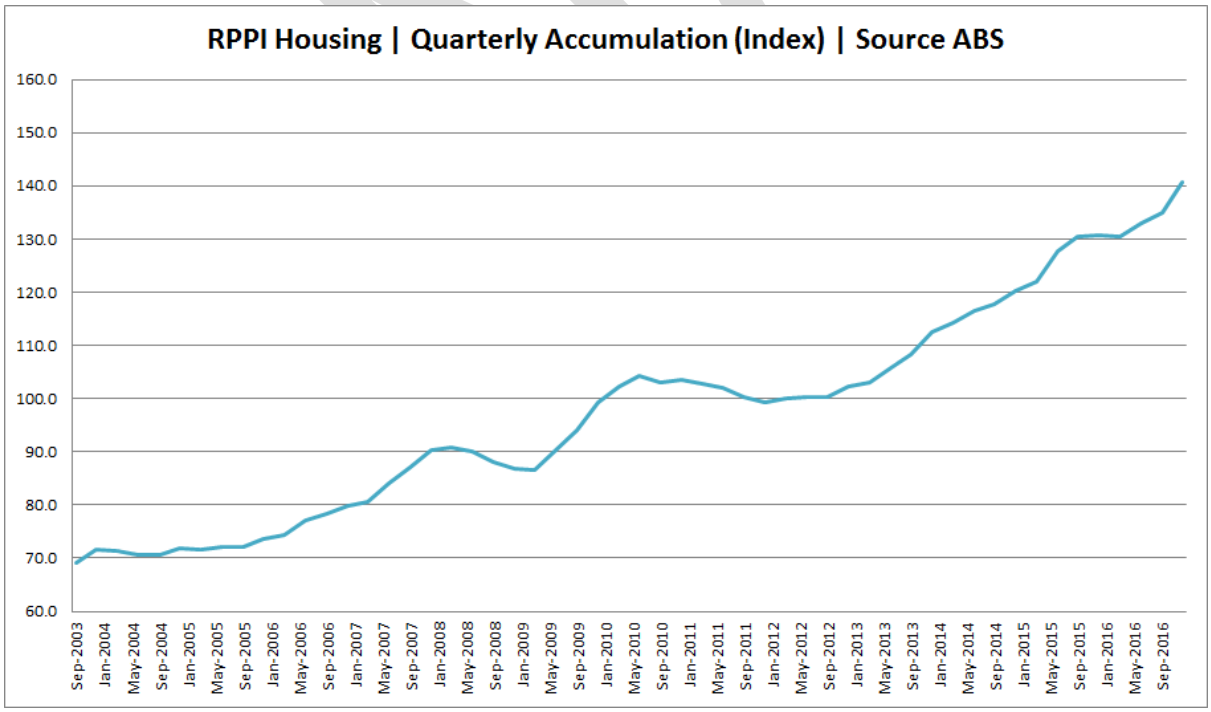


Climate change alarmism helps to drive up prices not only in electricity but also in the other utilities of gas, water and sewerage as indicated in CPI.

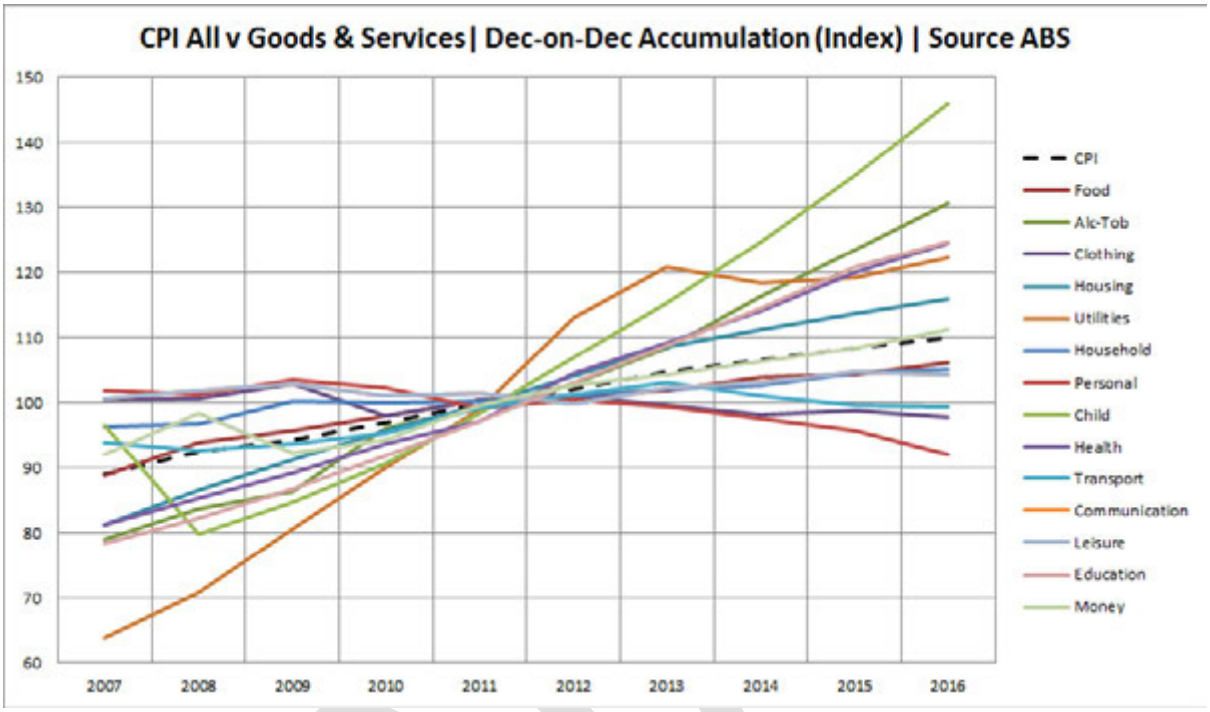


Increasingly unaffordable housing, as indicated by housing v all CPI, is mainly driven by government regulation on supply and money inflation on demand.

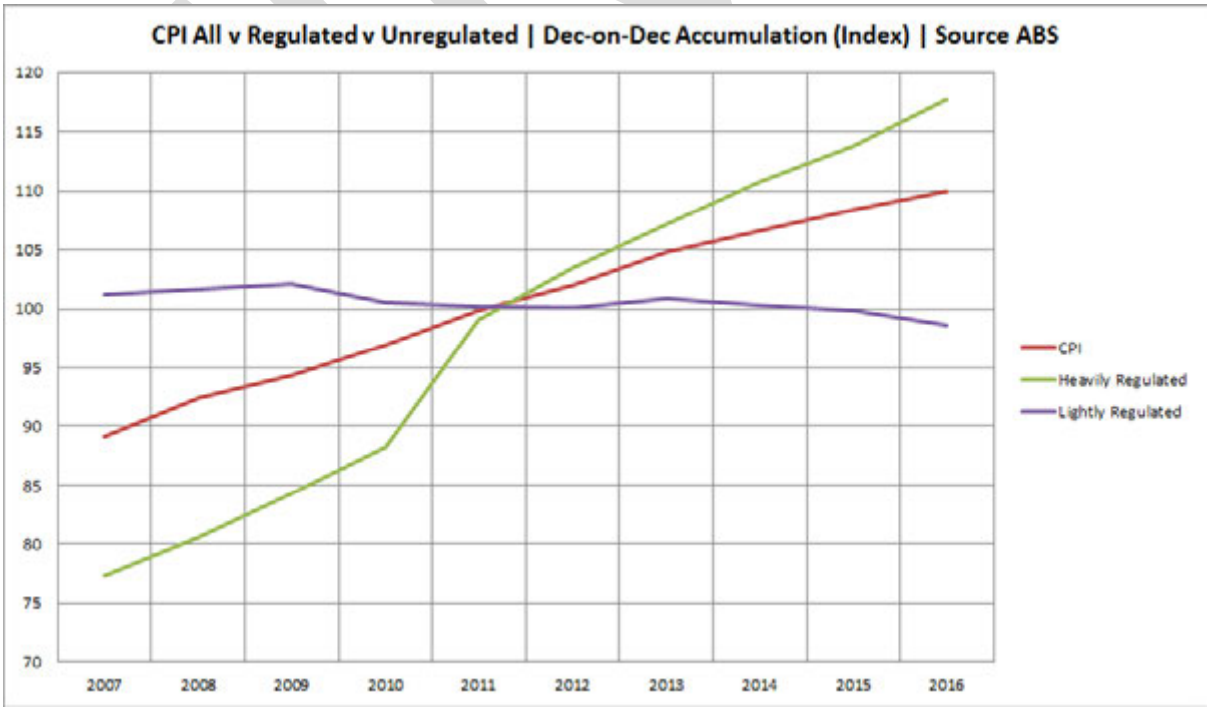




CPI is disaggregated into some major categories of goods and services purchased by households and businesses. Alcohol-tobacco rose most; personal services fell.

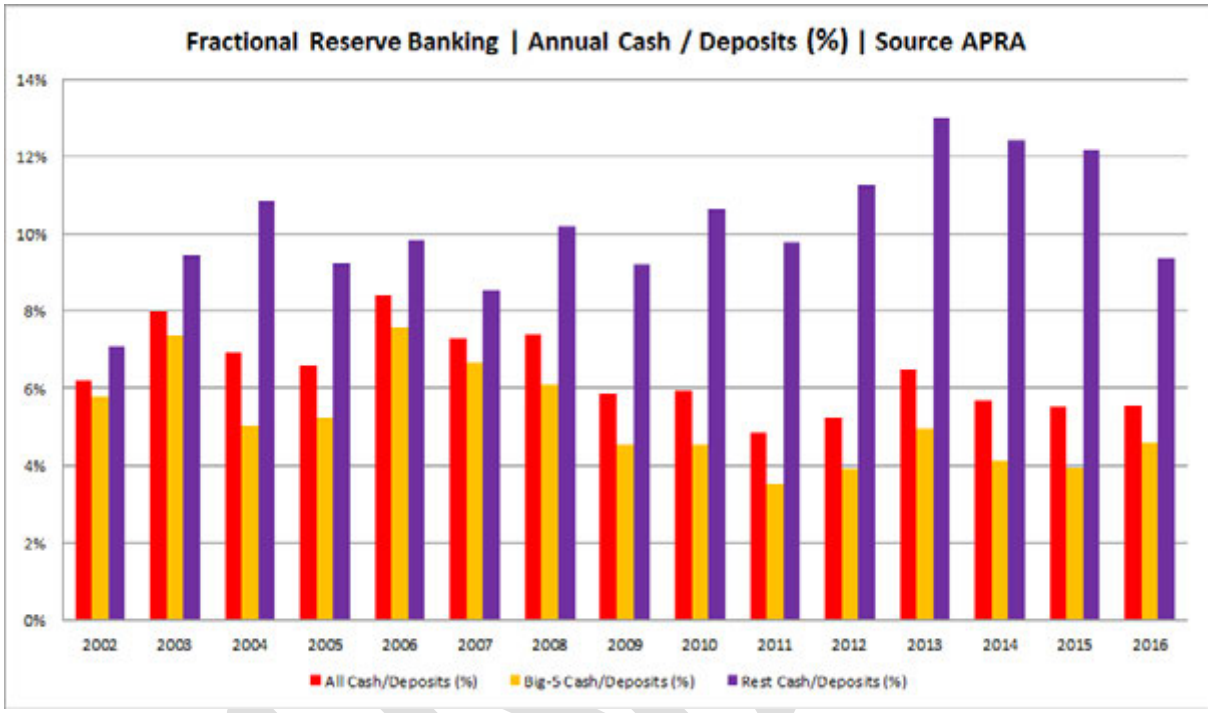


As any good economist would expect, CPI for the lightly regulated goods and services declined slightly whilst heavily regulated ones increased significantly.

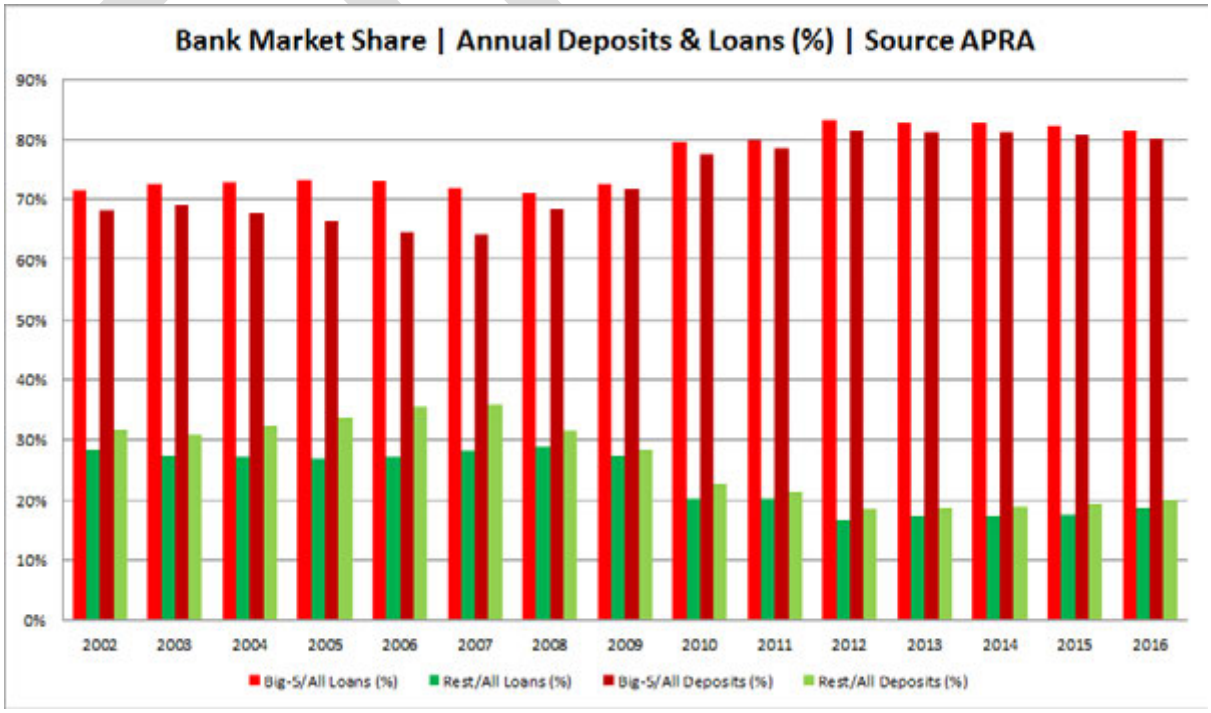


Impacts: Markets

The market that contributes most to money inflation, and thus price inflation, are central banking (ie the RBA) and fractional reserve banking (ie the Big-5 banks). Approximately $9 extra is created by the Big-5 'out of thin air' for every $1 created by the RBA.

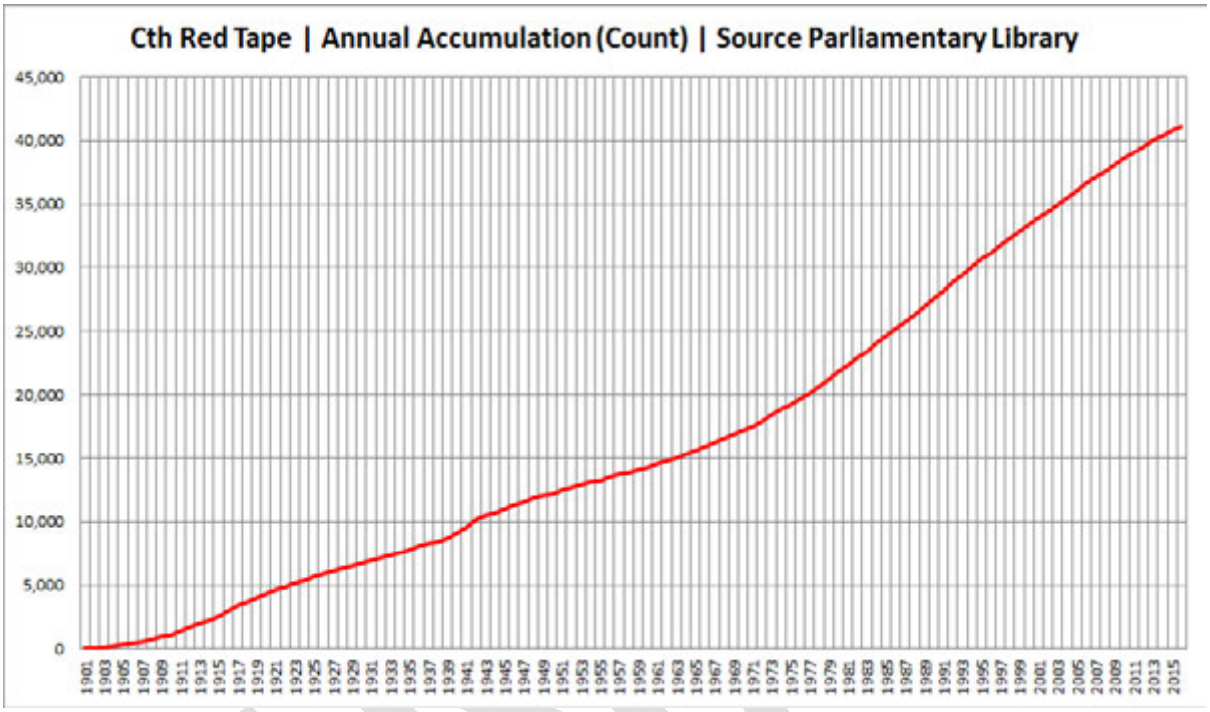


Money inflation by central banking (ie the RBA) and fractional reserve banking (ie the Big-5 banks) is made worse by the cartelisation of the banking market.

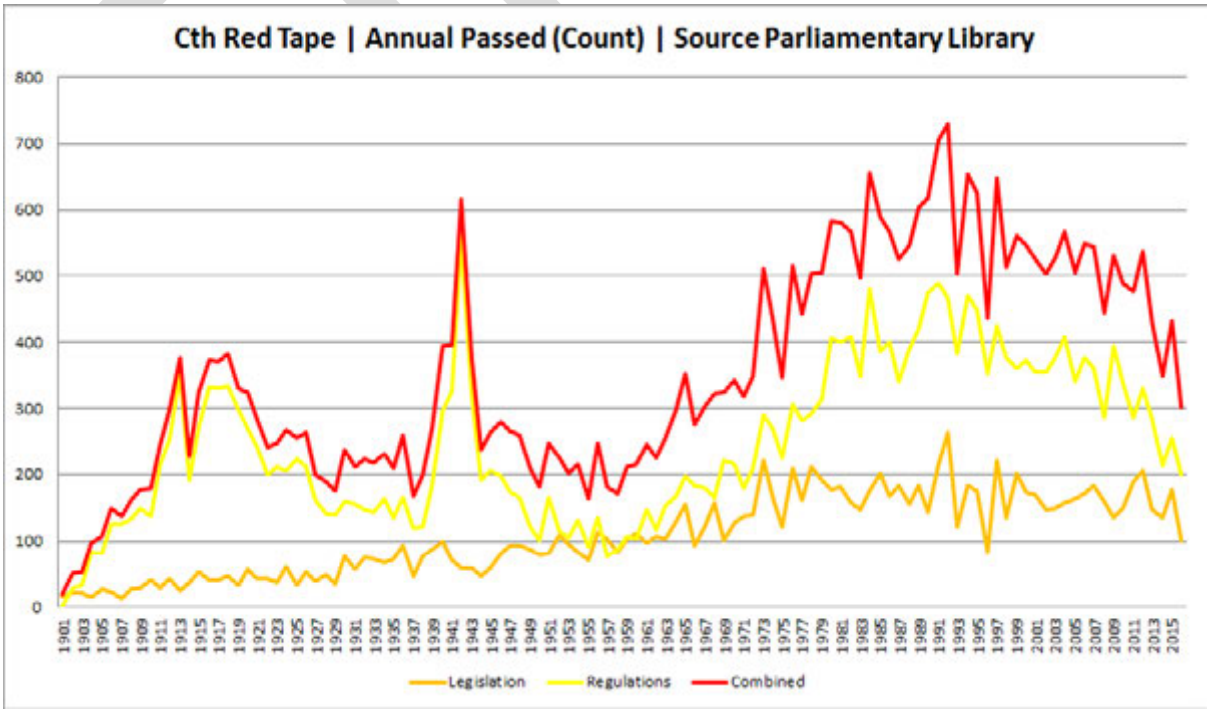


Drivers: Regulation

Money inflation causes price inflation as well as facilitates government inflation like regulation. Regulation inflation adds to price inflation mainly through reducing supply and competition.

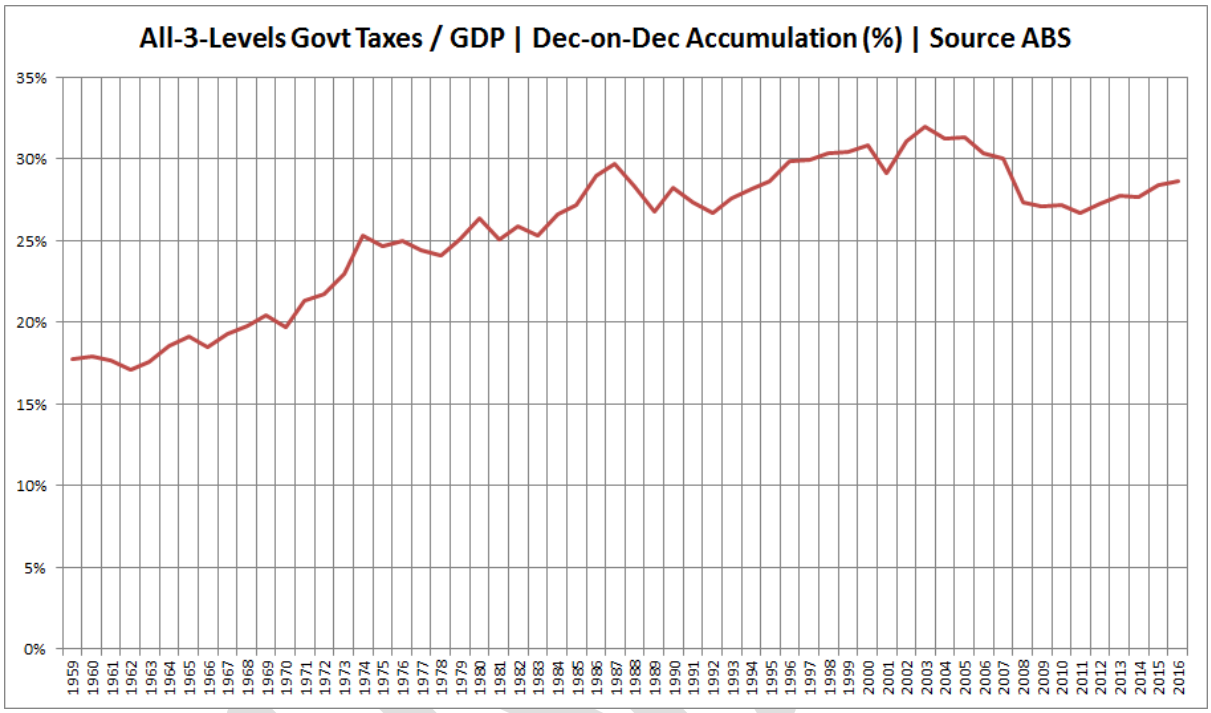


Annual regulation inflation is not only facilitated (and obscured) by taxation inflation (and also bureaucracy, expenditure, deficits and debt inflation) but by government-backed money inflation as well.

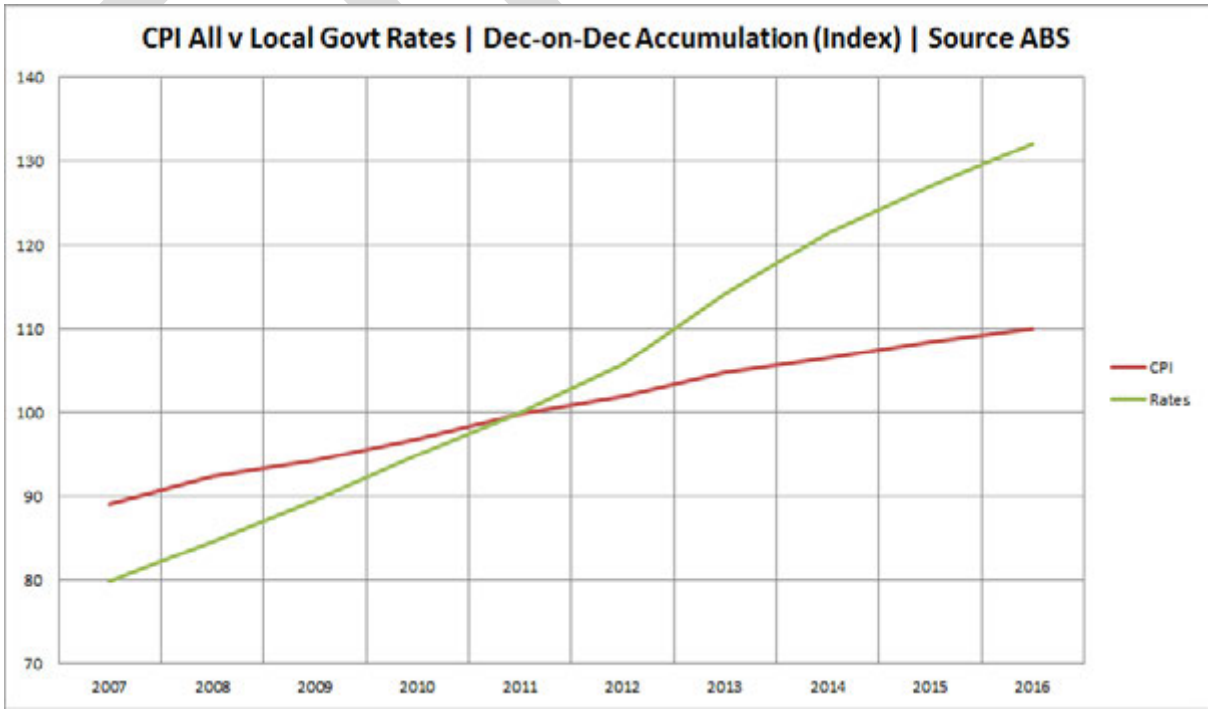


Drivers: Taxation

Money inflation causes price inflation as well as facilitates government inflation like taxation. Taxation inflation adds to price inflation mainly through reducing supply and competition.

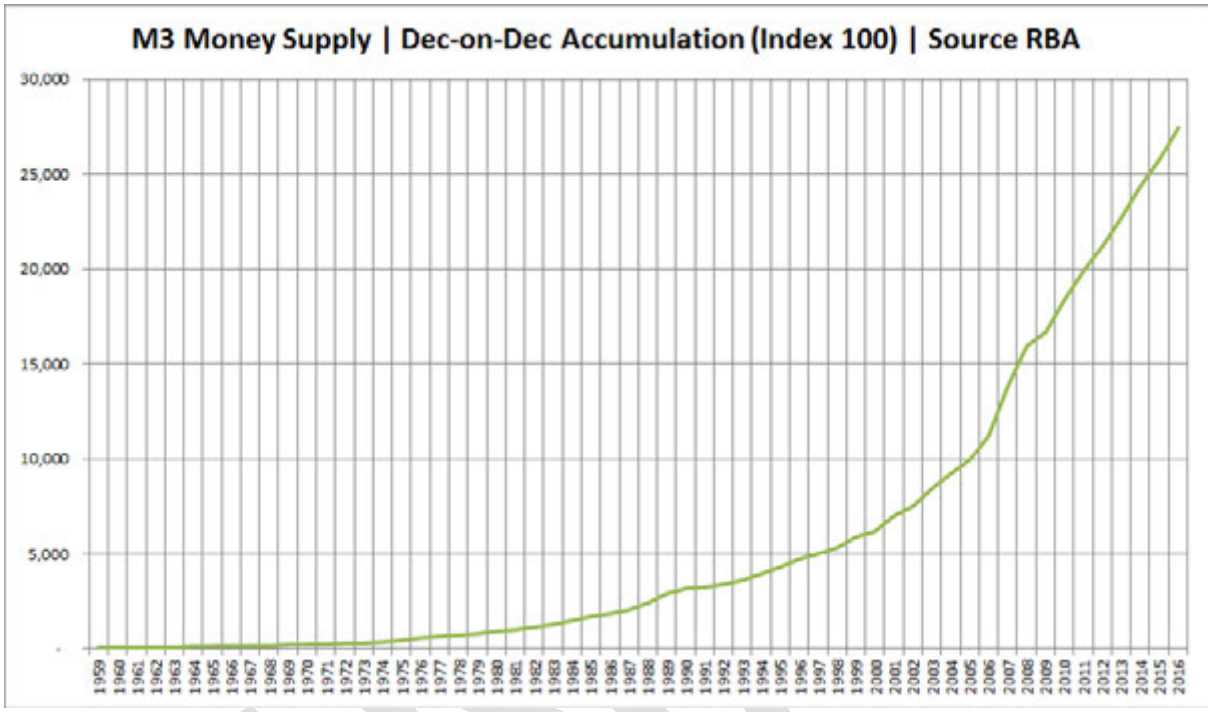


Local government taxation, ie rates, is often overlooked. It too is growing like topsy – ie rates inflation.

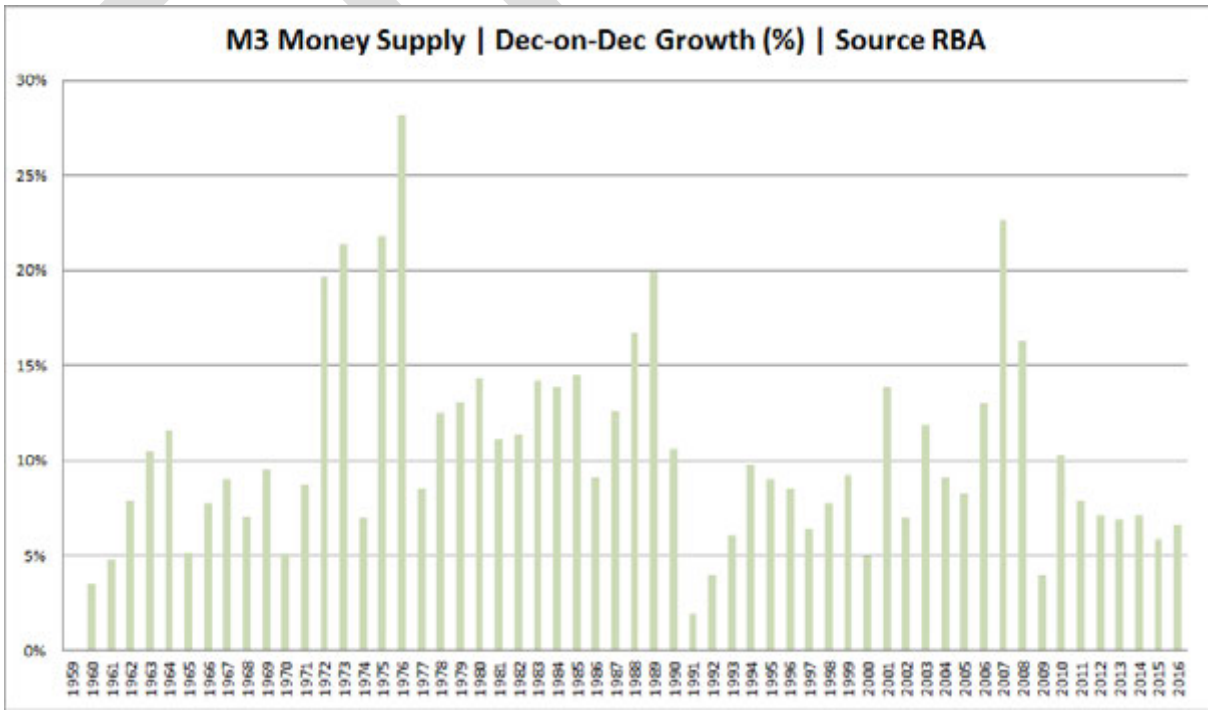


Drivers: Money

M3, according to many of the best economists, is the key measure of money supply. It essentially includes most of the domestic currency (from the RBA) plus bank deposits (from the Big-5 banks).

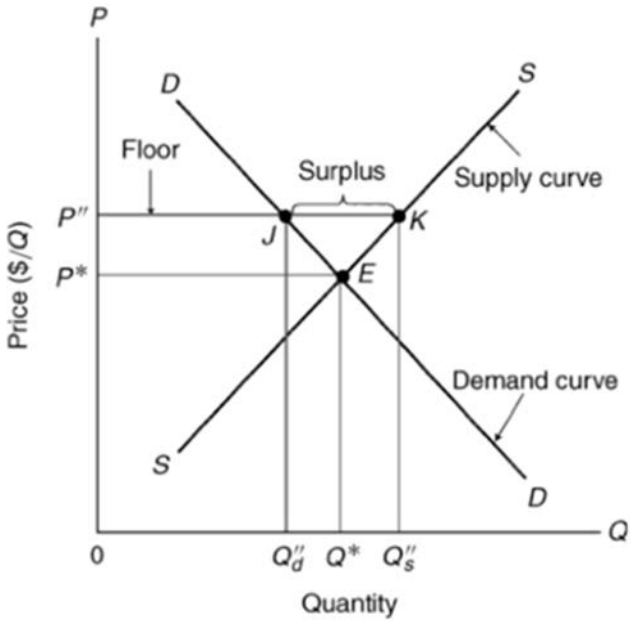


Money inflation, as measured by say M3, is the key to properly understanding poor Australian economic performance – ie wealth-jobs-creation (eg GDP) minus the cost-of-living (eg CPI).



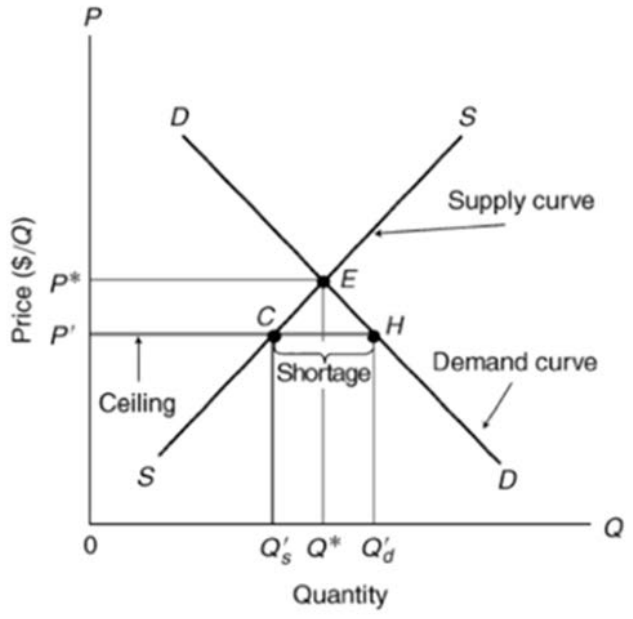
Causes: Regulation

Some government regulation, like a minimum price (wage) floor aimed at businesses (labour), distorts the free market causing not just a rise in P but a surplus in Q. This puts upward pressure on economy P inflation, over time, through cost Q inflation in this market.



Panel (b): An effective price floor

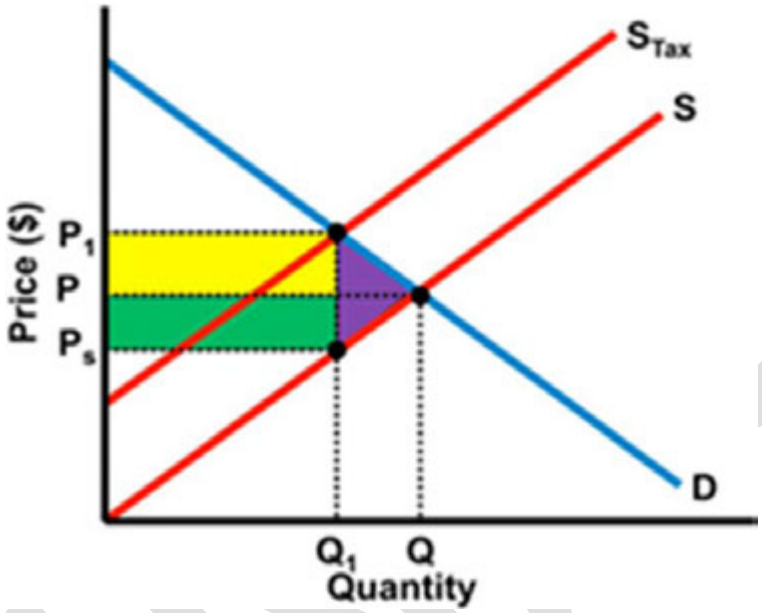
Other government regulation, like a maximum price (cost) ceiling aimed at households (capital or land), distorts the free market causing not just a fall in P but a shortage in Q. This also puts upward pressure on economy P inflation, over time, through cost Q inflation in related markets.



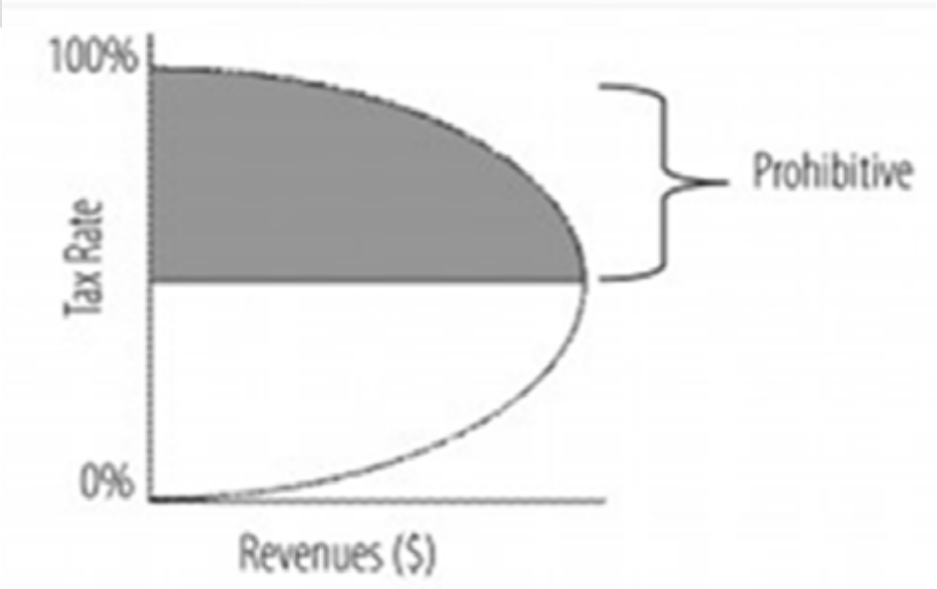
Panel (a): An effective price ceiling

Causes: Taxation

An 'iron law' of economics is that, if government taxes something then less of it will be supplied and consumed. The reduced Q and resulting higher P will harm both the relevant businesses and households through reduced producer profit (green) and consumer surplus (yellow). This also puts upward pressure on economy P inflation, over time, in this and related markets.



As per the Laffer Curve effect: a significant hike in the rate of taxation will bring in much less government revenue than predicted statically and linearly; and conversely a significant cut in the rate of taxation will bring in much more.



Causes: Money

The purchasing power of money (PPM) is the inverse of the overall level of P, say as measured by CPI or M3. In mathematical terms: PPM = 1 / P.

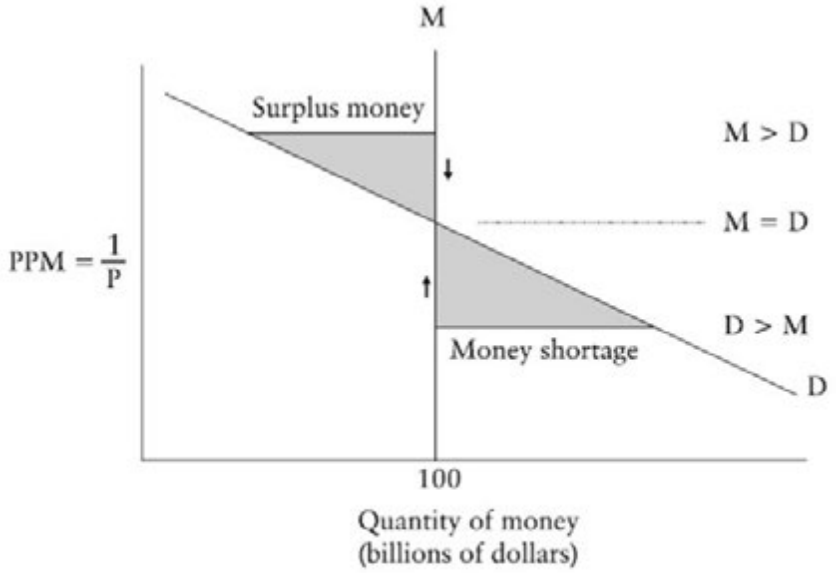


FIGURE 3.3 —DETERMINATION OF THE PURCHASING POWER OF MONEY

In a 'nut shell', money inflation leads to PPM deflation which is P inflation – ie the cost-of-living rises as does the cost-of-doing-business. This is made worse by the inevitable government inflation that goes hand-in-hand with it.

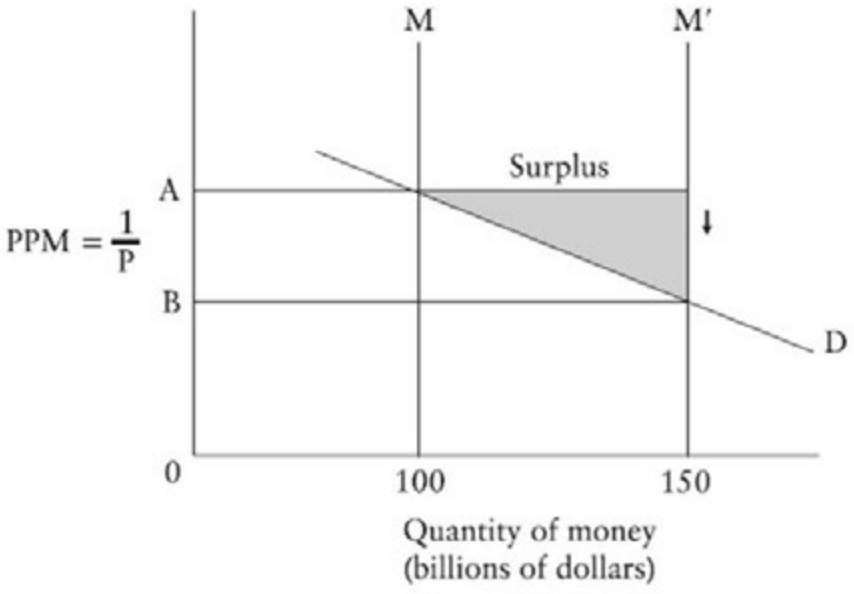


FIGURE 3.4 — INCREASE IN THE SUPPLY OF MONEY

Appendix III: Banking T-Accounts

The **preeminent economist Murray Rothbard** released his book *The Mystery of Banking* in 1983. As former head of the Mises Institute, Douglas French, wrote in the Preface to this book: "[It] continues to be the only book that clearly and concisely explains the modern fractional reserve banking system, its origins, and its devastating effects on the lives of every man, woman, and child." Professor Joseph Salerno added in the Forward to this book: "It is 'institutional economics' at its best. In this book, the institution under scrutiny is central banking as historically embodied in the Federal Reserve System—the 'Fed' for short—the central bank of the United States."

Murray Rothbard in his book *The Mystery of Banking* made heavy use of **T-accounts** to illustrate loan banking, deposit banking, fractional reserve banking, free banking, central banking, money supply, market banking, government banking and reformed banking. As he wrote in this book: "A must in making any sense whatever out of the banking system is to become familiar with the common accounting device of the T-account, or balance sheet. [This] is a product of one of the most important inventions of modern civilization: double-entry bookkeeping, which came to Renaissance Italy from the Arab civilization of North Africa. Before double-entry bookkeeping, business firms kept single-entry books, which were simply running accounts of expenditures, income, and so on. They found it impossible to know where they had made mistakes, and therefore could not try to correct them. Double-entry bookkeeping, on the other hand, often means that any entry on one side of the ledger must immediately, and automatically, be balanced by an entry on the other side, the totals of which must be identical. It then becomes relatively easy to find out where the totals do not balance, and therefore where the error has occurred. While the concept of double-entry bookkeeping was established during the Renaissance, the familiar T-account balance sheet was formalized only at the start of the 'classical' period of modern accounting, that is, the late nineteenth century."

Professor Rothbard explained: "In particular, the originator of the **Asset = Liability + Equity** equation was the distinguished American accountant, Charles Sprague, who conceived the idea in 1880 and continued to advance the idea until after the turn of the century. On the T-account balance sheet, the left side is the monetary valuation, at any given time, of the total assets of the business firm. This side is, appropriately enough, labeled 'Assets'. On the right side we have the total amount of assets owned by one or more owners. In short, any and all assets must be owned by someone, so that if we add up the assets owned by A, B, C . . . etc, they should yield a total identical to the total sum of the assets. Some assets are owned in fact by the owner or owners of the firm ('Equity'). Others are owed to, and therefore in an economic sense claimed or owned by, various creditors of the firm ('Liabilities'). So that, as total assets are apportioned among the various owners or claimants, the total of the right column, 'Equity plus Liabilities', must precisely equal the total 'Assets' on the left side."

Rothbard's T-account illustrations from *The Mystery of Banking* are **extracted word-for-word below** in order to properly understand central and fractional reserve banking wherever it occurs, be it in the USA or Australia or in the city or the country.

Loan Banking

When one speaks of banks, there is a semantic problem, since the word bank covers several very different functions and activities. In particular, modern banking mixes and confuses two different operations with very different effects: loans and deposits. Let us first see how what we might call **loan banking** originated and what its relationship might be to the money supply and to inflation. Most people think of banks as institutions which channel their savings into productive loans and investments. Loan banking is essentially that healthy and productive process in operation.

Suppose that I have saved $10,000 and have decided to set up a loan business, or what we might call a loan bank. I set up the Rothbard Loan Company. The balance sheet of the new company is now as follows (**Figure 6.1**). The T-account shows that the assets of the Rothbard Loan Company are now $10,000 in cash, and that I own these assets. Total assets are precisely equal to total assets owned.

Assets		Equity & Liabilities	
Cash	$10,000		
		Equity	
		Rothbard	$10,000
Total	$10,000	Total	$10,000

FIGURE 6.1 — STARTING THE LOAN BANK

Suppose that I now lend $9,000 to Joe's Diner for a new counter, keeping $1,000 as a cash reserve. Joe borrows $9,000 at 10 percent interest, promising to pay me back $9,900 in one year's time. In short, I give Joe $9,000, in return for which he gives me an IOU for $9,900 for one year in the future. My asset is now an IOU from Joe to be realized in the future. The balance sheet of the Rothbard Loan Company is now as follows (**Figure 6.2**). My assets have now happily grown, at least in anticipation. Total assets and equity are now $10,900. What, in all of this, has happened to the total supply of money so far? The answer is, nothing.

Assets		Equity & Liabilities	
Cash	$1,000		
IOU from Joe	9,900		
		Equity	
		Rothbard	$10,900
Total	$10,900	Total	$10,900

FIGURE 6.2 — MAKING A LOAN

Let us now see what happens one year later when Joe repays the $9,900. The IOU is canceled, and I now have in cash the loan paid back plus interest (**Figure 6.3**). The loan is repaid, and my firm, and therefore myself, is $900 richer. But, once again, there has been no increase in society's stock of money. For in order to pay back the loan, Joe had to save $900 out of profits. Again, Joe and I are transferring to each other the ownership of existing cash balances which we have saved by not consuming. My loan bank has channeled savings into loans, the loans have been repaid, and at no point has the money supply increased. Joe anticipates having higher income or lower expenditures next year, enabling him to pay back the loan with interest. In this case, he is not so much making a monetary profit from the loan as rearranging the time pattern of his expenditures, paying a premium for the use of money now rather than having to wait to buy the car. Credit, and loan banking, is productive, benefits both the saver and the borrower, and causes no inflationary increase in the money supply.

Assets		Equity & Liabilities	
Cash	$10,900		
		Equity	
		Rothbard	$10,900
Total	$10,900	Total	$10,900

FIGURE 6.3 — THE LOAN AS PAID

Suppose now that my loan bank is flourishing and I expand the firm by taking in a partner, my brother-in-law, who contributes another $10,900 in cash to the firm. The Rothbard Loan

Bank now looks as follows (**Figure 6.4**). Total assets, and total assets owned, have grown equally and accordingly. Once again, there has been no increase in the stock of money, for my brother-in-law has simply saved $10,900 from the existing supply, and invested it.

Assets		Equity & Liabilities	
Cash	$21,800		
		Equity	
		Rothbard	$10,900
		Brother-in-law	10,900
Total	$21,800	Total	$21,800

FIGURE 6.4 — EXPANDING BANK EQUITY

As the loan bank expands, we might decide to keep raising capital by expanding the number of partners, or perhaps by converting to a joint-stock company (legally, a corporation), which issues low-denomination stock and can thereby tap the savings of small investors. Thus, we might set up the Rothbard Loan Bank Corporation, which sells 10,000 shares at $10 apiece, and thereby accumulates $100,000 for making loans. Assume that $95,000 is loaned out and $5,000 kept in cash. The balance sheet of the Rothbard Loan Bank Corporation would now be as shown (**Figure 6.5**). Note that there has been no increase in the supply of money, and therefore no impetus toward inflation.

Assets		Equity & Liabilities	
Cash	$ 5,000		
IOUs	$ 95,000		
		Equity	
		Shareholders	$100,000
Total	$100,000	Total	$21,800

FIGURE 6.5 — BANK GOING PUBLIC

Let us now expand the bank further. Let us assume that the Rothbard Bank issues $50,000 worth of bonds, and sells them on the bond market. The bonds are to be repaid in 20 years,

paying 10 percent per year on their face value. Now $50,000 in cash is added to the bank's coffers. We can also sell certificates of deposit, a relatively new banking instrument in which the owner of the certificate, Jones, buys a certificate worth $20,000 for six months, at 10 percent interest. In effect, Jones lends the Rothbard bank $20,000 in exchange for the bank's IOU that it will repay Jones $21,000 in six months' time. The Rothbard Bank borrows these moneys because it expects to be able to lend the new cash at a greater than 10 percent rate, thus earning a profit differential between the interest it pays out and the interest it earns. Suppose it is able to lend the new money at 15 percent interest, thereby making a profit of 5 percent on these transactions. If its administrative expenses of operation are, say, 2 percent, it is able to make a 3 percent profit on the entire transaction. The new balance sheet of the Rothbard Bank, after it has issued $50,000 worth of long-term bonds, and sold a $20,000 short-term certificate of deposit to Jones, looks like this (**Figure 6.6**). The balance sheet of the Rothbard Bank has now become far more complex. The assets, cash and IOUs are owned or claimed by a combination of people: by the legal owners, or equity, and by those who have money claims on the bank. In the economic sense, the legal owners and the creditors jointly own part of the Rothbard Bank, because they have joint claims on the bank's assets. To the shareholders' invested $100,000 are now added $50,000 borrowed from bondholders and a $20,000 CD (certificate of deposit) sold to Jones.

Assets		Equity & Liabilities	
		Liabilities	
Cash	$75,000	Bonds	$50,000
IOUs	$95,000	Certificate of deposit to Jones	$20,000
		Total	$70,000
		Equity	
		Shareholders	$100,000
Total	$170,000	Total	$170,000

FIGURE 6.6 — BANK ISSUING DEBENTURES

Once again, of course, the Rothbard Bank takes the newly acquired cash and lends it for further IOUs, so that the balance sheet now looks like (**Figure 6.7**). The Rothbard Bank is now doing exactly what most people think banks always do: borrowing money from some (in addition to investing the savings of the owners) and lending money to others. The bank makes money on the interest differential because it is performing the important social service of channeling the borrowed savings of many people into productive loans and investments. The bank is expert on where its loans should be made and to whom, and reaps the reward for

this service. Note that there has still been no inflationary action by the loan bank. No matter how large it grows, it is still only tapping savings from the existing money stock and lending that money to others.

If the bank makes unsound loans and goes **bankrupt**, then, as in any kind of insolvency, its shareholders and creditors will suffer losses. This sort of bankruptcy is little different from any other: unwise management or poor entrepreneurship will have caused harm to owners and creditors.

Assets		Equity & Liabilities	
		Liabilities	
Cash	$5,000	Bonds	$50,000
IOUs	$165,000	CD	$20,000
		Total	$70,000
		Equity	
		Shareholders	$100,000
Total	$170,000	Total	$170,000

FIGURE 6.7 — BANK LENDING BORROWED FUNDS

Deposit Banking

Let us assume we now have a Rothbard Deposit Bank. It opens for business and receives a deposit of $50,000 of gold from Jones, for which Jones receives a warehouse receipt which he may redeem on demand at any time. The balance sheet of the Rothbard Deposit Bank is now as shown (**Figure 7.1**). Fifty thousand dollars' worth of gold has simply been deposited in a bank, after which the warehouse receipts circulate from hand to hand or from bank to bank as a surrogate for the gold in question. No fraud has been committed and no inflationary impetus has occurred, because the Rothbard Bank is still backing all of its warehouse receipts by gold or cash in its vaults. The amount of cash kept in the bank's vaults ready for instant redemption is called its reserves. Hence, this form of honest, non-inflationary deposit banking is called "100 percent reserve banking," because the bank keeps all of its receipts backed fully by gold or cash. The fraction to be considered is Reserves / Warehouse Receipts and in our example the fraction is $50,000 / $50,000 or 100 percent. Note, too, that regardless of how much gold is deposited in the banks, the total money supply remains precisely the same so long as each bank observes the 100 percent rule. Only the form of the money will change, not its total amount or its significance.

The Rothbard Deposit Bank

Assets		Equity & Liabilities	
Gold coin or bullion	$50,000	Warehouse receipts for gold	$50,000
Total Assets	$50,000	Total Liabilities	$50,000

FIGURE 7.1 — A DEPOSIT BANK

Through the centuries, there have been two basic forms of money warehouse receipts. The first, the most obvious, is the written receipt, a piece of paper on which the deposit bank promises to pay to the bearer a certain amount of cash in gold or silver (or in government paper money). This written form of warehouse receipt is called the **bank note**. The bank note has always been the basic form of warehouse receipt used by the mass of the public. Later, however, there emerged another form of warehouse receipt used by large merchants and other sophisticated depositors. Instead of a tangible receipt, the bank simply opened a deposit account on its books. Thus, if Jones deposited $10,000 in a bank, he received, if he wished, not tangible bank notes, but an open book account or deposit account for $10,000 on the bank's books. The bank's demand debt to Jones was not in the form of a piece of paper but of an intangible book account which could be redeemed at any time in cash. Confusingly, these open book accounts came to be called **demand deposits**, even though the tangible bank note was just as much a demand deposit from an economic or a legal point of view. When used in exchange, instead of being transferred physically as in the case of a bank note, the depositor, Jones, would write out an order, directing the bank to transfer his book account to, say, Brown. Economically, then, the demand deposit and the tangible bank note are simply different technological forms of the same thing: a demand receipt for cash at the money warehouse. Each form will tend to have its own technological advantages and disadvantages on the market.

Thus, suppose that Jones has a deposit account of $10,000 at the Rothbard Bank. Suppose now that Jones buys a hi-fi set from Brown for $3,000. Jones writes out an order to the bank, directing it to transfer $3,000 from his open book account to that of Brown. This written instrument is, of course, called a check. Note that the check itself is not functioning as a money surrogate here. The check is simply a written order transferring the demand deposit from one person to another. The demand deposit, not the check, functions as money, for the former is a warehouse receipt (albeit unwritten) for money or cash. The Rothbard Bank's balance sheet is now as follows (**Figure 7.5**). Note that from this purchase of a hi-fi set, nothing has changed in the total money supply in the country. The bank was and still is pursuing a 100 percent reserve policy; all of its demand liabilities are still covered or backed 100 percent by cash in its vaults. There is no fraud and no inflation.

The Rothbard Bank

Assets		Equity & Liabilities	
Gold	$10,000	Demand deposits	
		to Jones	$7,000
		to Brown	$3,000
Total Assets	$10,000	Total Liabilities	$10,000

FIGURE 7.5 — TRANSFERRING DEMAND DEPOSITS

Deposit banking began as a totally different institution from loan banking. Hence it was unfortunate that the same name, bank, became attached to both. If loan banking was a way of channeling savings into productive loans to earn interest, deposit banking arose to serve the convenience of the holders of gold and silver. Owners of gold bullion did not wish to keep it at home or office and suffer the risk of theft; far better to store the gold in a safe place. Similarly, holders of gold coin found the metal often heavy and inconvenient to carry, and needed a place for safekeeping. These deposit banks functioned very much as safe-deposit boxes do today: as safe "money warehouses." As in the case of any warehouse, the depositor placed his goods on deposit or in trust at the warehouse, and in return received a ticket (or warehouse receipt) stating that he could redeem his goods whenever he presented the ticket at the warehouse. In short, his ticket or receipt or claim check was to be instantly redeemable on demand at the warehouse. Originally, in order to use his gold for exchange, the depositor would have to redeem his deposit and then turn the gold over to someone else in exchange for a good or service. But over the decades, one or more money warehouses, or deposit banks, gained a reputation for probity and honesty. Their warehouse receipts then began to be transferred directly as a surrogate for the gold coin itself. The warehouse receipts were scrip for the real thing, in which metal they could be redeemed. They functioned as "gold certificates." How can deposit banks charge for this important service? In the same way as any warehouse or safe-deposit box: by charging a fee in proportion to the time that the deposit remains in the bank vaults.

In deposit banking, I am only keeping the gold there for safekeeping and therefore I am legally and morally entitled to redeem it any time I please. I am not therefore the bank's "creditor"; it doesn't owe me money which I may some day collect. Hence, there is no debt to show up on the Equity + Liability side of the ledger. Legally, the entire transaction is not a loan but a **bailment**, hiring someone for the safekeeping of valuables. In a loan, or a credit transaction, the creditor exchanges a present good—that is, a good available for use at any time in the present—for a future good, an IOU redeemable at some date in the future. Since present goods are more valuable than future goods, the creditor will invariably charge, and the debtor pay, an interest premium for the loan. The hallmark of a loan, then, is that the money is due at some future date and that the debtor pays the creditor interest. But the deposit, or claim transaction, is precisely the opposite. The money must be paid by the bank

at any time the depositor presents the ticket, and not at some precise date in the future. And the bank—the alleged "borrower" of the money—generally does not pay the depositor for making the loan. Often, it is the depositor who pays the bank for the service of safeguarding his valuables.

The first fateful case was decided in 1811, in *Carr v. Carr*. The court had to decide whether the term "debts" mentioned in a will included a cash balance in a bank deposit account. Unfortunately, Master of the Rolls Sir William Grant ruled that it did. Grant maintained that since the money had been paid generally into the bank, and was not earmarked in a sealed bag, it had become a **loan** rather **than** a **bailment**. Five years later, in the key follow-up case of *Devaynes v. Noble*, one of the counsel argued, correctly, that "a banker is rather a bailee of his customer's funds than his debtor . . . because the money in . . . [his] hands is rather a deposit than a debt, and may therefore be instantly demanded and taken up." But the same Judge Grant again insisted—in contrast to what would be happening later in grain warehouse law—that "money paid into a banker's becomes immediately a part of his general assets; and he is merely a debtor for the amount." The classic case occurred in 1848 in the House of Lords, in *Foley v. Hill and Others*. Asserting that the bank customer is only its creditor, "with a superadded obligation arising out of the custom of the bankers to honour the customer's cheques," Lord Cottenham made his decision, lucidly if incorrectly and even disastrously: "Money, when paid into a bank, ceases altogether to be the money of the principal; it is then the money of the banker, who is bound to an equivalent by paying a similar sum to that deposited with him when he is asked for it. . . . The money placed in the custody of a banker is, to all intents and purposes, the money of the banker, to do with it as he pleases; he is guilty of no breach of trust in employing it; he is not answerable to the principal if he puts it into jeopardy, if he engages in a hazardous speculation; he is not bound to keep it or deal with it as the property of his principal; but he is, of course, answerable for the amount, because he has contracted." Thus, the banks, in this astonishing decision, were given *carte blanche*. To *Foley* and the previous decisions must be ascribed the major share of the blame for our fraudulent system of fractional reserve banking and for the disastrous inflations of the past two centuries.

Fractional Reserve Banking

The Rothbard Bank, having had $50,000 of gold coin deposited in it, now issues $80,000 of fraudulent warehouse receipts and lends them to Smith, expecting to be repaid the $80,000 plus interest (**Figure 7.2**). The Rothbard Bank has issued $80,000 of fake warehouse receipts which it lends to Smith, thus increasing the total money supply from $50,000 to $130,000. The money supply has increased by the precise amount of the credit—$80,000—expanded by the fractional reserve bank. Money in circulation has increased by the amount of warehouse receipts issued beyond the supply of gold in the bank. Gold coin in the amount of $50,000 formerly in circulation has now been replaced by $130,000 of warehouse receipts. One hundred percent reserve banking has been replaced by fractional reserves, the fraction being $50,000 / $130,000 or 5/13. At the same time, the original depositor thinks that his warehouse receipts are represented by money available at any time he wishes to cash them in.

Here we have the system of **fractional reserve banking**, in which more than one warehouse receipt is backed by the same amount of gold or other cash in the bank's vaults. Where did

the money come from? It came—and this is the most important single thing to know about modern banking—it came out of thin air. Fractional reserve banks create money out of thin air (ie it is a Ponzi scheme). Another way of looking at the essential and inherent unsoundness of fractional reserve banking is to note a crucial rule of sound financial management—one that is observed everywhere except in the banking business. Namely, that the time structure of the firm's assets should be no longer than the time structure of its liabilities. As the new money pours into the system and ripples outward, demand curves for particular goods or services are increased along the way, and prices are increased as well. The more extensive the spread of bank credit, and the more new money is pumped out, the greater will be its effect in raising prices. The early receivers from the new money benefit at the expense of the late receivers—and still more, of those who never receive the new money at all. The earliest receivers—the bank and Smith—benefit most, and, like a hidden tax, the late receivers are fraudulently despoiled of their rightful resources. Thus, fractional reserve banking is inflationary and aids some at the expense of others.

The Rothbard Bank

Assets		Equity & Liabilities	
Gold coin	$50,000	Warehouse receipts	
IOU from Smith	$80,000	for gold	$130,000
Total Assets	$130,000	Total Liabilities	$130,000

FIGURE 7.2 — FRACTIONAL RESERVE BANKING

It should be clear that for the purpose of analyzing fractional reserve banking, it doesn't make any difference what is considered money or cash in the society, whether it be gold, tobacco, or even government fiat paper money. The technique of pyramiding by the banks remains the same. Thus, suppose that now gold has been outlawed, and cash or legal tender money consists of dollars printed by the central government. The process of pyramiding remains the same, except that the base of the pyramid is paper dollars instead of gold coin. Our Rothbard Bank which receives $50,000 of government paper money on deposit (**Figure 7.3**), then proceeds to pyramid $80,000 on top of it by issuing fake warehouse receipts. Just as in the gold case, the total money supply has increased from $50,000 to $130,000, consisting precisely in the issue of new warehouse receipts, and in the credit expanded by the fractional reserve bank.

The Rothbard Bank

Assets		Equity & Liabilities	
Gold coin	$50,000	Warehouse receipts	
IOU from Smith	$80,000	to cash	$130,000
Total Assets	$130,000	Total Liabilities	$130,000

FIGURE 7.3 — FRACTIONAL RESERVE BANKING (PAPER)

Suppose that the loan to Smith of $80,000 was for a two-year period. At the end of the two years, Smith is supposed to return the $80,000 plus interest. But when Smith pays the $80,000 (forgetting about the interest payment to keep things simple), he will very likely pay in Rothbard Bank warehouse receipts, which are then canceled. The repayment of the $80,000 loan means that $80,000 in fake warehouse receipts has been canceled, and the money supply has now contracted back to the original $50,000. After the repayment, the balance sheet of the Rothbard Bank will be as follows (**Figure 7.4**).

If the money supply contracts, this means that there is deflationary pressure on prices, and prices will contract, in a similar kind of ripple effect as in the preceding expansion. If banks have to contract suddenly, they will put pressure on their borrowers, try to call in or will refuse to renew their loans, and the deflationary pressure will bring about a recession—the successor to the inflationary boom. Thus, bank credit is subject to contraction as well as expansion. But fractional reserve bank credit expansion is always shaky, for the more extensive its inflationary creation of new money, the more likely it will be to suffer contraction and subsequent deflation. For every **business cycle** is marked, and even ignited, by inflationary expansions of bank credit. The basic model of the business cycle then becomes evident: bank credit expansion raises prices and causes a seeming boom situation, but a boom based on a hidden fraudulent tax on the late receivers of money. The greater the inflation, the more the banks will be sitting ducks, and the more likely will there be a subsequent credit contraction touching off liquidation of credit and investments, bankruptcies, and deflationary price declines.

The Rothbard Bank

Assets		Equity & Liabilities	
Cash	$50,000	Warehouse receipts to cash	$50,000
Total Assets	$50,000	Total Liabilities	$50,000

FIGURE 7.4 — REPAYMENT OF BANK LOANS

Our hypothetical Jones Bank (**Figure 7.6**) has a stockholders' equity of $200,000, warehouse receipts of $1.8 million distributed as $1 million of bank notes and $800,000 of demand deposits, cash in the vault of $300,000, and IOUs outstanding from borrowers of $1.7 million. Total assets, and total equity and liabilities, each equal $2 million. The crucial point is that the Jones Bank has demand liabilities, instantly payable on presentation of the note or deposit, totalling $1.8 million, whereas cash in the vault ready to meet these obligations is only $300,000. The Jones Bank is engaging in fractional reserve banking, with the fraction being $300,000 / $1,800,000 or 1/6. Or, looking at it another way, we can say that the invested stockholder equity of $200,000 is invested in loans, while the other $1.5 million of assets have been loaned out by the creation of fraudulent warehouse receipts for money.

Jones Bank

Assets		Equity & Liabilities	
IOUs from borrowers	$1,700,000	Demand Liabilities:	
Cash	$300,000	Notes	$1,000,000
		Deposits	$800,000
		Total	$1,800,000
		Equity	$200,000
Total Assets	$2,000,000	Total Liabilities	$2,000,000

FIGURE 7.6 — MIXED LOAN AND DEPOSIT BANK

The Jones Bank could increase its equity by a certain amount, or borrow money by issuing bonds, and then invest them in extra loans, but these legitimate loan operations would not affect the 1/6 fraction, or the amount of fraudulent warehouse receipts outstanding. Suppose, for example, that stockholders invest another $500,000 in the Jones Bank, and that this cash is then loaned to various borrowers. The balance sheet of the Jones Bank would now appear as shown (**Figure 7.7**). Thus, while the Jones Bank has extended its credit, and its new extension of $500,000 of assets and liabilities is legitimate, productive and noninflationary, its inflationary issue of $1,500,000 continues in place, as does its fractional reserve of 1/6.

Jones Bank

Assets		Equity & Liabilities	
IOUs from borrowers	$2,200,000	Demand Liabilities: Notes	$1,000,000
Cash	$300,000	Deposits	$800,000
		Total	$1,800,000
		Equity	$700,000
Total Assets	$2,500,000	Total Liabilities	$2,500,000

FIGURE 7.7 — FRACTIONAL RESERVE IN A MIXED BANK

Free Banking

Let us hark back to Figures 7.2 and 7.3 where the Rothbard Bank has had $50,000 of gold coin or government paper deposited in it, and then proceeded to pyramid on top of that $50,000 by issuing $80,000 more of fake warehouse receipts and lending them out to Smith. The Rothbard Bank has thereby increased the money supply in its own bailiwick from $50,000 to $130,000, and its fractional reserve has fallen from 100 percent to 5/13. But what does Smith do with his $80,000 of new money? Smith spends it on more equipment or labor or on more consumer goods. But what happens to the credit status of the money? That depends crucially on whether or not the person Smith spends the money on is himself a customer of the Rothbard Bank. Let us assume (**Figure 8.1**) that Smith takes the new receipts and spends them on equipment made by Jones, and that Jones, too, is a client of the Rothbard Bank. To simplify, let us assume that the loan to Smith was in the form of demand deposits. Thus, total liabilities, or demand deposits, remain what they were after the immediate loan to Smith. Fifty thousand dollars is owed to the original depositors of gold (and/or to people who sold goods or services to the original depositors for gold); Smith has written a check for his $80,000 for the purchase of equipment from Jones, and Jones is now the claimant for the $80,000 of demand deposits. Total demand deposits for the Rothbard Bank have remained the same. Moreover, all that has happened, from the Rothbard Bank's point of view, is that

deposits have been shuffled around from one of its clients to another. So long, then, as confidence is retained by its depositors in the Rothbard Bank, it can continue to expand its operations and its part of the money supply with impunity. In a freely competitive banking system, there is no guarantee—indeed not even a likelihood—that Jones, or the person whom Jones will spend the money on, will himself be a client of the Rothbard Bank.

The Rothbard Bank

Assets		Equity & Liabilities	
Gold	$50,000	Demand deposits:	
IOU from Smith	$80,000	to Smith	$0
		to Jones	$80,000
		to Others	$50,000
Total Assets	$130,000	Total demand deposits	$130,000

FIGURE 8.1 — A BANK WITH MANY CLIENTS

Suppose, then, that Jones is not a client of the Rothbard Bank. What then? Smith gives a check (or a note) to Jones for the equipment for $80,000. Jones, not being a client of the Rothbard Bank, will therefore call upon the Rothbard Bank for redemption. But the Rothbard Bank doesn't have the money; it has only $50,000; it is $30,000 short, and therefore the Rothbard Bank is now bankrupt, out of business. To show how this process works (**Figure 8.2**), we assume that Jones's account is in the Boonville Bank. Thus, we see that dynamically from this transaction, the Boonville Bank finds itself with an increased demand deposit owed to Jones of $80,000, balanced by a check on the Rothbard Bank for $80,000. When it cashes the check for redemption, it puts such a severe redemption pressure on the Rothbard Bank that the latter goes bankrupt. Why should the Boonville Bank call upon the Rothbard Bank for redemption? The longer the Boonville Bank holds off on redemption the more money it loses. The banks either pay no interest on their demand deposits—the usual situation—or else the interest will be far lower than the interest they themselves can earn on their loans.

The beauty and power of this restraint on the banks is that it does not depend on loss of confidence in the banks. Smith, Jones, and everyone else can go on being blithely ignorant and trusting of the fractional reserve banking system. And yet the redemption weapon does its important work. For Jones calls on the Rothbard Bank for redemption, not because he doesn't trust the bank or thinks it is going to fail, but simply because he patronizes another bank and wants to shift his account to his preferred bank. The mere existence of **bank competition** will provide a powerful, continuing, day-to-day constraint on fractional reserve credit expansion. Free banking, even where fractional reserve banking is legal and not punished as fraud, will scarcely permit fractional reserve inflation to exist, much less to flourish and proliferate. Free banking, far from leading to inflationary chaos, will insure almost as hard and noninflationary a money as 100 percent reserve banking itself. Thus, from

the point of view of checking inflation, the more banks there are in a country, and therefore the smaller the clientele of each bank, the better.

Rothbard Bank			*Boonville Bank*	
Assets		Equity & Liabilities	Assets	Equity & Liabilities
Gold	$50,000	Demand deposits to Boonville $80,000 to Others $50,000		Demand deposit to Jones + $80,000
IOU from Smith	$80,000			
Total Assets		Total demand deposits $130,000	Due from Rothbard Bank $130,000	+ $80,000

FIGURE 8.2 — REDEMPTION BY ANOTHER BANK

Central Banking

The essential purpose of **central banking** is to use government privilege to remove the limitations placed by free banking on monetary and bank credit inflation. The Central Bank is either government-owned and operated, or else especially privileged by the central government. In any case, the Central Bank receives from the government the monopoly privilege for issuing bank notes or cash, while other, privately-owned commercial banks are only permitted to issue demand liabilities in the form of checking deposits. If the client of a commercial bank wants to cash in his deposits for paper money, he cannot then obtain notes from his own bank, for that bank is not permitted to issue them. His bank would have to obtain the paper money from the Central Bank. The bank could only obtain such Central Bank cash by buying it, that is, either by selling the Central Bank various assets it agrees to buy, or by drawing down its own checking account with the Central Bank. For we have to realize that the Central Bank is a bankers' bank. Just as the public keeps checking accounts with commercial banks, so all or at least most of them keep checking accounts with the Central Bank.

These checking accounts, or "demand deposits at the Central Bank," are drawn down to buy cash when the banks' own depositors demand redemption in cash. To see how this process works, let us take a commercial bank, the Martin Bank, which has an account at the Central Bank (**Figure 9.1**). In Figure 9.1, the Martin Bank is practicing fractional reserve banking. It has pyramided $5 million of warehouse receipts on top of $1 million of reserves. Its reserves consist of its checking account with the Central Bank, which are its own warehouse receipts for cash. Its fractional reserve is 1/5, so that it has pyramided 5:1 on top of its reserves.

Martin Bank

Assets		Equity & Liabilities	
IOUs	$4 million	Demand deposits	$5 million
Reserves = Demand deposits at Central Bank	$1 million		
Total Assets	$5 million		

FIGURE 9.1 — CENTRAL BANKING

Now suppose that depositors at the Martin Bank wish to redeem $500,000 of their demand deposits into cash. The only cash (assuming that they don't insist on gold) they can obtain is Central Bank notes. But to obtain them, the Martin Bank has to go to the Central Bank and draw down its account by $500,000. In that case, the transactions are as follows (**Figure 9.2**).

In a regime of **free banking**, the more frequently that bank clients desire to shift from deposits to notes need not cause any change in the total money supply. If the customers of the Martin Bank were simply willing to shift $500,000 of demand liabilities from deposits to notes (or vice versa), only the form of the bank's liabilities would change. But in this case, the need to go to the Central Bank to purchase notes means that Martin Bank reserves are drawn down by the same amount as its liabilities, which means that its fraction of reserves/deposits is lowered considerably. For now its reserves are $500,000 and its demand deposits $4.5 million, the fraction having fallen from 1/5 to 1/9. From the point of view of the Central Bank itself, however, nothing has changed except the form of its liabilities. It has $500,000 less owed to the Martin Bank in its demand deposits, and instead it has printed $500,000 of new Central Bank notes, which are now redeemable in gold to members of the public, who can cash them in through their banks or perhaps at the offices of the Central Bank itself. If nothing has changed for the Central Bank itself, neither has the total money supply changed. For in the country as a whole, there are now $500,000 less of Martin Bank deposits as part of the money supply, compensated by $500,000 more in Central Bank notes. Only the form, not the total amount, of money has changed. But this is only the immediate effect of the cashing in of bank deposits. For, as we have noted, the Martin Bank's fraction of reserves/deposits has been sharply lowered.

Martin Bank

Assets		Equity & Liabilities	
Demand deposits at Central Bank	$500,000	Demand deposits	$500,000

Central Bank

Assets		Equity & Liabilities	
		Demand deposits of Martin Bank	-$500,000
		Central Bank notes	+$500,000

FIGURE 9.2 — DRAWING DOWN RESERVES

Generally, under central banking, a bank will maintain a certain fraction of reserves/deposits, either because it is legally forced to do so, as it is in the United States, or because that is the custom based on market experience. (Such a custom will also prevail—at significantly far higher fractions—under free banking.) If the Martin Bank wishes to or must remain at a fraction of 1/5, it will meet this situation by sharply contracting its loans and selling its assets until the 1/5 fraction is restored. But if its reserves are now down to $500,000 from $1,000,000, it will then wish to contract its demand deposits outstanding from $4.5 million to $2.5 million. It will do so by failing to renew its loans, by rediscounting its IOUs to other financial institutions, and by selling its bonds and other assets on the market. In this way, by contracting its holding of IOUs and deposits, it will contract down to $2.5 million. The upshot is shown below (**Figure 9.3**). But this means that the Martin Bank has contracted its contribution to the total money supply of the country by $2.5 million. The Central Bank has $500,000 more in outstanding bank notes in the hands of the public, for a net decrease in the total money supply of $2 million.

Martin Bank

Assets		Equity & Liabilities	
IOUs	$2 million	Demand deposits	$2.5 million
Reserves at Central Bank	$500,000		
Total Assets	$2.5 million		

FIGURE 9.3 — ULTIMATE RESULT OF DRAWING DOWN RESERVES

In short, under central banking, a demand for cash—and the subsequent issue of new cash—has the paradoxical effect of lowering the money supply, because of the banks' need to maintain their reserve/deposit ratios. In contrast, the deposit of cash by the public will have the opposite inflationary effect, for the banks' reserve/deposit ratio will rise, and the banks will be able to expand their loans and issues of new deposits. Below (**Figure 9.4**) shows how this works. Let us take the original Martin Bank balance sheet of Figure 9.1. People decide to deposit $500,000 of their previously issued Central Bank notes and get the equivalent in checking accounts instead. The Martin Bank's balance sheet will change as follows.

Step 1: Martin Bank

Assets		Equity & Liabilities	
IOUs	$4 million	Demand deposits	$5.5 million
Central Bank notes	$500,000		
Demand deposits at Central Bank	$1 million		
Total Assets	$5.5 million		

FIGURE 9.4 — DEPOSITING CASH: PHASE I

But then, the Martin Bank will take this bonanza of cash and deposit it at the Central Bank, adding to its cherished account at the Central Bank, as shown below (**Figure 9.5**).

Step 2: Martin Bank

Assets		Equity & Liabilities	
IOUs	$4 million	Demand deposits	$5.5 million
Demand deposits at Central Bank	$1.5 million		
Total Assets	$5.5 million		

FIGURE 9.5 — DEPOSITING CASH: PHASE II

But now, in Step 3, the banks will undoubtedly try to maintain their preferred 1/5 ratio. After all, excess reserves beyond the legal or customary fraction is burning a hole in the bank's pocket; banks make money by creating new money and lending it out. After Step 2, the Martin Bank's fractional reserve ratio is $1.5 / $5.5, or a little over 27 percent, as compared to the preferred 20 percent. It will therefore expand its loans and issue new deposits until it is back down to its preferred 1/5 ratio. In short, it will pyramid 5:1 on top of its new total reserves of $1.5 million. The result will be Step 3 (**Figure 9.6**). The Martin Bank has expanded its contribution to the money supply by $2.5 million over its original $5 million.

Step 3: Martin Bank

Assets		Equity & Liabilities	
IOUs	$6 million	Demand deposits	$7.5 million
Demand deposits at Central Bank	$1.5 million		
Total Assets	$7.5 million		

FIGURE 9.6 — DEPOSITING CASH: PHASE III

As for the Central Bank, its own notes outstanding have declined by $500,000. This amount was received in cash from the Martin Bank, and the Martin Bank account at the Central Bank is credited by an increased $500,000 in return. The Central Bank notes themselves were simply retired and burned, since these obligations were returned to their issuer. The Central Bank balance sheet has changed as follows (**Figure 9.7**). Thus, as a result of $500,000 of cash being deposited in the banks by the public, the Martin Bank has created $2.5 million in new bank deposits, the Central Bank has decreased its notes outstanding by $500,000, and the net result is a $2 million increase in the money supply. Again, paradoxically, a drop in paper

money outstanding has led to a multiple expansion in the supply of money (paper money + bank demand deposits) in the country.

Central Bank

Assets		Equity & Liabilities
	Demand deposits of Martin Bank	+$500,000
	Central Bank notes	– $500,000

FIGURE 9.7 — DEPOSITING CASH: THE CENTRAL BANK

Money Supply

To understand chronic inflation and, in general, to learn what determines prices and why they change, we must now focus on the behavior of the two basic causal factors: the **supply** of and the **demand** for **money**. The supply of money is the total number of currency units in the economy. Originally, when each currency unit was defined strictly as a certain weight of gold or silver, the name and the weight were simply interchangeable. Thus, if there are $100 billion in the economy, and the dollar is defined as 1/20 of a gold ounce, then M can be equally considered to be $100 billion or 5 billion gold ounces. As monetary standards became lightened and debased by governments, however, the money supply increased as the same number of gold ounces were represented by an increased supply of dollars.

Apart from questions of distribution, an increase of consumer goods, or of productive resources, clearly confers a net social benefit. For consumer goods are consumed, used up, in the process of consumption, while capital and natural resources are used up in the process of production. Overall, then, the more consumer goods or capital goods or natural resources the better. But money is uniquely different. For money is never used up, in consumption or production, despite the fact that it is indispensable to the production and exchange of goods. Money is simply transferred from one person's assets to another. Unlike consumer or capital goods, we cannot say that the **more money** in **circulation** the better.

To show why an increase in the money supply confers **no social benefits**, let us picture to ourselves what I call the "Angel Gabriel" model. The Angel Gabriel is a benevolent spirit who wishes only the best for mankind, but unfortunately knows nothing about economics. He hears mankind constantly complaining about a lack of money, so he decides to intervene and do something about it. And so overnight, while all of us are sleeping, the Angel Gabriel descends and magically doubles everyone's stock of money. In the morning, when we all wake up, we find that the amount of money we had in our wallets, purses, safes, and bank accounts has doubled. What will be the reaction? Every person will consider that he is now twice as well off, since his money stock has doubled. Everyone rushes out to spend their new surplus cash balances. But, as they rush to spend the money, all that happens is that demand

curves for all goods and services rise. Society is no better off than before, since real resources, labor, capital, goods, natural resources, productivity, have not changed at all. And so prices will, overall, approximately double, and people will find that they are not really any better off than they were before. Their cash balances have doubled, but so have prices, and so their purchasing power remains the same. Because he knew no economics, the Angel Gabriel's gift to mankind has turned to ashes. But let us note something important for our later analysis of the real world processes of inflation and monetary expansion. It is not true that no one is better off from the Angel Gabriel's doubling of the supply of money. Those lucky folks who rushed out the next morning, just as the stores were opening, managed to spend their increased cash before prices had a chance to rise; they certainly benefited. Those people, on the other hand, who decided to wait a few days or weeks before they spent their money, lost by the deal, for they found that their buying prices rose before they had the chance to spend the increased amounts of money. In short, society did not gain overall, but the early spenders benefited at the expense of the late spenders. The profligate gained at the expense of the cautious and thrifty.

We should note, by the way, that the total **money supply** only includes money held by the public (demand deposits + Central Bank notes). It does not include demand deposits of the banks at the Central Bank or vault cash held by the banks, for this money is simply held in reserve against outstanding (and greater) components of the money supply. To include intra-bank cash or deposits as part of the money supply would be double counting, just as it would have been double counting to include both gold in the banks and warehouse receipts for gold as part of the money supply. Warehouse receipts are surrogates for reserves, even when they are pyramided on top of them, so that reserves cannot also be included in an account of the supply of money. Under central banking, then, the total supply of money, M, equals cash in the hands of the public plus demand deposits owned by the public. Cash, in turn, consists of gold coin or bullion among the public, plus Central Bank notes. Or, putting this in equation form: *M = gold in public + Central Bank notes in public + Demand deposits of the commercial banks*. When a nation is taken off the gold standard, gold dollars are no longer part of the money supply, and so the money supply equation becomes (as it is in the United States and all other countries now): *M = Central Bank notes + Demand deposits*.

The Central Bank—at least under the gold standard—can still go bankrupt if the public insists on cashing in their deposits and Central Bank paper for gold. But, in most cases government has conferred another crucial privilege on the Central Bank: making its notes legal tender for all debts in money. This is important in propping up the Central Bank and its associated commercial banks. Also, the Central Bank always stands ready to bail out banks in trouble, to provide them with reserves by purchasing their assets or lending them reserves century—a lender of last resort. In addition, under central banking, all banks can expand together, on top of new reserves that are pumped in, across the board, by the benevolent Central Bank. In short, the Central Bank functions as a **government cartelizing** device to coordinate the banks so that they can evade the restrictions of free markets and free banking and inflate uniformly together. The banks do not chafe under central banking control; instead, they lobby for and welcome it. It is their passport to inflation and easy money.

Overall prices are determined by similar supply-and-demand forces that determine the prices of individual products. Let us reconsider the concept of price. The price and purchasing

power of the unit of a product are one and the same. Therefore, we can construct a diagram (**Figure 3.3**) for the determination of overall prices, with the price or the purchasing power of the money unit on the Y-axis. While recognizing the extreme difficulty of arriving at a measure, it should be clear conceptually that the price or the purchasing power of the dollar is the inverse of whatever we can construct as the price level, or the level of overall prices. In mathematical terms: PPM = 1 / P, where PPM is the purchasing power of the dollar, and P is the price level. Hence, purchasing power of the dollar is therefore the inverse of the price level.

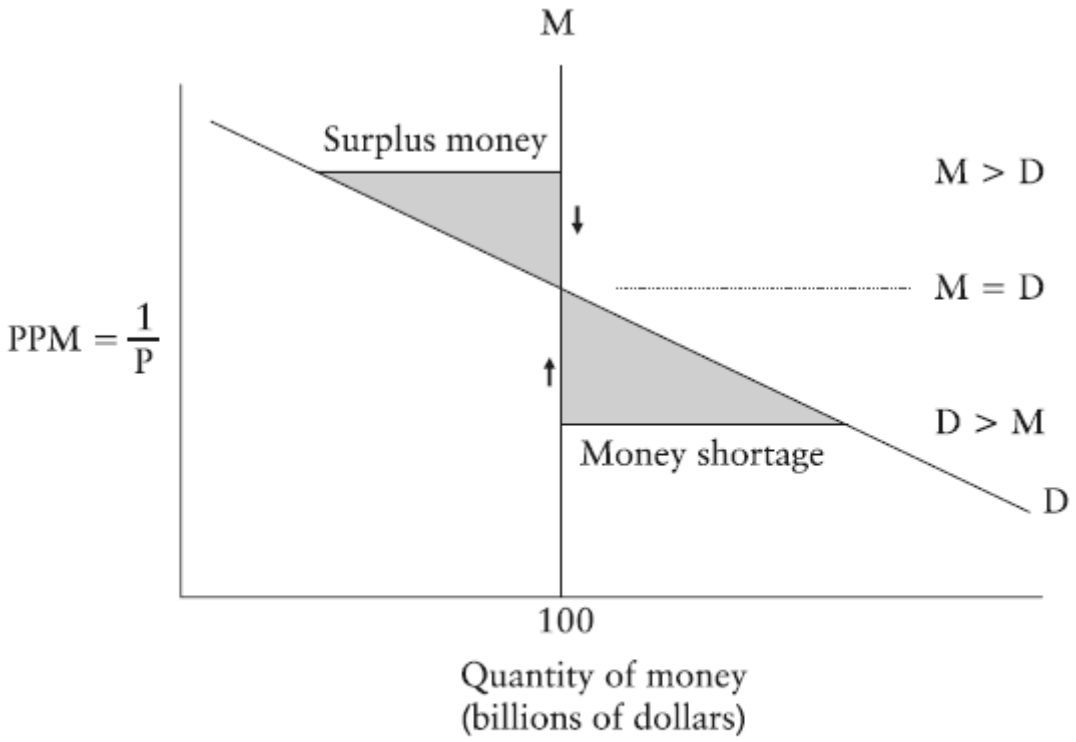


FIGURE 3.3 —DETERMINATION OF THE PURCHASING POWER OF MONEY

Below (**Figure 3.4**) shows what happens when M, the supply of dollars, of total cash balances of dollars in the economy, increases. The original supply of money, M, intersects with the demand for money and establishes the PPM and the price level at distance 0A. Now, in whatever way, the supply of money increases to M′. This means that the aggregate total of cash balances in the economy has increased from M, say $100 billion, to M′, $150 billion. But now people have $50 billion surplus in their cash balances, $50 billion of excess money over the amount needed in their cash balances at the previous 0A prices level. Having too much money burning a hole in their pockets, people spend the cash balances, thereby raising individual demand curves and driving up prices. But as prices rise, people find that their increased aggregate of cash balances is getting less and less excessive, since more and more cash is now needed to accommodate the higher price levels. Finally, prices rise until PPM has fallen from 0A to 0B. At these new, higher price levels, the M′—the new aggregate cash balances—is no longer excessive, and the demand for money has become equilibrated by

market forces to the new supply. The money market—the intersection of the demand and supply of money—is once again cleared, and a new and higher equilibrium price level has been reached. Note that when people find their cash balances excessive, they try to get rid of them, but since all the money stock is owned by someone, the new M′ cannot be gotten rid of in the aggregate; by driving prices up, however, the demand for money becomes equilibrated to the new supply. Just as an increased supply of pork drives down prices so as to induce people to buy the new pork production, so an increased supply of dollars drives down the purchasing power of the dollar until people are willing to hold the new dollars in their cash balances.

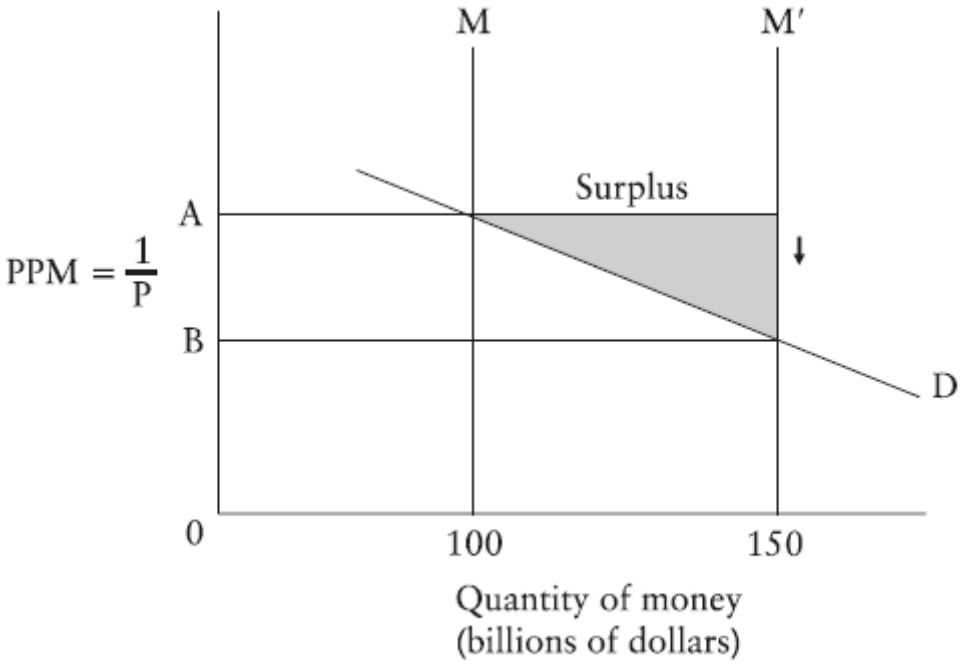


FIGURE 3.4 — INCREASE IN THE SUPPLY OF MONEY

We come now to the most important single influence on the demand for money: This is the public's expectation of what will happen to prices in the near, or foreseeable, future – ie **deflationary** expectations or **inflationary expectations**.

In Phase I of inflation (**Figure 5.3**), the government pumps a great deal of new money into the system, so that M increases sharply to M′. Ordinarily, prices would have risen greatly (or PPM fallen sharply) from 0A to 0C. But deflationary expectations by the public have intervened and have increased the demand for money from D to D′, so that prices will rise and PPM falls much less substantially, from 0A to 0B. Unfortunately, the relatively small price rise often acts as heady wine to government.

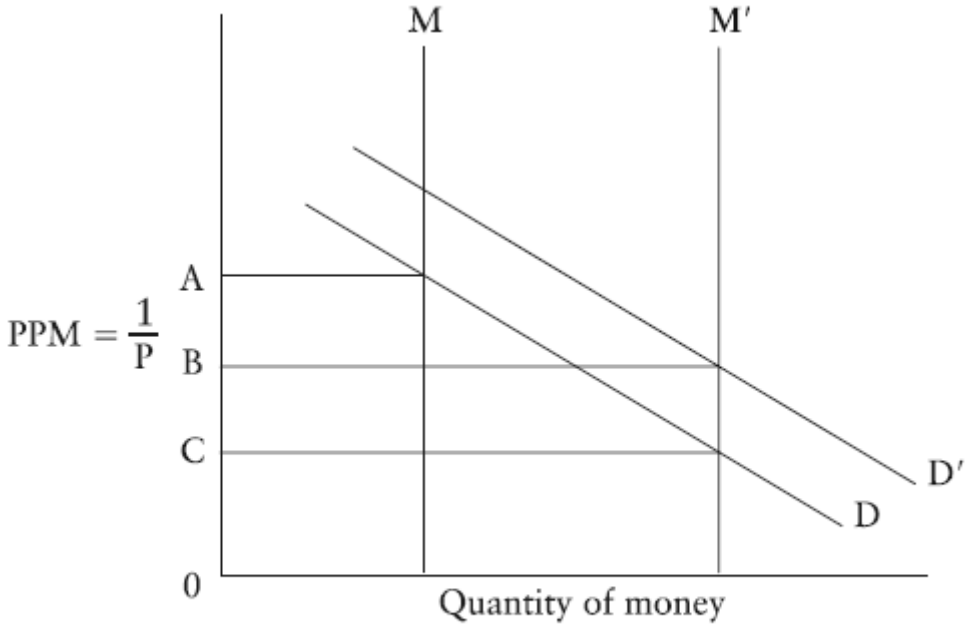


FIGURE 5.3 — PHASE I OF INFLATION

But let the process continue for a length of time, and the public's response will gradually, but inevitably, change. As this psychology takes hold, the public's thinking in Phase I changes into that of Phase II (**Figure 5.4**). In Phase II of inflation, instead of a rising demand for money moderating price increases, a falling demand for money will intensify the inflation. Here, in Phase II of the inflation, the money supply increases again, from M′ to M″. But now the psychology of the public changes, from deflationary to inflationary expectations. And so, instead of prices rising (PPM falling) from 0B to 0D, the falling demand for money, from D′ to D″, raises prices from 0D to 0E. Expectations, having caught up with the inflationary reality, now accelerate the inflation instead of moderating it.

There is no scientific way to predict at what point in any inflation expectations will reverse from **deflationary to inflationary**. The answer will differ from one country to another, and from one epoch to another, and will depend on many subtle cultural factors, such as trust in government, speed of communication, and many others. When expectations tip decisively over from deflationary, or steady, to inflationary, the economy enters a danger zone. If the government tightens its own belt and stops printing (or otherwise creating) new money, then inflationary expectations will eventually be reversed, and prices will fall once more—thus relieving the money shortage by lowering prices. But if government follows its own inherent inclination to counterfeit and appeases the clamor by printing more money so as to allow the public's cash balances to "catch up" to prices, then the country is off to the races. Money and prices will follow each other upward in an ever-accelerating spiral, until finally prices "run away." This is Phase III. Only a clear and dramatic cessation of the spiraling expansion of the money supply can turn off the money tap and thereby reverse the accelerating inflationary expectations of the public.

Thus we see that price levels are determined by the supply and the demand for money, and that expansion of the money supply—a function **solely of government**—is the prime active force in inflation.

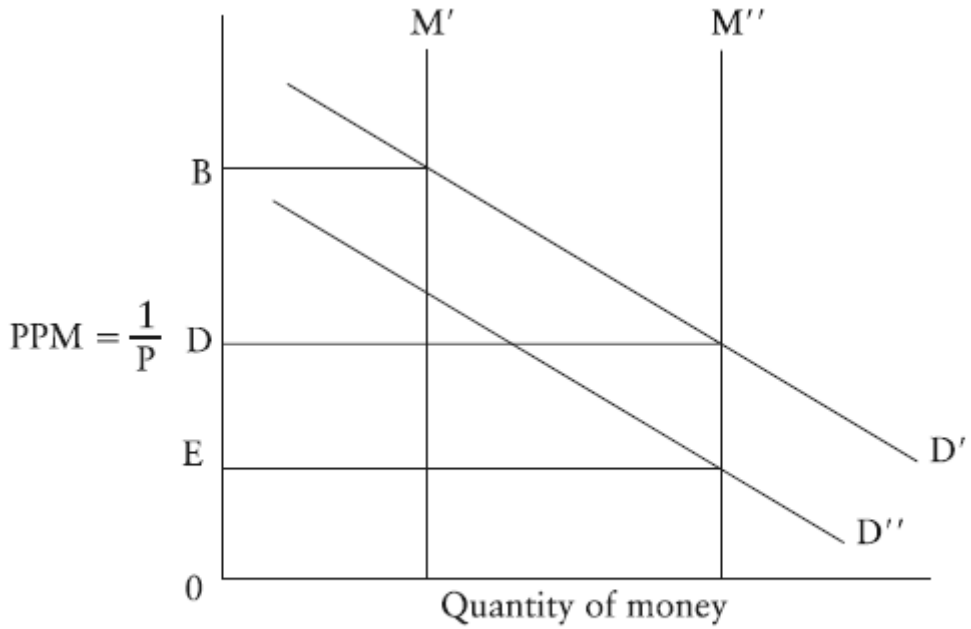


FIGURE 5.4 — PHASE II OF INFLATION

Central Banking + Fractional Reserve Banking

Suppose that we aggregate all the commercial banks in the country in one set of T-accounts, and also consider the Central Bank T-account. Let us assume that, in some way or other, total bank reserves, in the form of demand deposits at the Central Bank, increase by $1 billion, that the legal minimum reserve ratio is 1/5, and that the banks make it a practice to keep fully loaned up, that is, always pyramiding 5:1 on top of total reserves. What then happens is shown below (**Figure 9.8**).

Step 1: All Commercial Banks

Assets		Equity & Liabilities	
		Demand deposits	+ $1 billion
Reserves	+ $1 billion		

Central Bank

Assets		Equity & Liabilities	
		Demand deposits to banks	+ $1 billion

FIGURE 9.8 — INCREASING BANK RESERVES

The banks' fraction of total reserves to demand deposits is now higher, and they can and do expand their credit by another $4 billion and therefore their demand deposits by a total of $5 billion. They do so by writing out new or increased demand deposits out of thin air (as fake warehouse receipts for cash) and lending them out or buying IOUs with that new "money." This can be seen in Step 2 (**Figure 9.9**). Thus, an increase of $1 billion in total commercial bank reserves has led, over a short period of time, to a $5 billion increase in demand deposits, and hence in the total money supply of the country.

If banks remain fully loaned up, then the amount that, in the aggregate, they will pyramid on top of reserves can be precisely known: It is the inverse of the minimum reserve requirement. Thus, if the legal reserve requirement is 1/5 (total reserves / total deposits), the banks will be able to pyramid 5:1 on top of new reserves. If the reserve requirement is 1/10, then the banks will be able to pyramid 10:1 on top of total new reserves. The amount banks can pyramid new deposits on top of reserves is called the **money multiplier** (MM), which is the inverse of the minimum reserve requirement (MRR). In short: *MM = 1 / MRR*. If the banks remain fully loaned up then, we can alter our equation for the nation's money supply to the following: *M = Cash + (total bank reserves x MM)*. Since banks earn their profits by creating new money and lending it out, banks will keep fully loaned up unless highly unusual circumstances prevail. The determinants of the money supply under central banking, then, are reserve requirements and total reserves. The Central Bank can determine the amount of the money supply at any time by manipulating and controlling either the reserve requirements and/or the total of commercial bank reserves. In the United States, Congressional statute and Federal Reserve Board dictation combine to fix legal reserve requirements. Raising reserve requirements, then, is contractionary and deflationary; lowering them is inflationary.

It is clear that, even under central banking, if the public is or becomes unwilling to hold any money in bank deposits or notes and insists on using only gold, the **inflationary potential** of the banking system will be severely limited. Even if the public insists on holding bank notes rather than deposits, fractional reserve bank expansion will be highly limited. The more the public is willing to hold checking accounts rather than cash, the greater the inflationary potential of the central banking system.

Step 2: All Commercial Banks

Assets		Equity & Liabilities	
IOUs	+ $4 billion	Demand deposits	+ $5 billion
Reserves	+ $1 billion		
Total Assets	+ $5 billion	Total Liabilities	+ $5 billion

Central Bank

Assets		Equity & Liabilities	
		Demand deposits to banks	+ $1 billion

FIGURE 9.9 — PYRAMIDING ON TOP OF NEW RESERVES

Let us see what happens when a reserve requirement is changed. Suppose that the Fed cuts the reserve requirement in half, from 20 percent to 10 percent—a seemingly extreme example which has, however, been realistic at various times in American history. Let us see the results. Below (**Figure 9.10**) assumes a hypothetical balance sheet for commercial banks, with the banks fully loaned up to the 5:1 money multiplier. The banks are fully loaned up, with total reserves of $10 billion in legal reserve requirement at 20 percent, and demand deposits therefore at $50 billion.

All Commercial Banks

A			E & L
IOUs	$40 billion	Demand deposits	$50 billion
Reserves	$10 billion		
Total Assets	$50 billion	Total Liabilities	$50 billion

Central Bank

A			E & L
		Demand deposits to banks	$10 billion

FIGURE 9.10 — BANKS, RESERVE REQUIREMENT AT 20 PERCENT

Now (**Figure 9.11**) we see what happens when the Fed lowers the reserve requirement to 10 percent. Because of the halving of reserve requirements, the banks have now expanded another $50 billion of loans and investments (IOUs), thereby increasing demand deposits by another $50 billion. Total demand deposits in the country are now $100 billion, and the total money supply has now increased by $50 billion. One way for the Central Bank to inflate bank money and the money supply, then, is to lower the fractional reserve requirement.

One way for the Central Bank to inflate bank money and the money supply, then, is to lower the fractional reserve requirement. When the **Federal Reserve** System was established in 1913, the Fed lowered reserve requirements from 21 percent to 10 percent by 1917, thereby enabling a concurrent doubling of the money supply at the advent of World War I. In 1936 and 1937, after four years of money and price inflation during an unprecedentedly severe depression under the New Deal, the Fed, frightened at a piling up of excess reserves that could later explode in inflation, quickly doubled bank reserve requirements, from approximately 10 percent to 20 percent. Frightened that this doubling helped to precipitate the severe recession of 1938, the Fed has since been very cautious about changing reserve requirements, usually doing so by only 1/4 to 1/2 of 1 percent at a time. Generally, true to the inflationary nature of all central banking, the Fed has lowered requirements. But since the Fed's actions in this area are cautious and gradual, the Fed's most important day-to-day instrument of control of the money supply has been to fix and determine total bank reserves.

All Commercial Banks

A		E & L	
IOUs	$90 billion	Demand deposits	$100 billion
Reserves	$10 billion		
Total Assets	$100 billion	Total Liabilities	$100 billion

Central Bank

A		E & L	
		Demand deposits to banks	$10 billion

FIGURE 9.11 — LOWERING THE RESERVE REQUIREMENT

The crucial question then is what determines the level of total **bank reserves** at any given time. There are several important determinants, which can be grouped into two classes: those controlled by actions of the public, or the market; and those controlled by the Central Bank. The major action by the public determining total bank reserves is its demand for cash. The public's increased demand for cash will put contractionary pressure on a bank, while decreased desire for cash will add to its inflation of the money supply.

Let us assume that the public's demand for cash in exchange for its demand deposits increases. Below (**Figure 10.1**) shows a hypothetical banking system, and further below (Figure 10.2) shows the immediate effect on it of an increase in the public's demand for cash, that is, their redeeming some of its deposits for cash. The hypothetical banking system is depicted as one with a 20 percent reserve ratio, fully loaned up. "Reserves" in the commercial banks' asset column are of course exactly equal to "Demand deposits to banks" in the Central Bank's liabilities column, since they are one and the same thing. The asset side of the Central Bank balance sheet is not being considered here; in our example, we simply assume that Central Bank notes outstanding in the hands of the public is $15 billion. Total money supply in the country, then, is Demand deposits plus Central Bank notes, or: $50 billion + $15 billion = $65 billion.

All Commercial Banks

Assets		Equity & Liabilities	
IOUs	$40 billion	Demand deposits	$50 billion
Reserves	$10 billion		
Total Assets	$50 billion	Total Liabilities	$50 billion

Central Bank

Assets		Equity & Liabilities	
		Demand deposits to banks	$10 billion
		Central Bank notes	$15 billion

FIGURE 10.1 — A HYPOTHETICAL BANKING SYSTEM: ALL COMMERCIAL BANKS

Now let us assume that the public wishes to draw down its demand deposits by $2 billion in order to obtain cash. In order to obtain cash, which we will assume is Central Bank notes, the banks must go to the Fed and draw down $2 billion worth of their checking accounts, or demand deposits, at the Fed. The initial impact of this action can be seen below (**Figure 10.2**). In short, depositors demand $2 billion in cash; the banks go to the Central Bank to buy the $2 billion; and the Central Bank, in exchange, prints $2 billion of new notes and gives them to the banks. At the end of Step 1, then, the money supply remains the same, since demand deposits have gone down by $2 billion but Central Bank notes outstanding have increased by the same amount. The composition of the money supply has been changed but not yet the total. The money supply is still $65 billion, except that there is now $2 billion less of demand deposits and $2 billion more of Central Bank notes in the hands of the public. But this is only the first step, because the crucial fact is that bank reserves have also gone down by $2 billion, by the same amount that Central Bank notes in the hands of the public have increased.

Step 1: All Commercial Banks

Assets		Equity & Liabilities	
		Demand deposits	– $2 billion
Reserves	– $2 billion		

Central Bank

Assets		Equity & Liabilities	
		Demand deposits	– $2 billion
		Central Bank notes	+ $2 billion

FIGURE 10.2 — INCREASE IN THE DEMAND FOR CASH: PHASE I

But since reserves have gone down, and the banks keep fully loaned up, this means that banks must contract their loans and demand deposits until the new total of deposits is again brought down to maintain the legal reserve ratio. As a result, bank loans and investments must contract by another $8 billion, so that the fall in reserves can be matched by a fivefold fall in total deposits. In short, the $2 billion drop in reserves must be matched by a total of $10 billion drop in demand deposits. At the end of the completed Step 2, therefore, the balance sheets of the banks and of the Central Bank look as follows (**Figure 10.3**). The eventual result, then, of an increased demand for cash by the public is a drop in demand deposits of $10 billion, resulting from the drop of bank reserves of $2 billion. The total money supply has gone down by $8 billion. For demand deposits have fallen by $10 billion, and cash in the hands of the public has risen by $2 billion, making a net drop of $8 billion in the supply of money.

Thus, an increased demand for cash causes an equal drop in bank reserves, which in turn has a money **multiplier effect** in decreasing total demand deposits, and hence a slightly less intense effect in cutting the total amount of money.

Step 2: All Commercial Banks

Assets		Equity & Liabilities	
IOUs	$32 billion	Demand deposits	$40 billion
Reserves	$8 billion		
Total assets	$40 billion	Total liabilities	$40 billion

Central Bank

Assets		Equity & Liabilities	
		Demand deposits to banks	$8 billion
		Central Bank notes	$17 billion

FIGURE 10.3 — INCREASES IN THE DEMAND FOR CASH: CONCLUSION

If the public's demand for cash drops, on the other hand, and it puts more of its cash in the banks, then the exact reverse happens. Suppose we begin with the situation in Figure 10.1, but now the public decides to take $2 billion out of the $15 billion of Central Bank notes in its possession and deposits them in exchange for checking accounts. In this case, demand deposits increase by $2 billion, and the banks take the ensuing extra cash and deposit it in the Central Bank, increasing their reserves there by $2 billion. The $2 billion of old Central Bank notes goes back into the coffers of the Central Bank, where they are burned, or otherwise retired or liquidated. This situation is shown below (**Figure 10.4**). In short, the immediate result of the public's depositing $2 billion of cash in the banks is that, while the total money supply remains the same, only changing the composition between demand deposits and cash, total bank reserves rise by $2 billion.

Step 1: All Commercial Banks

Assets		Equity & Liabilities	
		Demand deposits	+ $2 billion
Reserves	+ $2 billion		

Central Bank

Assets		Equity & Liabilities	
		Demand deposits	+ $2 billion
		Central Bank notes	– $2 billion

FIGURE 10.4 — DECREASE IN THE DEMAND FOR CASH: PHASE I

Receiving the new reserves, the banks then expand credit, lending new demand deposits which they have created out of thin air. They pyramid deposits on top of the new reserves in accordance with the money multiplier, which in our stipulated case is 5:1. The final result is depicted in the balance sheets below (**Figure 10.5**). Thus, the public's depositing $2 billion of cash in the banks increases reserves by the same amount; the increase in reserves enables the banks to pyramid $8 billion more of deposits by increasing loans and investments (IOUs) by $8 billion. Demand deposits have therefore increased by $10 billion from the reduction in the public's holding of cash. The total money supply has increased by $8 billion since Central Bank notes outstanding have dropped by $2 billion.

In short, the public's **holding** of **cash** is a factor of decrease of bank reserves. That is, if the public's holding of cash increases, bank reserves immediately decrease by the same amount, whereas if the public's holding of cash falls, bank reserves immediately increase by the same amount. The movement of bank reserves is equal and inverse to the movement in the public's holding of cash. The more cash the public holds, the greater the anti-inflationary effect, and *vice versa*. The public's demand for cash can be affected by many factors. Loss of confidence in the banks will, of course, intensify the demand for cash, to the extent of breaking the banks by bank runs.

Despite the prestige and resources of the Central Bank, **bank runs** have been a powerful weapon against bank credit expansion. Only in 1933, with the establishment of the Federal Deposit Insurance Corporation (FDIC), was the government of the U.S. able to stop bank runs by putting the unlimited taxing and counterfeiting power of the federal government behind every bank deposit. Since 1933, the FDIC has "**insured**" every bank deposit (up to a high and ever-increasing maximum), and behind the FDIC—implicitly but powerfully—is the ability of the Federal Reserve to print money in unlimited amounts. The commercial

banks, it is true, are now far "safer," but that is a dubious blessing indeed; for the "safety" means that they have lost their major incentive not to inflate.

Over time, one powerful influence toward a **falling demand for cash** is the growth of clearing systems, and devices such as credit cards. People then need to carry less cash than before. On the other hand, the growth of the underground economy in recent years, in order to avoid income taxes and other forms of government regulation, has required an increase in strictly cash transactions, transactions which do not appear on the books of any government-regulated bank.

Step 2: All Commercial Banks

Assets		Equity & Liabilities	
IOUs	$48 billion	Demand deposits	$60 billion
Reserves	$12 billion		
Total assets	$60 billion	Total liabilities	$60 billion

Central Bank

Assets		Equity & Liabilities	
		Demand deposits to banks	$12 billion
		Central Bank notes	$13 billion

FIGURE 10.5 — DECREASE IN THE DEMAND FOR CASH: CONCLUSION

One method by which the Central Bank expands or contracts total bank reserves is a simple one: it increases or decreases its outstanding **loans of reserves** to various banks. In the United States, there are two forms of Federal Reserve loans to the banks: discounts and advances. Discounts, the major form of Fed loans to banks in the early days of the Federal Reserve System, are temporary purchases (rediscounts) by the Central Bank of IOUs or discounts owed to banks. These days, however, almost all of the loans are outright advances, made on the collateral of U.S. government securities. These loans are incurred by the banks in order to get out of difficulty, usually to supply reserves temporarily that had fallen below the required ratio. The loans are therefore made for short periods of time—a week or two—and banks will generally try to get out of debt to the Fed as soon as possible.

Below (**Figure 10.6**) describes a case where the Central Bank has loaned $1 million of reserves to the Four Corners Bank, for a two-week period. Thus, the Central Bank has loaned

$1 million to the Four Corners Bank, by opening up an increase in the Four Corners checking account at the Central Bank. The Four Corners' reserves have increased by $1 million, offset by a liability of $1 million due in two weeks to the Central Bank. When the debt is due, then the opposite occurs. The Four Corners Bank pays its debt to the Central Bank by having its account drawn down by $1 million. Its reserves drop by that amount, and the IOU from the Four Corners Bank is canceled. Total reserves in the banking system, which had increased by $1 million when the loan was made, drop by $1 million two weeks later. Central Bank loans to banks are a factor of increase of bank reserves.

Four Corners Bank

Assets		Equity & Liabilities	
		IOU to Central Bank	+ $1 million
Reserves	+ $1 million		

Central Bank

Assets		Equity & Liabilities	
IOU from Four Corners Bank	+ $1 million	Demand deposit to Four Corners Bank	+ $1 million

FIGURE 10.6 — CENTRAL BANK LOANS TO BANKS

Central Banking + Market Banking

Outstanding loans to banks by the Federal Reserve are now a minor aspect of Central Bank operations in the United States. One reason for the relatively minor importance of this factor has been the spectacular growth, in the last few decades, of the **federal funds market**. In the federal funds market, banks with temporary excess reserves at the Fed lend them literally overnight to banks in temporary difficulties. By far the greatest part of bank borrowing of reserves is now conducted in the federal funds market rather than at what is known as the discount window of the Federal Reserve. If the Fed wishes to encourage bank borrowings from itself, it will lower the rediscount rate or discount rate of interest it charges the banks for loans. If it wishes to discourage bank borrowings, it will raise the discount rate. Since lower discount rates stimulate bank borrowing and hence increase outstanding reserves, and higher discount rates do the reverse, the former is widely and properly regarded as a pro-inflationary, and the latter an anti-inflationary, device. Lower discount rates are inflationary and higher rates the reverse. It should be pointed out that Federal Reserve rediscount rate policy has been basically inflationary since 1919. The older view was that the rediscount rate

should be at a penalty rate, that is, that the rate should be so high that banks would clearly borrow only when in dire trouble and strive to repay very quickly. The older tradition was that the rediscount rate should be well above the prime rate to top customers of the banks. Thus, if the prime rate is 15 percent and the Fed discount rate is 25 percent, any bank borrowing from the Fed is a penalty rate and is done only in extremis. But if the prime rate is 15 percent and the Fed discount rate is 10 percent, then the banks have an incentive to borrow heavily from the Fed at 10 percent and use these reserves to pyramid loans to prime (and therefore relatively riskless) customers at 15 percent, reaping an assured differential profit. Yet, despite its unsoundness and inflationary nature, the Fed has kept its discount rate well below prime rates ever since 1919, in inflationary times as well as any other.

We come now to by far the most important method by which the Central Bank determines the total amount of bank reserves, and therefore the total supply of money. In the United States, the Fed by this method determines total bank reserves and thereby the total of bank demand deposits pyramiding by the money multiplier on top of those reserves. This vitally important method is **open market operations**. Open market, in this context, does not refer to a freely competitive as opposed to a monopolistic market. It simply means that the Central Bank moves outside itself and into the market, where it buys or sells assets. The purchase of any asset is an open market purchase; the sale of any asset is an open market sale. Therefore, if open market purchases of assets by the Fed are a factor of increase of reserves by the same amount, the other side of the coin is that open market sales of assets are a factor of decrease.

To see how this process works, let us assume that the Federal Reserve Bank of New York, for some unknown reason, decides to purchase an old desk of mine. Let us say that I agree to sell my desk to the Fed for $100. How does the Fed pay for the desk? It writes a check on itself for the $100, and hands me the check in return for the desk, which it carts off to its own offices. Where does it get the money to pay the check? By this time, the answer should be evident: it creates the money out of thin air. It creates the $100 by writing out a check for that amount. The $100 is a new liability it creates upon itself out of nothing. This new liability, of course, is solidly grounded on the Fed's unlimited power to engage in legalized counterfeiting, for if someone should demand cash for the $100 liability, the Fed would cheerfully print a new $100 bill and give it to the person redeeming the claim. There is only one thing I can do with this check. I cannot deposit or cash it at the Fed, because the Fed takes only deposit accounts of banks, not individuals. The only thing I can do is deposit it at a commercial bank. Suppose I deposit it in my account at Citibank. In that case, I now have an increase of $100 in my demand deposit account at Citibank; the bank, in turn, has a $100 check on the Fed. The bank greets the check with enthusiasm, for it now can rush down to the Fed and deposit the check, thereby obtaining an increase in its reserves at the Fed of $100. Below (**Figure 10.7**) shows what has happened as a result of the Fed's purchase of my desk. The key monetary part of the transaction was not the desk, which goes to grace the increased furniture asset column of the Fed's ledger, but that the Fed has written a check upon itself. I can use the check only by depositing it in a bank, and as soon as I do so, my own money supply in the form of demand deposits goes up by $100. More important, my bank now deposits the check on the Fed at that institution, and its total reserves also go up by $100. The money supply has gone up by $100, but the key point is that reserves have gone up by the same amount, so that the banking system will, over a few months, pyramid more loans and demand deposits on top of the new reserves, depending on the required reserve ratio and

hence the money multiplier. Note that bank reserves have increased by the same amount (in this case, $100) as the Fed's open market purchase of the desk; open market purchases are a factor of increase of bank reserves, and in practice by far the most important such factor.

Citibank

Assets		Equity & Liabilities	
		Demand deposits to Rothbard	+ $100
Reserves at Fed	+ $100		
Total assets	+ $100	Total demand deposits	+ $100

Federal Reserve Bank

Assets		Equity & Liabilities	
Desk	+ $100	Demand deposits to banks	+ $100

FIGURE 10.7 — OPEN MARKET PURCHASE

An open market sale has precisely the reverse effect. Suppose that the Fed decides to auction off some old furniture and I buy one of its desks for $100. Suppose too, that I pay for the sale with a check to the Fed on my bank, say, Citibank. In this case, as we see below (**Figure 10.8**), my own money stock of demand deposits is decreased by $100, in return for which I receive a desk. More important, Citibank has to pay the Fed $100 as it presents the check; Citibank pays for it by seeing its reserve account at the Fed drawn down by $100. Total money supply has initially gone down by $100. But the important thing is that total bank reserves have gone down by $100, which will force a contraction of that times the money multiplier of bank loans and deposits, and hence of the total money supply.

From the point of view of the money supply it doesn't make any difference what asset the Fed buys; the only thing that matters is the Fed's writing of a check, or someone writing the Fed a check. And, indeed, under the Monetary Control Act of 1980, the Fed now has unlimited power to buy any asset it wishes and up to any amount—whether it be corporate stocks, bonds, or foreign currency. But until now virtually the only asset the Fed has systematically bought and sold has been U.S. **government securities**. Every week, the System Manager (a vice president of the Federal Reserve Bank of New York) buys or sells U.S. government securities from or to a handful of top private dealers in government securities. The System Manager acts under the orders of the Fed's Federal Open Market

Committee, which meets every month to issue directives for the month. The Fed's System Manager mostly buys, but also sells, an enormous amount, and every year the accumulated purchases of U.S. Treasury bills and bonds drive up bank reserves by the same amount, and thereby act to fix total reserves wherever the Fed wishes, and hence to determine the total money supply issued by the banks. One reason for selecting government bonds as the major asset is that it is by far the biggest and most liquid capital market in the country. There is never any problem of illiquidity, or problem of making a purchase or sale in the government securities market.

There is no need to worry about the ever-shifting definition of money, the ever-greater numbers of Ms. All that need be done to **stop inflation** in its tracks forever is to pass a law ordering the Fed never to buy any more assets, ever again. Repeatedly, governments have distracted attention from their own guilt for inflation, and scapegoated various groups and institutions on the market. Repeatedly, they have tried and failed to combat inflation by freezing wages and prices, equivalent to holding down the mercury column of a thermometer by brute force in order to cure a fever. But all that need be done is one freeze that governments have never agreed to: freezing the Central Bank. Better to abolish central banking altogether, but if that cannot be accomplished, then, as a transitional step, the Central Bank should be frozen, and prevented from making further loans or especially open market purchases. Period.

Citibank

Assets		Equity & Liabilities	
		Demand deposits to Rothbard	– $100
Reserves at Fed	– $100		
Total assets	– $100	Total demand deposits	– $100

Federal Reserve Bank

Assets		Equity & Liabilities	
Desk	– $100	Demand deposits to banks	– $100

FIGURE 10.8 — OPEN MARKET SALE

Let us see how a government bond purchase by the Fed on the open market increases reserves by the same amount. Suppose that the Fed's System Manager buys $1,000,000 of government

bonds from private bond dealers. Below (**Figure 10.9**) we show the System Manager's purchase of $1,000,000 in government bonds from the securities dealer firm of Jones & Co. The Fed pays for the bonds by writing a check for $1,000,000 upon itself. Its assets increase by $1,000,000, balanced by its liabilities of newly-created deposit money consisting of a check upon itself. Jones & Co. has only one option: to deposit the check in a commercial bank. If it deposits the check at Citibank, it now has an increase of its own money supply of $1,000,000. Citibank then takes the check to the Fed, deposits it there, and in turn acquires a new reserve of $1,000,000, upon which the banking system pyramids reserves in accordance with the money multiplier. Thus, a Fed purchase of a $1,000,000 bond from a private bond dealer has resulted in an increase of total bank reserves of $1,000,000, upon which the banks can pyramid loans and demand deposits.

Citibank

Assets		Equity & Liabilities	
		Demand deposits to Jones & Co.	+ $1 million
Reserves	+ $1 million		
Total assets	+ $1 million	Total demand deposits	+ $1 million

Federal Reserve Bank

Assets		Equity & Liabilities	
U.S. Government Securities	+ $1 million	Demand deposits to banks	+ $1 million

FIGURE 10.9 — FED PURCHASE OF GOVERNMENT SECURITIES FROM DEALER

If the Fed should buy bonds from commercial banks directly, the increase in total reserves will be the same. Thus, suppose, the Fed buys a $1,000,000 government bond from Citibank. In that case, the results for both are as shown below (**Figure 10.10**). Here when the Fed purchases a bond directly from a bank, there is no initial increase in demand deposits, or in total bank assets or liabilities. But the key point is that Citibank's reserves have, once again, increased by the $1,000,000 of the Fed's open market purchase, and the banking system can readily pyramid a multiple amount of loans and deposits on top of the new reserves.

Thus, the factors of increase of total **bank reserves** determined by Federal Reserve (that is, Central Bank) policy, are: open market purchases and loans to banks, of which the former are

far more important. The public, by increasing its demands for cash (and for gold under the gold standard) can reduce bank reserves by the same amount.

Citibank

Assets		Equity & Liabilities	
U.S. Government bonds	– $1 million		
Reserves	+ $1 million		

Federal Reserve Bank

Assets		Equity & Liabilities	
U.S. Government bonds	+ $1 million	Demand deposits to banks	+ $1 million

FIGURE 10.10 — FED PURCHASE OF GOVERNMENT SECURITIES FROM BANK

Central Banking + Free Banking

Up till now, we have simply asserted that the banks, in the aggregate, will pyramid on top of their reserves in accordance with the money multiplier. But we have not shown in detail how the individual **banks pyramid** on top of reserves. If there were only one commercial bank in the country, with a few million branches, there would be no problem. If the Fed buys $1 million of securities, and bank reserves increase by that amount, this monopoly bank will simply lend out $4 million more, thereby driving its total demand deposits up by an increased $5 million. It will obtain the increased $4 million by simply creating it out of thin air, that is, by opening up deposit accounts and allowing checks to be written on those accounts. There will be no problem of interbank redemption, for every person and firm in the country will have its account with the same monopoly bank. Thus, if the monopoly bank lends $2 million to General Motors, GM will spend the money on some person or firm who also has an account at the same bank. Therefore, the $1 million in new reserves can readily and swiftly sustain an increase of 5:1 in loans and deposits.

But suppose we have a competitive banking system, with literally thousands of commercial banks. To make it simple, suppose we assume that the Fed buys a bond for $1,000 from Jones & Co., and Jones & Co. deposits the bond in Bank A, Citibank. The first step that occurs we have already seen in Figure 10.9 but will be shown again below (**Figure 11.1**). Demand deposits, and therefore the money supply, increase by $1,000, held by Jones & Co., and Citibank's reserves also go up by $1,000.

Bank A
Citibank

Assets		Equity & Liabilities	
		Demand deposits to Jones & Co.	+ $1,000
Reserves	+ $1,000		

Federal Reserve

Assets		Equity & Liabilities	
U.S. Government Securities	+ $1,000	Demand deposits to Citibank	+ $1,000

FIGURE 11.1 — THE CENTRAL BANK BUYS SECURITIES

At this point, Citibank cannot simply increase demand deposits by another $4,000 and lend them out. For while it could do so and remain with a required minimum reserve/deposit ratio of 20 percent, it could not keep that vital status for long. Let us make the reasonable assumption that the $4,000 is loaned to R.H. Macy & Co., and that Macy's will spend its new deposits on someone who is a client of another, competing bank. And if Citibank should be lucky enough to have Macy's spend the $4,000 on another of its clients, then that client, or another one soon thereafter, will spend the money on a non-client. Suppose that Macy's spends $4,000 on furniture from the Smith Furniture Co. But the Smith Furniture Co. is the client of another bank, ChemBank, and it deposits Macy's Citibank check into its ChemBank account. ChemBank then calls on Citibank to redeem its $4,000. But Citibank hasn't got the $4,000, and this call for redemption will make Citibank technically bankrupt. Its reserves are only $1,000, and it therefore will not be able to pay the $4,000 demanded by the competing bank. Below (**Figure 11.2**) reveals the straits of Citibank, imposed by the existence of competing banks. In short, when Citibank's demand deposits were owed to Macy's, its own client, everything was fine. But now, not from loss of confidence or from a sudden demand for cash, but in the course of regular, everyday trade, Macy's demand deposits have been transferred to ChemBank, and ChemBank is asking for reserves at the Fed for redemption. But Citibank doesn't have any reserves to spare and is therefore insolvent.

One bank, therefore, cannot blithely heap 5:1 on top of new reserves. But if it cannot expand 500 percent on top of its reserves, what can it do? It can and does expand much more moderately and cautiously. In fact, to keep within its reserve requirements now and in the foreseeable future, it expands not by 500 percent but by 1 minus the minimum reserve requirement. In this case, it expands by 80 percent rather than by 500 percent. We will see in the figures below how each bank's expanding by 80 percent in a central banking system

causes all **banks**, in the **aggregate**, in a short period of time, to **expand** by the money multiplier of 5:1. Each bank's expansion of 80 percent leads to a system or aggregate expansion of 500 percent.

Bank A *Citibank*		Bank B *Chembank*	
Assets	Equity & Liabilities	Assets	Equity & Liabilities
from Macy's + $4,000	Demand deposits to Jones & Co. + $1,000		Demand deposits to Smith + $4,000
Reserves +$1,000	Demand deposits to Chembank + $4,000	Due from Citibank + $4,000	

FIGURE 11.2 — REDEMPTION OF ONE BANK FROM ANOTHER

Let us therefore go back to Figure 11.1, and see what Citibank does in fact do. Instead of lending $4,000 to Macy's, it lends out 80 percent of its new reserves, or $800. Below (**Figure 11.3**), we see what happens after this first step in bank credit expansion across the banking system. First, the total money supply, which had increased by $1,000 after the Fed's bond purchase, has now increased by $1,800. There has already been an 80 percent further expansion in the money supply, in the form of demand deposits. But Macy's, of course, has not borrowed money to sit on it. It uses the $800 to purchase something, say furniture, from the Smith Furniture Co. The Smith Furniture Co., we assume, has its account with ChemBank, and deposits its $800 check drawn on Citibank with ChemBank. ChemBank now calls upon Citibank for redemption, that is, for shifting $800 of its reserves at the Fed to ChemBank. But Citibank now has ample reserves, for it can afford to pay $800 out of its $1,000 new reserves, and it will still have $200 left to offset the $1,000 demand deposit owed to Jones & Co. (It doesn't have to offset the Macy's deposit any longer because that has already been transferred to ChemBank.)

Bank A
Citibank

Assets		Equity & Liabilities	
IOUs from Macy's	+ $800	Demand deposits	
		to Jones & Co.	+ $1,000
		to Macy's	+ $800
Reserves	+ $1,000		
Total assets	+ $1,800	Total demand deposits	+ $1,800

FIGURE 11.3 — CREDIT EXPANSION WITH COMPETING BANKS: THE FIRST BANK

Below (**Figure 11.4**) shows what happens as the result of the loan of $800 to Macy's, and the spending by Macy's of $800 on the Smith Furniture Co. which deposits the check in ChemBank. Note what has happened. Bank A, Citibank, having expanded the money supply by 80 percent on top of $1,000, is now out of the picture. Ultimately, its increase of the money supply is back to the original $1,000, but now another bank, Bank B, is exactly in the same position as Citibank had been before, except that its new reserves are $800 instead of $1,000. Right now, Bank A has increased the money supply by the original reserve increase of $1,000, but Bank B, ChemBank, has also increased the money supply by an extra $800. Note that the increased $1,000 in total reserves at the Fed has shifted, so that there is now a $200 increase to Bank A and an $800 increase to Bank B. And so ChemBank is in the exact same position as Citibank had been, except to a lesser extent. Citibank had enjoyed a new reserve of $1,000; ChemBank now enjoys a new reserve of $800.

Bank A *Citibank*		Bank B *Chembank*	
Assets	**Equity & Liabilities**	**Assets**	**Equity & Liabilities**
IOUs from Macy's + $800	Demand deposits to Jones & Co. + $1,000		Demand deposits to Smith + $800
Reserves + $200		Reserves + $800	

Federal Reserve

Assets		Equity & Liabilities	
U.S. Government Securities	+ $1,000	Demand deposits to banks	
		Citibank	+ $200
		Chembank	+ $800

FIGURE 11.4 — CREDIT EXPANSION WITH COMPETING BANKS: THE FIRST AND SECOND BANKS

Where the reserve came from is unimportant. ChemBank proceeds to do exactly the same thing as Citibank had done before: expand on top of its new reserves by another 80 percent. That is, ChemBank makes a loan of $640 to someone else, by writing out an increase in the latter's deposit account. Suppose that ChemBank lends $640 to Joe's Diner. ChemBank's balance sheet is now as shown below (**Figure 11.5**). The analogy with Figure 11.3 is clear. ChemBank has expanded on top of its new reserves by 80 percent, lending that out to Joe's Diner.

Bank B
Chembank

Assets		Equity & Liabilities	
IOU from Joe's Diner	+ $640	Demand deposits to Smith	+ $800
Reserves	+ $800	to Joe's Diner	+ $640
Total assets	+ $1,440	Total demand deposits	+ $1,440

FIGURE 11.5 — THE SECOND BANK EXPANDS

But Joe's Diner, too, does not borrow in order to stay idle. It takes the $640 and, say, purchases a new counter from the Robbins Appliance Co. The Robbins Appliance Co. keeps its accounts at Bank C, the Bank of Great Neck. The $640 of deposits from Joe's Diner gets transferred to Robbins, and is in turn deposited in the Bank of Great Neck. Below (**Figure 11.6**) shows what now happens to Banks B and C. Clearly, what happens is a repeat of what happened to Banks A and B, as seen in Figure 11.4. When the Bank of Great Neck cashed in $640 in reserves from ChemBank, it left ChemBank with $160 worth of reserves, just enough to satisfy the 20 percent reserve requirement from Smith's demand deposits. In the same way, Citibank was left with $200, just enough to meet the reserve requirement for the increased demand deposit of $1,000 to Jones & Co. Bank B is now out of the picture, having contributed $800 to the expansion of the money supply, just as Bank A is out of the picture, having received the initial impact of $1,000 of new reserves on the banking system. Bank C is now, after the operations of this process, in the same position as Banks A and B had been before, except it now has fewer new reserves, in this case $640.

Bank B *Chembank*		Bank C *Bank of Great Neck*	
Assets	Equity & Liabilities	Assets	Equity & Liabilities
IOU from Joe's Diner + $640	Demand deposits to Smith + $800		Demand deposits to Robbins + $640
Reserves +$160		Reserves + $640	

FIGURE 11.6 — THE SECOND AND THIRD BANKS

We can now sum up the results of the process so far, looking below (**Figure 11.7**) at the balance sheets for Banks A, B, and C, as well as the Federal Reserve Bank. Thus we see that any increase in reserves (whether from increased deposits of cash, loans by the Fed, or open market purchase) must take place in one particular bank. That bank, in a competitive banking system, cannot itself increase its loans and deposits by the money multiplier. But it can and does expand by 1 minus the reserve requirement, in our example 80 percent. As it does so, the process of bank credit expansion has a ripple effect outward from the initial bank. Each outward ripple is less intense. For each succeeding bank increases the money supply by a lower amount (in our example, Bank A increases demand deposits by $1,000, Bank B by $800, and Bank C by $640), each bank increases its loan by a lower amount (Bank A by $800, Bank B by $640), and the increased reserves get distributed to other banks, but in lesser degree (Bank A by $200, Bank B by $160). The next step will be for Bank C to expand by 80 percent of its new reserves, which will be $512. And so on from bank to bank, in ever decreasing ripple effects. As the ripples widen, each bank in the process will increase its demand deposits by 80 percent of the preceding bank's. $1,000 + $800 + $640 + $512 + $410 + $328 + $262 + . . . At the end of 14 banks in this chain, the grand total is $4,780, and it is evident that we are rapidly and asymptotically approaching an increased money supply of $5,000.

In this way, competing banks under the aegis of a central bank can increase the money supply by the money multiplier in the aggregate even though each individual bank expands by only 1 minus the money multiplier. The **mystery** of the **inflation** process in the modern world has finally been unraveled.

Bank A

Assets		Equity & Liabilities	
IOU from Macy's	+ $800	Demand deposits to Jones & Co.	+ $1,000
Reserves	+ $200		

Bank B

Assets		Equity & Liabilities	
IOU from Joe's Diner	+ $640	Demand deposits to Smith	+ $800
Reserves	+ $160		

Bank C

Assets		Equity & Liabilities	
		Demand deposits to Robbins	+ $640
Reserves	+ $640		

Federal Reserve

Assets		Equity & Liabilities	
U.S. Government securities	$1,000	Demand deposits to Bank A	+ $200
		Bank B	+ $160
		Bank C	+ $640

FIGURE 11.7 — CREDIT EXPANSION UNDER COMPETING BANKS: SURVEY OF THE PROCESS

Central Banking + Government Banking

Are government **budget deficits** inflationary, and if so, to what extent? What is the relationship between the government as Central Bank and the government in its fiscal or budgetary capacity? it is perfectly possible, theoretically, for the federal government to have a deficit (total spending greater than total revenues) which does not lead to any increase in the money supply and is therefore not inflationary. Thus, suppose that Treasury expenditures are $500 billion and revenues are $400 billion; the deficit is therefore $100 billion. If the deficit is financed strictly by selling new bonds to the public (individuals, corporations, insurance companies, etc.), then there is no increase in the money supply and hence no inflation. People's savings are simply shifted from the bank accounts of bond buyers to the bank accounts of the Treasury, which will quickly spend them and thereby return those deposits to the private sector. There is movement within the same money supply, but no increase in that supply itself. But this does not mean that a large deficit financed by voluntary savings has no deleterious economic effects. Inflation is not the only economic problem. Indeed, the deficit will siphon off or "crowd out" vast sums of capital from productive private investment to unproductive and parasitic government spending. This will cripple productivity and economic growth, and raise interest rates considerably. Furthermore, the parasitic tax burden will increase in the future, due to the forced repayment of the $100 billion deficit plus high interest charges. There is another form of financing deficits which is now obsolete in the modern Western world but which was formerly the standard method of finance. That was for the central government to simply print money (Treasury cash) and spend it. This, of course, was highly inflationary, as—in our assumed $100 billion deficit—the money supply would increase by $100 billion. This was the way the U.S. government, for example, financed much of the Revolutionary and Civil War deficits.

The third method is, like the first one, compatible with modern banking procedures, but combines the worst features of the other two modes. This occurs when the Treasury sells new bonds to the commercial banks. In this method of **monetizing** the **debt** (creating new money to pay for new debt), the Treasury sells, say, $100 billion of new bonds to the banks, who create $100 billion of new demand deposits to pay for the new bonds. As in the second method above, the money supply has increased by $100 billion—the extent of the deficit—to finance the shortfall. But, as in the first method, the taxpayers will now be forced over the years to pay an additional $100 billion to the banks plus a hefty amount of interest. Thus, this third, modern method of financing the deficit combines the worst features of the other two: it is inflationary, and it imposes future heavy burdens on the taxpayers. Note the web of special privilege that is being accorded to the nation's banks. First, they are allowed to create money out of thin air which they then graciously lend to the federal government by buying its bonds. But then, second, the taxpayers are forced in ensuing years to pay the banks back with interest for buying government bonds with their newly created money.

Below (**Figure 11.8**) notes what happens when the nation's banks buy $100 billion of newly-created government bonds. The Treasury takes the new demand deposits and spends them on private producers, who in turn will have the new deposits, and in this way they circulate in the economy.

Commercial Banks

Assets		Equity & Liabilities	
U.S. Government securities	+ $100 billion	Demand deposits to the Treasury	+ $100 billion

FIGURE 11.8 — BANKS BUY BONDS

But if banks are always fully loaned up, how did they get enough reserves to enable them to create the $100 billion in new deposits? That is where the **Federal Reserve** comes in; the Fed must create new bank reserves to enable the banks to purchase new government debt. If the reserve requirement is 20 percent, and the Fed wishes to create enough new reserves to enable the banks to buy $100 billion of new government bonds, then it buys $25 billion of old bonds on the open market to fuel the desired inflationary transaction. Not $20 billion, as one might think, because the Fed will have to buy enough to cover not only the $100 billion, but also the amount of its own purchase which will add to the demand deposits of banks through the accounts of government bond dealers. The formula for figuring out how much the Fed should buy (X) to achieve a desired level of bank purchases of the deficit (D) is: $X = D / (MM - 1)$. The Fed should buy X, in this case $25 billion, in order to finance a desired deficit of $100 billion. In this case, X equals $100 billion divided by MM (the money multiplier) or 5 minus 1. Or X equals $100 billion/4, or $25 billion. This formula is arrived at as follows: We begin by the Fed wishing to buy whatever amount of old bonds, when multiplied by the money multiplier, will yield the deficit plus X itself. In other words, it wants an X which will serve as the base of the pyramid for the federal deficit plus the amount of demand deposits acquired by government bond dealers. This can be embodied in the following formula: $MM * X = D + X$. But then: $MM * X - X = D$ and, $X * MM - 1 = D$. Therefore, $X = D / (MM - 1)$.

First, the Fed buys $25 billion of old bonds on the open market; this creates increased demand deposits in the banks of $25 billion, matched by $25 billion in new reserves. Then, the Treasury issues $100 billion of new bonds, which the banks now buy because of their new reserves. Their total increase of new demand deposits is $125 billion, precisely the money multiple pyramiding on top of $25 billion of new reserves. The changes in the balance sheets of the commercial banks and of the Fed are depicted below (**Figure 11.9**). Thus, under the assumed conditions of a 20 percent reserve requirement, the Fed would need to buy $25 billion of old bonds to finance a Treasury deficit of $100 billion. The total increase in the money supply of the entire operation would be $125 billion.

Commercial Banks

A		E & L	
(new) U.S. Government securities	+ $100 billion	Demand deposits to government bond dealers	+ $25 billion
Reserves	+ $25 billion	to the Treasury	+ $100 billion
Total assets	+ $125 billion	Total demand deposits	+ $125 billion

Federal Reserve

A		E & L	
(old) U.S. Government securities	+ $25 billion	Demand deposits to banks	+ $25 billion

FIGURE 11.9 — FED AIDING BANKS TO FINANCE DEFICITS

If the Fed were to finance new Treasury bond issues directly, as it was only allowed by law to do for a while during World War II, this step would be wildly inflationary. For the Treasury would now have an increased $100 billion not just of newly-created bank money, but of "high-powered" bank money—demand deposits at the Fed. Then, as the Treasury spent the money, its claims on the Fed would filter down to the private economy, and total bank reserves would increase by $100 billion. The banking system would then pyramid loans and deposits on top of that by 5:1 until the money supply increased by no less than $500 billion. Hence we have the highly inflationary nature of direct Fed purchases of new bonds from the Treasury. Below (**Figure 11.10**) depicts the two steps of this process. In the first step, Step 1, the Fed buys $100 billion of new government bonds, and the Treasury gets increased demand deposits at the Fed.

Step 1: Federal Reserve

Assets		Equity & Liabilities	
(new) U.S. Government securities	+ $100 billion	Demand deposits to the Treasury	+ $100 billion

FIGURE 11.10 — FED PURCHASE OF NEW GOVERNMENT SECURITIES

Then, as the Treasury spends the new money, its checks on the Fed will filter down toward various private sellers. The latter will deposit these checks and acquire demand deposits at their banks; and the banks will rush down and deposit the checks with the Fed, thereby earning an increase in their reserve accounts. Below (**Figure 11.11**) shows what happens in Step 2 at the end of this process. Thus, the upshot of the Fed's direct purchase of the Treasury deficit is for total bank reserves to rise by the same amount, and for the Treasury account to get transferred into the reserves of the banks. On top of these reserves, the banking system will pyramid deposits 5:1 to a total increased money supply of $500 billion.

Step 2: Commercial Banks

Assets		Equity & Liabilities	
		Demand deposits to the public	+ $100 billion
Reserves at the Fed	+ $100 billion		

Federal Reserve

Assets		Equity & Liabilities	
(new) U.S. Government securities	+ $100 billion	Demand deposits to banks	+ $100 billion

FIGURE 11.11 — EFFECT OF FED PURCHASE ON BANKS

Thus, we see that the chronic and accelerating **inflation of our time** has been caused by a fundamental change in the monetary system. From a money, centuries ago, based solidly on gold as the currency, and where banks were required to redeem their notes and deposits immediately in specie, we now have a world of fiat paper moneys cut off from gold and issued by government-privileged Central Banks. The Central Banks enjoy a monopoly on the printing of paper money, and through this money they control and encourage an inflationary fractional reserve banking system which pyramids deposits on top of a total of reserves determined by the Central Banks. Government fiat paper has replaced commodity money, and central banking has taken the place of free banking. Hence our chronic, permanent inflation problem, a problem which, if unchecked, is bound to accelerate eventually into the fearful destruction of the currency known as runaway inflation.

Reformed Banking

The objectives of money and banking **reform** are: (a) to return to a gold standard, a commodity standard unhampered by government intervention; (b) to abolish the Federal Reserve System and return to a system of free and competitive banking; (c) to separate the government from money; and (d) either to enforce 100 percent reserve banking on the commercial banks, or at least to arrive at a system where any bank, at the slightest hint of non-payment of its demand liabilities, is forced quickly into bankruptcy and liquidation. While the outlawing of fractional reserve as fraud would be preferable if it could be enforced, the problems of enforcement, especially where banks can continually innovate in forms of credit, make free banking an attractive alternative.

But how to achieve this system, and as rapidly as humanly possible? The specific **proposals** are: (1) That the dollar be defined as 1/1696 gold ounce. The old definition of the dollar as 1/35 gold ounce is outdated and irrelevant to the current world; it has been violated too many times by government to be taken seriously now. But any initial definition is arbitrary, and we should therefore return to gold at the most conveniently defined weight. After a definition is chosen, however, it should be eternally fixed, and continue permanently in the same way as the defined unit of the meter, the gram, or the pound. Since we must adopt some definition of weight, I propose that the most convenient definition is one that will enable us, at one and the same time as returning to a gold standard, to denationalize gold and to abolish the Federal Reserve System. (2) That the Fed take the gold out of Fort Knox and the other Treasury depositories, and that the gold then be used (a) to redeem outright all Federal Reserve Notes, and (b) to be given to the commercial banks, liquidating in return all their deposit accounts at the Fed. (3) The Fed then be liquidated, and go out of existence. (4) Each bank will now have gold equal to 100 percent of its demand deposits. Each bank's capital will be written up by the same amount; its capital will now match its loans and investments. At last, each commercial bank's loan operations will be separate from its demand deposits. (5) That each bank be legally required, on the basis of the general law against fraud, to keep 100 percent of gold to its demand liabilities. These demand liabilities will now include bank notes as well as demand deposits. Once again, banks would be free, as they were before the Civil War, to issue bank notes, and much of the gold in the hands of the public after liquidation of Federal Reserve Notes would probably find its way back to the banks in exchange for bank notes backed 100 percent by gold, thus satisfying the public's demand for a paper currency. (6) That the FDIC be abolished, so that no government guarantee can stand behind bank

inflation, or prevent the healthy gale of bank runs assuring that banks remain sound and noninflationary. (7) That the U.S. Mint be abolished, and that the job of minting or melting down gold coins be turned over to privately competitive firms. There is no reason why the minting business cannot be free and competitive, and denationalizing the mint will insure against the debasement by official mints that have plagued the history of money.

In **summary**, at virtually one stroke, and with no deflation of the money supply, the Fed would be abolished, the nation's gold stock would be denationalized, and free banking be established, with each bank based on the sound bottom of 100 percent reserve in gold. Not only gold and the Mint would be denationalized, but the dollar too would be denationalized, and would take its place as a privately minted and noninflationary creation of private firms. This plan would at long last separate money and banking from the State. Expansion of the money supply would be strictly limited to increases in the supply of gold, and there would no longer be any possibility of monetary deflation. Inflation would be virtually eliminated, and so therefore would inflationary expectations of the future. Interest rates would fall, while thrift, savings, and investment would be greatly stimulated. And the dread specter of the business cycle would be over and done with, once and for all.

To clarify how the plan would affect the commercial banks, let us turn, once more, to a simplified T-account. Let us assume, for purposes of clarity, that the commercial banks' major liability is demand deposits, which, along with other checkable deposits, totaled $317 billion at the end of December 1981. Total bank reserves, either in Federal Reserve notes in the vaults or deposits at the Fed, were approximately $47 billion. Let us assume arbitrarily that bank capital was about $35 billion, and then we have the following aggregate balance sheet for commercial banks at the end of December 1981 (**Figure 17.1**). We are proposing, then, that the federal government disgorge its gold at a level of 100 percent to total dollars, and that the Fed, in the process of its liquidation, give the gold pro rata to the individual banks, thereby raising their equity by the same amount.

Commercial Banks

Assets		Equity & Liabilities	
Loans and investments	$305 billion	Demand deposits	$317 million
		Equity	$35 billion
Reserves	$47 billion		
Total Assets	$352 billion	Equity plus total liabilities	$352 billion

FIGURE 17.1 — THE STATE OF THE COMMERCIAL BANKS: BEFORE THE PLAN

Thus, in the hypothetical situation for all commercial banks starting in Figure 17.1, the new plan would lead to the following balance sheet (**Figure 17.2**). In short, what has happened is that the Treasury and the Fed have turned over $270 billion in gold to the banking system. The banks have written up their equity accordingly, and now have 100 percent gold reserves to demand liabilities. Their loan and deposit operations are now separated.

Commercial Banks

Assets		Equity & Liabilities	
Loans and investments	$305 billion	Demand deposits	$317 million
		Equity	$305 billion
Reserves	$317 billion		
Total Assets	$622 billion	Equity plus total liabilities	$622 billion

FIGURE 17.2 — THE STATE OF THE COMMERCIAL BANKS: AFTER THE PLAN