

# INTRODUCTION TO SOVEREIGN CURRENCY: THE GOVERNMENT AND ITS MONEY

## Chapter Outline

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## Learning Objectives

- Explain why a fiat currency is valued and is acceptable in domestic transactions.
- Recognise the distinction between fixed and floating exchange rate regimes and their significance for the conduct of macroeconomic policy.
- Understand how IOUs are created and extinguished.

## 9.1 Introduction

In this chapter we will examine in more detail several of the concepts briefly introduced in earlier chapters of this textbook. We first turn to the money of account and the nation's currency and note that the latter is no longer backed by a precious metal, such as gold. We argue that the so-called **fiat currency** is valued and widely used in transactions because it is required as the means to pay taxes and other obligations levied by the state. All financial stocks and flows are denominated in the national money of account. In this context the financial system can be viewed as a record of transactions, that is, a scoreboard. We then examine the difference between floating and fixed exchange rate systems.

Government and non-government IOUs are denominated in the national currency, or money of account. After defining leveraging (use of debt), we argue that these different types of IOUs can be conceived of as a financial pyramid, with government IOUs at the top.

Finally, we emphasise the need to use the term 'money' very carefully to avoid confusion.

## 9.2 The National Currency (Unit of Account)

Let us look at money as the **unit of account** in which stocks and flows are denominated.

### One nation, one currency

In Chapter 6, we introduced the concept of the money of account. The Australian dollar, the US dollar, the Japanese yen, the British pound, and the European euro are all examples of a money of account. The first four are each associated with a single nation which, throughout history, has been the usual situation: 'one nation, one currency'. There have been a few exceptions to this rule, including the modern euro, which is the money of account adopted by several countries that have joined the Economic and Monetary Union of the European Union (EMU). When we address the exceptional cases, such as the EMU, we will carefully identify the differences that arise when a currency is used, but not issued, by a nation.

Most of the discussion that follows will be focused on the more common case in which a nation adopts its own money of account. The government of the nation issues a currency (usually consisting of metal coins and paper notes of various denominations) denominated in its money of account. Spending by the government as well as tax liabilities, fees, and fines owed to the government are denominated in the same money of account. These payments are enforceable by law. More generally, broad use of a nation's money of account is ensured by enforcing monetary contracts in a court of law, such as the payment of wages.

In many nations there are private contracts that are written in foreign monies of account. For example, in some Latin American countries it is common to write some kinds of contracts in terms of the US dollar. It is also common in many nations to use US currency in payment. Many contracts governing international trade are denominated in US dollars, even if neither party uses that specific currency as their own. According to some estimates, the total value of US paper currency circulating outside America exceeds the value of US paper currency used at home. Much of this is thought to be involved in illegal activities, including the drug trade.

Thus, one or more foreign monies of account as well as the corresponding foreign currencies might be used in addition to the domestic money of account and the domestic currency denominated in that unit. Sometimes this is explicitly recognised, and permitted by, the authorities, while other times it is part of the underground economy that tries to avoid detection by using foreign currency. While we recognise these deviations from the 'one currency, one nation' rule, they generally account for a relatively small proportion of transactions and contracts, most of which will be denominated in the nation's own money of account.

### Sovereignty and the currency

The national currency is often referred to as a **sovereign currency**, that is, the currency issued by the sovereign government. The sovereign government retains a variety of powers for itself that are not given to private individuals or institutions. Here, we are only concerned with those powers associated with money. The sovereign government alone has the power to determine which money of account it will recognise for official accounts. Further, modern sovereign governments alone are invested with the power to issue the currency denominated in each nation's money of account. For example, if any entity other than the US government tried to issue US currency it would be prosecuted as a counterfeiter, with severe penalties being imposed. (Enemy nations do sometimes try to undermine a nation's economy by counterfeiting its currency, hoping to cause inflation and destroy trust in the currency.)

As noted above, the sovereign government imposes tax liabilities (as well as fines and fees) in its money of account, and decides how these liabilities can be paid: that is, it decides what it will accept in payment so that taxpayers can fulfil their obligations.

Finally, the sovereign government also decides how it will make its own payments, when it purchases goods or services, or meets its own obligations, such as pensions to retirees. Most modern sovereign governments make payments in their own currency, and require tax payments in the same currency. For reasons that we will examine, requiring tax payments in the governments' currency ensures that the same currency will be accepted in payments made by government.



### What 'backs up' the currency?

There has been ongoing confusion surrounding sovereign currency. For example, many policy makers and economists have had trouble understanding why the private sector would accept currency issued by the government when it made purchases. Some have argued that it is necessary to 'back up' a currency with a precious metal to ensure acceptance in payment.

Historically, governments have sometimes maintained a reserve of gold or silver (or both) against their currency. It was thought that if the population could always return currency to the government to obtain precious metal instead, then the currency would be accepted because it would be thought to be 'as good as gold'. Sometimes the currency itself did contain precious metal, as in the case of gold coins.

For example, in the US, the treasury maintained gold reserves equal to 25 per cent of the value of the issued currency until the late 1960s, but American citizens were not allowed to redeem currency for gold; only foreign holders of US currency could do so. However, the US and most nations have long since abandoned this practice. Even with no gold backing, the US currency is still in high demand all over the world. This demonstrates that the view that currency needs precious metal backing is erroneous.

### Legal tender laws

Another explanation offered for a currency's acceptance are legal tender laws. Historically, sovereign governments have enacted legislation requiring their currencies to be accepted in payments. Indeed, paper currency issued in the US proclaims 'this note is legal tender for all debts, public and private'; Canadian notes say 'this note is legal tender'; and Australian paper currency reads: 'This Australian note is legal tender throughout Australia and its territories.' By contrast, the paper currency of the UK simply says: 'I promise to pay the bearer on demand the sum of five pounds' (in the case of the £5 note). On the other hand, the euro paper currency makes no promises.

Further, throughout history there are many examples of governments that passed legal tender laws, but still could not create a demand for their currencies, which were not accepted in private payments, and were sometimes even rejected in payments by the government. In some cases, the penalty for refusing to accept a king's coin included the burning of a red hot coin into the forehead of the recalcitrant. Hence, there are currencies that readily circulate without any legal tender laws as well as currencies that were shunned even with legal tender laws. Further, as we know, the US dollar circulates in many countries in which it is not legal tender (and even in countries where its use is discouraged by the authorities).

### Fiat currency

Modern currencies are often called **fiat currencies** because there is no promise made by government to redeem them for precious metal. Their value is proclaimed by 'fiat' (the government legislates a new issue of currency and announces that a coin is worth a half dollar without holding a reserve of precious metal equal in value to a half dollar). Many students on economics courses are shocked when they are first told that there is 'nothing' backing the currency in their pockets but the government's 'fiat'. While they had probably never contemplated actually taking the currency down to the treasury to exchange it for gold, they had found comfort in the erroneous belief that there was 'something' standing behind the currency, perhaps a reserve of precious metal that was available for redemption.

The UK currency's 'promise to pay the bearer on demand the sum of five pounds' appears to offer a sound basis, implying that the treasury holds something in reserve that it can use to make the promised payments. However, if one were to actually present to the UK government a five pound note, the treasury would simply offer another five pound note, or a combination of coins that sum to five pounds! Any citizen of the US or Australia would experience the same outcome at their own treasuries: a five dollar note can be exchanged for a different five dollar note, or for some combination of notes and coins to make five dollars. That is the extent of the government's 'promise to pay'!

If currency cannot be exchanged for precious metal, and if legal tender laws are neither necessary nor sufficient to ensure acceptance of a currency, and if the government's 'promise to pay' really amounts to nothing, then why would anyone accept a government's currency? Let us try to determine the answer.



### Taxes drive the demand for money

One of the most important powers claimed by a sovereign government is the authority to levy and collect taxes (and other payments made to government, including fees and fines). Tax obligations are levied in the national money of account, for example, dollars in the US and Australia, yen in Japan, pounds in the UK and so on. Further, the sovereign government also determines what can be delivered to satisfy the tax obligation. In all modern nations, it is the government's own currency (usually in the form of its central bank reserves, as we explain next) that is accepted in payment of taxes.

Some taxpayers use cheques drawn on private banks to make tax payments, whilst others will transfer the funds electronically to the government. When government receives these cheques and transfers, it debits the reserves of the private banks, which are held at the central bank. Reserves are just a special form of government currency used by banks to make payments to one another and to the government. Like all currency, reserves are the government's IOU. Effectively, private banks intermediate between taxpayers and government, making tax payments in currency (reserves) on behalf of the taxpayers. Once the banks have made these payments, the taxpayer has fulfilled their obligation, so the tax liability is eliminated.<sup>1</sup>

We are now able to answer the question posed above: why would anyone accept a government's 'fiat' currency? The answer is that the government's currency is the main (and usually the only) thing accepted by government in payment of taxes and other obligations to the government. It is true of course that government currency can be used for other purposes: coins can be used to make purchases from vending machines; private debts can be settled by offering government paper currency; and government money can be hoarded in piggy banks for future spending. However, these other uses of currency are all subsidiary, deriving from government's willingness to accept its currency in tax payments. It is because anyone with tax obligations can use currency to eliminate these liabilities that government currency is in demand, and thus can be used in purchases or in payment of private obligations.

The government cannot easily force others to use its currency in private payments, or to hoard it in piggy banks, but government can force the use of its currency to meet the tax obligations that it imposes. For this reason, neither reserves of precious metals nor legal tender laws are necessary to ensure acceptance of the government's currency. All that is required is the imposition of a tax liability to be paid in the government's currency. The 'promise to pay' that is engraved on UK pound notes is superfluous and really quite misleading. We know that the UK treasury will not really pay anything (other than another note) when the five pound paper currency is presented. However, it will and must accept the note in payment of taxes. This is really how government currency is redeemed, not for gold but in payments made to the government. We will go through the accounting of tax payments in [Chapter 20](#). It is sufficient for our purposes now to understand that the tax obligations to government are met by presenting the government's own IOUs to the tax collector.

We can conclude that **taxes drive money**. The government first creates a money of account (such as the dollar), and then imposes tax obligations in that national money of account. In all modern nations, this is sufficient to ensure that most debts, assets, and prices, will also be denominated in the national money of account. The government is then able to issue a currency that is also denominated in the same money of account, so long as it accepts that currency in tax payment. When we talk about the government 'issuing' currency, the most usual way in which this occurs is through government spending. We say **the government spends the currency into existence**. It can also make loans.

It is not necessary to 'back' the currency with precious metal, nor is it necessary to enforce legal tender laws that require acceptance of the national currency. For example, rather than engraving the statement 'This note is legal tender for all debts, public and private', all the US government needs to do is to promise 'This note will be accepted in the payment of taxes' in order to ensure its general acceptability within the US and even abroad.

In the Appendix to [Chapter 2](#), we introduced the Buckaroos model which refers to the currency which US students acquire when they undertake hours of community service (CS) during each year of their degree programmes. Buckaroos (Bs) enable students to meet their tax obligations and this currency clearly has value, but is not backed by a precious metal. Buckaroos do not have widespread acceptability in the economy, because taxes are levied in \$US by the government. However, it is quite conceivable that some transactions would occur



between students in which Buckaroos are exchanged for dollars. Some students may be prepared to undertake additional hours of CS, whereas others may be prepared to buy Buckaroos with dollars, rather than undertaking the required CS work.

In **Box 9.1**, we illustrate the argument that fiat currencies have value, despite not being backed by precious metal, by reference to the use of paper currency in colonial Virginia in the late 18th century.

## BOX 9.1

### AN HISTORICAL NOTE: PAPER NOTES AND REDEMPTION TAXES IN COLONIAL AMERICA

The notion that taxes drive money can be demonstrated through examination of the history of coinage and of the issue of paper money. In his examination of colonial Virginia's use of paper currency Farley Grubb (2015) demonstrates the principle of imposing taxes for redemption of paper notes. The American colonies were prohibited by England from issuing coin, so as to protect the King's monopoly of coinage. The colonies obtained coin from exports, but as a major mercantilist power, England limited colonial exports to the raw materials they needed. The colonies had to import finished goods, shipping the coins back to England. The King also wanted to limit expenditures on his empire, so the colonies were largely responsible for funding their expenses, which included fighting wars with the French, the Canadians, and Native Americans. Colonial governments were hence chronically short of British coins, obtained through taxes such as poll taxes and taxes on exports of slaves and tobacco.

To increase fiscal capacity, the colonial governments began to issue paper money. Virginia's colonial government passed a series of acts to authorise the issue of treasury paper notes. Each law would include the total value of notes (denominated in Virginia pounds) to be issued and would set a date for final 'redemption' (the term used by Grubb as well as by the lawmakers). Interestingly, the law would also impose a new set of taxes at the time of the note issue:

*Every paper money act included additional new taxes, typically a land tax and a poll tax, that were operative for a number of years. The number of years over which these new additional taxes were operative was chosen so as to generate enough funds to fully redeem the notes authorised by each respective paper money act. The date in each paper money act set for the final redemption of the notes authorised by that act closely matched the end to the taxing period set by that act. (Grubb, 2015: 27)*

The Paper Money Acts that allowed the treasury to issue notes also imposed new taxes, with the recognition that the purpose of the taxes was to 'redeem' the currency. In fact, colonial paper money could be 'redeemed' in two ways: payment of taxes or presentation at the treasury for payment in (British) coins. The treasury would spend the newly issued paper money into the economy and those receiving the treasury notes could use it to pay taxes, or spend it, or submit it to the treasury in exchange for coins.

What did the treasury do with the notes it received in tax payment? Grubb (2015: 17) reports that the "notes were removed and burned", not spent. This runs counter to the common belief that a government needs tax revenue in order to spend. The colonial case shows that government first had to spend before it collected tax revenue, and once it received the revenue, the government burned it rather than spent it.

Grubb shows that most taxes were paid using the paper money, and most paper money was 'redeemed' in tax payment:

*A redemption tax of 10,327EVA was collected, of which 2,527EVA was in specie that was explicitly set aside in a dedicated account to be used to redeem notes brought to the treasury. The rest of the tax payments were burnt, implying that those tax payments were made in notes. Therefore, 76 percent of this tax was paid in notes, and 24 percent was paid in specie. (Grubb, 2015: 29)*



What about the notes that were not 'redeemed' by either method? They continued to circulate:

*[A]t the final redemption date holders of the respective notes did not rush to the treasury to exchange them for specie. The notes continued in circulation and note holders could cash them in at the treasury at their leisure. Robert Nicholas Carter, Virginia treasurer after 1766, noted this behavior, 'Most of the Merchants as well as others, ... preferred them [Virginia's treasury notes] either to Gold or Silver, as being more convenient for transacting the internal Business of the Country' (William and Mary College Quarterly Historical Magazine, 1912: 235). (Grubb, 2015: 30)*

Likewise, Adam Smith [1937[1776]] had argued that if the colonies were careful to ensure they did not create too much paper money relative to taxes, it would not depreciate in value (indeed it might even circulate at a premium, he argued). Redemption of the notes in tax payment would remove them from circulation, keeping them scarce. Grubb argues that this was well recognised by the colonial government:

*The Virginia legislature took note redemption and its effect on controlling the value of its paper money seriously. Such is illustrated in the March 1760 paper money act which stated, 'And whereas it is of the greatest importance to preserve the credit of the paper currency of this colony, and nothing can contribute more to that end than a due care to satisfy the publick that the paper bills of credit, or treasury-notes, are properly sunk, according to the true intent and meaning of the several acts of assembly passed for emitting the same; and the establishing a regular method for this purpose may prevent difficulties and confusion in settling the publick accounts... (Hening 1969, v. 7, p. 353)'. (Grubb, 2015: 27–28).*

This emphasises the fact that the notes were removed from circulation to protect the value of the government's paper currency, not to provide 'revenue' that government could spend. The problem with spending notes in excess of redemption would not be government insolvency, but rather inflation. The taxes were meant not to 'raise revenue' for spending. The government also realised it needed to receive a portion of tax revenue in the form of coin. This was to ensure that it could meet its promise to redeem notes for coin.

Redemption of the tax obligations by returning paper notes to the treasury not only 'redeemed' the colonial government (in the sense that its paper note debts were extinguished), but it also redeemed the taxpayers who owed taxes. The redemption is mutual and simultaneous: both the 'creditor' – the taxpayer – and the 'debtor' – the note-issuing treasury – were redeemed. At the same time, the 'debtor' taxpayer was redeemed of the duty to pay taxes to the 'creditor' treasury. The four entries on the balance sheets were all simultaneously wiped clean.

Creation of the notes preceded their redemption in tax payment. Note creation (through government spending) logically comes before note redemption (through taxation). Indeed, it would have been impossible for the colonists to pay the new taxes given the chronic shortage of coin unless the notes were issued and spent first. Nor would the government have needed to impose the new taxes if it was not going to spend the notes!

What this shows is that modern interpretations of 'redemption' are based on a narrow definition that applies when the issuer of a currency promises to 'redeem' that currency for either gold (gold standard) or a foreign currency (fixed exchange rate) at a promised exchange rate. Of course, there are issuers who make such a promise. However, the more common (and more fundamental) promise is that of accepting one's own liabilities in payments due, such as taxes owed to the issuer of a sovereign currency. Even in this case, the sovereign can also promise to 'redeem' the currency for gold or foreign currency (the Virginia colony promised redemption in English coin). We see this as an additional promise that applies in some cases, but a promise that is now rare among developed nations (the EMU nations are an exception<sup>2</sup>). The promise to accept its own currency in payment is the more common and indeed universal promise of 'redemption'. And it is sufficient to 'drive' a currency.



### Financial stocks and flows are denominated in the national money of account

Financial stocks and financial flows are denominated in the national money of account. While working, the employee earns a flow of wages that are denominated in money, effectively accumulating a monetary claim on the employer (see [Chapter 6](#)). On payday, the employer eliminates the obligation by providing a wage payment via, say, an electronic transfer to the worker's bank account, that is a liability of the employer's bank. Again, that is denominated in the national money of account. If desired, the worker can draw on that bank deposit and receive the government's currency, again an IOU of the government.

Any disposable income that is not used for consumption purchases represents a flow of saving, accumulated as a stock of wealth. In this case, the saving is held as a bank deposit, that is, as financial wealth. These monetary stocks and flows are conceptually nothing more than accounting entries, measured in the money of account. We can easily imagine doing away with coins and paper notes as well as cheque books, with all payments made through electronic entries using computers connected via the internet. All financial wealth could similarly be accounted for without use of paper.

In [Chapter 5](#), we carefully examined the definitions of stocks (for example, wealth) and flows (for example, income, spending, and saving), as well as the relationships between them.

### The financial system as an electronic scoreboard

The modern financial system can be seen as an elaborate system of record keeping, a sort of financial scoring of the game of life in a capitalist economy. Financial scoring can be compared with a scoreboard at a sporting event. When a team scores, the official scorer awards points, and electronic pulses are sent to the appropriate combination of LEDs so that the scoreboard will show the number of points awarded. As the game progresses, points totals are adjusted for each team. The points have no real physical presence; they simply reflect a record of the performance of each team according to the rules of the game. They are not 'backed' by anything, although they are valuable because the team that accumulates the most points is deemed the 'winner', and perhaps rewarded with fame and fortune. Further, in accordance with applicable rules, points might be taken away after review by officials who determine that rules were broken and that penalties should be assessed. The points that are taken away don't really go anywhere; they simply disappear as the scorekeeper deducts them from the score.

Similarly, in the game of life, earned income leads to 'points' credited to the 'score' that is kept by financial institutions. Unlike a sporting contest, in the game of life, every 'point' that is awarded to one player is deducted from the 'score' of another, either reducing the payer's assets or increasing their liabilities. Accountants in the game of life are very careful to ensure that financial accounts always balance. The payment of wages leads to a debit of the employer's 'score' at the bank, and a credit to the employee's 'score', but at the same time, the wage payment eliminates the employer's implicit obligation to pay wages as well as the employee's legal claim to wages. So, while the game of life is a bit more complicated than the football game, the idea that record keeping in terms of money is a lot like record keeping in terms of points can help us to remember that money is not a 'thing' but rather is a unit of account in which we keep track of all the debits and credits, or 'points'.

When thinking about the 'scores' the currency-issuing government might record (via government spending the currency into existence), it doesn't make sense to say that the government can run out of money. That would be like saying a game must be terminated at some point before the scheduled end because the scorer had run out of scores to post on the scoreboard. We will come back to that point in later chapters.

## 9.3 Floating versus Fixed Exchange Rate Regimes

An **exchange rate** is the amount of currency A that can be purchased by a unit of currency B in what we call the foreign exchange market. We will consider these markets in more detail in [Chapter 24](#). Government can allow its currency to be freely exchanged at whatever value the foreign exchange market determines (floating rates) or try to manage the exchange value, usually under multilateral agreements between nations (fixed rates). These different arrangements have implications for the conduct of economic policy, which we will briefly consider in this section.



In previous sections, we dealt with the case of governments that do not promise to convert their currencies on demand into precious metals or anything else. When a five dollar note is presented to the US Treasury, it can be used to pay taxes or it can be exchanged for some combination of notes and coins that sums to five dollars, but the US government will not convert it to anything else. Further, the US government does not promise to maintain the exchange rate of US dollars against other currencies at any particular level. This is the typical situation for most nations.

Most of this textbook will be concerned with sovereign currencies which operate with **floating exchange rates** against other currencies, so that they are not convertible at a fixed rate to another currency. Examples of such currencies include the US dollar, the Australian dollar, the Canadian dollar, the UK pound, the Japanese yen, the Turkish lira, the Mexican peso, the Argentinian peso, and so on.

What are the differences between fixed and floating exchange rates and what are the implications of this distinction?

### The gold standard and fixed exchange rates

A century or so ago, many nations operated with a gold standard in which the country not only promised to redeem its currency for gold, but also promised to make this redemption at a fixed exchange rate. An example of a fixed exchange rate is a promise to convert 35 US dollars to one ounce of gold. For many years, this was indeed the official US exchange rate. Other nations also adopted fixed exchange rates, pegging the value of their currency either to gold, or after the Second World War, to the US dollar. For example, at the inception of the post-war system, known as the Bretton Woods system, the official exchange rate for the UK pound per US dollar was 0.2481 (on 27 December 1945). This is equivalent to a person receiving four US dollars for each UK pound presented for conversion. As all other currencies in the system were set relative to the US dollar, this also set their values relative to each other. So on 27 December 1945, 119.1 French francs exchanged for one US dollar, which meant that 480 francs were required to purchase one UK pound. In [Chapter 24](#), we will learn how to interpret exchange rate quotations and to calculate various cross parities.

In order to make good on its promises to convert its currency at fixed exchange rates, each nation had to keep a reserve of foreign currencies (and/or gold). For example, if a lot of UK pounds were presented for conversion to US dollars (for example, by foreign central banks to the Bank of England), the UK's reserves of foreign (mostly dollar) currency could be depleted rapidly. There were three strategies that could be adopted by the UK government to avoid running out of foreign currency reserves, but none of them were very pleasant. They included: (a) alter the value of the pound against the US dollar, that is, devalue; (b) borrow foreign currency reserves; or (c) deflate the economy using higher interest rates and/or fiscal cutbacks to curtail imports and attract capital inflow.

Under this fixed exchange rate system, countries with trade deficits (exports less than imports) always had difficulties maintaining the agreed exchange parity because the trade deficit manifests in foreign exchange markets as an excess supply of the nation's currency relative to all other currencies. This is because when a nation sells exports, foreign buyers must supply their own currency in return for that nation's currency, and when a nation buys imports, it must supply its own currency in return for the currency of the nation from which it is importing. Thus, a trade deficit amounts to an excess supply of the deficit nation's currency in the foreign exchange market, which pushes the price (exchange rate) downwards. To arrest the decline in the exchange rate, the central bank is required to buy up its currency in the foreign exchange market using stocks of foreign currency, which eliminates the excess supply. However, nations with chronic trade deficits sooner or later ran out of stores of foreign currencies. These pressures eventually undermined the viability of the Bretton Woods system and it collapsed in August 1971.

### Floating exchange rates

In August 1971, US President Nixon abandoned US participation in the fixed exchange rate system because the USA was unable to continue to guarantee conversion of US dollars into gold at the agreed price. Many countries followed suit. This meant that these governments no longer promised to convert their currency to another



currency (or gold) at a fixed rate. As a result, the relative values of currencies against one another were allowed to float, meaning that they would be determined hour by hour according to forces of demand and supply in the foreign exchange market.

Today it is easy to convert most currencies, including floating currencies, into any other major currency at private banks and at kiosks in international airports. Currency exchanges enact these conversions at the current exchange rate set in international markets (minus the fees charged for the transactions). These exchange rates change day by day, or even minute by minute, fluctuating to match demand (from those trying to obtain the currency in question) and supply (from those offering that particular currency in exchange for other currencies).

The determination of exchange rates in a floating exchange rate system is exceedingly complex. The international value of the US dollar, for example, might be influenced by such factors as the demand for US assets, the US trade balance, US interest rates relative to those in the rest of the world, US inflation, and US growth relative to that in the rest of the world. So many factors are involved that no statistical model that can reliably predict movements of exchange rates has been developed yet.

What is important for our analysis however is that with a floating exchange rate, a government does not need to fear that it will run out of foreign currency reserves (or gold reserves) for the simple reason that it does not convert its domestic currency to foreign currency at a fixed exchange rate. Indeed, the government does not have to promise to make any conversions at all. In practice, governments operating with floating exchange rates hold foreign currency reserves, and they offer currency exchange services for the convenience of their financial institutions. However, the conversions are done at current market exchange rates, rather than keeping the exchange rate at a prescribed level.

Governments intervene into currency exchange markets to try to nudge the exchange rate in the desired direction. They also will use macroeconomic policy (including monetary and fiscal policy, as discussed in [Chapter 20](#)) in an attempt to affect exchange rates. Sometimes this works, and sometimes it does not. The point is that with a floating exchange rate attempts to influence exchange rates are discretionary. By contrast, with a fixed exchange rate government must use policy to try to keep the exchange rate fixed.

The floating exchange rate ensures that the government has greater freedom to pursue other policy goals, such as maintenance of full employment, sufficient economic growth, and price stability. How it might do that is discussed in later chapters.

## 9.4 IOUs Denominated in National Currency: Government and Non-Government

In previous sections we have noted that assets and liabilities are denominated in a money of account, which is chosen by a national government and given force through the mechanism of taxation. With a floating exchange rate, the government's own IOUs – its currency – are non-convertible in the sense that the government makes no promise to convert them to precious metal, to foreign currency, or to anything else. Instead, it promises to accept its own IOUs in payments made to itself (mostly tax payments, but also payments of fees and fines). This is the necessary and fundamental promise made: the issuer of an IOU must accept that IOU in payment. So long as the government agrees to accept its own IOUs in tax payments, the government's IOUs will be in demand (at least for tax payments, and probably for other uses as well).

Similarly, private issuers of IOUs also promise to accept their own liabilities. For example, if you have a loan with your bank, you can always pay the principal and interest on the loan by writing a cheque on your deposit account at the bank. Actually, all modern banking systems operate a cheque clearing facility so that each bank accepts cheques drawn on all other banks in the country. This allows anyone with a debt due to any bank in the country to present a cheque drawn on any other bank in the country for payment of the debt. The cheque clearing facility then operates to settle accounts among the banks. This topic will be discussed in detail in [Chapter 20](#). The important point is that banks accept their own liabilities (cheques drawn on deposits) in payments on debts due to banks (the loans banks have made), just as governments accept their own liabilities (currency) in payments on debts due to government (tax liabilities).



## Leveraging

There is one big difference between government and banks, however. Banks do promise to convert their liabilities to something. You can present a cheque to your bank for payment in currency, what is normally called 'cashing a cheque', or you can simply withdraw cash at the Automatic Teller Machine (ATM) from one of your bank accounts. In either case, the bank IOU is converted to a government IOU. Banks normally promise to make these conversions either 'on demand' (in the case of 'demand deposits', which are normal cheque accounts) or after a specified time period (in the case of 'time or term deposits', including savings accounts and certificates of deposit, known as CDs, perhaps with a penalty for early withdrawal).

Because banks make this promise to convert on demand, they must either hold reserves of currency, or have quick access to them. Their reserves take the form of vault cash plus deposits held at the central bank. Note that they need to hold only a small amount of reserves against their deposits because they know that redemptions (withdrawals) over any short period will be a tiny fraction of their total deposits.

The fraction of reserves against deposits is called the reserve ratio. We can think of deposits as **leveraging** the reserves. For example, in the USA, the ratio of reserves against bank deposits is around one per cent. This means the leverage ratio is 100 to one.

Banks hold a relatively small amount of currency in their vaults to handle conversions on demand, but most of their reserves take the form of deposits at the central bank. If they need more currency, they ask the central bank to send an armoured truck with the desired notes and coins. For our purposes here, bank reserves (deposits at the central bank) are equivalent to vault cash because a bank can immediately convert them to currency to meet cash withdrawals. There is no functional difference between cash held in bank vaults and reserve deposits held at the central bank. We can include both as currency, government liabilities with zero time to maturity.

Banks don't like to hold a lot of vault cash or reserves, nor do they need to do so in normal circumstances. Holding lots of cash on the premises could increase the attractiveness of a bank to robbers, but the main reason for minimising holdings is that it is costly to hold currency. The most obvious costs are the vault and the need to hire security guards. However, more important to banks is the fact that holding reserves does not earn much profit. Banks would rather hold loans as assets because debtors pay interest on these loans. For this reason, banks operate with high leverage ratios, holding a very tiny fraction of their assets in the form of reserves against their deposit liabilities. So long as only a small percentage of their depositors try to convert deposits to cash on any given day, this is not a problem. However, in the case of a bank run (in which a large number of customers try to convert their deposits to cash on the same day), the bank will have to obtain currency from the central bank. This can even lead to a lender of last resort action by the central bank in lending currency reserves to a bank facing a run. These are issues that we will address in [Chapter 23](#).

## Clearing accounts extinguish IOUs

There is another reason that banks hold reserves. When you write a cheque on your bank account to pay a bill, the recipient of the cheque will deposit it in their own bank, which is probably a different bank. Their bank will present the cheque to your bank for payment. This is called **clearing accounts**. Banks clear accounts using government IOUs, and for that reason banks maintain reserve deposits at the central bank. More importantly, they have access to more reserves should they ever need them, both through borrowing from other banks in the interbank market for reserves (an overnight market where banks lend to and borrow from each other), or through borrowing them from the central bank. All modern financial systems have developed procedures to ensure banks can get currency and reserves as necessary to clear accounts among themselves and with their depositors. The central bank is duty bound to provide banks with sufficient reserves should they fall short on any particular day.

When First National Bank receives a cheque drawn on Second National Bank, it asks the central bank to debit the reserves of Second National and to credit its own reserves. This is now handled electronically. Note that while Second National's assets will be reduced (by the amount of reserves debited), its liabilities (cheque deposit) will be reduced by the same amount. Similarly, when a depositor uses the ATM to withdraw currency, the bank's assets (cash reserves) are reduced, and its IOUs to the depositor (the liabilities in the deposit account) are reduced by the same amount.



Other business firms use bank liabilities for clearing their own accounts. For example, a retail firm typically receives products from wholesalers on the basis of a promise to pay after a specified time period (usually 30 days in the US). Wholesalers hold these IOUs until the end of the period, at which time the retailers pay by a cheque drawn on their bank account or by an electronic transfer from their account to the account of the wholesaler. At this point, the retailer's IOUs held by the wholesaler are cancelled.

Alternatively, the wholesaler might not be willing to wait until the end of the period for payment. In this case, the wholesaler can sell the retailer's IOUs at a discount (for less than the amount that the retailer promises to pay at the end of the period). The discount is effectively interest that the wholesaler is willing to pay to get the funds earlier than promised. The retailer effectively earns interest (the difference between the amount paid for the IOUs and the amount paid to the wholesaler to extinguish the IOUs). Again, the retailer's IOU is cancelled by delivering a bank liability (the holder of the retailer's IOU receives a credit to their own bank account). As we will see in [Chapter 23](#), discounting is the basis of both commercial banking and of interest rates.

### Pyramiding currency

Another important point is that private financial liabilities are not only denominated in the government's money of account, they also are ultimately convertible into the government's currency. As we have discussed, banks explicitly promise to convert their liabilities to currency (either immediately in the case of demand deposits, or with some delay in the case of time deposits). Other private firms mostly use bank liabilities to clear their own accounts. Essentially, this means they are promising to convert their liabilities to bank liabilities, 'paying by cheque' on a specified date (or according to other conditions specified in the contract). For this reason, they must have deposits, or have access to deposits, with banks to make the payments.

Things can get even more complex than this because there is a wide range of financial institutions (and even non-financial institutions offering financial services) that can provide payment services. These organisations can make payments for other firms, with net clearing among these 'non-bank financial institutions' occurring using the liabilities of banks. Banks in turn clear accounts using government liabilities. There could thus be 'six degrees of separation' (many layers of financial leveraging) between a creditor and a debtor involved in clearing accounts.

We can think of a pyramid of liabilities, with different layers corresponding to the degree of separation from the central bank. Perhaps the bottom layer consists of the IOUs of households that are held by other households, by firms engaged in production, by banks, and by other financial institutions. The important point is that households usually clear accounts by using liabilities issued by those higher in the debt pyramid, typically financial institutions.

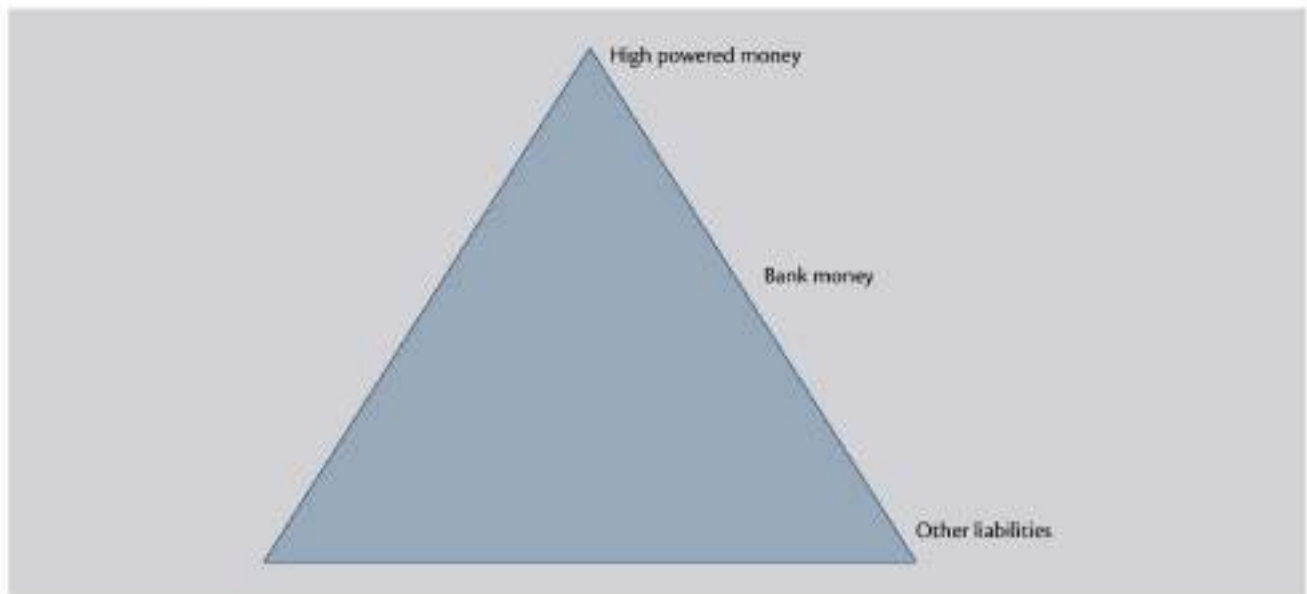
The next layer up from the bottom consists of the IOUs of firms engaged in production, with their liabilities held mostly by financial institutions higher in the debt pyramid (although some are directly held by households and by other production firms), and who mostly clear accounts using liabilities issued by the financial institutions, sometimes called shadow banks.

At the next layer we have non-bank financial institutions, which in turn clear accounts using the banks whose liabilities are higher in the pyramid. Banks use government liabilities for net clearing.

Finally, the government is at the top of the pyramid, with no liabilities higher than its non-convertible IOUs. The shape of the pyramid is instructive for two reasons. First, there is a hierarchical arrangement whereby liabilities issued by those higher in the pyramid are generally more acceptable. In some respects, this is due to higher credit-worthiness because the government's liabilities are free of credit risk. As we move down the pyramid through bank liabilities, toward non-financial business liabilities, and finally to the IOUs of households, risk tends to rise, although this is not a firm and fast rule. Second, the liabilities at each level typically leverage the liabilities at the higher levels. In this sense, the whole pyramid is based on leveraging (a relatively smaller number of) government IOUs. This is a concept to which we will return in the next section.

[Figure 9.1](#) shows a 'pyramid' (as per the concept developed by Hyman Minsky and Duncan Foley, and extended by Stephanie Bell) which provides a visual representation of the concept of leveraging. At the top of the pyramid are the government's liabilities, which we refer to as the monetary base, and constitute the sum of all bank



**Figure 9.1** The Minsky–Foley pyramid

reserves held in the central bank clearing accounts and outstanding currency (notes and coins). At the bottom of the pyramid we include all other money-denominated liabilities (these could include the IOUs of non-financial firms as well as those of households).

## 9.5 Use of the Term ‘Money’: Confusion and Precision

Before concluding this chapter, we will briefly distinguish between our use of the term ‘money’ and the way it is often used. ‘Money’ is often used colloquially to refer to income, as in asking ‘how much money do you make at your job?’. As was discussed in [Chapter 5](#), income is a flow measured in nominal terms, that is, in the money of account. In this book, we will always carefully distinguish flows from stocks, and will not use the term ‘money’ in place of ‘income’.

The term ‘money’ is also often used to indicate a particular liability, such as the demand deposit liability of a bank, or the currency IOU of the government. In fact, as we have discussed above, all financial liabilities are denominated in a money of account. It is thus rather arbitrary to call some of these ‘money’ and to exclude others. Further, each time one uses the term ‘money’ to refer to money-denominated liabilities in general, one must provide a list of those that are included as ‘money’ or a list of those that are excluded. Otherwise, we can never be sure what the speaker means.

Throughout this book, we will carefully distinguish between the money of account (the US dollar or the Australian dollar, for example), and specific money-denominated liabilities (demand deposits issued by banks or currency issued by the government, for example). The term ‘money’ simply refers to the unit of account chosen by government to denominate tax liabilities and payments made to government, the dollar in both the US and Australia.

As we have discussed, money does not have any physical existence but rather is the unit in which we can keep track of debts and credits, much as a ‘point’ is the unit of account used in a game of football to keep track of goals scored. Just as the score in football is denominated in goals, a coin is denominated in dollars (or fractions of a dollar). A goal in football takes a physical form (a player kicking the football into a specified area), but the points used to ‘account’ for the goal do not have any physical presence. In the same manner, a ten dollar note issued by a government has a physical form (a piece of paper imprinted with ink), but the ten dollars owed by the government that it ‘accounts’ for do not. We can think of the paper note as just the written record of the government’s IOU. What does it owe you? The right to discharge your ten dollars of tax liabilities using the ten dollar ‘record’ of the government’s IOU.



## Conclusion

In this chapter we defined and examined the characteristics of a sovereign money system – one in which a government issues its own currency. We explained that most countries around the world today (and back through history) have each adopted their own currency because this is linked to a country's independence and fiscal sovereignty. We also explained why floating exchange rate regimes generally provide the greatest fiscal and monetary policy space. By contrast, pegging an exchange rate to a foreign currency or to gold generally reduces policy space and creates the possibility that a nation will be forced to default on the promise to convert its currency on demand. While many people believe that it is necessary to 'back' a currency with something of value (gold, foreign currency), this chapter introduced the concept that 'taxes (or other obligations) drive money'. In other words, if citizens need the government's currency to pay taxes, then that will be sufficient to guarantee that the currency will be accepted.

Finally, the concept of 'leveraging' of the state's currency was discussed. Private debts and credits are denominated in the government's money of account (the same money of account in which the currency is denominated). Some of these private debts (most notably, bank demand deposits) are made convertible on demand to the state's currency. These are 'cleared' using the state's currency. Other types of private debts are cleared using bank liabilities. This led to the notion of a 'pyramid' of liabilities with the government's liabilities at the top, 'leveraged' by those lower in the pyramid.

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## Endnotes

1. The tax payment reduces the worker's financial wealth because their bank account is debited by the amount of the tax payment. At the same time, the government's asset (the tax liability owed by the worker) is eliminated when the taxes are paid, and the government's liability (the reserves held by private banks) is also eliminated. This is an example of the operation of the payments system, which will be analysed in greater detail in [Chapter 20](#).
2. Each member nation issues Euro-denominated currency and bonds that are convertible to European Central Bank liabilities at par.



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