



Institute of Actuaries of Australia

A Kindergarten guide to modern monetary theory

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Presented to the Institute of Actuaries of Australia
5th Financial Services Forum
13 - 14 May 2010
Sydney

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A Kindergarten guide to modern monetary theory

Frank Ashe

Abstract

A short guide to modern monetary theory is given. The approach is kept as simple as possible to highlight the logical coherence of the system of fiat money and its differences from a gold-standard theory of money. The role of the government is central to this discussion. Many common ideas concerning money, which are holdovers from a gold standard, do not hold under a fiat system and this has implications for financial systems.

Keywords: money, gold standard, credit, modern monetary theory, fiat money

When reading about modern monetary theory I suggest the following procedure:

- *Forget who you are.*
- *Forget what you think of government – good or bad – unless you are going to be able to get rid of government (that is, establish pure communism) you are stuck with it.*
- *Forget what you think of social policy – you may hate the unemployed or you may feel compassion – forget all emotions.*
- *Forget what nation you live in – it doesn't matter.*
- *Forget all prior economic concepts and training (if any).*
- *Then just try to understand what you read.*

Bill Mitchell¹

With a number of commentators coming up with contradictory views on how the world will come out of the GFC I was forced to wade into the morass of economic thought myself and see if there was anything that could be sensibly said.

The risk of the world ending up in unpalatable economic circumstances needs to be understood by any company in the finance industry, so what should a risk manager know? In terms of a standard risk management framework I was at stage one – identify the risks. Could I listen to the experts? No, they disagreed with each other. Could I get them to sit down and debate the matters sensibly? No, they talk past each other and don't listen. That in itself raises big risk management issues at a strategic level – we may or may not have a huge risk with no simple way of finding out. You have to assume the risk is there and plan accordingly. Separately, I chose to see if I could make sense of the arguments.

The following highly simplified account of fiat money and credit creation is my attempt to put one part of the economic theory, given the name of Modern Monetary Theory by its

¹ Mitchell (2009) In the spirit of debate ... my reply Part 2

developers², into plain talk. I have deliberately tried to dumb down the language as much as possible to ensure that anything that may be wrong will be glaringly obvious – it is far too easy to hide critical issues behind obfuscatory academic jargon³. This area of the theory of money is contentious, as all monetary theory seems to be. My particular interest in this particular theory is due to the very simple nature of its assumptions and the clarity of its logic – essentially looking at the consequences of a stock/flow consistent analysis of money and credit.

One important point that flows from this analysis is a recognition that most of the current discussion on the topic of money, credit, and the government sector finances has a language that comes from the gold standard era of money. Most economies have been in a fiat money system since the mid 1970s – it's time to move the discussion onto the proper footing.

As part of this, I've noticed it is easy to become confused between the boundary line demarcating (i) and (ii) and the boundary line demarcating (ii) and (iii) where:

- (i) what is easily accomplished using the current economic institutions, widely interpreted as: laws on budgetary outcomes; notional independence of central banks; presentation and discussion of government finances; imagined reactions of bond markets etc i.e. the self-imposed constraints under which a government manages the economy;
- (ii) what is actually happening under a fiat money system;
- (iii) what is not allowed under a fiat money system.

In discussion with various people I have found this confusion to be very difficult to overcome. The self-imposed constraints have so muddied the stream of discourse that it is difficult to see what is happening beneath the surface.

The following classroom discussion looks at the basic flows of a fiat money system.

For those people who start to read this and feel their hackles rising, please read Bill Mitchell's quote above. If you don't like the conclusions then please point out the error in my assumptions or my logic. It is not sufficient to point to a conclusion and say that it's obviously wrong – from personal observation, the obviousness of the wrongness is driven by imagining the self-imposed constraint is actually a logical constraint, or by cognitive dissonance. As Keynes said⁴ “Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist.”

No kangaroos are allowed – no jumping to conclusions that are not completely supported by the assumptions that have been made so far.

Everything I know about economics should have been taught at kindergarten!

Miss Money Penny is a kindergarten teacher with a very bright set of pupils:

- Neo, a bright boy who loves playing with models and watches lots of science fiction and fantasy movies peopled with supercomputers capable of fantastic computations,


² None of the ideas presented in the class discussion are my own. I am presenting others' ideas. The best introduction to the ideas is via an excellent series of articles on Bill Mitchell's blog at <http://bilbo.economicoutlook.net/blog>. Wray (1998) gives another exposition of the ideas.

³ As an example, see Walsh (2010) Monetary Theory and Policy, which has been cited (on the back cover) as the best, indeed only worthwhile, textbook on the subject.

⁴ Keynes (1936) The General Theory of Employment, Interest and Money, Ch24.




beings who can see all possible outcomes of theirs and others actions, and humans without emotions clouding their thinking;

- May, a clever girl who prides herself on changing her opinion when the facts change;
- Karl, always thinking about the underdog;
- Frank is a risk manager at a complex, diversified financial services company who has crept into the class because he can't understand what's happening in the GFC. He has a PhD in thinkology but still gets confused when academic economists throw big words at him⁵.

<i>Class</i>	Miss, where does money come from?	
<i>Money</i> <i>penny</i>	That's a long story. We'll have to talk about people and groups of people and trusting each other.	
	<i>The major players</i>	
	Here are the Australian people	
	Here is their Government.	
	The people tell the government what to do. This is democracy. We'll ignore this for the moment and pretend the Government is not listening to the people.	
	Here is the rest of the world – we'll ignore them for the moment ⁶ .	
	The government can do things that ordinary people aren't allowed to, like make laws. This is one reason the people invented government.	

⁵ For example: “non-superneutrality of money”, “non-separable preferences”, “the Taylor principle is based on the mapping from policy response coefficients to eigenvalues in the state space representation of the model”. These come from Walsh (2010), a book described by the Chief of Economic Research at the Central Bank of Chile, as “a pleasure to read”.

⁶ There is no significant change to the arguments when we consider the rest of the world.

	For understanding money we need to just remember that we can't assume that the government has to follow the same rules as people – it's a different sort of entity ⁷ .	
	<i>The Real Economy – Part 1</i>	
<i>Money</i>	People have a habit of acquiring and disposing of things. These trades are called the economy.	
<i>Neo</i>	<i>What about making things? Isn't that important?</i>	
<i>Money</i>	We'll only look at what people swap between themselves. If you make something for yourself then it's your own business. The <i>economy</i> is what everybody does for other people.	
<i>Class</i>	<i>What is the size of the economy?</i>	
<i>Money</i>	The economy is big. If we add up all the cash and credit that people use to buy things in a year then that is one way to guess the size of the economy in that year. But first I need to tell you what cash and credit are.	
	Cash	
	This is physical money. Some people call it <i>cash</i> .	
	Often people put a price ⁸ on the things they want to get, or get rid of.	
	People can swap physical money for things – the price is how much physical money to swap. This is called buying and selling.	
	If people don't have physical money then they can trust each other to pay later.	

⁷ Remember the *Fallacy of Composition*. The properties of an aggregate entity may not be deducible from the properties of its constituents. The most well known examples in economics are most probably the *Paradox of Thrift* and the *Tragedy of the Commons*.


⁸ “Things” include services and intangibles.

Kindergarten Modern Monetary Theory

<i>Karl</i>	What if you have nothing to get rid of? How do you get cash or credit?	
<i>Money penny</i>	Oh Karl! You always have your free time, or time that you're spending doing something you don't like. You might get someone to buy your time to pick up some rubbish. Then you can use the cash to buy the time of someone to tidy your room. If you like tidying your room less than picking up rubbish then you're ahead!	
	Credit	
	If I promise to pay you cash then I have a <i>financial liability</i> and you have a <i>financial asset</i> .	
	No net financial assets or liabilities have been created ⁹ .	My liability of \$100 = Your asset of \$100
	This is called <i>credit creation</i> and it creates <i>credit</i> .	Gross credit is increased by \$100
<i>May</i>	<i>What happens if you lose an IOU?</i>	
<i>MP</i>	You lose a financial asset and the person who owed you the money no longer has the liability. Everything still balances.	
	Sometimes people trust each other a lot. The amount of credit goes up because we're quite happy doing things for people and trust we'll be paid later.	
	Sometimes people don't trust each other much. The amount of credit goes down. We give people back their IOUs and ask for the money.	
	People lose trust if they think the other person's promises to pay won't be kept.	
<i>Neo</i>	<i>What will stop the amount of credit just going up and up and up?</i>	
<i>Money penny</i>	That's a difficult question that we'll come to later. But simply, if we all trust each other enough then there is nothing to stop the amount of credit growing bigger and bigger and bigger, just like blowing a bubble ¹⁰ .	

⁹ Notice that there is no net saving being done. Every asset has a corresponding liability.



¹⁰ For anybody who thinks that a bank's credit creation may be constrained by its capital, or regulators, or shareholders, or the market, or its Board, or its risk managers, may I ask you to consider UBS in the period to 2008 - UBS (2008) Shareholder Report on UBS's Write-Downs. UBS's balance sheet kept expanding through their buying (or creating) CDOs funded at a positive spread (not risk adjusted). While there were enough people capable of imagining that the CDOs were risk-free there was no constraint on their balance sheet. This stopped when their CDOs lost so much money that these instruments could no longer be imagined to be risk-free.

Neo	<i>That's silly, Miss. People could see what's happening and they'd stop trusting each other.</i>	
Money penny	It would be nice to think so, but it doesn't happen.	
	Financial Instruments	
	One person can promise another to pay them $\$(1+i)$ in the future. This is a <i>financial instrument</i> . The price of this instrument now is \$1. A simple name for this is a <i>bill</i> .	
	The number i is the amount of interest paid. Some people call i a rate of interest ¹¹ .	
	If I sell you a bill then I have a <i>financial liability</i> and you have a <i>financial asset</i> .	
May	<i>So if I wanted to spend cash so I could run a shop, then I could sell you a bill and get the cash?</i>	
Money penny	That's right, May. I wouldn't even need to have the cash. If other people trusted my credit then I could just give my bills to you and you use them to buy what you needed.	
Neo	<i>Wow! We've talked about credit creation and we haven't mentioned banks!</i>	
Money penny	Banks are special, but not as special as some people think they are.	
May	<i>Is this credit really what we call money?</i>	
Money penny	Some people would say so ¹² , but it's confusing if we do while we have this conversation. It's not money, it's credit. If we call this idea <i>money creation</i> then some people get even more confused, so we won't!	
	The Payment System	
	Here is an ordinary bank. To keep things simple we will sometimes treat banks like people, but it's silly to think like that all the time.	


¹¹ Rates of interest usually make discussing rates of return easier. However as anybody who has tried to figure the rate of return for a highly structured cash flow has found, there may not be a simple number for the return that satisfies our conceptually clean idea of a return for a bill. Money penny leaves interest rates out of her discussion for a good reason.

¹² See Committee on Payment and Settlement Systems (2003) The role of central bank money in payment systems as an example of a document that calls this *commercial bank money* as distinct from *central bank money*.

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	People trust banks a lot ¹³	
	If lots of credit has been created people can lose track of who owes whom how much.	
	Banks have created a payment system to help solve this problem. This is a service that banks sell to people.	
	Banks set up accounts for people where the people can keep track of all the credit they've created or been given.	
	Most people have bank accounts.	
	The account is a number in a ledger.	
	If I give the bank \$10 of physical money they increase my account by \$10.	Bank liability = \$10 owed to me Bank asset = \$10 cash
	If I take \$10 of physical money then they decrease my account by \$10.	
	The bank's balance sheet is always balanced	
	A positive amount in my account is a financial asset for me and a financial liability for the bank.	
	If Adam and Betty have accounts with the same bank and Adam owes Betty \$10 then Adam can tell the bank to decrease his number by 10 and to increase Betty's by 10. After this Adam doesn't owe Betty anything.	
	If Adam and Betty have accounts with different banks then Adam's bank will decrease Adam's account by \$10 and pay \$10 to Betty's bank, which will increase Betty's account by \$10. This is an <i>interbank transfer</i> .	
	To make sure that the transfers can occur the banks may keep some physical money on hand. This is called <i>liquidity</i> .	

¹³ Usually!





	The Banking System	
	Banks trust some people	
	Banks like buying bills from people they trust. This is called bank lending. Banks like charging a large amount of interest.	
	Banks don't have enough physical money for all their lending and so they create credit ¹⁴ . The number in the borrower's account goes up when the bank buys a bill (makes a loan)..	Liability = \$100 in borrower's account Asset = \$100 PV of bill
	Everybody likes balance sheets to balance, so we are happy.	
May	<i>Let's pretend Bank A is creating lots of credit. What will happen?</i>	
	Adam has borrowed from A so he can spend and now he owes money to Betty who banks with B . Through the payment system, A now has to pay B some physical money but can't do it, so must borrow credit from B or from someone who can transfer credit to B . This is the <i>interbank money market</i> .	Liabilities: \$50 in Adam account \$50 IB borrowing Asset: \$100 PV of bill
	If A does this borrowing too often then other banks will start to demand a larger and larger amount of interest because they will lose trust in A ¹⁵ .	
	A simple way for A to manage this risk is to have half of its liabilities created by people who will be taking money out of the bank, and half from people who will be putting money into the bank. ¹⁶	
	To make sure people will put money into their accounts in A , it must pay enough interest.	

¹⁴ The technical term is *fractional reserve banking*.




¹⁵ In an extreme case we may find that no bank will be willing to lend to **A**, in which case the CB will have to lend to **A** as a lender of last resort

¹⁶ This observation allows us to make some amusing corollaries. Borrowers create an asset for a bank but also a liability, being a bank account from which they will be drawing money. Depositors for the bank will be putting money into their accounts, which are also liabilities. So a bank needs to ensure that the liabilities created by its lending are, to some extent, cash flow matched with the liabilities created by its depositors and its borrowing. So asset-liability management can actually be thought of as only liability management!

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	Frank has to unlearn. He was taught that banks recycle savings. Now he sees that bank lending occurs first and then the bank looks for savings to finance its lending.	
<i>Neo</i>	<i>How do we know the savings will occur?</i>	
	The interbank transfer earlier only occurred when Betty had an increase in her account as Adam spent his credit. If Adam hadn't spent his credit there would have been no problem. If Adam spent his credit with Cathy who banked with A then there wouldn't have been any problem either.	
	Lending creates the savings to support it. Frank has to unlearn more ¹⁷ .	
	If Betty demands that Adam pay her with cash then Adam has to ask bank A for the cash first. This will come out of bank A 's liquidity.	
	Betty doesn't have to put her cash into a bank account, she can just keep it. Bank A has used its liquidity to finance the loan to Adam.	
<i>Karl</i>	<i>Where did this liquidity come from?</i>	
	Other people must have given cash to A before Adam asked for it.	
<i>Karl</i>	<i>What if A doesn't have enough cash?</i>	
	Bank A will have to use credit to buy cash from some other bank.	
<i>Karl</i>	<i>What if no other bank has enough cash?</i>	
	Bank A will have to tell Adam that it can't give him cash. Adam will have to tell Betty that he can't give her cash and must use credit.	
	If everybody wants to use cash and there isn't enough cash then people won't be able to do as much buying and selling. This means the economy won't grow and may even become smaller.	
	If I didn't trust the bank and my account was positive then I would demand physical money.	

¹⁷ Frank is grateful he only did one economics course. That limits the amount he has to unlearn!

	If everybody did this then the banks would be in big trouble because the amount of credit is usually much bigger than the amount of physical money ¹⁸ .	
	<i>Fiat money</i>	
	Only the Government can make money.	
	There are two ways the Government can make money.	
	Firstly, the Government can make physical money	
	If any of the people try to make cash then the Government locks them in jail. Jailing is another thing the government can do that individual people can't do.	
	The government puts cash into the economy by giving it to people or buying things from them.	
	Here is the Central Bank ¹⁹ .	
	The Central Bank is owned by the Government.	
	The CB thinks it is independent, but it will always do what the government says to, if the government really wants it.	
	Ordinary banks are owned by the people	
	Ordinary banks have an account with the Central Bank	
	This is called an Exchange Settlement account.	

¹⁸ For an account of fractional reserve banking see Wikipedia or any basic economics textbook. At the level of discussion we've reached at this point there is no concept of a bank receiving deposits and then lending out a fraction of those - banks lend first and then get deposits.

¹⁹ I'm conflating the role of Treasury and central bank here, but as both are arms of government I'm not losing anything. I'm assuming that the government knows what it's doing and is coordinated. Please feel free to make your usual jokes at this point. At a practical level the Treasury and Central Banks do coordinate the nitty gritty details of money extremely well. Separate Central Banks and Treasuries are two of the institutions that are set up manage the economy. For discussion of the actual flows of money within and between the private and public sectors of the economy we don't need to distinguish them.

	All these accounts are just a number in a ledger	
	The number for a bank has to be bigger than 0.	
	If a bank gives the CB cash then the ES account goes up, if the bank takes cash from the CB their account goes down.	
	If bank A wants to transfer credit to bank B then it can ask the CB to transfer credit from A 's account to B 's. This means A and B don't need to keep as much cash as liquidity.	
	If a bank receives net credit transfers from other banks then its ES account goes up; if it pays net credit transfers then its ES account goes down.	
	The government account	
	The government has an account at the Central Bank.	
	The government can make money by telling the CB to transfer money out of its account to a bank's ESA.	
	There is no limit to how much the government can transfer from its account.	\$1,000,000,000,000 = One trillion dollars is only 13 keystrokes.
	The government account has no limits – it can be as big or small as it likes ²⁰ .	
	Only the government is allowed to do this.	
	When the government account goes down, some people call this <i>printing money</i> .	
	Physical money and ES balances are called <i>high powered money (HPM)</i> or <i>central bank money</i> ²¹ . We will just call this <i>money</i> .	
	This transfer from the government account is the second way in which the government makes money.	
	This ends this lesson.	

²⁰ Yes, there are institutional arrangements that make this more difficult for a government. But remember that the institutional arrangements are self-imposed, not a logical necessity.

²¹ There are various other names as well.

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<i>Class</i>	<i>But this sounds like cheating. There must be lots of things that can go wrong if the government can just make more and more money.</i>	
<i>Neo</i>	<i>Yeah, my Uncle Milt tells me that all the time.</i>	
<i>MP</i>	<p>May be, but that is a separate question and we'll have to consider it at another time. The question you asked was where did money come from – that's what I answered.</p> <p>Now let's do astronomy. I want you to draw a black hole ...</p>	


The next day the class presses Miss Moneypenny for more information on basic monetary theory.



	Government spending	
<i>Class</i>	<i>Miss, what happens if the government just makes lots and lots of money? Won't prices just go up and up?</i>	
<i>Moneypenny</i>	The Government can buy and sell things.	
	When the Government buys things from a person P it can give them cash or transfer credit from the Government's account to their bank account.	Govt acct down \$100 ESA up \$100 then P's acct up \$100
	The bank has no increase in net assets but P does. This balances the liability in the government account ²² .	Govt liability \$100 Bank asset (ESA) \$100, Bank liability (to P) \$100 P's asset \$100
	When the Government sells things it demands that it be paid in cash or as a transfer of credit from a bank that has an ES ²³ .	
	If the government wants to help somebody ²⁴ then it can just give them money (cash or a transfer from the government account).	

²² Something huge just happened here, which the class will get to later. For the impatient people who can't wait, what we've just seen is that the private sector (i.e. people) just got some net financial assets. The private sector didn't have this before, net financial assets were zero. The only way the private sector can have net savings is if the government sector has net borrowings.

²³ I'm ignoring *correspondent banks* – see Committee on Payment and Settlement Systems (2003) The role of central bank money in payment systems, for a fuller explanation that complicates but does not change the argument.

²⁴ If you don't like the idea of *help* then just assume the government wants to give somebody some money for some reason.



	If the government gives money to Adam then the CB decreases the government account, increases the ES account for Adam's bank, and the bank increases Adam's account.	
	When the government spends money the ESA for a bank increases.	
	When the government extracts taxes or fees then the banks' ESAs go down.	
	If the government wants to give the CB an asset in exchange for creation of HPM then it can sell the CB a bill or a bond . This creates a liability for the government and an asset for the CB.	
	A bond is just a bill with more than a year till its repayment.	
<i>May</i>	<i>Isn't this just playing with words? the government account was already a liability?</i>	
<i>Money penny</i>	Some people like this approach because it looks like the CB balance sheet will balance. Not everybody looks at the total government spending as a drawing down of a bank account with the CB.	
	So you're right May, the country's balance sheet always balanced anyway. When the government account went down, the people's accounts went up. When the government sold the bill the liability just got shifted to another form.	
	The government can also sell bills to the people instead of the CB.	
<i>Neo</i>	<i>What if nobody wants to buy the government bills? Won't their price have to drop?</i>	
<i>Money penny</i>	We'll answer this later.	
	Government Taxes and Fees	
	The government also takes money from people. This is called taxes and fees.	
	The taxes and fees must be paid in cash or credit transfers from banks with an ES account.	
	The amount of net physical money flow (cash) from the government is small, and we'll ignore this. Anyway, the government ends up giving almost all of this cash to the people anyway.	
	If we all used credit cards or debit cards then we wouldn't need cash.	

	When the government spends money the peoples' bank accounts go up. When the government demands money the peoples' bank accounts go down.	
	The same thing happens to the bank's ESAs.	
	If the government takes more money than it spends it is called a <i>surplus</i> . The opposite is called a <i>deficit</i> .	
	When the government has a surplus then the peoples' bank accounts and the banks' ESAs go down.	
	Taxes and fees given to the government is equivalent to destroying money, just like the government spending money or giving money to people is creating money.	
	There is no direct linkage between taxes and fees demanded by a government, and the spending of a government. Governments do not need to raise taxes or borrow money in order to spend money	
	If bank accounts are too hard to think about, then imagine just using cash. When the government gets cash by taxes it burns the bank notes and melts down the coins ²⁵ . When it needs to spend money it prints new bank notes and mints new coins.	
	If the government has a deficit it is creating money, if it has a surplus then it is destroying money. Frank is sure this wasn't in his economics course.	
	<i>Private Sector Saving</i>	
<i>Neo</i>	<i>What happens if we all want to save money? That's a good thing isn't it? My mummy and daddy need to save for their retirement in 35 years time²⁶.</i>	
<i>Money penny</i>	Let's call the non-government part of the economy the <i>private sector</i> .	


²⁵ This is not far-fetched. As mentioned on p46 Wray (1998) *Understanding Modern Money: The Key to Full Employment and Price Stability*, hazelwood tallies were used as a record of debts and credits by the UK Exchequer up till 1826 and were effectively used as money. In 1834 a large number were burnt in the furnace of the Houses of Parliament, which overheated and caused the Houses to burn down.

²⁶ Yes, the class is 6 years old now, their parents are 35, and when they reach retirement age it will have to be beyond 70 years of age.

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	If you want to save money using bank accounts or bills from companies then every one of these instruments has a corresponding liability. The private sector as a whole has no net savings.	
	If ordinary people want to save with the private sector then there has to be part of the private sector that wants their savings, otherwise the savings will just accumulate and earn no interest.	
<i>Kay</i>	<i>Why wouldn't the banks pay them interest?</i>	
<i>Money Penny</i>	The banks only want to take deposits if they've lent the money out to somebody. If more people want to deposit money than the banks can find lenders then the banks will not give the depositors any interest.	
	If the depositors still want to put money in the banks with no interest, then the banks will start charging them fees so that they can still make a profit.	
<i>Neo</i>	<i>Then why not invest money in the stock market? My parents say that is always a good investment for the long run.</i>	
<i>Money Penny</i>	A share in a company is still a financial asset and leaves the net financial assets of the private sector at zero. If you buy a share your cash holding goes down and your share assets go up by the same amount. The person who sold the share now has cash and their cash holding goes up.	
	Also consider, if shares are so good then why has the person who originally held the share sold it?	
	It doesn't matter whether a person saves via bills or shares, we still have net zero financial assets in the private sector. Some parts of the private sector can save only if there is another part of the private sector that wants to be a borrower.	
	The only way the private sector can be a net saver is if the government sector runs a deficit.	
	The simplest way to see this is to imagine a world where all money is cash. If people want to save by putting coins in a piggy bank then the coins have to be issued by the government and be in surplus above what the government demands back in taxes and fees.	

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	That's a government deficit.	
	Now this really wasn't in Frank's basic course. What was he being taught? Ah now he remembers! Back in the early 1970s all the textbooks were written during the Bretton Woods era, effectively a gold standard. He hopes the textbooks have improved by now ²⁷ .	
<i>Neo</i>	<i>What if the government makes the deficit so big that there is more money than people want to save? What happens to the extra money? That's what we asked at the beginning of class!</i>	
<i>Karl</i>	<i>How does all this affect actually making stuff? We have to get our lunch from somewhere.</i>	
<i>May</i>	<i>What happens if the government runs a surplus? Some politicians say this is a good thing.</i>	
<i>Money penny</i>	That's enough for today. Let's do something with animals. Let's look at some animals and see what they have in common. Then we can draw what we imagine their last common ancestor looked like. Ok, we'll start with a horse and a bee.	

On the third day there were a number of questions left over.

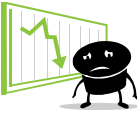

	Government deficits	
<i>Class</i>	<i>Miss, what happens if the government just makes lots and lots of money, more than it takes in taxes?</i>	
<i>Money penny</i>	The Government has a <i>deficit</i> . Some of that money will be immediately saved by the private sector as we talked about yesterday.	
	The extra money that isn't saved will be used to buy various things. This will lead to more things being bought and sold, or if there is no way people can make more things then the prices of things will rise.	
	If people aren't working as much as they'd like, or if factories aren't working as fast as they can then the extra spending will most probably be a good thing.	
	All of the deficit will be sitting in somebody's bank account at all times, so represents net financial assets of the private sector.	

²⁷ Unfortunately for many students most of the textbooks haven't improved.

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Neo	<i>What happens if the government spends more and more and more money?</i>	
	It depends on what's happening in the economy.	
	Let's say that Adam wants to buy some milk but can't because he doesn't have a job. In fact lots of people don't have jobs.	
	Companies don't want to give people the jobs because they're not sure that they can sell what they make.	
	Banks don't want to lend money to people because they worry that they won't be able to get their money back.	
	What happens if the government gives Adam \$10?	Government account at CB goes down by \$10 Bank reserve account goes up +\$10 Bank liability to Adam - \$10 Adam asset +\$10
	Adam buys \$10 of milk from the milkman	Adam account \$0 Milkman account +\$10
	The milkman gives some money to the dairy farmer	Milkman account goes down Farmer account goes up
	If the milkman and the farmer had spare time and spare milk then this extra activity won't cause them to raise their prices.	
	The economy grows by the amount of spending that the \$10 given to Adam makes as it passes from person to person.	
	The \$10 stays in the banking system as a liability of the bank, and as an asset of whoever leaves some of it in the bank instead of spending it all as it passes from hand to hand.	Adam spends \$10 milkman spends \$9 farmer spends \$8 on clothes tailor spends \$7 last person saves \$1
	So if there is a lot of spare time and lots of things that people want to sell then this extra money made by the government won't move prices up.	
	On the other hand, let's say the farmer had no spare milk to sell. Then Adam wanting more milk will most probably make the price go up.	

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	There is no simple answer to the question of what happens if the government keeps spending money. If there are plenty of people who want to work but can't get a job, and people have plenty of things to sell and no buyers, then the extra government money won't make prices rise.	
	If there are few spare goods, and almost everybody has a job then prices will rise ²⁸ .	
Class	<i>Is that the only effect of government creating money?</i>	
	No. There is an effect on interest rates.	
	The bank has an extra \$10 in its reserves. If the central bank doesn't pay interest on these reserves then the bank will make more money if it takes the money out of reserves and lends it to somebody.	
	Because the bank needs to find some one to lend the money to, it has to charge a lower rate of interest than normal.	
	The more money the government spends, then the more the bank has in reserves. This means there is more the bank wants to lend and so the interest rate has to go down further.	
	Frank is now extremely confused and needs to unlearn even more stuff. He keeps hearing from some economists that if the government keeps spending then interest rates will have to rise. Now he sees that as long as there is slack in the economy, more government spending will cause interest rates to drop.	
	This can't be right! What country has a very high government deficit and low interest rates? Oh! Japan!	


²⁸ We've come to an important point here, which is perhaps too complicated (maybe unnecessary) for a kindergarten class as it involves a degree of unlearning, and our little kiddies haven't learned bad ways of thinking.


Notice that there is no question about *funding* the deficit, if we consider funding as being via taxation or borrowing. The government can just spend any amount of money – the additional spending is “funded” via *seigniorage*, the creation of money. Walsh (2010) Chapter 4 shows how to consider seigniorage as one component of funding a government spending.

It is the question of what happens in the economy that decides how much of a surplus or deficit the government should aim at.

Thinking about how a government needs to finance a deficit is one of the institutional frameworks of an economy that hides what is actually happening with fiat money. The nexus between spending and taxing or borrowing is via the effect on the economy, not via an artificial consideration of “funding”.

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<i>Class</i>	<i>What happens in the opposite case. What if the government has a surplus and takes more taxes than it spends?</i>	
	Remember in yesterday's class we talked about a surplus being the same as a government destroying money. Well, if there is too much money in the economy then maybe that's a good thing. If there is just the right amount of money, maybe that's a bad thing.	
<i>Class</i>	<i>How can you have too much money?</i>	
	Imagine if a bank was feeling very happy and trusted lots of people. Then it might lend them lots of money. If everybody is already working hard and making all that they could make, then this extra money will just make the price of things go higher.	
	That's too much money.	
	If the government spends less or takes more money in taxes and fees then the money will be taken out of the economy.	
	That would most probably be good.	
	Frank wonders about raising interest rates? Would this have the same effect? It's most probably too difficult for a kindergarten class.	
<i>Class</i>	<i>What happens if the government runs a surplus and there is just the right amount of money in the economy and everybody is working?</i>	
	Let's say Adam now has to pay an extra \$10 in taxes. He decides that he will pay taxes rather than spend the \$10 buying something from Beth.	
	The government keeps this \$10 and so the net financial assets of the private sector has fallen.	
	Beth now has \$10 less money coming in, and so she has to decide where she will stop some of her spending or saving.	
	If Beth cuts her spending by \$10 then somebody else has to then cut their spending or saving by \$10. The net financial assets will shrink.	
	But there was another way Adam could get his \$10. That is by borrowing the money from the bank.	

	When we looked at bank lending money two days ago, we said that the people who borrowed the money spent it and the money went into their bank account, so the bank still had the same amount of assets as liabilities.	
	This doesn't happen now. Adam takes his money and gives it to the government. The bank has to find someone who is willing to lend it \$10.	
	Whoever lends the bank \$10 will have \$10 less to spend and the economy will shrink like it did before.	
	So if the government runs a surplus then the economy will shrink ²⁹ .	
<i>Neo</i>	<i>But isn't the government saving this surplus?</i>	
<i>MP</i>	You weren't listening properly yesterday! Where does the government put this surplus? It is just a number in a ledger.	
	You and I can save money, but the government is a different sort of thing.	
Government saving in financial assets		
<i>May</i>	<i>What happens if the government wants to save? Who is it going to give the money to?</i>	
<i>MP</i>	The government has to buy something from somebody. If it buys a person's labour or their physical asset then that is just the same as the government spending money.	
	If the economy has some slack then prices may not rise, but if the economy has no slack then the spending may increase prices.	
	If the government buys financial assets then the price of those assets may also be pushed up, unless there is more of the financial assets than people want. The price that the government pays for the financial assets will be transmitted as cash into that person's bank account.	

²⁹ In modern times, when governments have a run of (true) surpluses they have always been followed immediately by a recession. It is difficult to show causation in these instances as an exogenously caused recession will usually stop surpluses because of automatic stabilisers.

The importance of the logical argument in class is that it shows that there is an important effect on the economy when the government runs a surplus. This effect does not depend on theories of money, it is a simple application of stock/flow analysis.

Kindergarten Modern Monetary Theory

	So government “saving” is just like “spending”. It creates net financial assets in the private sector.	
	In fact, the more the government saves like this, then the lower will be the surplus. If the government tries to save all the “surplus” then there really isn’t a surplus ³⁰ .	Government spending + “saving” = private income + assets
<i>Karl</i>	<i>So if the government is running a surplus because the economy is hot, then spending that surplus by buying assets may just cause price rises.</i>	
<i>MP</i>	Very good, Karl. If the government wants to slow an economy by having a surplus then it can only do this by destroying the money.	
	If the government has a surplus when the economy is not overheating then it is shrinking the economy by destroying the private sector’s net financial assets. If the banks keep lending fast enough then the economy may keep growing because we see the amount of buying and selling still going up.	
	If the government keeps taking more money than it spends then the private sector may eventually reach a point where it feels that its net financial assets are too low.	
	At this point some people might start to try to save more assets. This will slow the economy as we discussed earlier.	
<i>MP</i>	Now we’re finished this topic. There is a lot more to discuss but that’s enough for now.	

³⁰ On the other hand, if the government just leaves the money sitting at its CB on the government account then this is equivalent to the money being destroyed – there is no effect on the private sector. The money is “recreated” when the government spends by either buying assets, labour, or private sector financial assets. Any interest payment on the “balance” kept at the CB is just a fictional accounting entry – the government has no more capacity to spend than it did otherwise.

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