

Digging into the rationale behind current central bank purposes and set up

Lecture 2

Short course on central banks, money,
the financial crisis

City Uni Feb 2019

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Recap

- Profound impact of the global financial crisis on our economies and politics.
- Has shaken the faith of many in capitalism, and allowed populist parties to gain support and scapegoat elites and other groups.
- Central banks at the heart of the crisis and fighting it.
- What caused that crisis?
- What did central banks do / not do. Why?
- To do that we have to go back to basics and ask ourselves what a generic central bank is for. Or at least what society's told them they should be for.

Central banks as vested interests or opinion formers

- Tendency to study central banks as independent agents in economic history.
- After all, they themselves often emphasize their ‘independence’!
- In a deeper sense, they [like many of our institutions] are
 - manifestations of what electorates, political and financial elites think they should be for;
 - and records of lessons or apparent lessons of economic history.

ITEMISING CENTRAL BANK PURPOSES, INSTRUMENT AND SET UP

Central bank purposes

- Monetary stability
 - Monetary policy
- Financial stability
 - Financial policy and regulation
- Not going to say much about 2 other activities:
 - Managing government debt [In UK done by DMO since 1997]
 - Managing government foreign exchange reserves

Monetary policy

- Delegated an inflation target by the government
- Uses short term central bank interest rate to control inflation and the real economy
- Implemented via open market operations and lending facilities to iron out fluctuations in the money market and market interest rates.
- Lately involving QE since interest rates hit the 0 floor.

Financial policy

- Delegated a financial stability objective by Parliament to ensure continuity of financial services provision.
- Prevent systemically important banks from bringing down the whole system.
- Prevent banks from gaming central bank support.

Financial policy tools

- Emergency and other lending to banks.
- Resolution regime.
- Restrictions on capital, liquidity, lending.
- Ability to move prudential tools cyclically.
'Macro-pru'.

How central banks are put together

- BoE has instrument independence, though goals set by HMT.
- Senior execs appointed for fixed terms by the govt.
- Monetary Policy and Financial Policy Committees; voting; time-limited appointments by HMT.
- Oversight by Parliament's Treasury Committee and the BoE's Court of Directors.
- PRA: body that does financial stability inside the central bank in the UK's BoE. [The old FSA. In turn hived off from pre-97 BoE.]

BoE vs the rest

- BoE typical of a modern central bank.
- BoC and RBNZ have Governor dominated committees.
- FRB and SNB have elements of private sector governance.
- FRB and ECB have regional structure.
- FRB and ECB de facto set own goals for policy.
- BoE has [well in theory] 8 year single term limit. Fed can be reappointed multiple times [Greenspan had 4 terms].
- In other countries, eg Australia, supervision of banks is outside the central bank.
- Norwegian central bank for a while managed their SWF.
- ECB and Fed have a degree of effective 'goal independence'.

MONETARY POLICY PURPOSES

Monetary policy purposes

- Follow the inflation target
 - Protecting the value of money, or rather stabilising the evolution of it over time.
 - Weigh inflation target against real economy.
- Print the currency and minimise counterfeiting.
- Implement monetary policy through open market ops, asset purchases.
 - Link to financial stability, as transmission of central bank rates into private rates depends on financial stability. Something BoE reminded of in Aug/Sep 2007.



Intrinsically almost-worthless piece of paper.

Actually now polymer. And soon to be cow free polymer.

'I promise to pay the bearer the sum of...' is actually a tautological and meaningless promise. It's a promise to replace this note with another one like it.

In the old days it was an IOU for specie – metals like gold and silver.



Source:
[‘Dividend day at the Bank’](#)

Dates to when the BoE was a bank.

It took deposits of what was real money then, gold.

Notes were certificates of deposit, and circulated freely as IOUs.

Originally, protecting value of money meant making sure not too many paper notes were issued relative to gold deposits, to ensure convertability and that they circulated at par [meaning ‘worth the face value’].

When the IOU stopped being redeemable for gold or anything, protecting value of currency took on a different meaning.



Protecting the value of the currency means stabilising the exchange rate between money and the goods+services people buy.

This is the end point, or the latest point on a long journey.

Even after convertability suspended central banks worried about parity with gold.



After that worried about exchange rate stability.

Either because the anchor country stabilised against gold [US and Bretton Woods].

Or because anchor country had good stability relative to goods. [Eg Bundesbank pre Euro].

Price stability: what does it mean ?

Imagine a one good economy where we only need and can only buy chocolate.

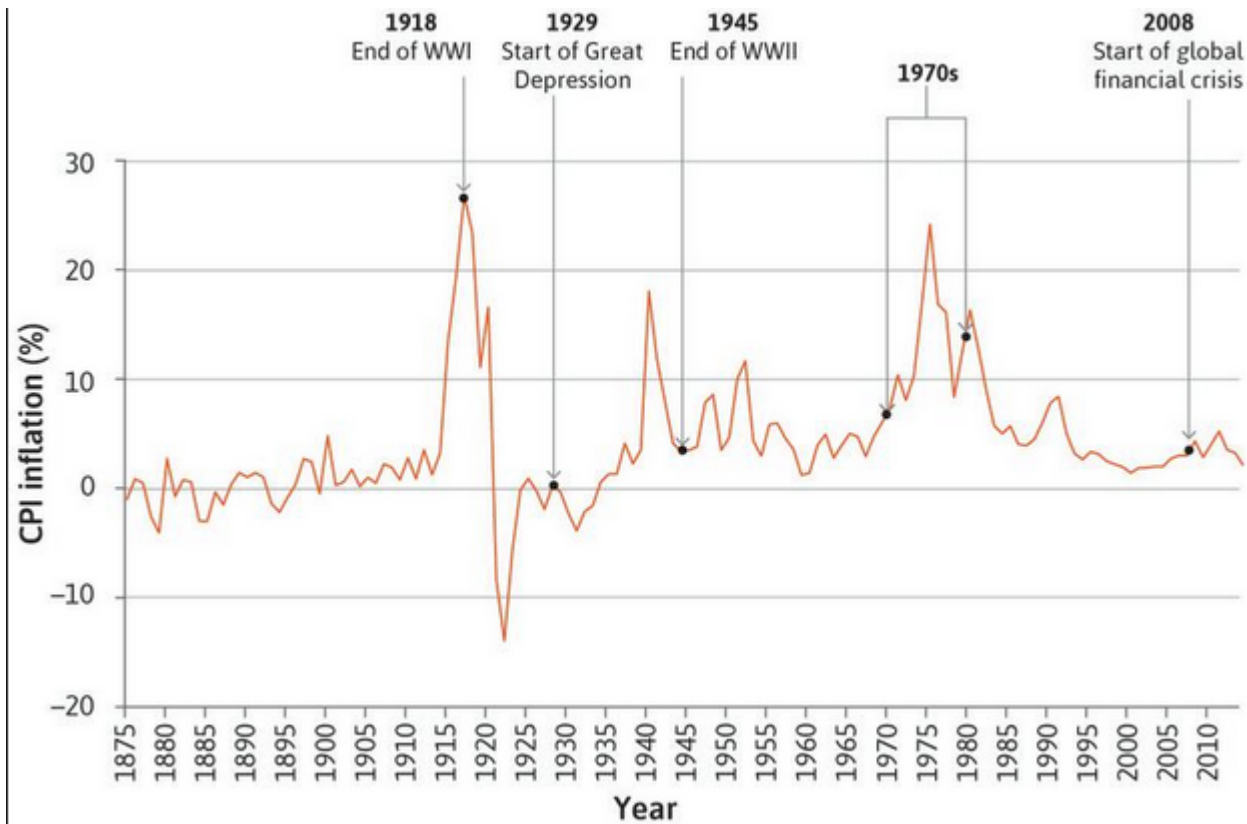
'value of money' / 'price level' means the exchange rate between paper money and this 100g chocolate bar.

Currently £1.50-£3 depending on the outlet, within a 1km radius of my house in Kentish Town.

In reality we all consume many things, and not just food, haircuts, petrol, housing, holidays, music, films etc.

Price stability is when a weighted sum of what the average person buys does not change.





Before C20th, inflation was not always >0.

Since true 'fiat money' era [ie no convertability with gold], inflation >>0.

Some big girations, at start of and end of WW1 [off and on the gold parity]; the 1970s – losing control in the face of the oil shock.

Costs of inflation

- Costly to hold money as money pays no interest.
- So inflation forces us to economise on money holdings, and on the usefulness that they confer.
- Confuses relative prices when some prices are sticky.
- Costs of reposting prices ['Menu costs'].
- Surprise inflation induces costly redistribution.
 - Savers, borrowers, those without indexed pay.

Money's functions and the cost of inflation

- Store of value
- Medium of exchange
- Unit of account

- Some monies perform some functions well and others badly.

Money as a store of value



Has to be physically durable [Yap stones better than eggs!]

But also financially durable. Shares in chicken farms > eggs as money for physical durability, but financial value uncertain.

Paper money pays no interest: inflation makes its value depreciate. Price level uncertainty makes its value uncertain.

Money as a medium of exchange



Yap stones obviously hard to move around. Though on a small island, with a small population, they didn't need to. Mental maps of who owned what.

Zimbabwe: inflation made even paper money, normally light and easy, cumbersome as a medium of exchange. Without continual redenomination of notes, you end up needing cart-fulls to buy stuff.



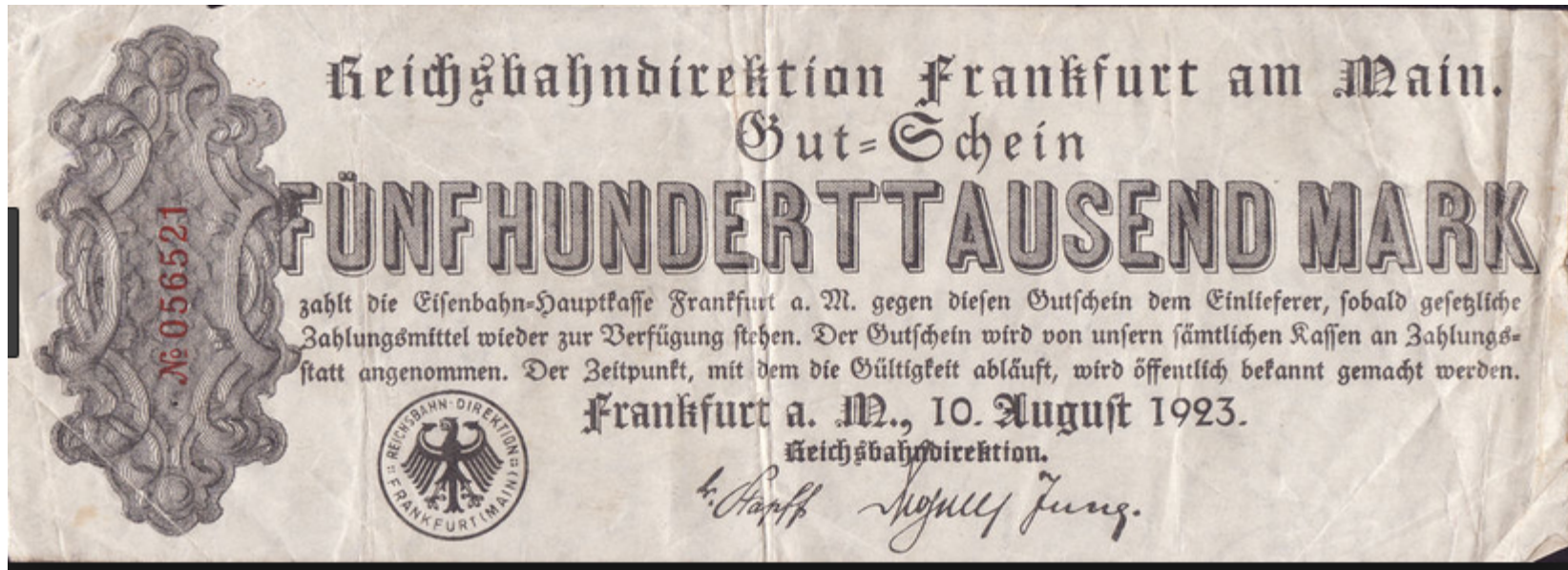
Money as a unit of account



Money is a unit of measure. But the units have to be manageable to easily compare relative values.

Hyperinflation make the units harder – even to write and remember.

Old pre-decimal system harder to use
 $12d=1\text{shilling}$, $20\text{shillings}=1\text{ pound}$,
etc.



If inflation is bad, why target 2%?

- Most central banks now target 2%.
- Arrived at after staged disinflation, eg in Canada, NZ, UK.
- Some emerging economies target higher rate, eg RBol in India.
- Inflation mis-measurement
- Greasing the wheels of the labour market
- Room above the zero bound for interest rates

Inflation mismeasurement

- Inflation overstated because of
 - New goods
 - Quality improvements
 - Changing methods of retailing.

New goods measurement

- How do you measure the inflation rate in iphones the first time an iphone appears?



Quality improvement and inflation mismeasurement

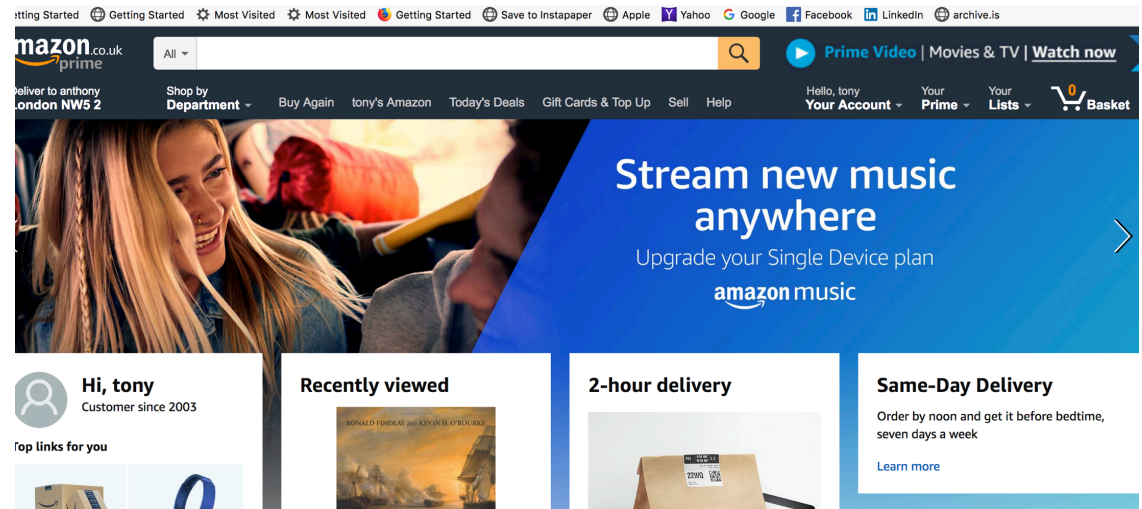


Changing retailing and measurement

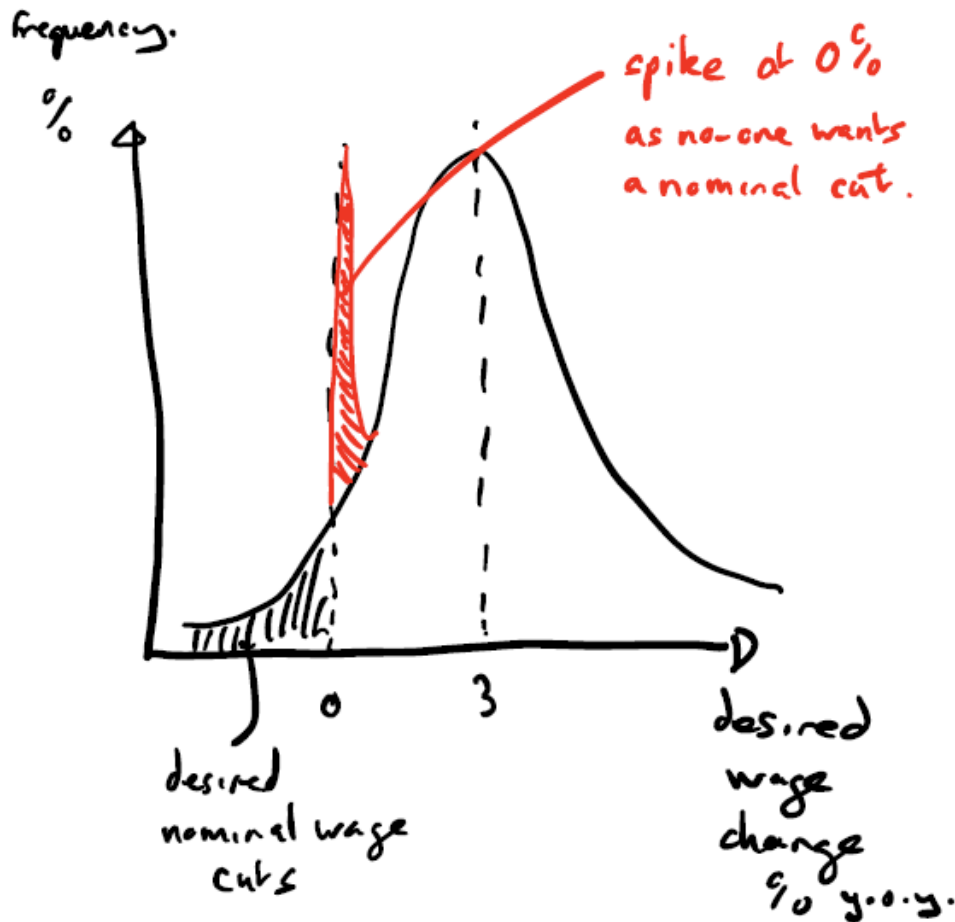


Shoppers switch from traditional shops, to out of town supermarkets, and ultimately to online retailers like Amazon.

Hard to keep up with the proportion of shopping done in each, and even to pick up properly prices in the new outlets.



Greasing the wheels of the labour market



People are averse to nominal wages cuts.

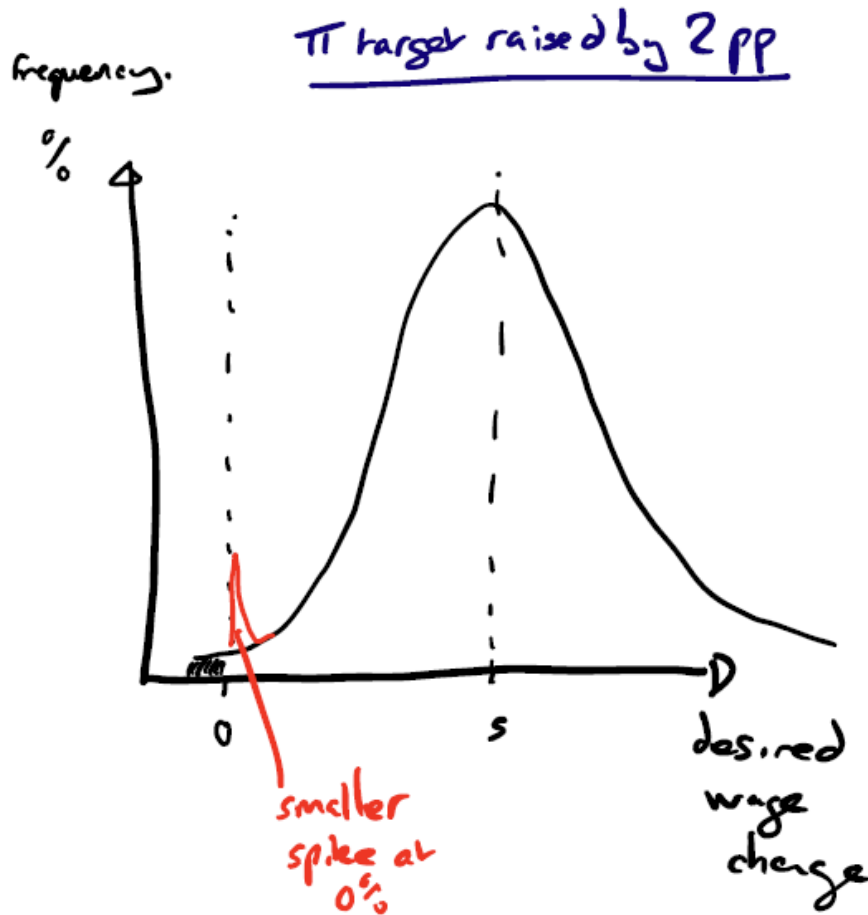
So the relative wage changes that need to happen get compressed as the distribution spikes at 0.

Modal wage change is 3.

Imagine this is with a 0 inflation target and 3% annual productivity growth.

Next slide: we increase the inflation target and shift distribution to the right, eliminating the spike.

Greasing wheels of labour market



Raise inflation target by 2pp

Modal desired nominal wage increase goes from 3% to 5%

Now almost no employers want to cut nominal wages.

Very small distorted spike at 0.

Making room at the zero bound

nominal interest rate = what you actually get

$$i = r + \pi^e$$

real interest rate = what you get after inflation subtracted

expected inflation compensation.

If you raise the inflation target, you will raise the long term resting point for the nominal rate, which the central bank controls.

This will give it a higher starting point to cut rates, before it hits the zero floor.

Making room above the zero bound



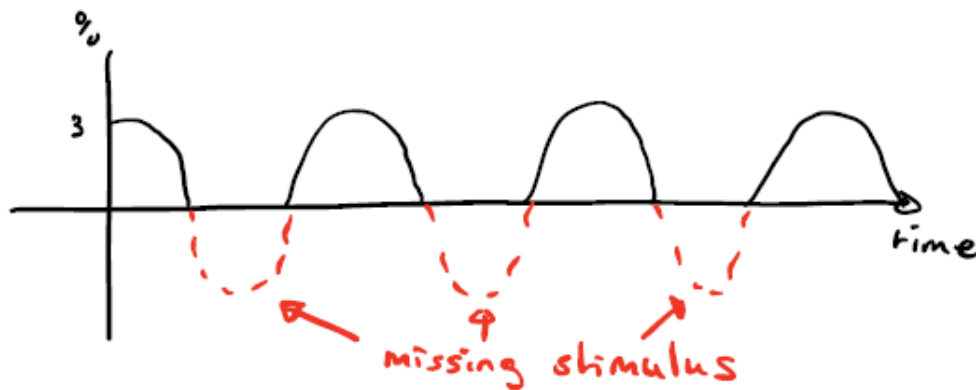
Fisher effect raises the starting point for an interest rate cut.

Lower panel: inflation target low, so zero bound closer, and missing stimulus in the middle of a recession.

Led central banks to do QE.

2% inflation target always thought to leave 'enough' room.

Krugman and others have proposed raising the target from 2 to 4%



Controlling prices to preserve money's usefulness

- Long and troubled history.
- Different view and understanding of what should be the tool [money or interest rates?].
- Different view about what should be the target [money supply, exchange rate, inflation, price level, NGDP].
- Currently: use interest rates to control q of central bank money, and ultimately the inflation rate, to hit an inflation target.

The quantity equation!

$$PT=MV$$

Price level*Value of transactions=money supply*speed of circulation of money.

More money usually means proportionately higher prices.

Caution! Velocity ['real money demand'] will vary too. Rises in hyperinflation. Fell during the crisis.

Quantity equation: virtues and vices

- Quantity equation sometimes maligned as neoliberal, or false theory, or dogma.
- It's not disputable. It's an identity.
- What is disputable is what you can use it for, and what inferences you make from it.
- Eg can't deduce: more money always means higher prices. Or money supply targets are good.

Central bank sets nominal interest rate.

It is sole supplier of central bank money to the banks for lending.

So it can set the price. Banks then decide how much of it they want.

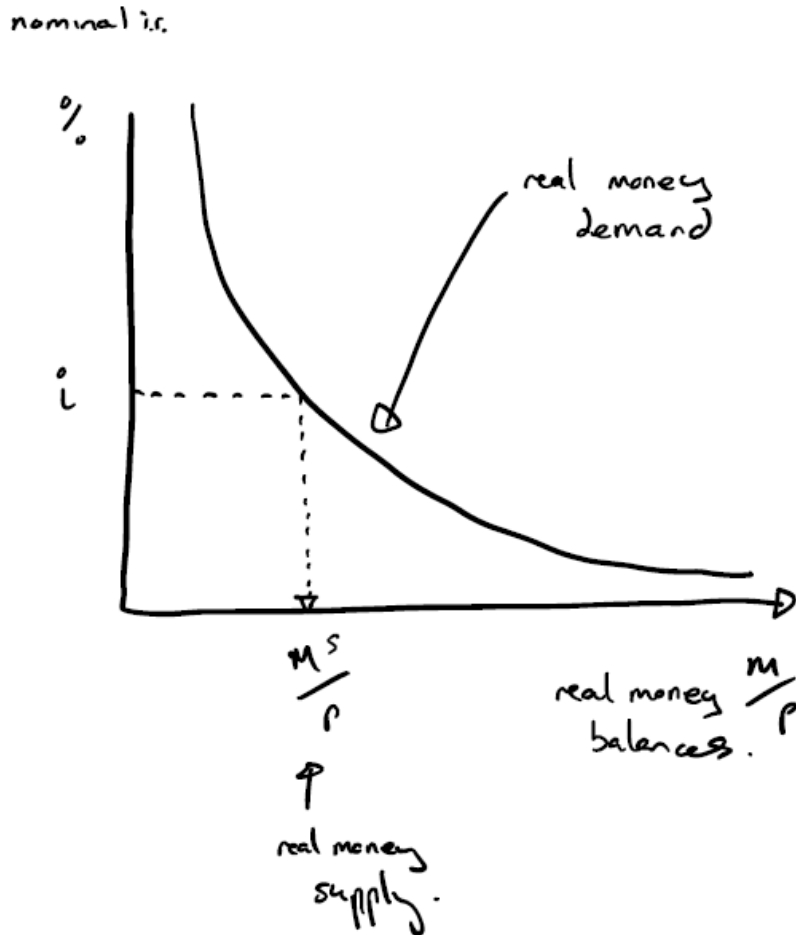
As the i_r falls, opportunity cost of holding it falls, so they will take more of it.

More money will then eventually lead to higher prices. Usually!

'Usually' relates to what has been happening now at the 0 floor to rates.

And that is why I drew the money demand curve as an asymptote.

We'll discuss more about the 0 bound later when we get to central bank crisis responses.



Two Pandora's Boxes about central bank economic control

- Open Market Operations to control interest rates.
- The New Keynesian modern central bank consensus view of the transmission mechanism.
- We'll leave the first one as a black box for you to open yourself one day.
- The second we will cover VERY briefly, as a taster for what you will get if you do macro later on.

'Open Market Operations'



Open market operations are how central banks set interest rates. Sometimes. Think some people. Lending of central bank money, usually against high quality collateral like government bonds which are unlikely to be defaulted on.

'Repo' or repurchase agreements. Or outright purchases.

Complicated by QE. Wanted a floor to rates despite massive money 'printing'.

Modern central bank view of inflation control

- Along comes a shock that threatens to raise inflation.
- Central bank raises NOMINAL interest rate....
- ... raises REAL interest rate..
- ...lowers consumption and investment spending....
- ...lowers inflation.

Nominal vs real interest rates

- Nominal rate is the rate in per cent you actually pay on a loan.
- REAL rate is the rate once you deduct what you think will happen to prices by the time the loan is paid back.
- Prices going up steadily at inflation target rate, say 2%, means a 4% nominal rate will allow you to buy 2% extra goods when you get your money back.

The Taylor Rule

John Taylor. Stamford Uni Professor.



1993 paper introduced 'Taylor Rule'.

Actually around since the mid-late 80s in work by other Fed researchers like Henderson and Mckibben.

$$i = i^* + a(\pi - \pi^*) + b(y - y^*)$$

Or: raise rates if inflation rises above target, or output rises above potential.

Modern version: respond to forecast inflation, and forecast output.

Problems: 0 bound.

Works nicely in small models. Quite well in big ones too.
Real world? We are less sure now.

#auditthefed!

- John Taylor wanted the Fed forced to declare what 'rule' it used to set interest rates.
- ...and justify any departure from it.
- He thought crisis was caused by rates going too low in the early 2000s.
- And then fiscal policy becoming less 'rule-based'.
- I'll explain why I think this is wrong, and why we are lucky John Taylor did not get appointed Fed Chair.

UK's long journey to inflation targeting

- 1945-1973: Bretton Woods
 - Manage xrate with \$, US manages \$/gold.
- 1970s: oil shocks, prices and incomes policies
- 1979-86: money targets
- 1987-90: shadowing the Deutschemark
- 1990-92: Exchange Rate Mechanism
- 1992-7: inflation targeting ['Ken and Eddie show'] [copying NZ and Canada]
- 1997-: BoE independent, doing inflation targeting

FINANCIAL STABILITY POLICY PURPOSES

Financial stability policy

- Problem:
 - Financial intermediaries [like banks] are prone to runs.
- Instruments:
 - Lender of last resort
 - Resolution regime
 - Capital adequacy regulation
 - Liquidity regulation
 - Macro prudential policy
- Aim:
 - Continuity of banking and financial services

Financial stability policy



Why are these places liable not to stay open and sound, and why is preventing them falling over worth doing?

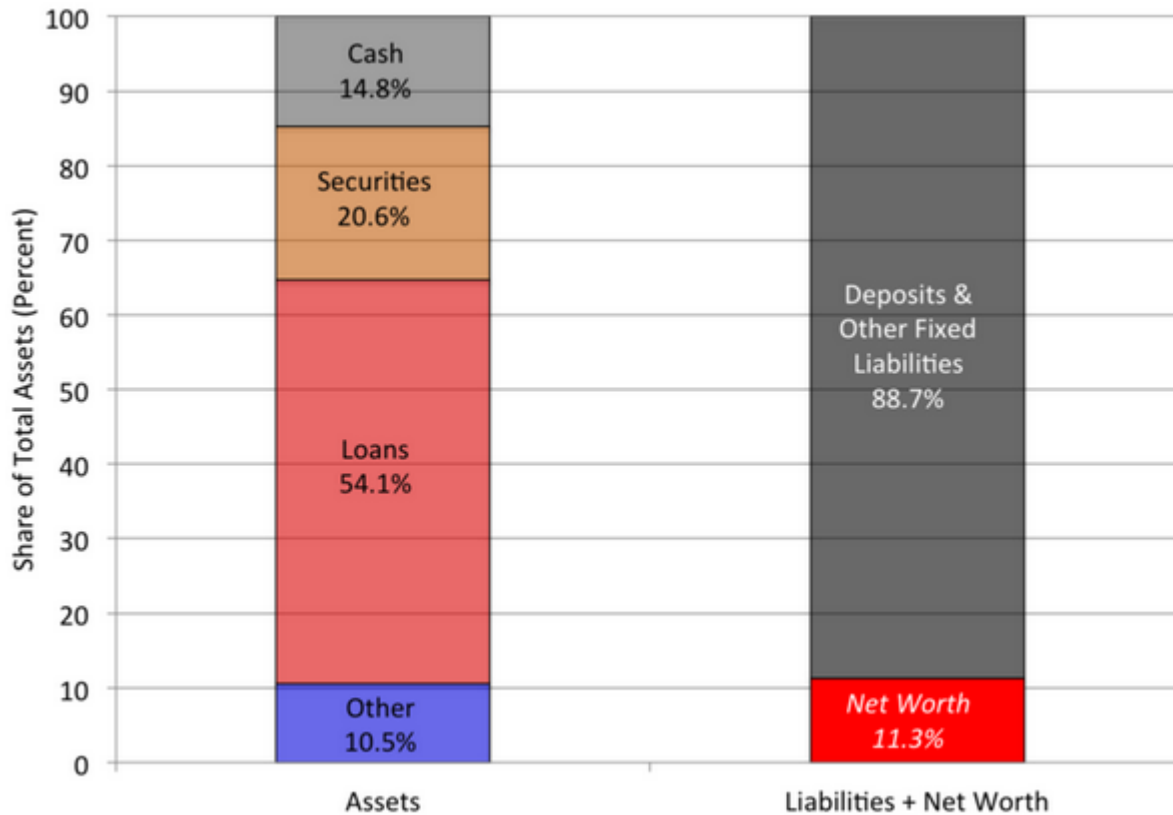
Answering this means looking at a bank balance sheet.

Sounds obscure and dry, but maybe one of the most important things to do now in modern econ.

Also gives us insight into questions about why the hell banks always have huge buildings like these!

A stylised bank balance sheet

£ Assets	£ Liabilities
Personal loans + overdrafts	Retail deposits (i.e. from you + me)
Mortgages	
	Wholesale deposits (from investment banks)
Corporate loans	Bonds
Investments	Equity capital
Cash + govt bonds	



US aggregate bank balance sheets, Dec 2017.

[Source: from Cecchetti&Shoenholtz 'Money and Banking' blog](#)

See how little of your money [15%] is actually there if you were to all go to the bank and ask for it.

'Net worth' = money given to the bank by the shareholder/owners that doesn't have to be paid back [equity share does not entitle you to anything often].

Summary of bank business model

- Borrow money, SHORT TERM, from you and me, or foreigners, via investment banks.
- Lend LONG TERM to you and me, to buy houses; or to companies to buy equipment, pay wages up front; develop new products.
- Called 'maturity transformation'.
- Hope that you we don't want our money back until firms' investment projects have matured.

Cartoon bank run 1: workers get paid



We all do some work
and get paid wages for
it.

These are construction
workers having lunch on
the site of the Empire
State building.

Cartoon bank run 2: workers deposit their wages in banks



We deposit our wages in a bank. We choose one that has a famous name, one that has been around a long time, one that seems to be doing so well it can afford a fancy HQ.

Cartoon bank run 3: banks lend the money out to an entrepreneur



This chemical firm needs money up front to build its factory and develop its technologies and products, before it can generate sales and money to pay wages.

So the bank takes a risk and lends money to the firm.

It is going to be a long time before it will be paid back in full.

The bank relies on the fact that most of the time we don't want all our money back.

Cartoon bank run 4: the money trick



The money trick – or what we call ‘maturity transformation’ [turning a short term deposit into a long term business loan] works, because most of the time we don’t need much of our money to hand and are happy to save it.

Cartoon bank run 5: liquidity shock



There is a liquidity shock which means a lot of people suddenly need access to their money.

Say to pay for heating engineers to fix their broken boilers, and plumbers to fix their burst pipes,

after a big freeze in the weather.

Cartoon bank run 6: the run



We hear that the bank is having difficulties via Robert Peston broadcast.

And we all rush to get our savings out of the bank.

Because the bank has spent our money on loans to the chemical factory, there isn't enough to go round.

Cartoon bank run 6: the fire sale



The bank calls in its loan to the chemical factory, which can't pay it back.

So the bank takes possession of a chemicals factory and tries to sell it to get some money to give us depositors.

The market for chemical factories is not doing well everyone is worried about the state of banks.

So the bank gets a very low price for the factory, can't pay back the depositors, and goes bust.

Because it's loaned to other banks, this gets them into trouble too.

Bank runs as a self-fulfilling prophecy

- Suppose someone hears a false rumour that the chemical plant is doing badly.
- Everyone rushes to the bank, knowing that if they are not front of the queue they will get nothing.
- Even though the chemical plant is doing fine, the bank is forced to sell it in a rush, at a big discount.
- This can bankrupt the bank.

Where monetary meets financial stability policy



Not only cash gets used as 'money'.

CB money is the only unit of account.

But we typically use deposits to store value, and claims on them as a medium of exchange.

Widespread bank failure threatens to bring down the entire payments system.

In the crisis, many wondered why banks were saved and not companies. [Except some companies like GM were. Answer: because Cadburys' liabilities are not used as money.

Continuity of banks necessary for the continuity of the usefulness of bank liability money.

Lender of Last Resort; public deposit insurance

- LOLR and deposit insurance designed to stop self-fulfilling prophecy
- If you know the bank can borrow reliably, you won't worry about getting your money back from the bank. So you won't demand it in the first place.
- Also, if you know that the government will guarantee your deposits, you won't run to the bank when you hear rumours about the state of its loans.

Moral hazard

- Banks take even more risk, knowing that the central bank will bail them out of trouble.
- Depositors don't pay attention to bank risk taking, as they know the govt will guarantee they get their deposits back.
- Financial instability as bad as before.
- If banks are large relative to tax base, deposit guarantees might not be credible, or would sink the govt. [eg Ireland]

Risk taking and limited liability

- 'PLC' or 'Ltd' after a company name refers to incorporation as a limited liability company.
- Means shareholders not liable for any more than they initially give to the firm.
- Creditors may be owed much more.
- Cited as crucial innovation in getting capitalism going.
- But in context of problems surrounding banks, argued to exaggerate risk taking.

Financial regulation

- Liquidity regulation
- Capital regulation
- Resolution regime
- Penal rates for LOLR
- Asset risk regulation

£ Assets	£ Liabilities
Personal loans + overdrafts	Retail deposits (i.e. from you + me)
Mortgages	
Corporate loans	Wholesale deposits (from investment banks)
	Bonds
Investments	Equity capital
Cash + govt bonds	

Regulations work on different parts of the banks' balance sheets to counter the distortion of moral hazard, reduce the chance of a bank run, or the chance of a run causing widespread damage in the economy.

Liquidity regulation



Not about actual liquid. A liquid asset could be solid or liquid!

A liquid asset is one that can be sold quickly, because there might be many buyers, with low transactions costs and perhaps with a predictable price.



This is a cement factory. It will be saleable. It works, and people always need cement.

But expertise at managing it is scarce, so not many buyers.

Buying means all kinds of due diligence: financial, environmental=time=£. Also risks, like suppliers, financiers, workers, pulling out.

A bank loan to a cement factory, even if it included rights of foreclosure, not very liquid.

The parts of a cement factory are worth much less than its working sum.

Liquidity regulation and the banks' balance sheet

Liquidity regulation is about ensuring that there is enough cash and close substitutes set aside.

More cash etc means less worry that you will not get yours back, less chance of a run.

Also fewer times when you will have to do fire sales of illiquid assets.

Assets	Liabilities
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Liquidity Regulation

Bank capital regulation

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Bank capital regulation

Ensuring the bank has enough liabilities that don't need ever to be paid back.

I.e. raised enough of its funds via equity.

Also concerns the 'bonds' item.

Debates about forcing banks to issue bonds that convert to equity automatically if the bank threatens to go bust. 'Coco' bonds.

Asset risk regulation

One way to augment capital regulation.

Agreed ways to measure the riskiness of the loans and investments on the asset side.

Eg more capital for corporate property loans than houses.

More for large LTV loans.

Explicit limits for % of LTV loans. [Applied by the BoE's FPC in 2014].

Pre Basel 4 [the current agreed set of rules] banks were allowed to use their own models to assess the riskiness of their loan book!

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Asset risk regulation

Macro prudential policy

- ‘Micro pru’=bank capital / asset risk regulation done institution by institution to combat overall system wide risk.
- ‘Macro pru’=vary bank capital / asset restrictions. Tough in a boom, easy in a recession.
- Spain had macro pru before the 2008 crisis.
- FPC have been using it since, with capital and also Loan to Value controls on mortgage lending.

Resolution regime



Banks sign contracts with borrowers that allow them to foreclose on the loan if repayments are not met.

‘Resolution’ is a euphemism for the state expropriating the banks’ shareholders if the bank looks likely to fail and cause systemic problems.

Idea: caps risk taking caused by moral hazard; maybe makes runs less likely if it’s known that cheap, orderly wind up of banks assets will be conducted.

Penal lender of last resort loans



Walter Bagehot. Son-in-law of founding owner of The Economist Magazine. Editor in 1860.

‘The greatest pleasure in life is in doing what others say you cannot do.’

He also said, in [‘Lombard Street.’](#)

“That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity, and will prevent the greatest number of applications by persons who do not require it. The rate should be raised early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; that the Banking reserve may be protected as far as possible.”

Free banking



These are paper currency notes issued by private US banks in the C19th.

There was no US Federal Reserve then.

Many paper currencies circulating at the same time, sometimes at a discount.

No LOLR. No government fiat currency.

No moral hazard. But lots of bank failures and panics.

Hayek and free banking



Hayek 1899-1992 'Denationalization of Money'

Hoped competition would discipline private banks not to over-issue their currency.

Money without the distortions of politics and public finance in government fiat money.

Didn't work out so well!

Dispersion of discounts on private notes.

Hard to tell real from the fake or soon to be worthless.

Private monies were bad units of account, bad media of exchange and bad stores of value.

Narrow banking / the Chicago plan



Narrow banks take deposits, but can only invest them in government bonds.

Government bonds much less likely to default than other lending, so depositors don't fear that they can't get their money back.

Govt bonds can also be liquidated quickly if there is a sudden rush for deposits.

But who lends to consumers and businesses?

This is done by other entities who raise equity and regular debt.

[And whose liabilities [hopefully] are not used as money].

Problem: banks ' lending activities helped from what they learn about us by providing us with deposits.

Chicago plan

- Letter sent by 6 economists in 1933 after the Great Depression.
- Interest revived by the 2008 financial crisis.
- See eg John Chocrane's blogging.
- Concern that regulation doesn't work: complicated, gamed, revolving doors problem.

Recap

- Central banks do monetary policy, protecting value of money
- And they do financial stability policy, ensuring continuity of banking...
- Since bank liabilities [deposits] used as money, this is also about protecting the usefulness of broader kinds of money.

CENTRAL BANK INDEPENDENCE

Why make central banks independent?

- Possible motivations:
 - Money and public finance
 - Political business cycle
 - Avoiding inflation surprise battles.
 - Financial stability credibility.

The Bundesbank



Reconstituted by the Allies after end of WW2.

‘Independent’ from the finance ministry.

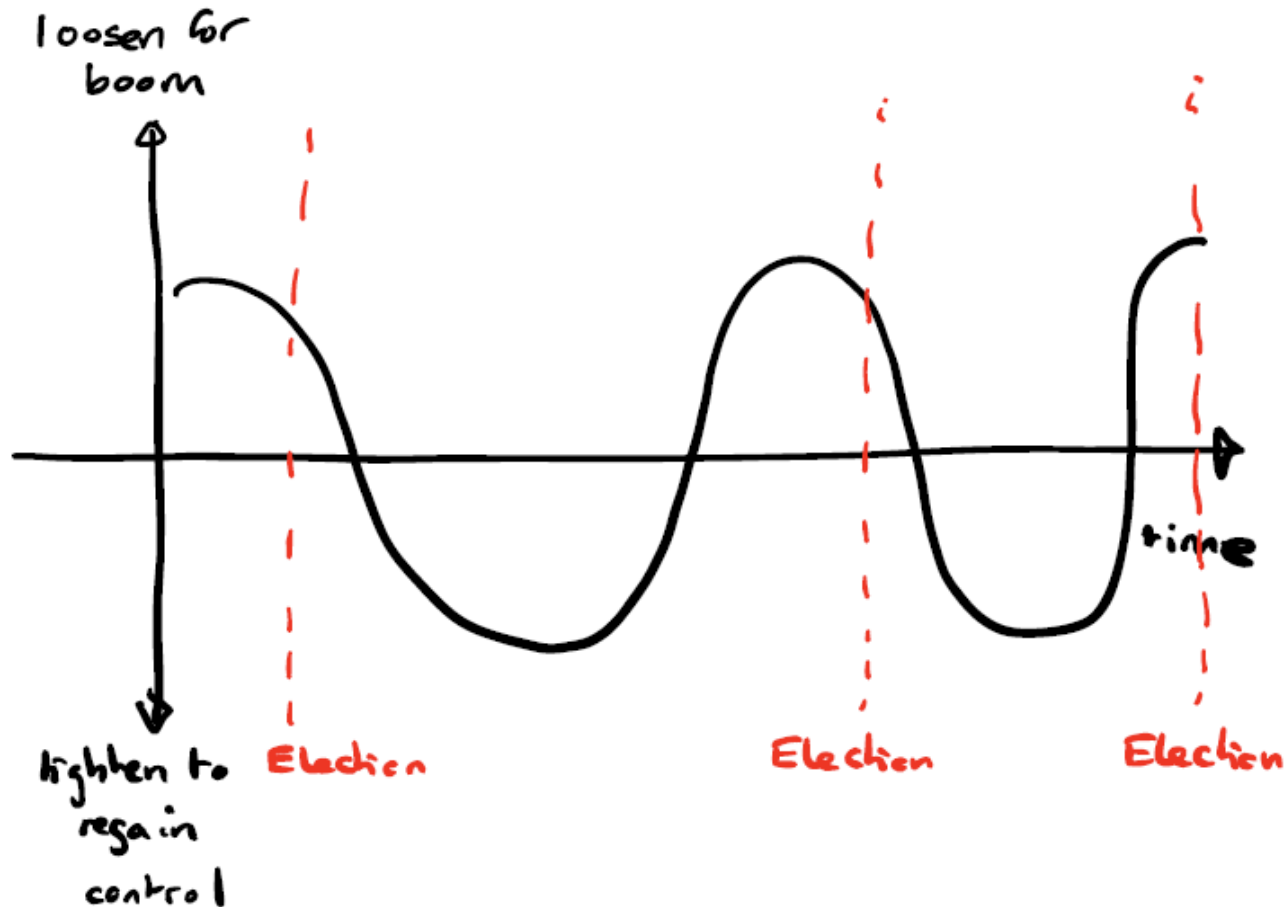
Price stability a core purpose, and written into the German constitution itself. That has had knock on effects on the recent financial crisis.

Low inflation in the 70s and 80s. Imitated by other countries.

Money and public finance

- Many episodes in history where government, losing ability to tax, or needing much more tax than it can collect, forces central bank to print so it can pay its bills.
 - German hyperinflation after reparations.
 - French revolution
 - Venezuela
 - Zimbabwe.

The political business cycle and monetary policy



In the run up to an election, govt wants to create a boom, so cuts rates.

Regains control by tightening after the election, hoping memories of hard times fade.

Barro-Gordon, inflation surprises



Govt announces 2% inflation.

Trade Union opts for 5% wage increase.

Govt breaks promise and generates 10% inflation to cut real wages and boost employment.

Next time Trade Union doesn't believe the gov't and goes for 13% wage increase up front.
End up with 10% inflation, and no short run employment boost.

Financial stability credibility

- Election campaign :
 - ‘we will be tough on banks! We will not bail them out!’
- Govt elected :
 - ‘we need tax revenues. Let’s be soft on them and let banks grow’
 - ‘We can’t let a bank fail on our watch. Let’s bail them out.’

Instrument independence



Freedom for the central bank to set its instrument – here the FOMC is setting interest rates – how it pleases.

In the 60s, Fed forced to keep rates low to lower cost of US govt finance for the Vietnam War.

Also applies to financial stability tools.

Freedom to wind up a bank when it judges it necessary.

LOLR never 'independently wielded as involves large sums of taxes ££££££££

Goal independence



Central bank gets to set its own policy goals.

Odd thing to do for a delegated government agency.

Notion of 'conservative central banker' who would guarantee low inflation.

Historical accident: price stability mandates, later reinterpreted when 0 inflation not judged to be right.

Devil in the details of independence

- Governor appointed for fixed 8 year term. Or not!
- MPC has 9 member, 4 external. 3 year appointments renewable once.
- FPC=13 members, 7 external.
- Voting. Minutes. Parliamentary hearings. Conflict of interest rules.
- Inflation target breach letters.
- Emergency claw back of monetary policy.

THE 2008 CRISIS: CENTRAL BANK FUNCTIONS, INSTITUTIONS

- Independent central banks.
- Fiscal policy removed from active demand management.
- Focus on inflation targets.
- Light touch bank regulation – faith in markets.
- ‘Science of monetary policy’ and the inflation process.
- Interest rates as the instrument.

- Fiscal policy involved in demand management again.
- Interest rates at their floor of 0.
- Quantitative, credit easing by central banks.
- Bail outs. Bankruptcies.
- Tighter bank capital regulation.

Remaining lectures

- Causes of the crisis, real and alleged.
- Eurozone crisis as a sub-plot, and its causes.
- Consequences: economic, financial, political.
- Evaluating central bank and government responses.
- Lessons learned and not learned.

**READING ON CENTRAL BANK POLICY
AND PURPOSES
[UNDER CONSTRUCTION!]**

Reading on central banks, price stability and monetary policy

- See the general reading list in lecture 1 slides.
- Many of the references will be hard, and go deeper than you need.
- Learn to scan and get the gist and be ruthless and selective.
- You don't HAVE to read anything on this list.
- Purpose:
 - give you a resource to help you put together an essay question answer
 - Show you a map of a subject that you might explore more in further study later on in your degree / career.

Reading on central banks, monetary policy and inflation targeting

- The science of monetary policy, Clarida et al
- Barro+Gordon (1983)
- Introduction to Woodford 'Interest and Prices'
- ['A brief history of time spent inflation targeting'](#) [My blog]
- Taylor (1993) 'Discretion and policy rules in practice',
- Balls, E (2017) (et al) ['Central bank independence revisited'](#). [ie Ed Balls ex Labour shadow chancellor]
- Mishkin, R (2010) ['Issues in inflation targeting'](#), Bank of Canada.

Reading on central banks, financial stability and financial regulation

- See general reading list in lecture 1 slides.
- [Cecchetti+Shoenholtz 'Bank capital – a primer', Money and Banking blog, Feb 2018](#)
- [Anderson et al 'Does more skin in the game mitigate bank risk taking?', Liberty Street Economics \[NY Fed staff blog\]](#).
- Bagehot, [Lombard Street](#).
- Hayek, ['The denationalization of money'](#)

Reading on financial stability and regulation

- Haldane speeches on financial stability esp
 - [The dog and the frisbee.](#)
 - [The \\$100billion question](#)