

# Global Financial Systems

## Chapter 21

### The global financial system in 2024: Opportunities and threats

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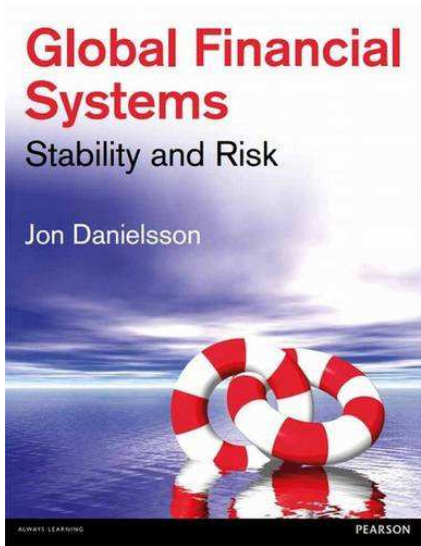
To accompany

*Global Financial Systems: Stability and Risk*

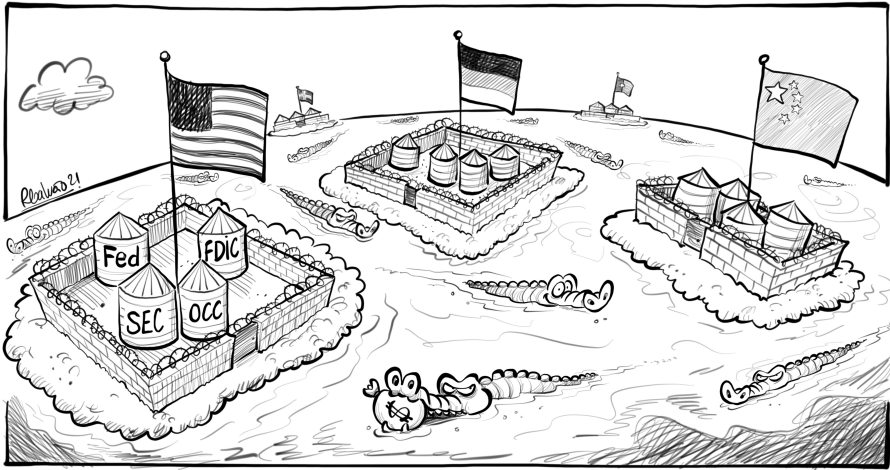
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Published by Pearson 2013

## Book and slides



- Updated versions of the slides can be downloaded from the book web page [www.globalfinancialsystems.org](http://www.globalfinancialsystems.org)



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# Global financial system issues in 2024

- Inflation — Deflation
- Environment
- Financial instability
  - Real estate — Banking crises
- AI
- Politics
  - Increasing weakness of important sovereigns, like some European
  - Conflicts, like US vs. China, Russia, Ukraine, Middle East, Far East
  - Political extremism
- Demographic challenge
- EU — Italy — Fragmentation — unfunded pensions



## Bond pricing recap

- $P_t$  is price of bond
- $r_t$  interest rate in period  $t$
- Par value, price of bond when issued
- $q_t$  payments, including par value at end
- $\pi_t$  inflation
- $N$  number of payments, can be infinite (consols) (oldest bonds that still pay out are Dutch bonds from the 16th century)
- Bond price

$$P_t = \sum_{i=1}^N \frac{q_{t+i}}{(1 + r_{t+i})^i}$$

## Bond pricing recap. Part B

- Bond price

$$P_t = \sum_{i=1}^N \frac{q_{t+i}}{(1 + r_{t+i})^i}$$

- $r \uparrow \rightarrow P \downarrow, r \downarrow \rightarrow P \uparrow$
- The bigger  $N$  is (longer maturity), the larger the change in price in response to change in  $r$
- If  $\pi \uparrow, r \uparrow, P \downarrow$
- Some bonds are inflation indexed, so  $\pi \uparrow, r \uparrow$ , but  $P$  mostly unchanged

# Natural hedging

- For many entities (like pension funds and insurance companies),  $\pi \uparrow$ ,  $r \uparrow$  means PV of liabilities and assets both fall — natural hedging. Can be fully if maturity matched
- For others (like governments and most firms)  $\pi \uparrow$ ,  $r \uparrow$  means amount of debt  $\downarrow$  but refinancing cost  $\uparrow$
- Generally, the higher  $N$  is, the relatively bigger the former (PV of debt) effect is
- And need for refinancing, whose costs increase with  $r$
- So, debt maturity an important variable when inflation rises

# What is inflation?

- CPI?
- Include housing?
- GDP deflator?
- Core inflation: is the change in prices of goods and services, except food and energy
- Something else?
- Ultimately, the answer depends on who you are and what you need

# What is the size of the economy?

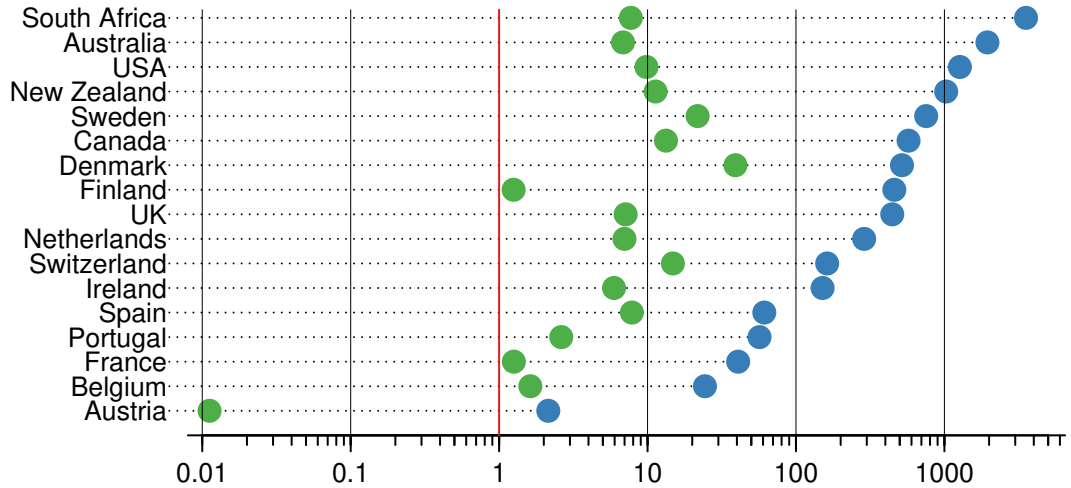
- GDP?
- GNP?
- GNI?
- Something else?

# Data Problems

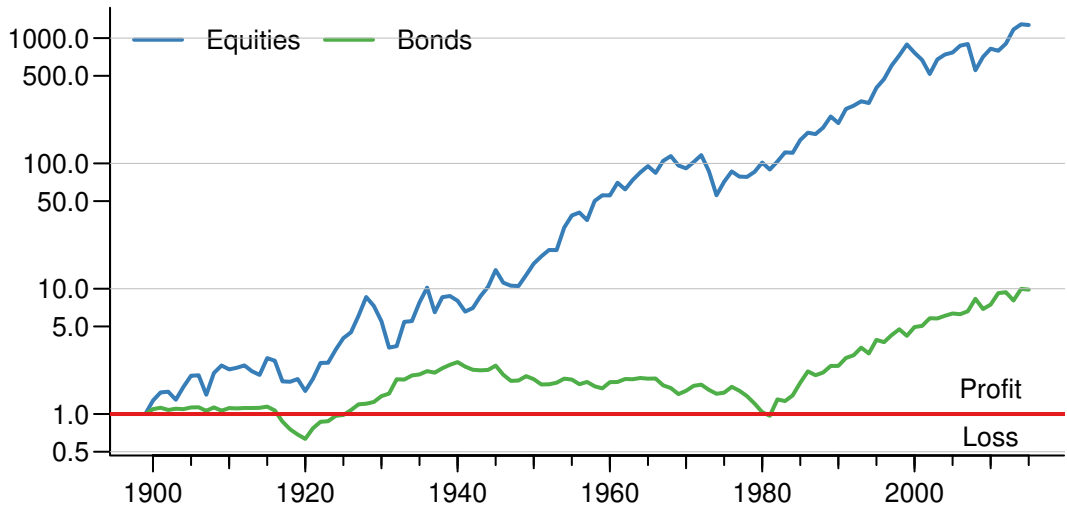
- fred.stlouisfed.org and db.nomics.world
- Government debt is inconsistent — Different numbers from OECD, IMF, Eurostat, WB, etc.
- Debt of central government, local governments, agencies (government owned firms)
- Some is held by the central bank, which is owned by government
- Both brexiteers and remainers in UK present plausible GDP numbers showing that the UK benefited/was hurt by Brexit

# Total real performance. 1900-2016

● Bonds ● Equities



# Bonds and equities — USA





# Why inflation and deflation matters today

## Overview of key issues

- When inflation is constant, it should not be very disruptive — even if it is high
- Problem arises when inflation changes rapidly (or is expected to), especially from a low point like now — see next slide
- Or price levels are dropping — deflation
- Ideally, inflation should be close to a low constant value, like 2%
- Before we get into the situation today, we discuss both the technical and broader issues

# Inflation is usually costly

- Signals the government is not in control
- Economic agents need to spend valuable resources hedging against it
- Uncertainty reduces investment
- A lack of savings opportunities may reduce investment
- Government tax revenues may fall while expenditures increase — increased temptation to monetise (print money) to finance government, feeding inflation — see later connection to hyperinflation
- In more extreme cases may lead to *dollarisation* — Note the problems of Ecuador, Panama and El Salvador

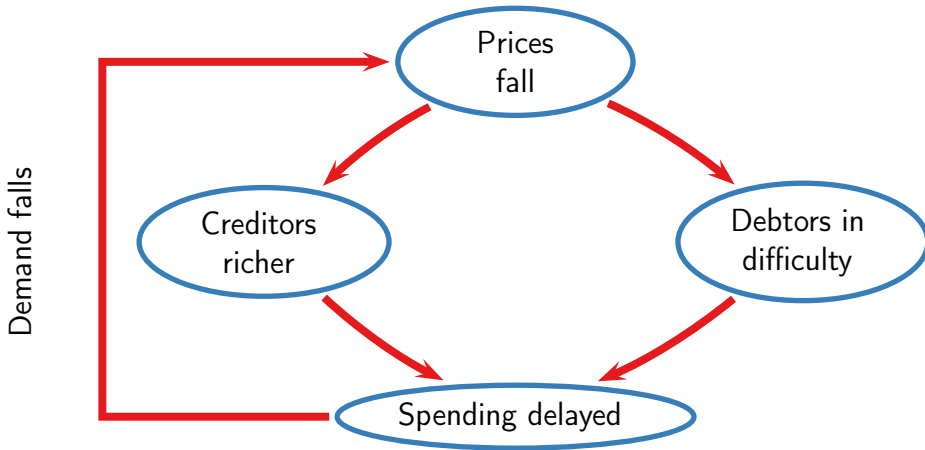
## Broader issues

- Some parts of the economy are more strongly adversely affected by inflation
  - low-income households and those with high debt — individuals, companies, countries
- Some benefit from inflation
- Savers living on annuities, like many retirees
- Some companies can suffer acute stress, which may not be outweighed by benefits elsewhere — dead weight loss
- Labor market disruption — strikes
- Political unrest
- Companies' finance is under strain, perhaps cannot raise funds or prices, or urgently need financing
- Countries in difficulties

# Deflation

- When prices fall
- It is costly because
  1. Those with money postpone purchases because things will be cheaper in the future
  2. This makes prices fall even more
  3. A vicious cycle
- Benefits those who own assets
- Costly for most businesses (who borrow to operate)
- Financial strain for companies with large outstanding debt who are forced to lower prices
- And regular workers who see salaries drop

# Deflationary cycle



## Some deflation cases

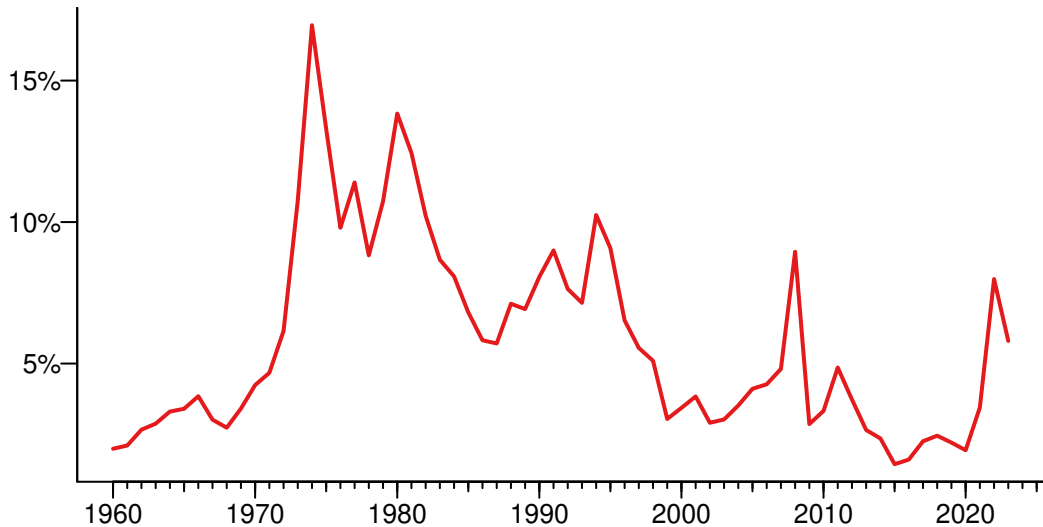
- Great Depression
- Japan over the past 30 years (no more), China recently
- Japan has stagnated with a falling population, Labour shortages and still female labour force participation low (54% vs 71%), worse in senior jobs
- China, very high youth unemployment — especially for those university-educated
- Debt high and rising
- Both countries have been buying growth by building (roads, airports, houses, bridges, tunnels, etc. (Japan in the 1990s))
- Did not help Japan very much and left a legacy of very high debt

# Historic inflation

- Inflation was high in the years between World War II and the 1980s
- Many governments deliberately created inflation after WWII to burn government bonds
- Some commentators call for that today
- Then, economists believed that deliberately creating inflation would stimulate the economy
- Eventually, in the 1970s, inflation got very high, and the economy did very poorly
- ⇒ *Stagflation* = stagnation plus inflation



# CPI — median across all countries with data



# Hyperinflation

# Hyperinflation

- *Hyperinflation* — over 50% per month
- Most of the important episodes occurred in
  - Europe after WWI and WWII
  - Latin American in the 1980s and 1990s
  - Former Soviet Union in the 1990s
- All-time record: Hungary 1945-1946, prices tripled daily
- Now Venezuela
- Large costs of inflation

# Causes

1. Governments resort to financing themselves by printing money — *seignorage*
  - War
  - Inability to tax enough
2. It can be a political decision
  - Vladimir Lenin: “The best way to destroy the capitalist system is to debauch the currency,”
  - Germany, in part, created hyperinflation in the early 1920s to avoid paying reparations
3. As countries keep on creating more money, it becomes harder and harder to raise taxes, so governments are increasingly dependent on printing
4. Sometimes hyperinflation only stops when the government can no longer afford to buy paper — Zimbabwe
5. However, nowadays, money usually created electronically — Venezuela

## World record

Country	Highest month	Highest monthly inflation rate	Prices double
Hungary	Jul 1946	$4.19 \times 10^{16}\%$	15.0 hours
Zimbabwe	Nov 2008	$8 \times 10^{10} \%$	24.7 hours
Yugoslavia	Jan 1994	$3 \times 10^8$	1.4 days
Germany	Oct 1923	29,500 %	3.7 days
Greece	Oct 1944	13,800 %	4.3 days
China	May 1949	2,178%	6.7 days

# The Weimar republic (Germany) 1921–1923

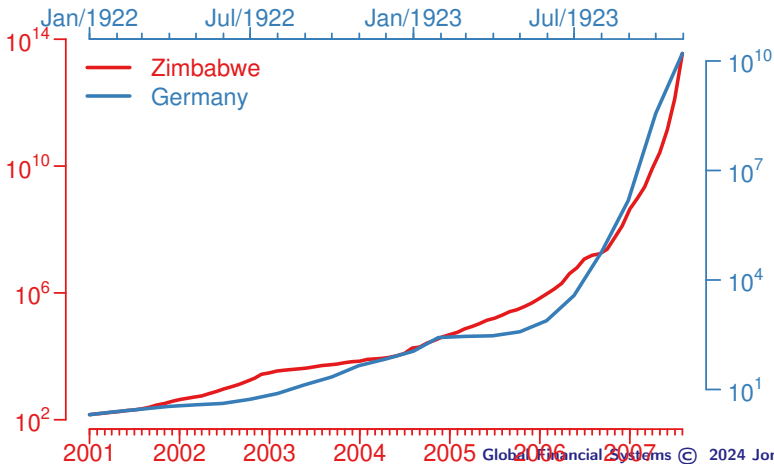
- First *well documented* economic behavior of hyperinflation
- First recorded in China in the 13th century
- Dramatic increases in prices and interest rates, redenomination of the currency, flight from cash to hard assets, etc.
- The Main cause was the Treaty of Versailles and war reparations
- 60 marks per dollar in 1921 to 8000 end of 1922
- Ended with the introduction of the Rentenmark

## Zimbabwe from 1980

- Chronic hyperinflation since independence in 1980
- 1 Zimbabwe dollar was worth about USD 1.25
- Inflation 624% in 2004, 1,730% in 2006
- August 2006 revalued currency at 1,000 :1
- Inflation 11,000% 2007, issue of larger denomination notes
- 100m, 250m, 500m, 25b, then 100b between May and July
- November 2008, inflation 516 quintillion per cent
- On 16 January 2009, issued a ZWD 100 trillion bill
- Redenomination on February 2009 removing 12 zeroes (and ten zeros in August 2008)

# Hyperinflation in Germany and Zimbabwe

- Notice the similar course of price growth
- Consistent with Cagan's 1956 empirical model





# Fighting inflation

# Relationship between money and output

- Money times velocity of money equals prices times output

$$M \times V = P \times Q$$

- Old-style monetarism focused on the amount of  $M$ , but  $V$  is also very important
- And we don't know accurately what  $M$  is and neither do we know  $V$  accurately
- So long as we expect  $P$  to be stable (inflation very low)  $V$  is also usually stable, because  $M$  and  $Q$  change only slowly
- But if we expect inflation to rise, we use money faster —  $V \uparrow$
- Which in turn fuels yet more inflation
- So management of inflationary expectations is particularly important

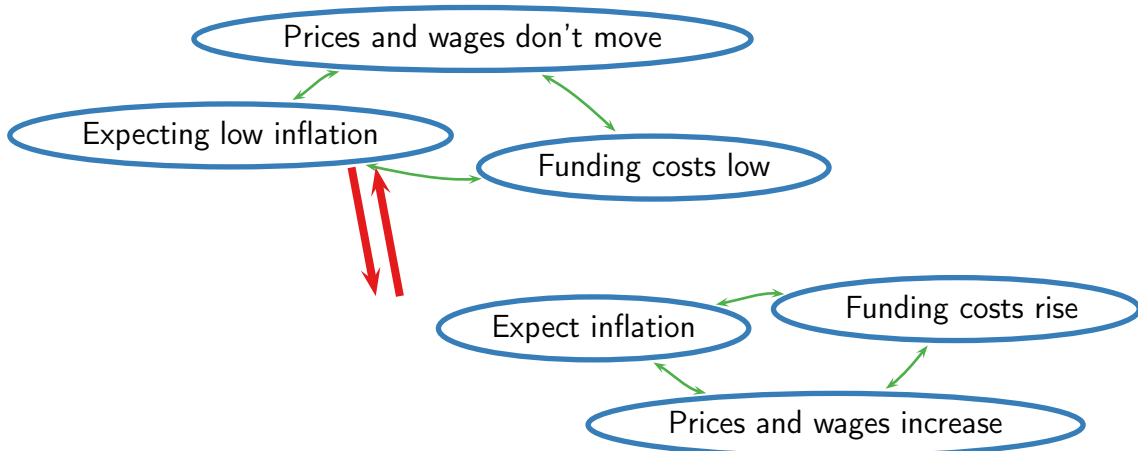
## Some drivers of inflation and deflation

- Strong aggregate demand / weak aggregate supply drive up prices (like supply issues and labour market)
- For some developing countries, the global cost of commodities imported and exported
- Some countries deliberately create money to fund themselves
- Expectations — if we expect prices to rise in the future when making contracts today (salaries, goods) we build in price rises
- *Anchoring* — long-run inflation expectations remain anchored to some level — ideally the central bank target
- Milton Friedman — “inflation is always and everywhere a monetary phenomenon” — he was referring to episodes of persistent inflation as supply shocks can impact the price level in the short run
- Increasing fears can increase saving preference and deflation
- It is not clear what money is

# 1950s monetary policy and the Phillips curve

- Suppose inflation is, and has been low, e.g. 2%
- If the central bank *deliberately and unexpectedly* prints money
- Economic agents think the economy is growing rapidly and respond by creating growth
- Why not stimulate by printing money? Well, we tried
- But
- As shown by Lucas — *Lucas critique* — after the first time, the economic agents will no longer believe that inflation indicates growth
- Instead, they take it as bad news
- ⇒ *stagflation = stagnation + inflation*

# Self-reinforcing stable regimes of low and high inflation



# Fighting inflation is very costly

- Richard Nixon in 1972 “The rate of increase of inflation is going down”
- Solved by
  1. better understanding of what matters “inflation is everywhere and always a monetary phenomenon” (Milton Friedman)
  2. central bank independence
  3. the classical playbook — see the next slide
- Eventually *expectation shift* — if we expect high inflation, it remains high, and if we expect low inflation, it remains low
- Falling inflation, and hence interest rates, is the reason why bonds have performed so well since 1982

## Classical playbook

- Slow down the economy to reduce aggregate demand — The idea being that aggregate demand is artificially high because of inflation and that excess supply will reduce prices
- Do that by raising the cost of money — policy rate
- This is deliberately creating a recession to fight inflation — difficult cost-benefit analysis
- Politically difficult — US and UK in 1982
- But if expectations shift — the central bank is credible — then hopefully inflation gets anchored to the central bank target
- High interest rates signal that the government is committed to fighting inflation
- Note what happens when it has different views — Turkey

# Winners and losers



## Borrowers and banks

- Unprofitable borrowers may get into serious difficulties when interest rates rise
- Maybe banks now “extend and pretend” or “evergreen”
- When rates increase, banks can no longer do so as easily
- Banks may get into difficulty if borrowers start defaulting

# Sovereign borrowers

- Most sovereigns are highly indebted
- But most borrow in their own currency
- And have long maturities (often close to 10 years)
- So they only have to roll over a relatively small portion of debt
- Countries that borrow relatively short-term or that issue inflation-indexed bonds will be affected more quickly

## Certain large buyers of bonds

- Some buyers are naturally hedged
- Take a pension fund with multi-decade liabilities and multi-decade bonds
- As inflation and interest rates increase, the PV of both the bonds and the liabilities falls.

# The role of the USA

- The USA is the world's largest economy
- The US dollar is the reserve currency
- All other countries are influenced to some extent by US monetary policy
- And some countries have no choice but to follow US monetary policy

# Impact on foreign exchange

- Investors seek safe haven currencies
- US remains of primary importance
- If ECB lags on raising interest rates, the euro comes under strong pressure
- i.e. FX realignment
- Makes FX hedging important

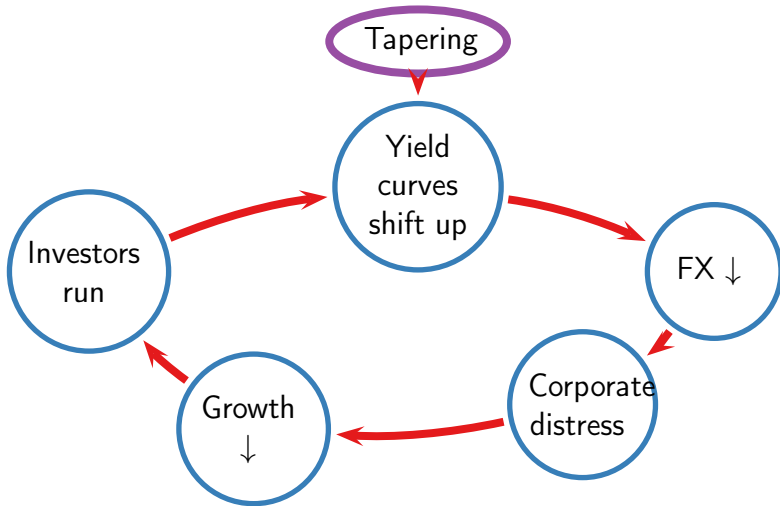
## Taper Tantrum - 2013

- Fed announced the progressive termination of the QE program in May 2013 and a potential hike in policy rates further ahead
- Severe impacts on EMEs:
  - Capital outflows from bond markets
  - Increase in bond yield spreads
- So rising rates could have severe impacts (short- and long-term) on markets
- But the US law only considers effects on the US, not other countries
- “The dollar is our currency, but it’s your problem.” Treasury Secretary John Connally in a 1971 address to G10

## EME concerns

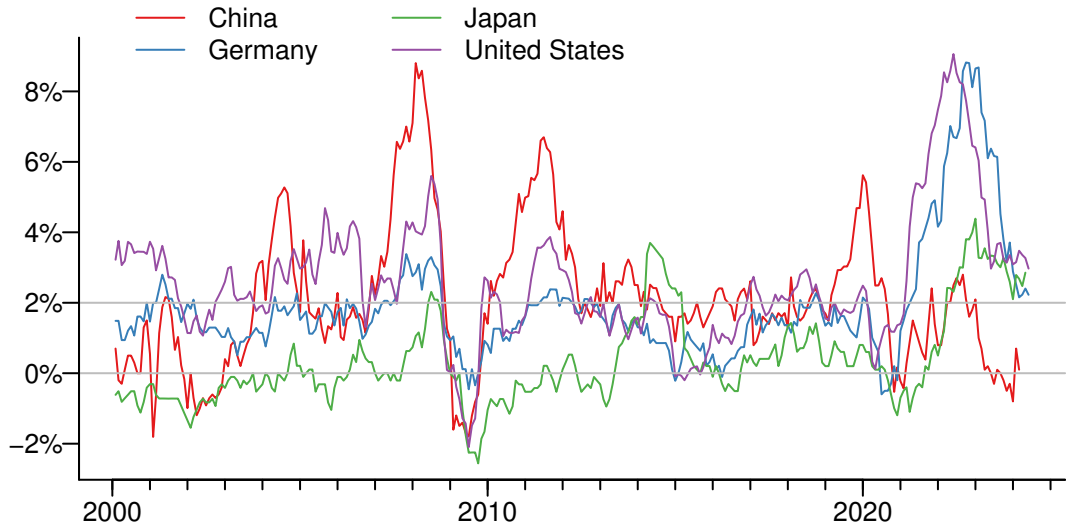
1. Offshore and foreign currency-denominated securities carry with them high currency risks
2. A Fed rate hike may trigger repatriation of US assets and pressure EME currencies.
3. To compensate, EME may or may not raise rates
4. Either decision will pose problems for some part of their tax base and, worst case, for their political stability
5. Investors understand the potential for these problems to emerge and so may flee suddenly following apparently modest events

# EME feedback





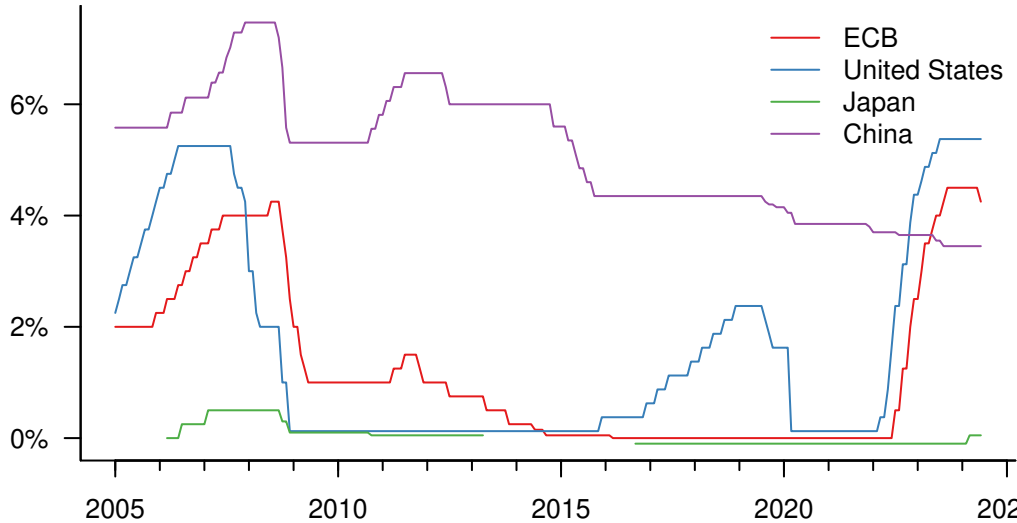
# CPI inflation since 2000



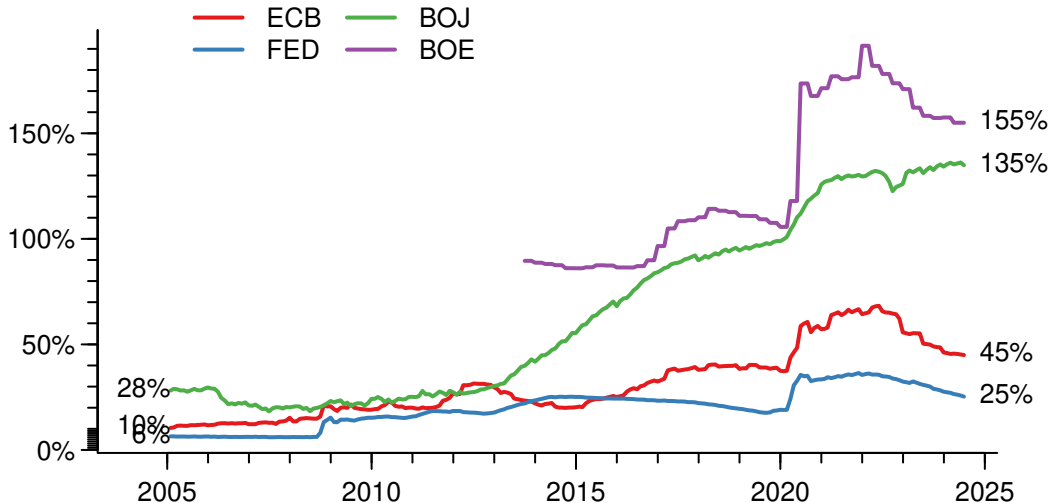
# Where did the inflation go between 2009 and 2021?

- We have done massive QE since 2007 and kept interest rates very low
- Why did inflation not go up?
- After all, the labour market has been tight
- See the expansion in CB assets and target rates on the next slide

# Central bank interest (policy rate)



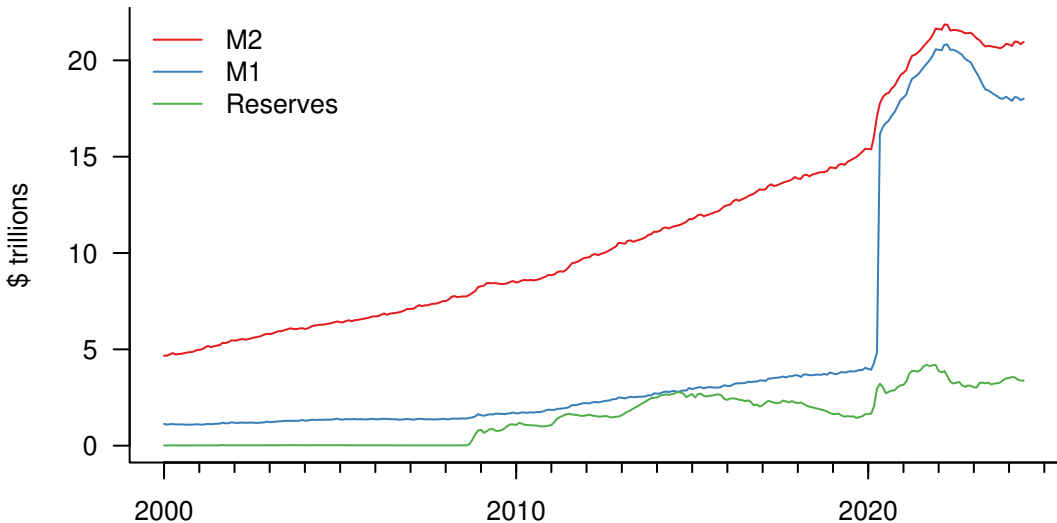
# Central-bank assets to GDP



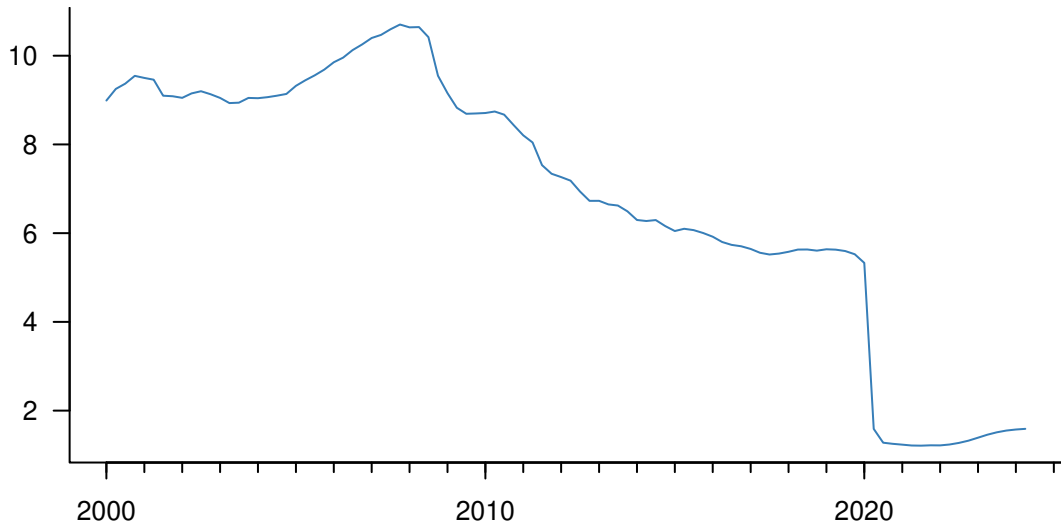
## What happened

- Recall the slide on the textbook version of money creation in the Central Bank chapter
- That made the naïve assumption that a bank will make the required reserves and lend out the rest
- But, when the CB bought bonds, they might be sold by pension funds and insurance companies, as large owners of government bonds
- Who then deposited much of the receipts into demand deposit accounts
- And the banks then put the funds into the CB reserve accounts, earning more on that than they paid on the demand deposit accounts
- See the US story on the next slides, but the same applies in Europe

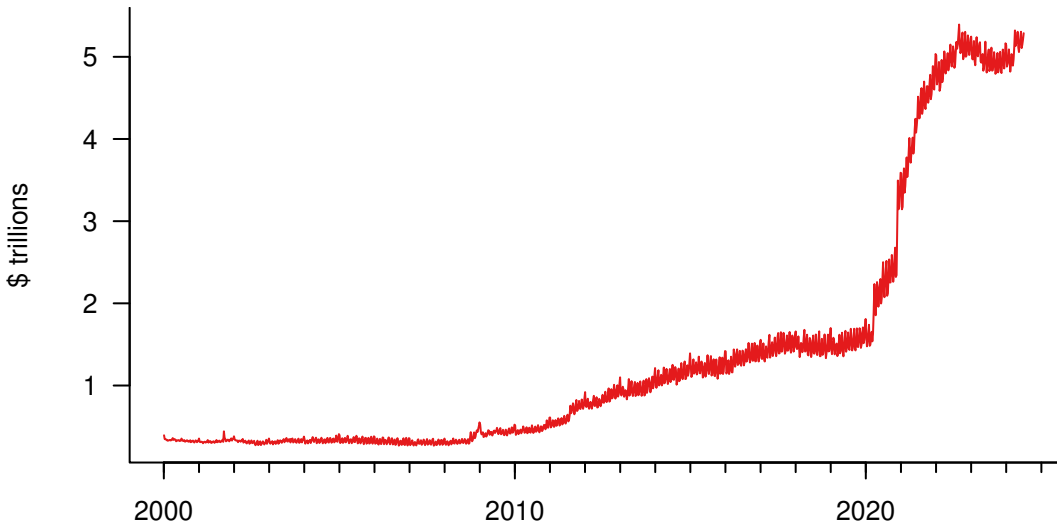
# US money



# US money M1 velocity

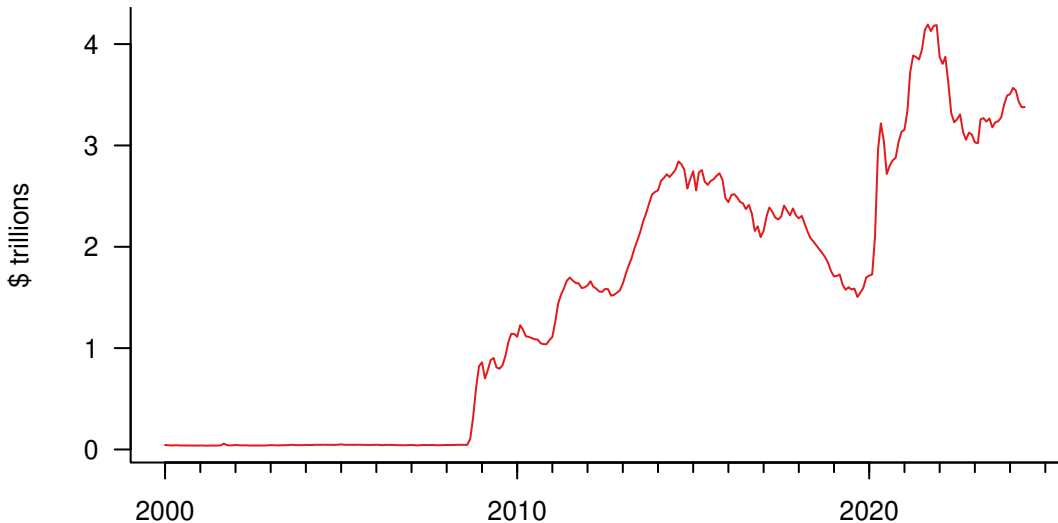


# Demand deposits





# Bank reserves at Fed

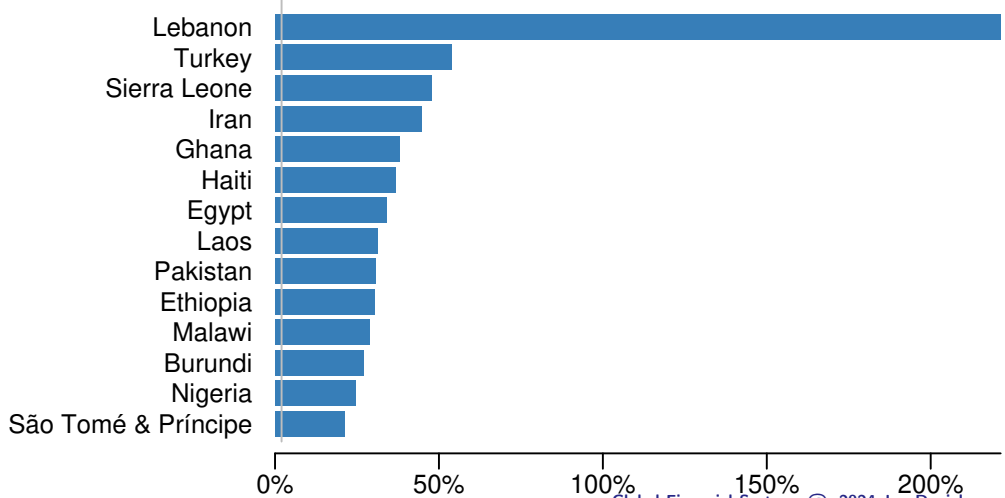


# Issues

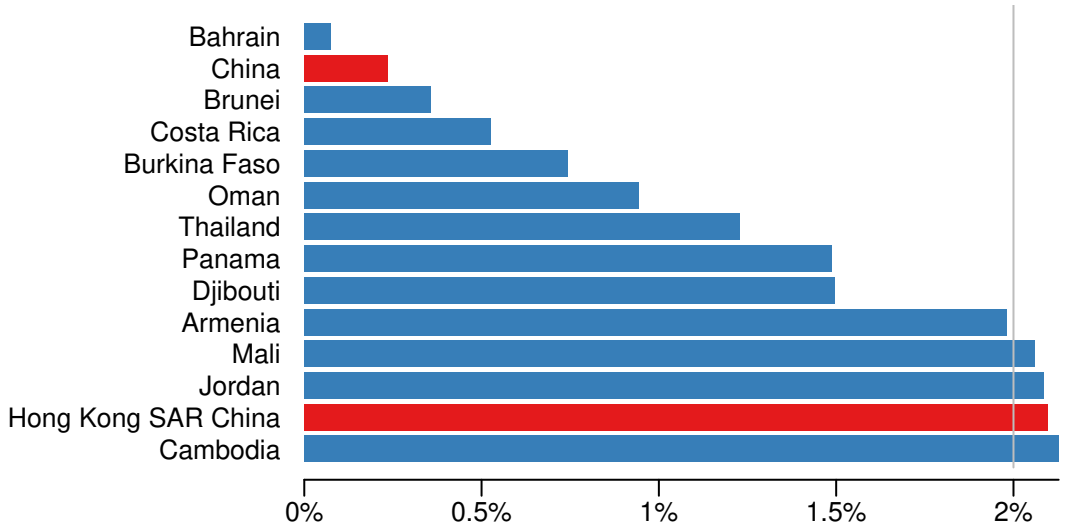
- It's clear from the figures why inflation did not emerge
- A look at the scale of QE in March 2020
- That, in turn becomes the main ingredient in today's inflation controversy

# CPI Inflation 2023 in countries with data

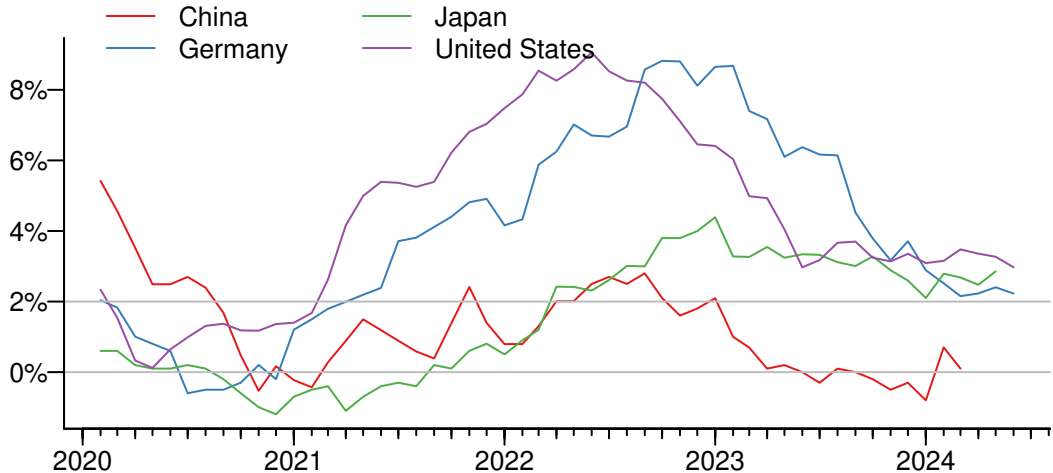
from WDI, missing, e.g. Argentina and Venezuela



# CPI Inflation 2023 in countries with data



# CPI inflation since 2020



## Where some countries are now

- Entering deflation — China
- Out of deflation — Japan
- Stabilising inflation — Germany, US
- Managed inflation stability — Switzerland
- Interest rates in the US and EU falling

# What explains current inflation?

The experts have strong disagreements, and politicians exert strong pressure

- Some drivers — political and controversial
  1. Accumulated money creation since 2008
  2. Rapid money creation in Covid
  3. Recent supply constraints
  4. Post Covid demand boom
  5. Russia-Ukraine war
  6. Rising populism
- These are not isolated but instead are interdependent

# The key question

- Is inflation transitory
  - One-off shock to prices because of post-Covid demand and supply disruption
  - The central banks have consistently maintained this to be true
- Or permanent
  - Hard-hit workers have seen real wages erode by 10%
  - Companies see input cost increasing by large amounts
  - Both demand price increases
  - Which in turn feeds back on itself
  - *We expect inflation, therefore it happens*



# What to do about inflation?

- The classical reaction is to raise interest rates
- However, the debate is whether expectations have shifted — become unanchored — or short term factors cause the inflation
- Raising interest rates is very costly
- If expectations have shifted, the correct reaction is to raise interest rates
- If only short-term factors are to blame and expectations have not shifted, then we simply have to wait for the inflation shock out, and we need not raise interest rates

## CBs' increasing political role

- Having raised rates, credibility at risk if CBs lower rates too quickly
- Central banks may be seen as not credible if they don't raise interest rates
- But also, if they do not raise interest rates at all
- If they do raise rates, they will come under political attack
- The CB role has become intensely political
- Constrained by the requirement to avoid a real estate crisis, in turn limiting their ability to raise rates
- Consequently they may feel "powerless" (Bailey)

# The US, developed and less developed countries

- In times of heightened stress, the US is seen as a safe haven, and USD strengthens (see slide in FX chapter)
- By various measures, US accounts for about 1/3 of global financial risk appetite
- Most global debt is in USD, and much of this is held outside the US
- Therefore, US monetary policy decisions have a direct impact on the rest of the world
- And a perpetual problem for developing countries is that when they are vulnerable when the US is doing well
- US then raises interest rates, which exerts a direct adverse impact on EMEs

## What about now?

- Interest rate increases are very controversial
- And many governments are happy to see their debt burn up
- Severe labour market disruptions seem likely to continue
- Recession is either happening or about to happen
- Developing countries particularly at risk
- So the *doomsday* scenario is stagflation — back to the “lost decade” 1970s

# Environment

# The association between the environment and the financial system

- They both impact each other and policies in either domain can affect the other — see next two slides
- Therefore, there is an increased demand for integrating environmental and financial policy
- However, it is still not clear how to do that

# How the environment affects the financial system

- Both short and long-term impact
- Increased climate volatility directly increases the intensity and frequency of extreme conditions, such as hurricanes, drought and flooding
- That, in turn, has a direct impact on insurance companies and those invested in industries and areas affected by the resulting damage
- Longer term, serious environmental damage such as rising sea levels and large temperature changes (up and down) will impact real estate
- Changing precipitation patterns and temperatures impact agriculture and political stability

## Systemic or non-systemic risk?

- Whether environmental risk is systemic depends on how one defines systemic
- If a material impact on the financial system — yes
- If, as we did in Chapter 1, it is the chance of a crisis that may affect the real economy, the link is more tenuous
- Reason is that the time horizons for the most serious outcomes are decades-long
- And understood by (almost) all
- Giving financial institutions plenty of time to trade out of such risk
- Consequently, the financial sector seems unlikely to be affected by systemic risk according to how we have defined it here
- That does not mean it will not suffer large losses



# How the financial system impacts on the environment

- Investments can be made into economic sectors that damage the environment (brown, like fossil fuels) or those which seek to decrease environmental damage (green, like wind and solar)
- This can be done both by end investors, such as private equity, mutual funds, and retail investors
- Or by the funding of investments via bond markets or peer-to-peer type lending
- Including bank loans, pension funds, and insurance reserves, which are particularly easy for the government to influence
- Significant externalities, i.e., environmental impacts, are not adequately priced

## Available information

- While it is easy to conceptually identify how the environment and the financial system are associated
- Incomplete data on those links beyond the anecdotal
- Market capitalisation of brown vs. green companies informative
- Explosion in the provision of information and ratings in this area.
- ESG ratings are increasingly seen as being gamed towards “greenwashing”, i.e., attempts at appearing green but not actually being so, which in turn discredits attempts at measurement

## What can be done

- Most of the finance-to-environment discussion relates to investment strategies
- Increased disclosure demands of the investment decisions of pension funds and the like
- Might see capital charges being used to direct bank lending so that a brown loan will attract a higher capital charge than a green loan
- And large investors, like pension funds and insurance companies, are coming under increasing private and public pressure to invest in green

## Issues I

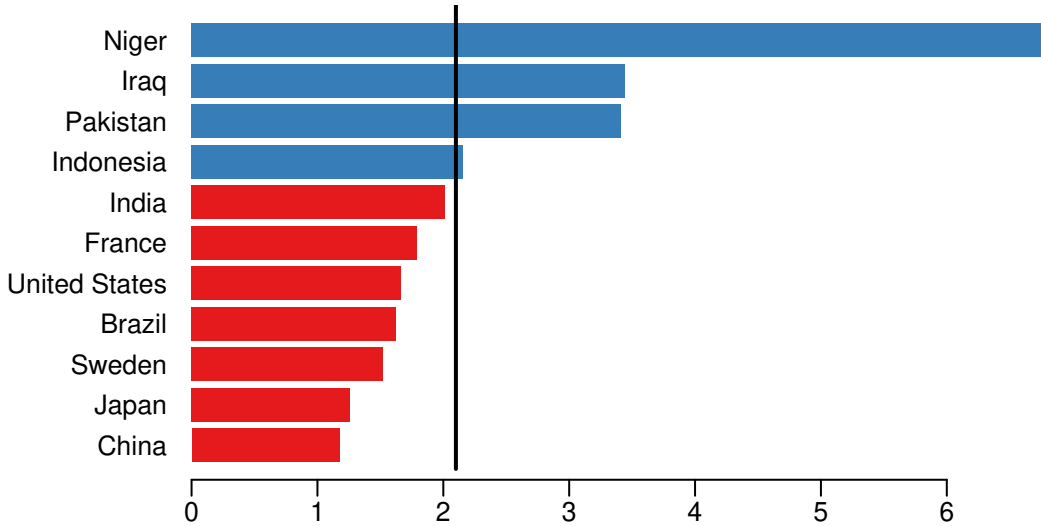
- Any rapid transition to a carbon-neutral economy would cause massive disruption, and it is unclear whether even a 25-year transition can be made at a *politically acceptable* cost
- Brown activities might be taken private or sold to offshore entities rather than made by public companies
- If we restrict investment in mining, the profits of mining companies increase
- Main financial losers are the current owners of mining companies who are forced to sell cheap to private equity and consumers of more expensive minerals
- Even if the actual amount of mining is not affected
- Preference for green investments suggests lower returns and pension funds and insurance companies have to balance this possibility against client preferences

## Issues II

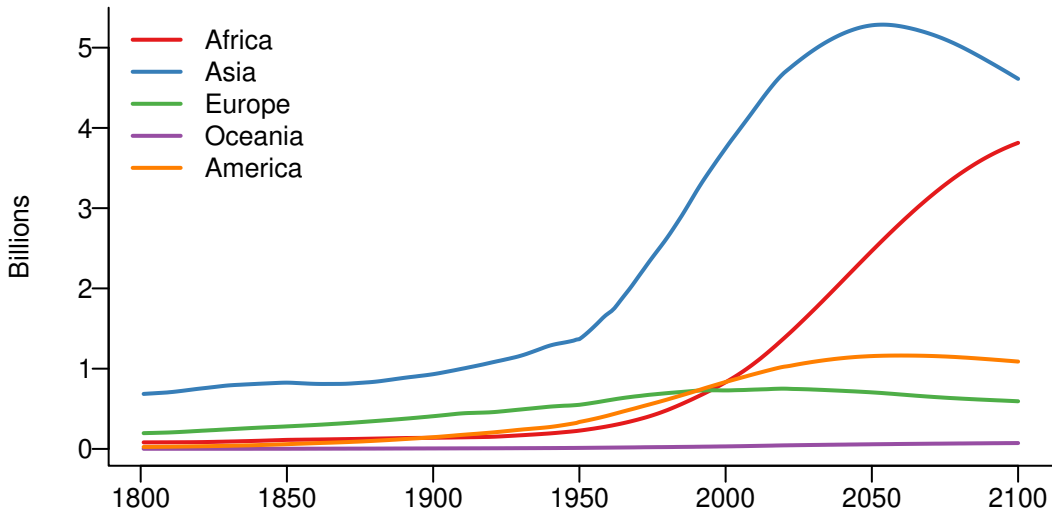
- Will the increased cost of lending towards brown investments — which may disproportionately fall on the poorest citizens and regions — lead to political backlash
  - See Ulez — London Ultra Low Emission Zone
  - Netherlands — Farmer Citizen Movement
  - France — Yellowjackets
  - Many US states
- Using bank regulation of risk lending to implement green policies, as is currently mooted in Europe, makes CBs more political and hence more criticised
- Which in turn can adversely affect their ability to execute monetary policy

# Demographic Challenge

# Births per woman

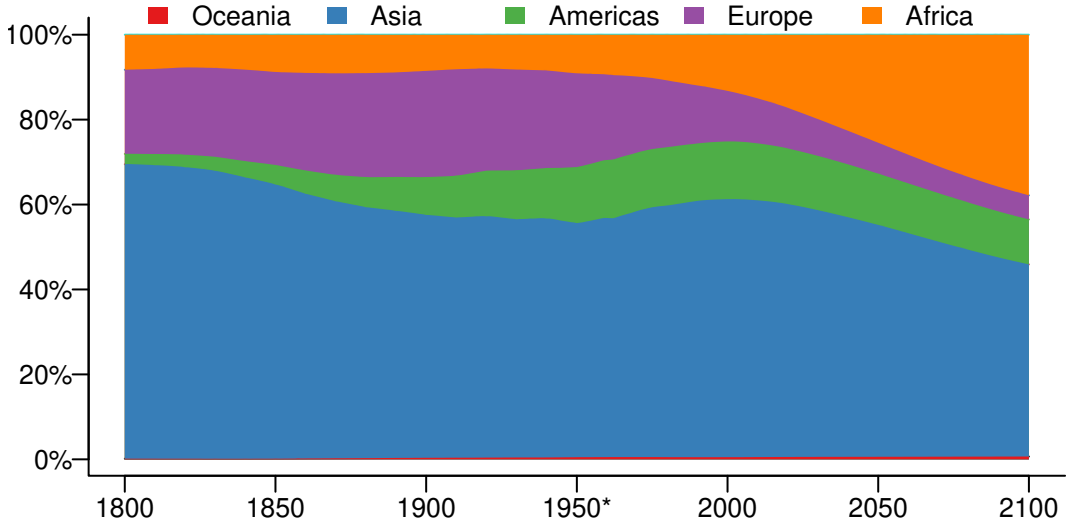


# Population projections





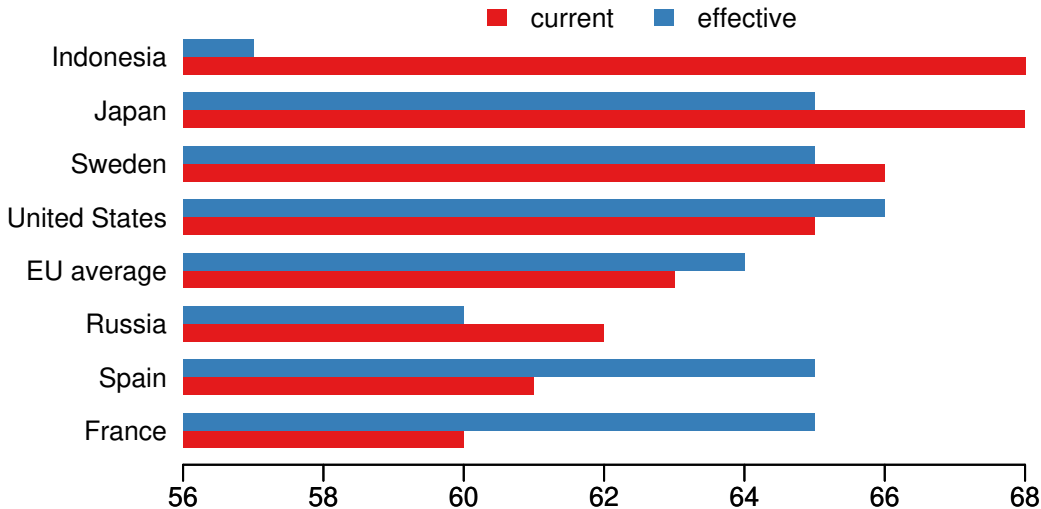
# Population distribution



# How population growth affects the distribution

- If population positive or negative growth ( $g$ ) was a random, it would not be a big problem (some adjustment costs)
- But the impact of
  - $g < 2.1$
  - $g > 2.1$
- Is not random
- What is controversial is whether there are serious consequences or not

# Retirement

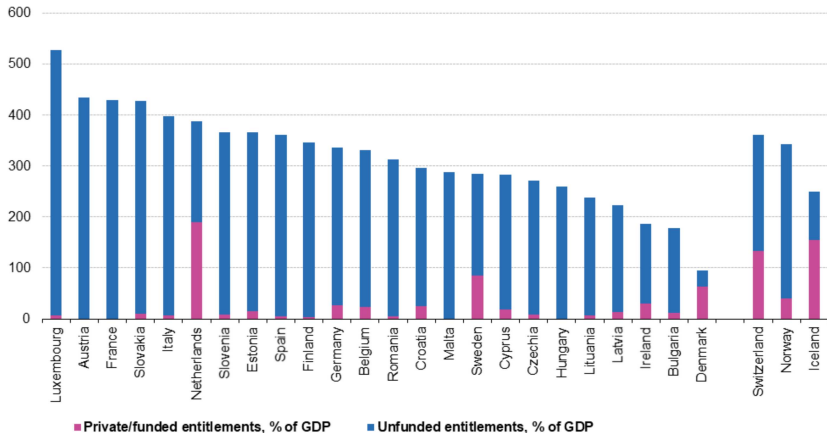


# EU

- In 2020, 27% of the EU population were pension beneficiaries.
- Expenditure on pensions was equivalent to 14% of the EU's GDP in 2020

# Pensions

Household pension entitlements in social insurance in EU and EAA countries by end 2018 in % of GDP



Note: Data not available for Greece, Poland and Portugal

Source: Eurostat (online data code: pncp\_10\_pncp)

## Baumol and Bowen (1966)

- Some workers' productivity (like IT) grows more rapidly than others (nurses)
- The ones who grow rapidly tend to be in private sector (IT), the slow in public (nurses)
- The wages of IT workers reflect their productivity growth
- The wages of nurses grow faster than their productivity growth
- Increasingly relatively expensive to employ nurses
- Public services are increasingly costly for the same level of service
- Increasing demand for public services — a problem

# Goodhart and Pradhan (2020) I

**Demographic shift and economic impact** A shift from a growing workforce to an aging population will lead to slower economic growth

**Inflation and interest rates** Ageing populations will increase inflation and interest rates due to labour shortages driving up wages and rising demand for healthcare

**Social and political consequences** Ageing populations will strain pensions and healthcare, increasing government spending and causing intergenerational tensions

**Inequality and globalization** Demographic changes will affect global inequality and reduce globalization as labour supply dynamics shift

# Goodhart and Pradhan (2020) II

**Policy recommendations** Policies should encourage higher birth rates, adjust retirement ages, reform immigration, and invest in automation to address labour shortages

**Economic models and forecasts** Economic models need to account for demographic changes. Policymakers should integrate these trends into forecasts for better preparation



# Critique of Goodhart and Pradhan (2020) I

- Overemphasis on demographics** Too much emphasis on demographic changes, overlooking other factors like technological advancements
- Assumptions on inflation** Ageing populations will not necessarily lead to higher inflation, as technological innovation and globalization could continue to exert deflationary pressures
- Policy recommendations** Increasing birth rates and immigration is overly simplistic or politically challenging to implement
- Labor market dynamics** Labour shortages may not lead to significant wage increases, as automation and artificial intelligence mitigate labour shortages and keep wage growth in check

# Critique of Goodhart and Pradhan (2020) II

- Economic modeling** The economic modelling does not adequately capture the interactions between demographic trends and other economic variables
- Historical comparisons** Draw overly broad historical comparisons, past demographic trends might not predict future outcomes
- Uncertainty and speculation** Inherent uncertainty and speculative nature of long-term demographics on economic predictions

# Silicon Valley Bank and Credit Suisse “should” not have failed

“Over the past decade, G20 financial reforms have fixed the fault lines that caused the global financial crisis”

Mark Carney (2017)

Governor of the Bank of England  
Head of the Financial Stability Board

## Recent banking turmoil

- The two big bank failures last year, Silicon Valley Bank (SVB) and Credit Suisse (CS), are discussed on the next slides
- These should not have happened because of all the reforms of financial regulations after the 2008 crisis
- The question then is what happened and how will policy respond

# SVB I

- Had a rapid growth in deposits and invested a sizeable part in treasuries
- SVB was not classified as a GSIB because its assets were under \$250 billion
  1. A desire to have a lighter regulatory regime for smaller banks
  2. Not the case in Europe
  3. This meant it was not stress tested, which would have revealed that it was vulnerable to rate increases
- Some of its treasuries, which are part of capital calculations, were MTM, but most were classified as held to maturity, i.e., not MTM
- When US raised interest rates in 2022, the market value of those bonds fell
- This meant its large unrealised losses were not recorded on its books
- Even if accounting footnotes made it clear that it would suffer losses

## SVB II

- When depositors eventually realised this, they ran the bank
- Which happened online and over a couple of days
- The US authorities resolved it
- FDIC made all depositors whole, whether or not insured (see next two slides)
- Most overseas operations were subsidiaries, not branches, and hence resolved under their local law
- And, those depositors were not covered by the FDIC, including some unhappy in the Cayman Islands
- We see the US reaction in the Basel Endgame

# Consequences

- US regulators criticised for not spotting and rectifying the problem arising from increasing interest rates
- However, a desire to have less onerous regulations for smaller banks
- The system is infinitely complex
- And it is easy to criticise after the event
- Depositors (see the next slide) include firms that should have done due diligence
- Regulatory intervention contributes to moral hazard by reducing the incentives to do so

# The FDIC accidentally released the depositor list to Bloomberg

- Top 10 depositor accounts held \$13.3 billion
  1. USD Coin (Circle Internet Financial) 8.2% of its reserves, or \$3.3 billion
  2. Sequoia — \$1 billion
  3. Kanzhun (backed by Tencent ), \$902.9 million
  4. Altos Labs Inc., a life sciences startup that works on cell regeneration, had \$680 million
  5. Payments startup Marqeta Inc. had \$634 million
- So why bail very wealthy and successful companies and investors out?
- After all, we were not supposed to see any bailout of the wealthy after 2008



## CS

- Second largest bank in Switzerland and a GSIB
- Generally seen as badly run, and it was less profitable on comparable activities than other comparable banks, like UBS
- Unable to place AT1 bonds from early 2022
- As problems became known, subject to a run — clients pulled \$200 billion out in its final year
- Eventually resolved by the Swiss authorities
- UBS records \$29 billion gain, now Europe's second-largest bank
- AT1 controversy next slide

# AT1 controversy

- The Swiss chose to wipe out AT1 bondholders but not equity holders
- Controversial because according to conventional resolution, equity holders take the first losses
- But, these AT1 (and most) had a covenant saying they could be hit before equity
- And their explicit purpose is to give the resolution authority freedom to manoeuvre

# AT1 and market discipline

- AT1 bonds are perpetual, but banks can call them early
  1. “Economic call” when a bank calls an expensive AT1 and replaces it with a cheap one
  2. “Uneconomic call” the opposite. UBS paid €200 million more for a particular call and reissue in the summer of 2022
- Banks do an uneconomic call because they price the overall relationship with a client
- And the market increasingly now expect it — uneconomic calls are becoming priced in
- Undermines the market discipline aspect of AT1

## Vulnerability to rising interest rates

- More generally, some banks, e.g., small and medium-sized banks in the US, are long bonds
- While the largest banks do not hold a lot of such bonds, or if they do, are hedged
- In Europe, the banks appear to be relatively hedged against interest rate changes
- And rising rates have been very profitable to banks
- Because they have very quickly increased the interest charged on loans
- But not interest paid on deposits

# crises

# Fighting crises

- Do we fight all relatively serious crises?
- Or do we let most events sort themselves out?
- Can we define “serious” better than whatever crisis is making today’s headlines?
- What to do about the politics?
- Can we pick the winners and losers with any fairness at all?
- Can we work out what best serves society when uncertainties and pressures are so high?

# Forest fires

- The policy of the US authorities has been to fight all forest fires
- Partly because people increasingly live in or near forests
- That encourages small flammable vegetation that would have burnt off in small forest fires
- So, when the authorities are unable to distinguish a fire, it can become very big
- The forest authorities have traded volatility for tail risk
- Same happens in financial and economic crises

# Which crises to fight?

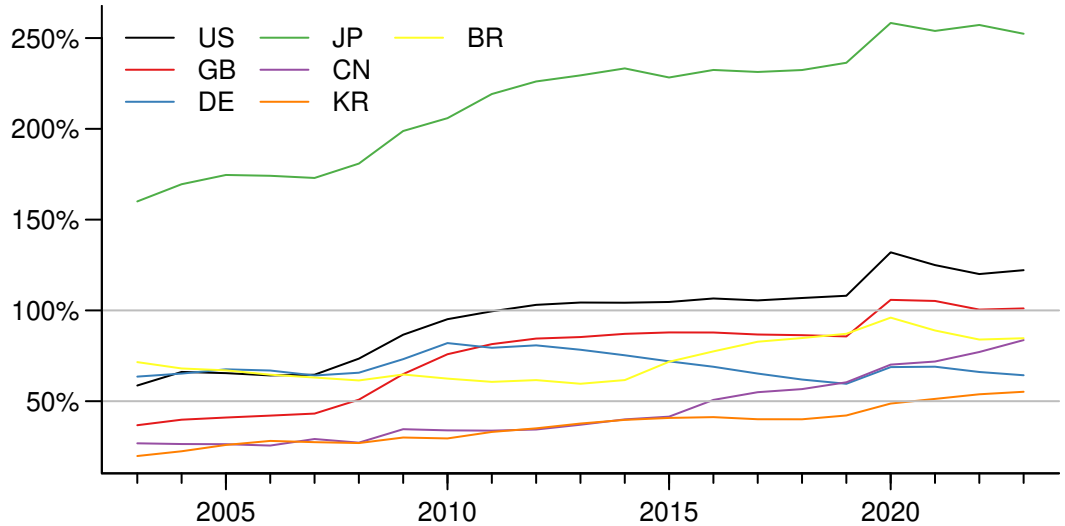
- Fighting crisis takes up resources, *fiscal and monetary capacity* (government expenditure and QE/low interest rates)
- Fiscal capacity on the next slide
- We have seen slides on inflation (monetary capacity) earlier
- So if all the dry powder is used for crises that are not the most serious
- Will we be able to fight the next serious crisis?
- And what about moral hazard? — Recall Minsky



# Responding to crisis by fiscal and monetary

- When the government borrows to fight a crisis, its ability to borrow more in the future is diminished
- After all, if debt becomes too high, the government can no longer repay it
- Similarly, when responding to a crisis by a monetary intervention, it becomes more likely that inflation will sharply rise
- Repeated interventions consume the fiscal and monetary capacity and will eventually hit a hard limit

# Government debt to GDP (IMF)



# Complexity

- The financial system is effectively infinitely complex
- Actually, endogenously infinitely complex
- Where nobody has an incentive to reduce the complexity
- How does the regulator patrol an infinitely complex system?
- Trying to identify and manage all of that risk would make financial regulations so onerous that the banks would cease functioning
- Maybe we could only spot the SVB after the fact
- Because the authorities can only patrol a small part of the system

## Risk comes in many forms

- The US stock market goes down by \$200 billion in one day, and almost nobody cares
- Potential subprime losses of less than \$200 billion in 2008, and a global crisis ensues
- The risk we know we prepare for — *known-unknowns*
- The *unknown-unknown risk* is the most damaging
- But the risk we measure is the known-unknown risk
- Is that all the central bank risk manager *can* measure?

# The driver of extreme risk is politics

- 2008, Italy, Brexit, Trump, Ukraine, Taiwan, Venezuela, real estate, inflation, ...
- Because politics allows the risk to emerge and prevents timely solutions
- The inability to deal with environmental risk is almost entirely political
- As is the demographic challenge
- Politics works against those who want to prevent a crisis
- The boom delivers short-term tangible benefits

# The political economy of booms

- The politics works against those who want to prevent a crisis
- Especially when we are in a pre-crisis boom, as usually is the case
- The boom delivers short-term tangible benefits
- Almost everybody will dismiss the long-term downside
- Practically impossible to warn against or reduce risk

# The dilemma of political risk

Danielsson and Macrae (2016)

- Can a nonpolitical entity legitimately implement macroprudential policies that affect democratic outcomes?
- Recall Bank of England and Brexit
- Does the mandate given by the political leadership to the regulator extend to the behaviour of the political leadership?
- If the CB can not able to incorporate political risk in its analytic framework, how effective can it be?
- And how legitimate?

# The fallacy of composition in financial regulations

Definition| The fallacy of composition is inferring that something must be true if all or even some parts of it are true.

Hydrogen (H) is not wet. Oxygen (O) is not wet. Therefore, water ( $H_2O$ ) is not wet.

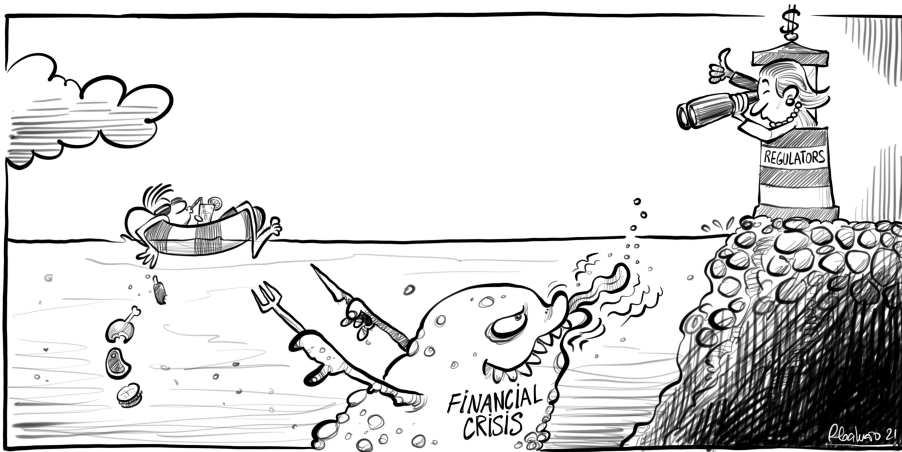
Doubling my financial wealth makes me wealthier. Doubling everyone's financial wealth just doubles prices

- If all the banks are prudent, keeping all their individual micro risks under control, the entire financial system is safe



# Crises surprise us

[illusionofcontrol.org](http://illusionofcontrol.org)



# The trilemma of financial policy

Danielsson and Goodhart (2023)

- The three main objectives of financial policy
  1. The economy should grow, or at least recessions must be avoided
  2. Inflation should be close to its 2% target
  3. Financial stability should be high

## The years after 2008

- All three objectives — growth, inflation, financial stability — appeared aligned
- Easy money helped growth, inflation was close to target, and financial stability appeared high

## The hope

- Lax monetary policy, designed to help the economy grow, made the financial system dependent on low interest rates
- A bet on low inflation and low interest rates lasting forever, because else those firms and countries dependent on low rates were in for a shock
- The longer monetary policy stayed lax, the more systemic financial risk increased
- Constrains regulatory response as high interest rates may ignite financial crises
- Not supposed to be a problem because regulations would contain that systemic risk

# Challenges

- A policy of growth/no recessions (cheap money and loans) is inflationary
- Reducing inflation to target is hence recessionary and also erodes financial stability while increasing systemic risk
- High financial stability needs a lot of capital, in turn reducing SME lending, hurting growth
- Foreseeable and avoidable — benefit of housing the regulators and monetary policymakers in the same institution

## But

- Lax monetary policy made the financial system dependent on liquidity — QT can cause a liquidity crisis and rising interest rates banking crises
- There are vulnerabilities we are not aware of until it is too late because of the infinite complexity of the financial system
- The longer monetary policy stayed lax, the more systemic risk increased
- Potential rising financial stability addressed by macro pru (like more capital)
- The problem is that increasing capital when the economy is doing poorly, as it is now, is recessionary

# Options

1. Higher growth means lower funding costs (low interest rates and capital), fuelling inflation and systemic risk
2. Fight inflation, cost of lending increases and banks capital eroded, hurting growth and even causing a recession
3. Ensuring financial stability by raising capital levels makes lending more expensive, hurting growth

## So what options do the authorities have?

1. Let the market sort it out
2. Technology
3. Full reserve banking
4. More of the same
5. Diversity (regulation chapter)



# Private currencies

- Extolled by libertarians and crypto entrepreneurs
- Supported by blockchain and associated technologies
- Typically designed to avoid inflation and central bank/government interference
- If widely used, will create their own complex financial ecologies
- Lack of central control and printing makes bank crises almost impossible to resolve
- Crypto crises will require fiat bailouts

# Laissez-faire

- Leave finance to the market, treating the banks like any other firm in the economy
- Not politically feasible because when the next crisis happens, the government will be under such popular pressure to act that it will have to step in
- Chwieroth and Walter “The Wealth Effect: How the Great Expectations of the Middle Class Have Changed the Politics of Banking Crises”
- It is Better for the authorities to be prepared for the eventuality
- We cannot leave banks to the market

# Technology

- Central bank digital currencies — more ambitiously than they are currently conceived of
- We could all hold central bank-issued tokens of fiat money
- Ensure almost perfect liquidity
- Banks akin to tech companies overseeing the decentralised financial system – what is known as Web5 and DeFi
- Very ambitious and will take decades to implement
- The Unresolved issue is that we do not want the central bank to be involved in lending decisions

# Full reserve banking

- Requiring banks to hold 100% reserves for demand deposits and maturity match assets to liabilities
- Will prevent 2008, CS and SVB-type scenarios
- Make financial intermediation very costly
- Intermediation would likely go elsewhere

## Double down on current approaches

- Ramp up the existing regulatory framework — tighten the rules and increase bank capital
- Provide an immediate calming of market distress
- Make financial intermediation more costly, reduce lending in the all-important SME sector, and even be recessionary
- Short-term solution and will increase systemic risk in the longer term
- Creates moral hazard, but policymakers are not bothered by that

# Moral hazard

- Banks are limited liability corporations managed by people who get bonuses when things go well while being protected from the downside
- Require senior bank management to face multiple liability and, in the case of CEOs, possibly to have unlimited liability
- If senior management faced a really serious loss when their bank failed, there would be far less need for masses of restrictive regulations.

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