Global Financial Systems
Chapter 21
The global financial system in 2025:
Opportunities and threats

Jon Danielsson London School of Economics
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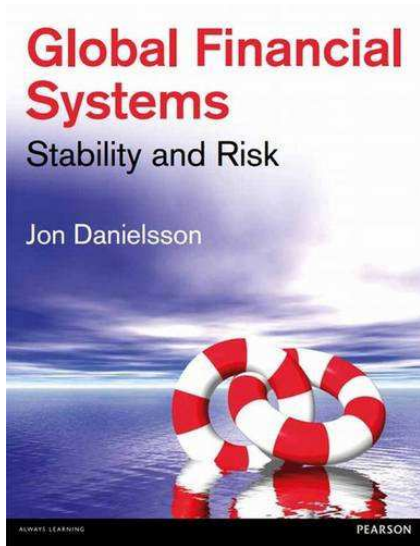
To accompany
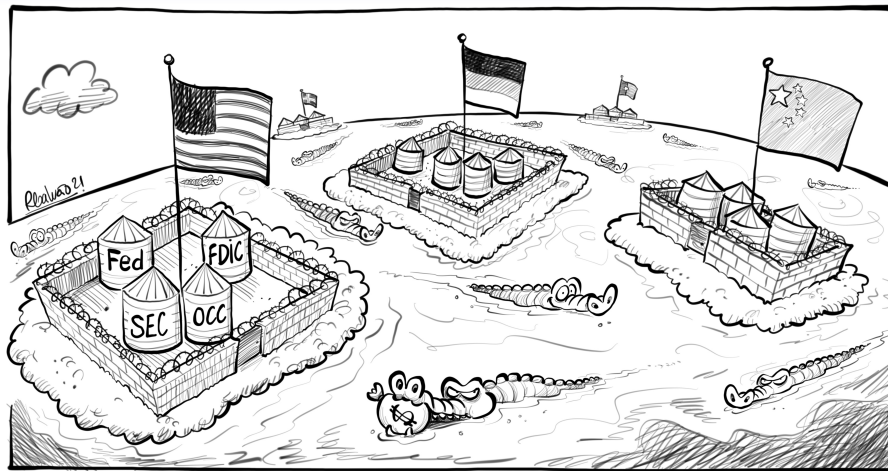*Global Financial Systems: Stability and Risk*
www.globalfinancialsystems.org/
Published by Pearson 2013

Book and slides

Global Financial Systems
Stability and Risk

Jon Danielsson

PEARSON

- Updated versions of the slides can be downloaded from the book web page www.globalfinancialsystems.org

illusionofcontrol.org

"All happy families are alike; each unhappy family is unhappy in its own way."

Tolstoy (1878)

Main financial system threats

- Materially important events can be systemic under the Chapter 1 definition
- Systemic threats (Daníelsson and Macrae 2025)
    1. Artificial intelligence — "rational maximising agent" (last chapter)
    2. Populism, credibility and political capital
    3. Debt death spirals and fiscal heart attacks
    4. Geopolitics — Manufactured tensions
- Some events are non-systemic but still very disruptive and costly
    5. Demographics
    6. Climate

Catalysts — But don't meet the systemic bar

No one knows which pebble caused the avalanche

- Analysts have proposed many catalysts for systemic crises
  - A common phrase is "horizon scanning"
  - Shadow banking, private credit, asset bubbles, weak oversight, financial innovation, technological disruptions, (de)globalisation, ...
- But they don't meet the systemic bar
- Better to map disastrous events onto a handful of fundamental factors

Systemic risk increases along with rising populism, politicisation of central banks and wasting of resources on non-systemic stress

Notation

d_t : Debt-to-GDP ratio

r_t : Effective real interest rate on debt

r^* : Natural rate of interest (neutral real rate that neither stimulates nor restrains the economy)

g_t : Real GDP growth

pb_t : Primary balance-to-GDP (surplus positive; revenues minus expenditure excluding interest)

Risk premia and the interest rate gap

- Risk premia: Additional return investors demand for bearing uncertainty
  - Credit risk: probability of default
  - Term premia: compensation for duration risk
  - Liquidity premia: cost of potential illiquidity
- The effective rate on debt: $r_t = r^* +$ risk premia $+$ policy effects
- In normal times: $r_t \approx r^*$ (small premia)
- In stress: $r_t >> r^*$ (markets demand large compensation)
- Key insight: rising risk premia can make sustainable debt unsustainable overnight

The debt-to-GDP ratio

- The debt-to-GDP ratio evolves according to

$$\Delta d_t \approx (r_t - g_t)\, d_{t-1} - pb_t$$

Financial repression

- Definition: Government policies that channel funds to the state at below-market rates
- Key mechanisms:
    - Interest rate caps below inflation (negative real rates)
    - Directed credit to government
    - Capital controls preventing outflows
    - Captive domestic audiences (e.g., pension funds required to hold government bonds)
- Effect: reduces debt burdens by eroding real value
- Historical use: post-WWII debt reduction (1945–1970s)
- Modern risk: tempting for heavily indebted governments but undermines market confidence

"I used to think that if there was reincarnation, I wanted to come back as the president or the pope. But now I would like to come back as the bond market. You can intimidate everybody."

James Carville, Clinton's political adviser, 1993

Crises are all about debt

- Sovereign and real estate debt
- But safeguards usually keep things in check — no need to worry
- Until they do not
- One day all looks fine and the next we are in a debt crisis. Catching (almost) everybody by surprise
- The actual trigger for a crisis is usually immaterial
- No one knows which pebble caused the avalanche
- "The straw that broke the camel's back"

Government debt to GDP (IMF)
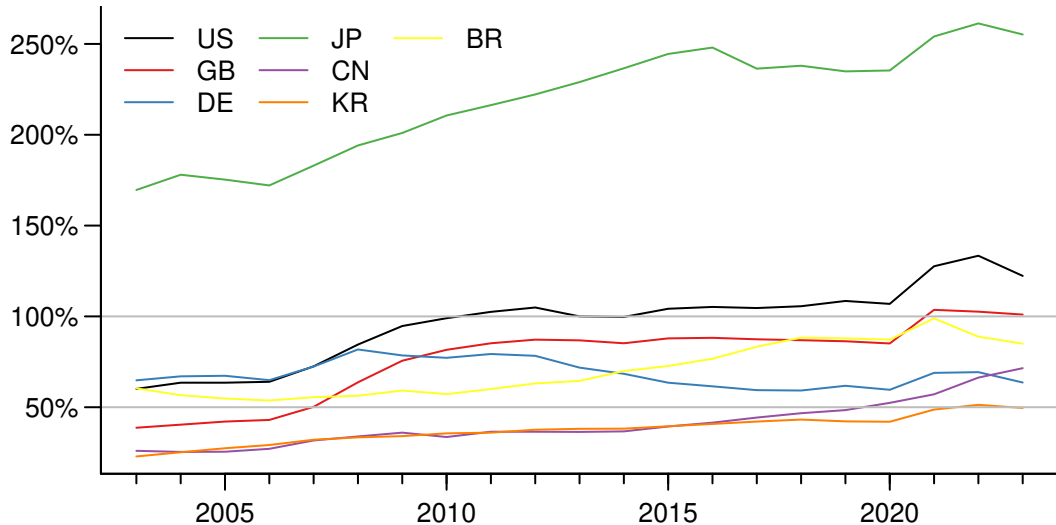
Japan

- Do the numbers for Japan suggest that we can continue accumulating debt for a long time before we have a problem?

- Recall Chapter 19 on sovereign debt

- r in Japan has been effectively zero for a long time — see discussion below

Sustainable debt

- To stabilise the debt-to-GDP ratio, we need: $\Delta d_t = 0$
- This requires the primary balance to offset interest-growth dynamics

$$pb_t = (r_t - g_t)\, d_{t-1}$$

- Two regimes with different implications:
    - If $r_t < g_t$: debt melts away, deficits can be sustained
    - If $r_t > g_t$: debt snowballs, surpluses are required
- The identity behaves very differently across these regimes
- When $r_t > g_t$, the required pb_t to stabilise debt increases with d

What moves g_t?

- Demographics
- Labour-force growth
- Total factor productivity (TFP) — the portion of output growth not explained by inputs
    - Technology, innovation, efficiency gains
    - Institutional quality and governance

What moves r_t

- Credibility (risk premia) has a strong impact on r_t
- Gobal savings and investment
- Monetary policy and inflation expectations
- Term and risk premia
    - QT and elevated issuance can raise term premia and the effective rate on debt even without policy hikes
- Is it determined by the government, domestic investors or global investors?
- How much power does the government have over it?

''It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.''

Charles Darwin (1859) (paraphrased)

Baumol's cost disease and ageing demand
Baumol and Bowen (1966)

- Productivity grows faster in some activities (e.g., IT) than in others (e.g., care)

- Economy-wide wage equalisation via labour mobility raises wages across sectors

- In slow-productivity sectors, unit costs and relative prices rise for a given service level

- Mechanism: economy-wide wage increases outpace sectoral productivity gains, raising unit costs over time

- Ageing raises demand for health and long-term care; combined with cost disease this lifts the public spending share even if service volumes are flat

The great demographic reversal
Goodhart and Pradhan (2020)
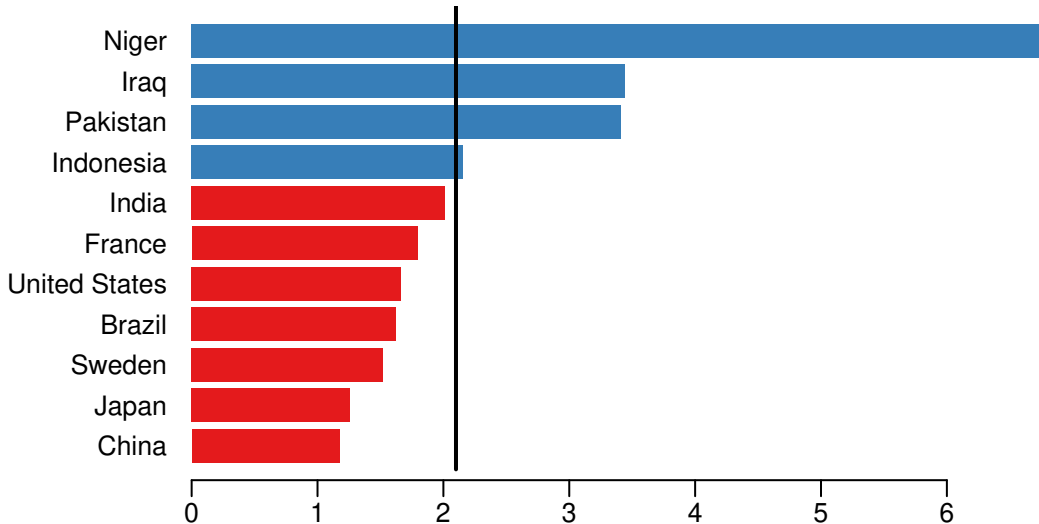
A shift from a growing workforce to an ageing population will

1. Slow down economic growth
2. Increase inflation and interest rates as labour shortages drive up wages and demand for healthcare rises
3. Strain pensions and healthcare, increasing government spending and causing intergenerational tensions
4. Affect global inequality and reduce globalisation as labour supply dynamics shift
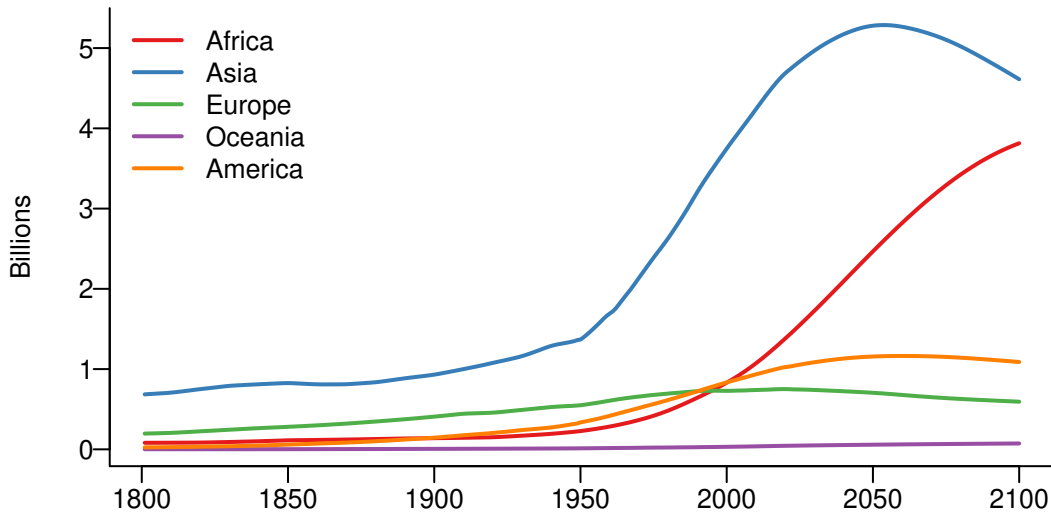
How population growth shapes economic pressures

- Population dynamics trend over long horizons
- TFR = total fertility rate
- Threshold: ~ 2.1 births per woman
  - TFR $\lesssim 2.1 \Rightarrow$ ageing populations
    - Rising old-age dependency ratios
    - Higher pension and healthcare costs
    - Headwinds to growth; ambiguous effects on real interest rates
  - TFR $\gtrsim 2.1 \Rightarrow$ youthful populations
    - Pressure to create jobs and absorb entrants
    - Education and infrastructure demands
    - Risk of political instability if jobs lag
    - Potential demographic dividend with investment in human capital and institutions

Introduction
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Debt
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Demographics
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Climate
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Populism
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Geopolitics
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Crises
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Options
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Births per woman

Population projections

Introduction
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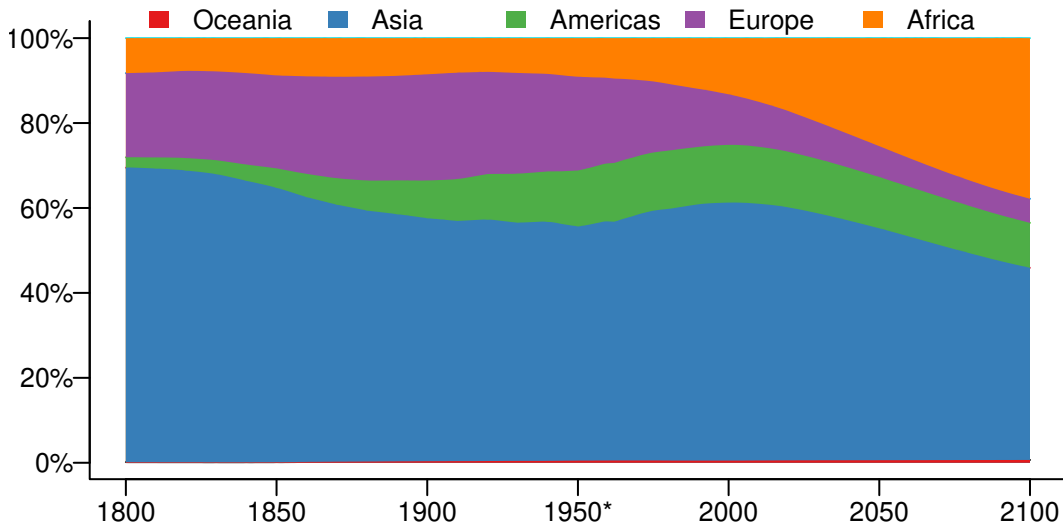○

Population distribution

The fertility decline: Structural, not cyclical
Goldin (2025)

- Sub-replacement fertility reflects structural changes, not temporary economic conditions
- Gender dimension: mismatch between women's increased labour force participation and lagging male household contributions
- Labour supply peaking globally, particularly in advanced economies
- Creates binding growth constraint

Case of Japan

- 50% of women in regular employment
- 80% of men
- Foreign workers contribute >50% of labour force growth despite being only 3% of workforce

Addressing labour constraints: three choices

1. Immigration: economically necessary but politically constrained
2. AI/Automation: very hard to quantify
3. Do nothing and neither immigration nor productivity improvements are sufficient
   3.1 Sustainable if we manage the debt implications and expectations for public services
   3.2 Will lead to a major crisis otherwise

Labour supply peaks and macroeconomic implications

- Impact on potential GDP growth: $Y = A \times L \times K$ where L is now constrained
    - Y: output (GDP)
    - A: total factor productivity
    - L: labour input (employment or hours)
    - K: capital stock
- Fiscal consequences: slower g_t makes debt dynamics $(r_t - g_t)$ more challenging
    - Higher d_t requires larger pb_t to stabilise
    - While ageing increases demand for public services $\rightarrow$ higher d_t
    - Less fiscal space for future crisis response

Pension designs and interest-rate sensitivity

- PAYG (pay-as-you-go): current workers finance retirees; unfunded by assets
- Funded: assets back liabilities; returns and interest rates drive outcomes; risks sit on pension and insurer balance sheets
- DB (defined-benefit): benefits promised by formula; can be public PAYG or funded occupational
- DC (defined-contribution): contributions fixed; benefits depend on investment returns; typically funded

Pay-as-you-go versus funded pensions

- PAYG is highly sensitive to the old-age dependency ratio — fiscal risk sits with the sovereign
- Funded is sensitive to investment returns and interest rates — risks sit on pension and insurer balance sheets
- PAYG adjusts via contribution rates or benefits
- Funded adjusts via funding ratios, asset returns and longevity risk management
- Governments can and do default on PAYG (as Greece did) — expect most European countries to do that

Funded and unfunded pensions in Europe

Legend:
- Funded private (red)
- Unfunded social (blue)

Countries (top to bottom): Denmark, Iceland, Ireland, Sweden, Netherlands, Switzerland, Poland, Estonia, Belgium, Germany, Finland, Luxembourg, France, Greece, Italy, Austria, Spain

x-axis: 0%, 100%, 200%, 300%, 400%
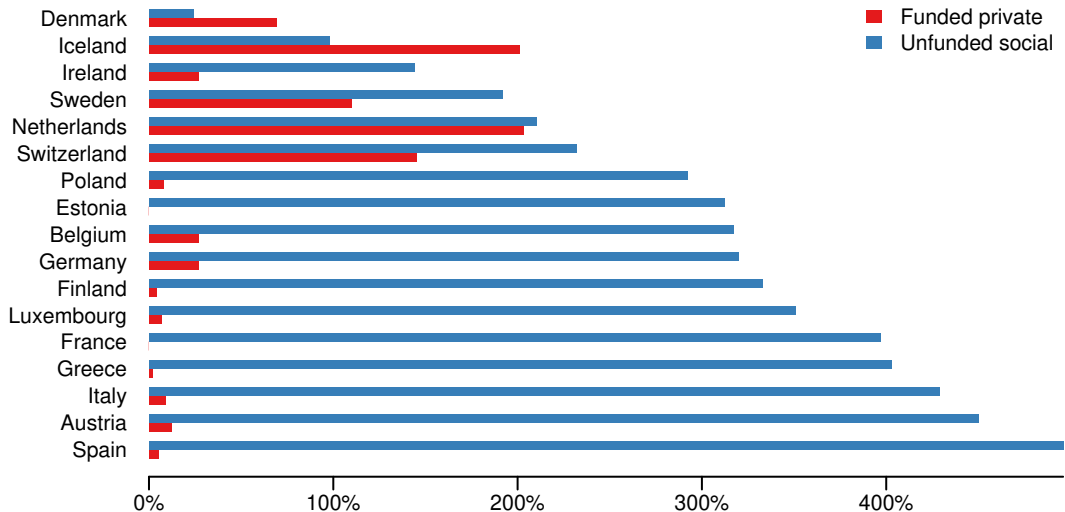
Macroeconomic channels of pension design

- PAYG can depress private saving, lowering capital formation and growth
- g_t: funded pensions can support capital deepening and productivity
- pb_t:
    - PAYG sits on the sovereign
    - Funded shifts cash flows off-budget but leaves implicit and contingent fiscal risks
- Transition costs: moving from PAYG to funded imposes a temporary double burden (continued PAYG outlays plus new funded contributions)
- Sovereign–bank–pension nexus can amplify systemic risk

It is unlikely that European states will be able to honour all current pension commitments a quarter century hence.

I do not expect a 20-year-old European today to receive promised benefits without reform.

Demographics and debt dynamics

- r_t: ageing populations increase savings demand, pushing down r^* and potentially r_t; but sovereign risk from pension burdens can raise term premia

- g_t: declining labour force growth directly reduces potential output; productivity impacts ambiguous (capital deepening vs innovation decline)

- pb_t: ageing raises pension and healthcare spending; PAYG systems face rising dependency ratios; political economy makes benefit cuts difficult

Debt identity : demographics typically worsens the arithmetic through lower g_t and higher spending pressures on pb_t

Options

- Raise retirement ages
- Immigration
- Pension system reform
  - Transition from PAYG to funded has double-payment problem
  - Default risk on promises increasingly likely
  - Means-testing and benefit cuts inevitable
- All three needed simultaneously, none politically popular

Doing nothing seems the most likely

"The future depends on what you do today."

Gandhi (1947)

Environment externalities remain inadequately priced in financial decisions

How the environment affects the financial system

1. Physical risks — direct damage from extreme weather events and chronic environmental changes

2. Transition risks — financial impacts from policy, technology and market shifts during decarbonisation

3. Insurer repricing and withdrawals in high-risk areas raise premiums and reduce coverage, with knock-ons for mortgages, housing valuations and local public finances

4. Long-term climate shifts — sea level rise, temperature and precipitation changes affect real estate, infrastructure, agriculture and political stability

5. The main damage comes when investment in old ways has to be written off

Systemic or non-systemic

- Whether climate risk is systemic depends on definitions
- Under the Chapter 1 crisis-based test, climate risk is unlikely to be systemic
- Broader frameworks (Network for Greening the Financial System (NGFS), ECB) include chronic risks that can impair system functioning without an acute crisis and thus classify climate risk as systemic
- Long horizons and broad awareness allow portfolio adjustment, so the likelihood of an acute systemic crisis need not rise — even if losses are large and widely distributed
- Institutions at the core of systemic events typically have time to adjust portfolios under transparent, staged policies

How the financial system impacts the environment

- Investment allocation shapes outcomes
    1. Brown investment increases environmental damage
    2. Transition finance enables decarbonisation
    3. Green reduces damage
- Funding channels include direct investors, debt markets and institutional investors
- Key problem is that environmental externalities remain inadequately priced in financial decisions

Available information

- Links between climate and finance hard to quantify
- Multiple disclosure frameworks and ESG ratings exist with differing methodologies
- Low correlation across rating providers
- Greenwashing prevalent

Regulatory and supervisory responses

- Supervisory climate stress tests using NGFS scenarios assess resilience and transmission
- Capital framework — prudential capital to reflect identified risk
- Debates continue on brown-penalising versus green-supporting capital factors
- Disclosure mandates for financial institutions
- However, the governments will avoid any any regulatory action that might actually restrict growth
- Better to give the appearance of doing something — (carbon trading?)

Private sector responses

- Pension funds and insurers face pressure to divest from brown
- Growing private and public pressure on large investors
- Fiduciary duty tensions between returns and sustainability
- Plenty of investors remain willing to invest in brown assets
- Policy initiatives and investor activism may accomplish little

Transition challenges and unintended consequences (1)

- Any rapid transition to a carbon-neutral economy would cause massive disruption
- Unclear whether even a 25-year transition is politically feasible
- Brown activities might be taken private or sold to offshore entities to avoid public disclosure
- Restricting public market finance for mining can tighten supply
- If demand is inelastic, prices and producer rents can rise, benefiting incumbent owners who may operate outside public markets

Transition challenges and unintended consequences (2)

- Financial measures without credible real-economy policy risk leakage to less regulated channels and jurisdictions

- Main financial losers are current public owners who sell cheap to private equity and consumers who face higher input costs

- Preference for green investments suggests lower returns and fiduciaries must balance this possibility against client preferences

Central bank collateral frameworks and climate risk

- Some central banks, including the ECB, have explored adjusting regulatory frameworks to reflect climate-related risks

- Contested because it can blur prudential risk management and industrial policy

- Using bank regulation of risky lending to implement green policies makes central banks more political and hence more criticised

- Which in turn can adversely affect their ability to execute monetary policy

- And increases systemic risk

Distributional impacts and political economy

- Increased cost of brown lending may disproportionately fall on poorer citizens and regions
- Developing countries argue that developed countries should pay the costs since they already benefited from climate damage in years and centuries past
- Just transition considerations — uneven costs across regions and income groups can trigger backlash and reversals, which themselves constitute transition risk for investors and banks

Political and legal pushback

- United States — climate supervisory initiatives face political and legal scrutiny from state-level anti-ESG measures
- United Kingdom — ULEZ expansion triggered sustained local opposition
- Netherlands — nitrogen reduction policies sparked protests led by the Farmer Citizen Movement
- France — fuel tax increases prompted Yellow Vests (Gilets Jaunes) opposition
- European Union — climate criteria in monetary operations face legal challenges and debates
- These reactions show that climate-related monetary or regulatory policies can provoke significant backlash — potentially constraining central banks and supervisors

Costs and consequences

- Transition costs often estimated at ∼1–3% of GDP annually for net zero by 2050 (varies by study)
- Climate–demographics interaction: migration from affected regions adds to ageing pressures
- Fiscal space already constrained by demographics faces additional climate demands

Macro-finance: r, g, pb

- r_t:
    1. fragmentation and policy uncertainty lift risk and term premia
    2. green protectionism and carbon border adjustments fragment markets
    3. large issuance for transition capex can $\uparrow r$

- g_t:
    1. near-term reallocation, supply bottlenecks and critical-minerals constraints can slow growth
    2. long-term damage avoidance preserves g_t

- pb_t:
    1. subsidies, adaptation and industrial policy widen the primary deficit
    2. off-budget guarantees and direct firm subsidies add contingent liabilities

- r^*:
    1. higher investment needs can lift r^*

Summary

- Climate risks are mostly chronic while also transmitting through familiar channels to balance sheets and public finances
- Supervisory focus is on measurement, disclosure and resilience; allocation tools without real-economy policy risk leakage
- Politics and distribution matter; the just transition shapes risk and policy durability
- Data and methods are improving but remain uncertain

"For every complex problem there is an answer that is clear, simple and wrong."

Mencken (1920)

Politics often gets in the way of sensible policy

- Politics can allow risks to build and delay solutions
- Short-term gains dominate
- Warnings are cast as elitist or anti-growth
- Particularly when they are real
- Pretend there is no problem — by far the most popular

Populism
Mudde (2004)

- Anti-institutional (national and supranational) — this is key for how it affects systemic risk
- A political style that pits "the people" against "the elite"
- Often fuelled by perceived exclusion or unfairness
- Can include identity politics — strong in-group identification and mistrust of out-groups (immigrants, ethnic minorities, urban elites)
- Mistrust of mainstream parties
- Preference for simple solutions to complex problems

The financial roots of populism

There is much more to populism than economics, but here we focus on that

- 1920s: Credit boom → Agricultural overproduction → Farm failures
- US farmers demand protection → Smoot–Hawley (1930)
- 2008: Financial crisis → Job losses → Blame globalisation
- Asset purchases supported asset prices more than wages
- Political backlash → Brexit, Trump, tariffs
- Pattern: Financial stress → Inequality → Populism → Protectionism
- Crisis responses can have distributional effects that shape subsequent political constraints

Legitimacy constraints and political risk

Daníelsson and Macrae (2016)

- "Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State" Tucker (2018)
- Delegation to non-political government agencies works only with narrow remits and clear accountability
- Technocrats lack a democratic mandate to counteract elected leaders' excesses; overreach erodes legitimacy
- Overloading central banks with non-core objectives blurs accountability and invites politicisation
- Mandates rarely extend to disciplining political behaviour; tools cannot fix distributional choices made by politicians
- When politics drives risk, authorities face a bind
    1. Act and risk illegitimacy
    2. Abstain and risk ineffectiveness

Distribution, fairness and the wealth effect
Chwieroth and Walter (2019)

- Rising middle-class asset ownership (housing, pensions) increases sensitivity to losses

- When household balance sheets are exposed, voters demand protection and tolerate costly rescues

- Middle-class exposure raises demand for protection in crises; bailouts' footprint drives backlash and coalition shifts

Protecting credibility and political capital

- Narrow remits and clear accountability preserve legitimacy; avoid loading non-core objectives onto central banks

- Better regulations, And reduction of the CSIFI problem, make large bailouts less likely

- Credible fiscal frameworks and independent fiscal councils to bolster pb_t credibility

- Transparent communication on limits and objectives preserves capacity for truly systemic events

Why populism drives systemic risk

- Effective crisis response requires trusted, predictable authorities with clear mandates
- Rising populism and mistrust undermine credibility
- Populist leaders often frame authorities as hurting "the people", further eroding trust and compliance
- Lower credibility slows and blunts effective economic policy and crisis interventions
- Finite political capital: repeated interventions and politicised mandates erode credibility for future crises

Demographics-populism feedback loop

- Ageing populations create political pressures:
  - PAYG pension promises become unsustainable as dependency ratios rise
  - Populists promise to protect benefits without raising retirement ages
  - Immigration (needed for L growth) faces populist opposition
- Labour market tensions:
  - Native workers fear wage competition from immigrants
  - But without immigration, g_t falls and pension arithmetic worsens
  - Populists exploit this tension: promise protection without trade-offs
- Result: politically constrained solutions worsen long-term sustainability

Climate-populism nexus

- Climate policies trigger populist backlash:
  - Yellow Vests (France): fuel taxes hit working class
  - Dutch farmers: nitrogen rules threaten livelihoods
  - US states: anti-ESG laws restrict climate-related finance and mandates
- Distributional conflict:
  - Transition costs fall on specific regions/sectors
  - Urban-rural divide: green policies seen as elite impositions
  - Energy prices become political flashpoints
- Policy paralysis: fear of backlash delays necessary transitions, raising ultimate costs

Populism and debt dynamics

- Populist policies worsen debt arithmetic
  - pb_t deteriorates: unfunded spending promises, tax cuts
  - r_t rises: risk premia on policy uncertainty, term premia on fiscal fears
  - g_t falls: protectionism, reduced immigration, investment uncertainty
- Implication: the required pb_t to stabilise debt rises when $(r_t - g_t)$ worsens
- Vicious cycle: worsening $(r_t - g_t)$ creates more discontent $\rightarrow$ more populism

"In economics, things take longer to happen than you think they will, and then they happen faster than you thought they could."

Rudi Dornbusch

Geopolitics

- Geopolitical events frequently trigger systemic crises
  - 1914: cross-border payments disrupted; major exchanges closed for months
- Rising geopolitical tensions and weaker adherence to global rules can raise systemic financial risk

Manufactured tensions

- Governments often manufacture tensions to deflect problems at home
  - Falklands War (1982)
  - Spanish–American War (1898)
  - Mukden/Manchurian Incident (1931, Japan–China)
  - Gleiwitz and Mainila incidents (1939, Germany–Poland; USSR–Finland)
  - Gulf of Tonkin (1964, US–North Vietnam)
  - Russia — Crimea annexation and "little green men" in Donbas (2014)
  - China–Taiwan: diversion risk via grey-zone pressure; escalation can rally domestic support
  - North Korea: missile tests and border incidents as leverage and for domestic consolidation

Why manufacture tensions? Political economy

- Shift attention from domestic problems to "external enemies"
- Leadership weighs economic and social costs against perceived security and political gains
- Narratives frame sacrifice as necessary
- Helps retain political support during slow growth, unemployment and inequality
- Risks escalation control, international backlash, sanctions and loss of policy flexibility

Comparative advantage: why trade benefits all
Ricardo (1817)

- Absolute advantage: being more productive at making something
- Comparative advantage: having lower opportunity cost in production
- Key insight: even if one country is worse at producing everything, both gain from trade
- Countries should specialise where their relative productivity is highest
- Tariffs force production into less efficient sectors, reducing total output

Economics of tariffs: who really pays?

- Tariff incidence depends on elasticities of supply and demand
  - Inelastic demand (necessities): consumers bear most of the cost through higher prices
  - Elastic demand (luxuries): foreign producers absorb cost by cutting prices
  - Example: 25% tariff on washing machines (2018) → prices rose 12%, dryer prices also rose
- Distributional effects create political dynamics
  - Concentrated benefits: protected industries gain (visible, organised)
  - Diffuse costs: consumers pay more (hidden, dispersed)
  - Downstream disruption: manufacturers face higher input costs
- Retaliation multiplies the damage — export sectors suffer, uncertainty deters investment

The populism-protectionism feedback loop

- Self-reinforcing political economy cycle:
    1. Economic stress (job losses, inequality) creates discontent
    2. Populist narratives blame foreigners and trade
    3. Protectionist policies implemented to show action
    4. Trade disruption reduces growth and raises prices
    5. Worsening conditions fuel more populism
- Lock-in effects:
    - Reversing tariffs seen as weakness or betrayal
    - Retaliation creates new vested interests in protection
    - Each round of escalation harder to reverse
- Result: political constraints prevent optimal policy

Tariffs as geopolitical weapons

- Trade policy is foreign policy by other means
- Tariffs signal alliance shifts and power projection without military action
- Leverage market access for political concessions
- Reduce dependence on rivals (chips, energy, critical minerals)
- Preferential access rewards allies, punishes adversaries
- Escalation ladder: tariffs $\rightarrow$ sanctions $\rightarrow$ blockades $\rightarrow$ conflict
- Trade wars may precede shooting wars (1930s, 1914)

Great Depression and Smoot-Hawley

See Chapter 2 on the Depression

- Smoot-Hawley tariffs (1930) amplified the Depression
- Global trade fell by over 60% from 1929-1933
- Banking crises and trade collapse reinforced each other
- Financial contagion spread through trade channels
- Political inability to coordinate response

Never again: Bretton Woods and GATT

Institutional response to Depression-era collapse

- Bretton Woods (1944): fixed exchange rates, capital controls, IMF/World Bank
- GATT (1947): multilateral trade rules and dispute resolution
- Evolved into WTO (1995): stronger enforcement, services, IP
- Core idea: economic interdependence reduces conflict risk (Sometimes true, sometimes not)
- Trade and monetary cooperation as bulwarks against 1930s-style collapse
- System worked until 1970s; erosion since raises systemic risk

The current US case for tariffs

- Unfair trade and non-tariff barriers harm domestic industry
- Trade deficits signal wealth transfer abroad
- Rebuild manufacturing and strategic industries; national security
- Match partners' barriers; leverage market size in negotiations
- Tariff revenue as a fiscal tool — Increase government revenue without new taxes
- Preference for bilateral deals over multilateral, partly because it helps to address grievances vis-à-vis individual countries

Economic flaws in protectionist trade policies

- Trade deficits reflect savings–investment imbalances, not "losing" at trade
  - Macro identity: $CA = S - I$ (current account = savings minus investment)
  - Tariffs cannot fix low savings rates or fiscal deficits
- Tariffs are consumption taxes on domestic citizens
  - US tariffs on China (2018–2019): Americans paid 90%+ of the cost
  - Regressive impact: hurts low-income households most
- Supply chain disruption costs exceed any benefits
  - Intermediate goods tariffs raise production costs across industries
  - Efficiency losses from forced reshoring to high-cost locations
- Retaliation and currency effects offset intended gains
- Historical evidence: Smoot-Hawley deepened the Depression; no country has "won" a trade war

Macro-finance summary: mapping to r, g, pb

r_t: higher risk and term premia from protectionism, sanctions, settlement fragmentation and defence outlays

g_t: lower potential growth from reduced trade, supply bottlenecks, talent/immigration frictions and precautionary capex

pb_t: wider primary deficits from defence, subsidies and buffers; contingent liabilities from guarantees and SOEs

Debt identity: $\Delta d_t \approx (r_t - g_t)\, d_{t-1} - pb_t$ — geopolitics typically worsens the arithmetic

How protectionism creates systemic risk

- Undermines institutional frameworks that prevent crises
  - Erosion of WTO, bilateral trust, payment systems
  - Policy coordination becomes impossible during stress
- Creates correlated shocks across markets
  - Simultaneous supply disruptions, FX dislocations, sovereign stress
  - Contagion through trade and financial linkages
- Exhausts crisis-fighting capacity before real shock hits
  - Fiscal space consumed by subsidies and support measures
  - Central banks constrained by persistent inflation from tariffs
- Result: when next crisis arrives, authorities lack tools and credibility to respond

Geopolitical triggers for financial crisis

How tensions become systemic events

- Taiwan scenario
  - Semiconductor supply stops → tech sector collapse
  - Shipping insurance withdrawn → trade finance freezes
  - Swift exclusions → payment system fragmentation
- Trade war escalation
  - Tit-for-tat tariffs → supply chain breakdown
  - Currency wars → FX market dysfunction
  - Capital controls → sudden stops
- Key amplifier: limited fiscal/monetary space means authorities cannot cushion the shock
- Result: geopolitical shock → financial stress → debt crisis

"How did you go bankrupt? Two ways. Gradually, then suddenly."

Hemingway (1926)

On crises

- In what follows, it is good to keep the following in mind
- When we discuss crises, we are not looking at what is the most likely to happen
- Instead, we are trying to identify plausible serious events
- We might implement policies to reduce the likelihood of these events
- We should be ready for optimal policy if and when they transpire

$$\Delta d_t \approx (r_t - g_t)\, d_{t-1} - pb_t$$

Populism: higher r_t (risk premia on uncertainty), lower g_t (protectionism, investment delays), weaker pb_t (unfunded promises)

Demographics: lower g_t (labour supply), weaker pb_t (ageing outlays); pension design shifts incidence and saving

Climate: lower g_t (disruption, stranded assets), higher r_t (uncertainty premia), weaker pb_t (adaptation, subsidies)

Debt death spirals and fiscal heart attacks

Debt death spiral: Self-reinforcing feedback loop where

1. rising debt ratios increase risk premia, $r_t \uparrow$
2. which increases $(r_t - g_t)\, d_{t-1}$
3. further raising debt ratios

Fiscal heart attack: Sudden loss of market confidence preventing debt rollover, forcing emergency measures or default

Debt snowball and endogenous risk
Daníelsson and Shin (2002)

- Low measured risk encourages leverage and duration exposure
- Small shocks tighten constraints $\rightarrow$ forced sales $\rightarrow$ illiquidity $\rightarrow$ larger price impact
- Endogenous feedback where market stress raises r_t beyond what fundamentals justify, increasing $(r_t - g_t)d_{t-1}$ and accelerating the spiral
- As fragility builds, ever smaller shocks can trigger a break; terminal state: spreads spike and market access vanishes — the fiscal heart attack

Crisis response capacity

- Fighting crises consumes *fiscal and monetary capacity* (spending, QE or lower rates)
- Fiscal space is limited: crisis responses worsen d_t and raise future r_t
- Monetary space is limited: credibility and inflation constraints bind after large interventions
- Each crisis response reduces future pb_t flexibility and raises baseline r_t
- Implication: prioritise truly systemic shocks; repeated interventions lead to fiscal heart attacks
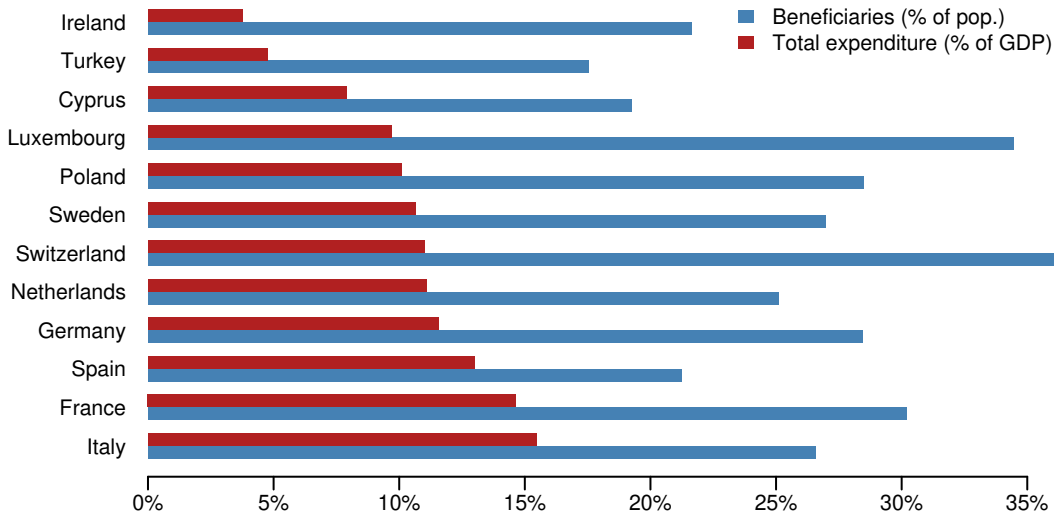
European Union case study

Europe

- Europe exemplifies the debt challenges
  - Ageing populations pressure g_t and pb_t
  - Fragmented fiscal policy across member states
  - Common monetary policy constrains individual r_t adjustments
  - Political pressures from populism affect credibility

EU pensions (2022)
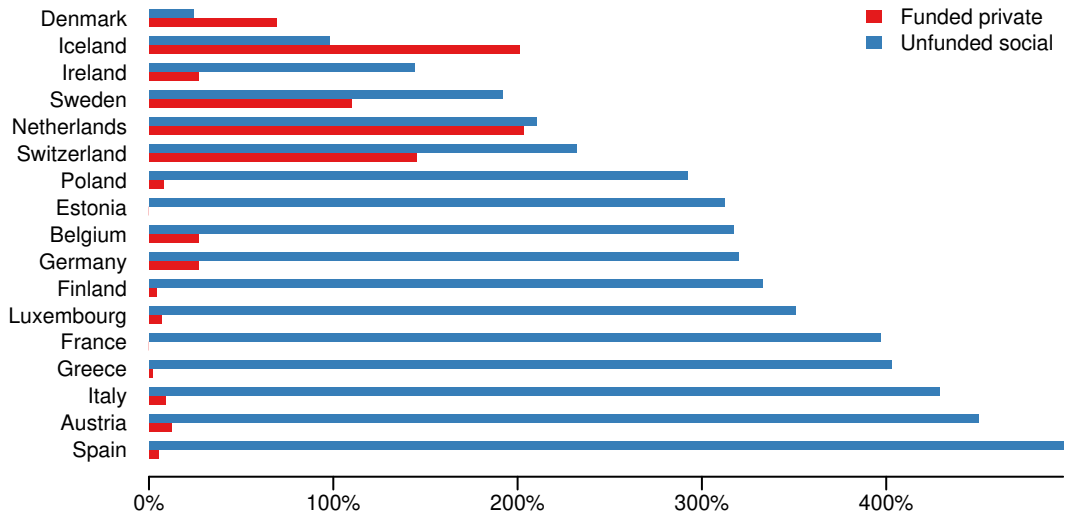**Eurostat ESSPROS (spr_pns_ben, spr_exp_pens)**

- 27.2% of the EU population were pension beneficiaries
- Total expenditure on pensions (public and private) was 12.2% of GDP

Pensions in Europe (2022)
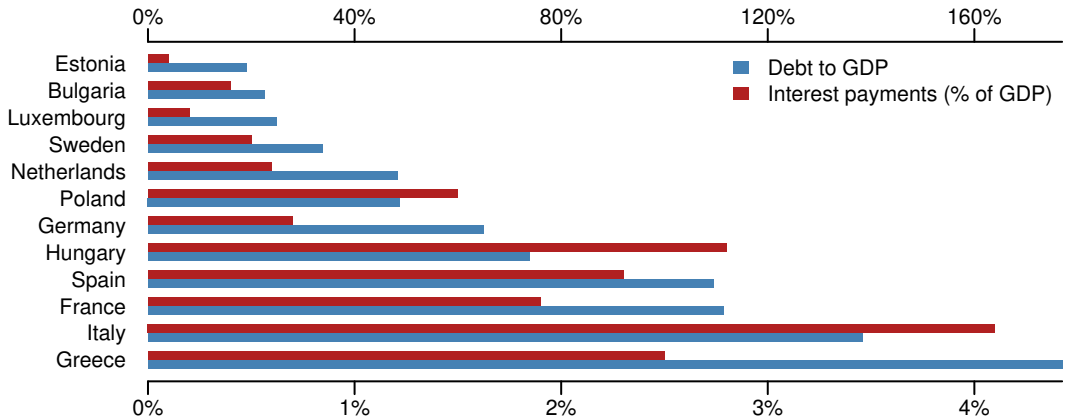

Horizontal bar chart comparing pension Beneficiaries (% of pop.) and Total expenditure (% of GDP) across European countries: Ireland, Turkey, Cyprus, Luxembourg, Poland, Sweden, Switzerland, Netherlands, Germany, Spain, France, Italy.

Funded and unfunded pensions in Europe

Horizontal bar chart comparing "Funded private" (red) and "Unfunded social" (blue) pensions as a percentage of GDP for European countries, ordered from Denmark (top) to Spain (bottom), with the x-axis ranging from 0% to roughly 480%.

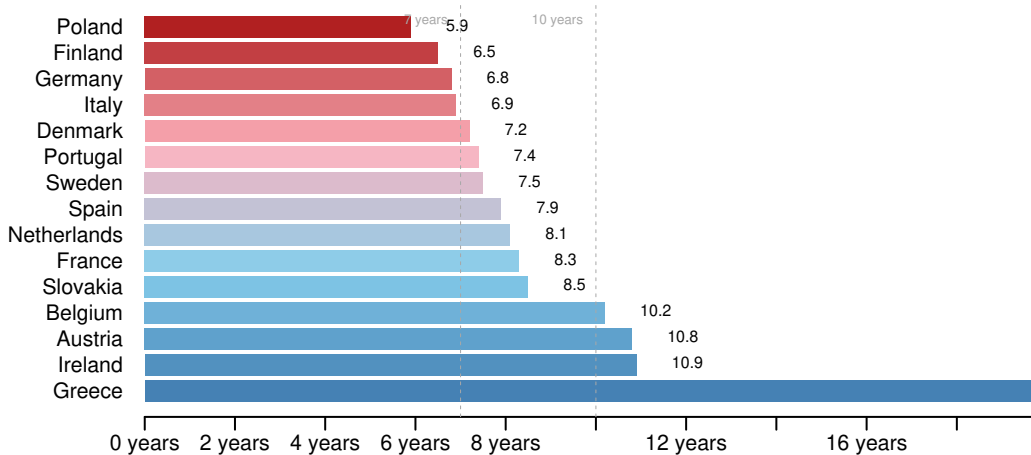# Government debt and interest payments (2022)

Debt payments to GDP

Interest payments to GDP

Why maturity matters

- Longer average maturity slows the pass-through of higher rates to debt service
- Debt management choices (tenor, instruments) shape resilience to shocks

Average maturity of government debt in Europe

Source: National Debt Management Offices, ECB (2022-2023)

Bar chart of average maturity of government debt (in years):

Country	Years
Poland	5.9
Finland	6.5
Germany	6.8
Italy	6.9
Denmark	7.2
Portugal	7.4
Sweden	7.5
Spain	7.9
Netherlands	8.1
France	8.3
Slovakia	8.5
Belgium	10.2
Austria	10.8
Ireland	10.9
Greece	

X-axis: 0 years, 2 years, 4 years, 6 years, 8 years, 12 years, 16 years

Europe through the r_t–g_t–pb_t lens

g_t : Demographic headwinds, productivity stagnation, low growth environment (many countries <2%)

- 27% pension dependency ratio weighs on growth

r_t : Rising debt service burdens (5-15% of tax revenue) show higher effective rates, while fragmentation risk adds term premia

- Greece: concessional rates despite high debt
- Italy: market rates create vulnerability

pb_t : Constrained by high social spending (pensions 10-15% of GDP) where political economy prevents adjustment

- Pension spending alone is 12% of GDP
- Limited flexibility for counter-cyclical policy

Italy most vulnerable (high r_t, short maturity, large debt)

Gradually then suddenly

- Debt identity: $\Delta d_t \approx (r_t - g_t)\, d_{t-1} - pb_t$
- Europe exemplifies the unstable regime where $(r_t - g_t) > 0$
- Current stability masks growing pressures
- When confidence shifts, the arithmetic becomes explosive
- Fiscal consolidation needed for sustainability but risks further reducing g_t

# Sequencing and painful trade-offs

- Timing matters: reforms easier in good times but urgency felt in bad times
- Conflicts between solutions
  - Immigration helps demographics but fuels populism
  - Climate action needed but creates populist backlash
  - Financial repression tempting but undermines institutions
- Sequencing priorities
  1. Build institutional credibility first (hardest to restore)
  2. Address distributional concerns early (prevents populist capture)
  3. Lock in long-term reforms when political window opens
  4. Keep powder dry for true systemic shocks

Introduction
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Debt
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Demographics
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Climate
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Populism
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Geopolitics
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Crises
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Options
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Bibliography
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"The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design." Hayek (1988)

Crises surprise us

illusionofcontrol.org
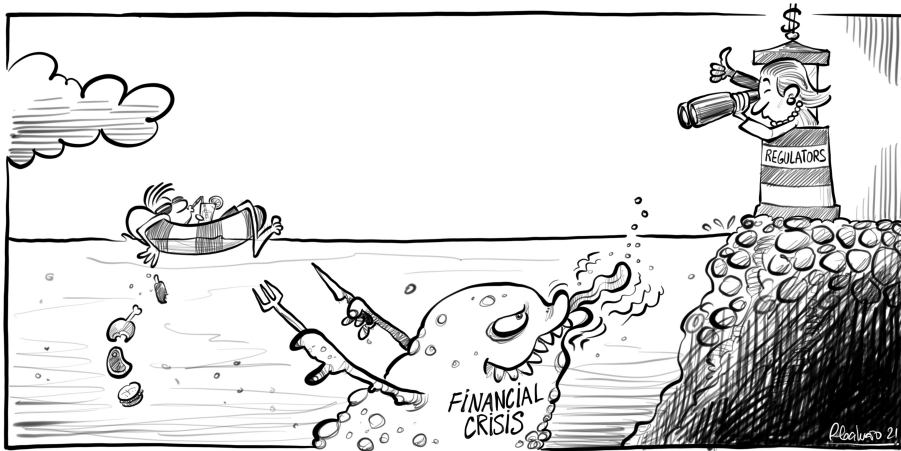
Limits of prediction

- The financial system is endogenously complex
- Supervisors can only patrol a small part of it
- We measure known-unknown risks while unknown-unknowns drive the most damaging crises
- Preventing every small loss can raise tail risk; crises emerge where oversight is light

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 extinguish a fire, it can become very big
- The forest authorities have traded volatility for tail risk
- Same happens in financial and economic crises

Fighting crises

- Do we fight all relatively serious crises?
- Or do we let most events sort themselves out?
- Repeated interventions raise d_t and future r_t
- QE and rate cuts exhaust credibility while inflation expectations become unanchored
- Rising labour market risks increasingly constrain monetary policy through employment dynamics
- Each crisis response reduces future pb_t flexibility and raises baseline r_t

The policy trilemma

Daníelsson and Goodhart (2023)

Prioritise growth: easier financial conditions support g but risk higher inflation and r; the debt snowball risk rises if pb weakens

Prioritise inflation: tighter policy anchors prices but slows g and can reveal fragilities; pb may deteriorate via stabilisers

Prioritise stability: higher capital and tighter standards improve resilience but can raise lending costs and slow g

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. Universal doubling of financial wealth merely doubles prices

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

Resilience through diversification

See Chapter 13 for detailed discussion

- Robustness (buffers) vs resilience (shock absorption)
  - Basel buffers calculated from risk estimates are costly
  - No buffer protects against large shocks
  - Harmonised risk models drive herding behaviour
- Benefits of institutional diversity
  - Higher shock-absorption capacity
  - Better tailored financial services
  - Lower cost of regulation
- Implementation barriers
  - One-size-fits-all regulations create scale economies
  - Incumbents lobby against new entrants
  - Regulators blamed for failure, not rewarded for innovation
- Win-win-win: more growth, better deals for users, more stability

Managing populist pressures

- Institutional safeguards
  - Narrow central bank mandates to preserve legitimacy
- Address root causes preemptively
  - Regional development to reduce geographic inequality
  - Adjustment assistance for trade-displaced workers
  - Progressive tax reforms before crisis
- Communication strategy
  - Frame reforms as protecting future generations
  - Build coalitions across traditional divides
  - Act during good times when political capital exists
- Key insight: waiting until crisis makes populist capture more likely

Debt management

- When $(r_t - g_t) > 0$, options narrow rapidly
- Maturity extension
  - Lock in rates before crisis
  - Trade-off: higher cost today vs rollover risk tomorrow
- Primary balance improvements
  - Revenue: tax compliance, base broadening, wealth taxes
  - Spending: pension reform, means-testing, efficiency
  - Political economy: both create backlash
- Growth strategies
  - Productivity: education, R&D, infrastructure
  - Labour supply: immigration, participation rates
  - Time lag: benefits take years to materialise
- Nuclear option: financial repression (caps on r_t) or inflation

Europe-specific options

- Fiscal union elements
  - Common debt issuance for common goods
- Pension harmonisation
  - Gradually align retirement ages and benefits
  - Portability across borders for labour mobility
  - National sovereignty concerns
- Banking union completion
  - Common deposit insurance
  - Break sovereign-bank nexus
  - Risk-sharing vs risk-reduction deadlock
- Reality: half-measures increase fragility; full integration politically blocked

Growth, resilience and system design

- Shift macroprudential focus from preventing the last crisis to reducing correlation and amplification
- Invest in productivity and inclusion to raise g
- Very hard to avoid immigration
- Coordinate monetary, fiscal and regulatory timing to minimise procyclicality
- Account for higher baseline term premia from fragmentation and QT in buffers and debt management

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