

# 11<sup>th</sup> UNCTAD Debt Management Conference

13–15 November 2017

Palais des Nations, Geneva

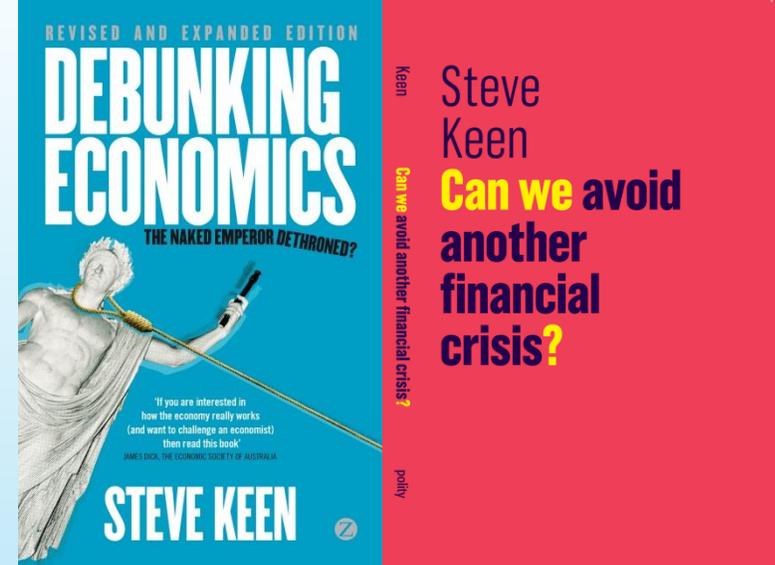
## Debt for Development: Still an option in the «age of anxiety»?

by

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*The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.*



# Towards a Framework for Understanding Debt

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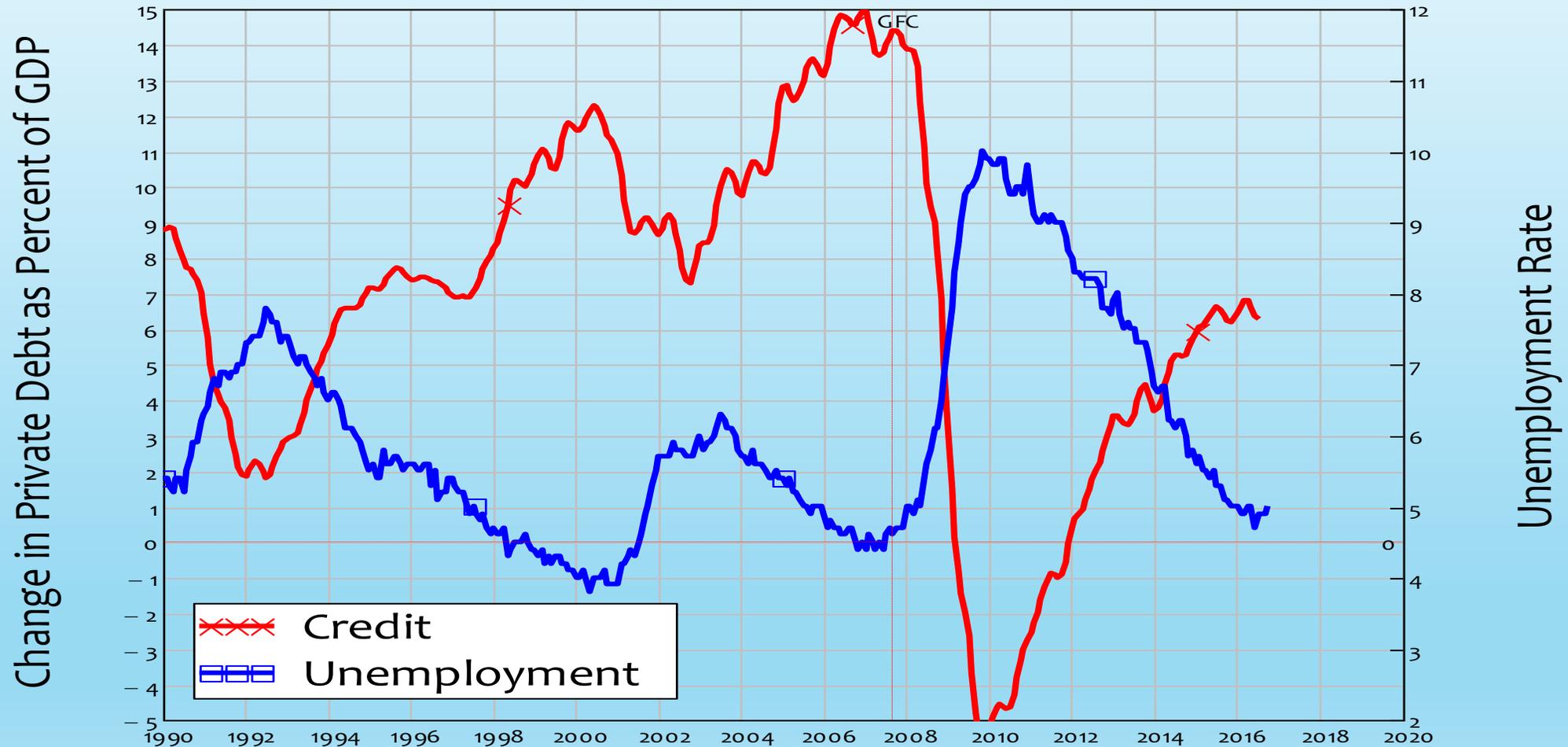
# Current models of debt: Partial, incomplete & false

- Mainstream economics in general
  - Obsesses about government debt
    - Ricardian Equivalence (Barro 1989); “90% cliff” (Reinhart & Rogoff 2010)
  - Sanguine about private sector foreign debt (“Pitchford Hypothesis”)
    - Assume rational borrowing, will cause later growth, therefore no problem:
      - “John Pitchford and Nigel Lawson (then Chancellor of the Exchequer) presented the ‘consenting adults’ view of current account positions.
      - As long as current account positions are the result of savings and investment decisions by the private sector which are not affected by distortions, then there is no cause for concern.” ([RBA Assistant Governor DeBelle 2011](#))
  - Ignores private sector domestic debt
    - *Absent implausibly large differences in marginal spending propensities among the groups, it was suggested, pure redistributions should have **no significant macro-economic effects.***” (Bernanke 2000, p. 24)

# The data on debt and credit

- Belief that private credit is unimportant is massively contradicted by the data:

USA Credit and Unemployment (Correlation -0.91)

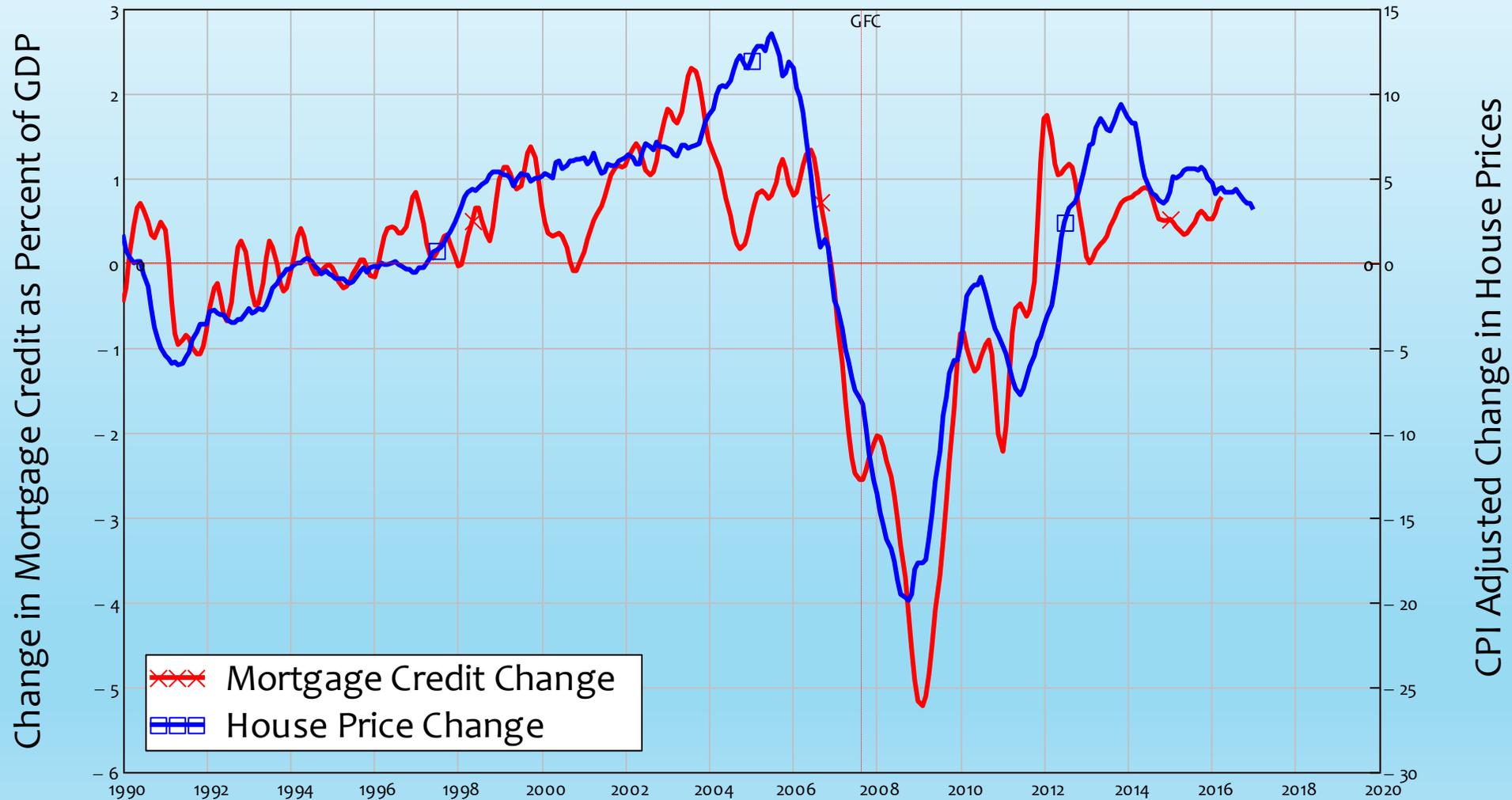


BIS and ILO Data

# The data on debt and credit

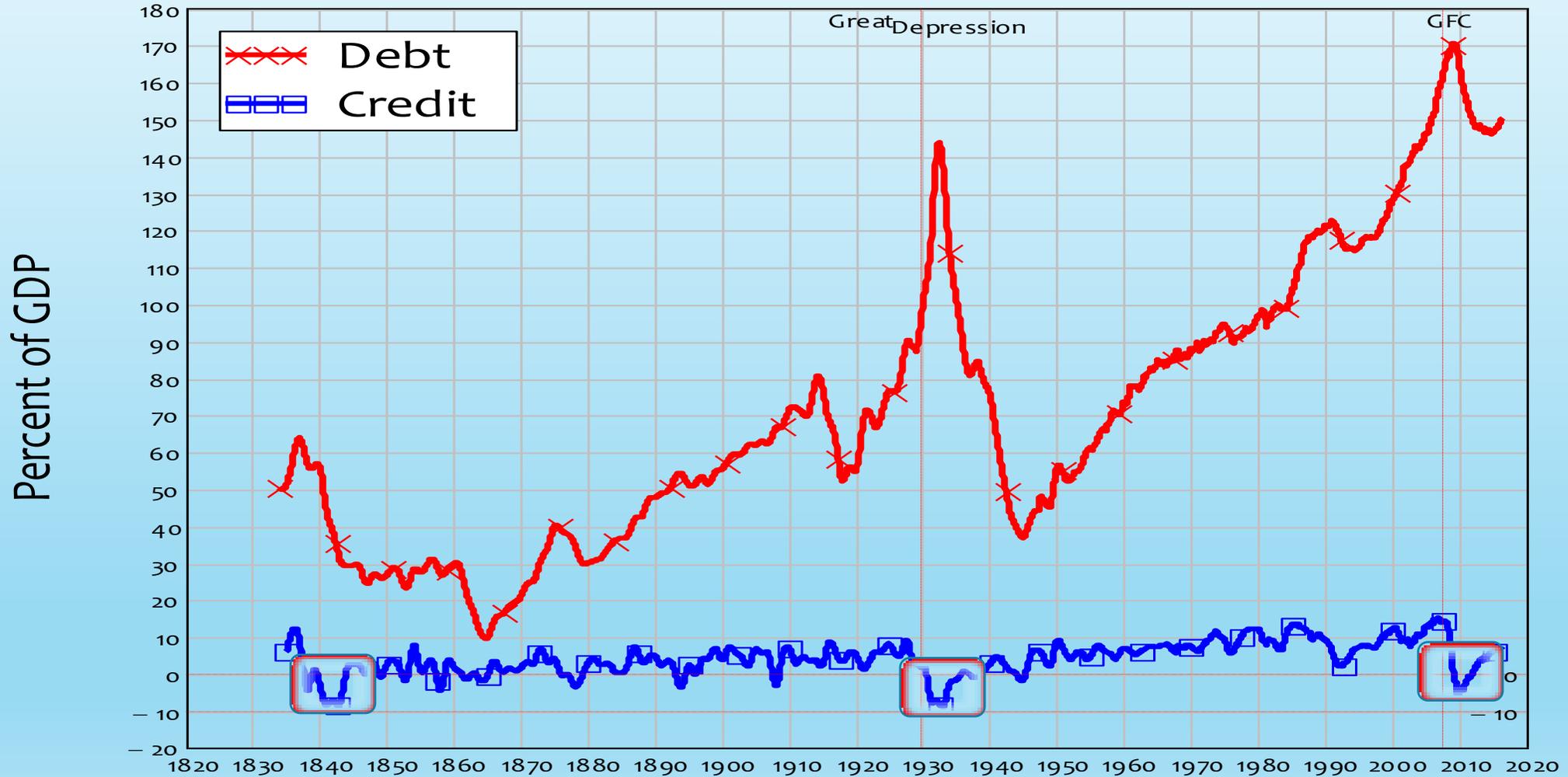
- House price & share price bubbles caused by leverage

USA Mortgage Credit Change & House Price Change (Correlation 0.83)



# The data on debt and credit

- Negative credit causes crises: Panic of 1837, Great Depression, Great Recession
- ## USA Debt & Credit since 1834



BIS and Census Data

# The logic: why credit matters

- Banks originate money and debt (BOMD):  $\frac{dD}{dt} \equiv \frac{dM}{dt}$
- New money spent by borrower and adds to aggregate demand
  - Positive credit adds to demand
  - Negative credit subtracts from demand
- NOT offset by decline in spending power of lender as in peer-to-peer lending
- Friedman's monetarist equation omits money creation as source of demand
- True formula is not  $MV = PT$  but  $MV + \frac{dM}{dt} = PT + \textit{RealizedCapitalGains}$
- Monetary, non-equilibrium model of capitalism needed
- First proposed by Hyman Minsky: the "Financial Instability Hypothesis"

# Minsky's fundamental insight

- Capitalism “is inherently flawed, being prone to booms, crises, and depressions”:
  - This instability, in my view, is due to characteristics the financial system **must possess** if it is to be consistent with full-blown capitalism.
  - Such a financial system will be capable of both **generating signals that induce an accelerating desire to invest** and of **financing that accelerating investment.**”  
(Minsky, 1969, p. 224)
- Capitalism's main weakness is its main strength
  - Inspires innovation (good and bad!) via profit motive
    - Far better at this than Feudal or Socialist Economies (see [Janos Kornai](#))
  - Desire for investment in excess of retained earnings financed by credit
  - Both enables investment & adds financial sector claims on economy (debt)
  - Cyclical process of booms & busts can lead to unsustainable debt
- Insight can be shown to be true by simple complex-systems model

# Minsky's fundamental insight

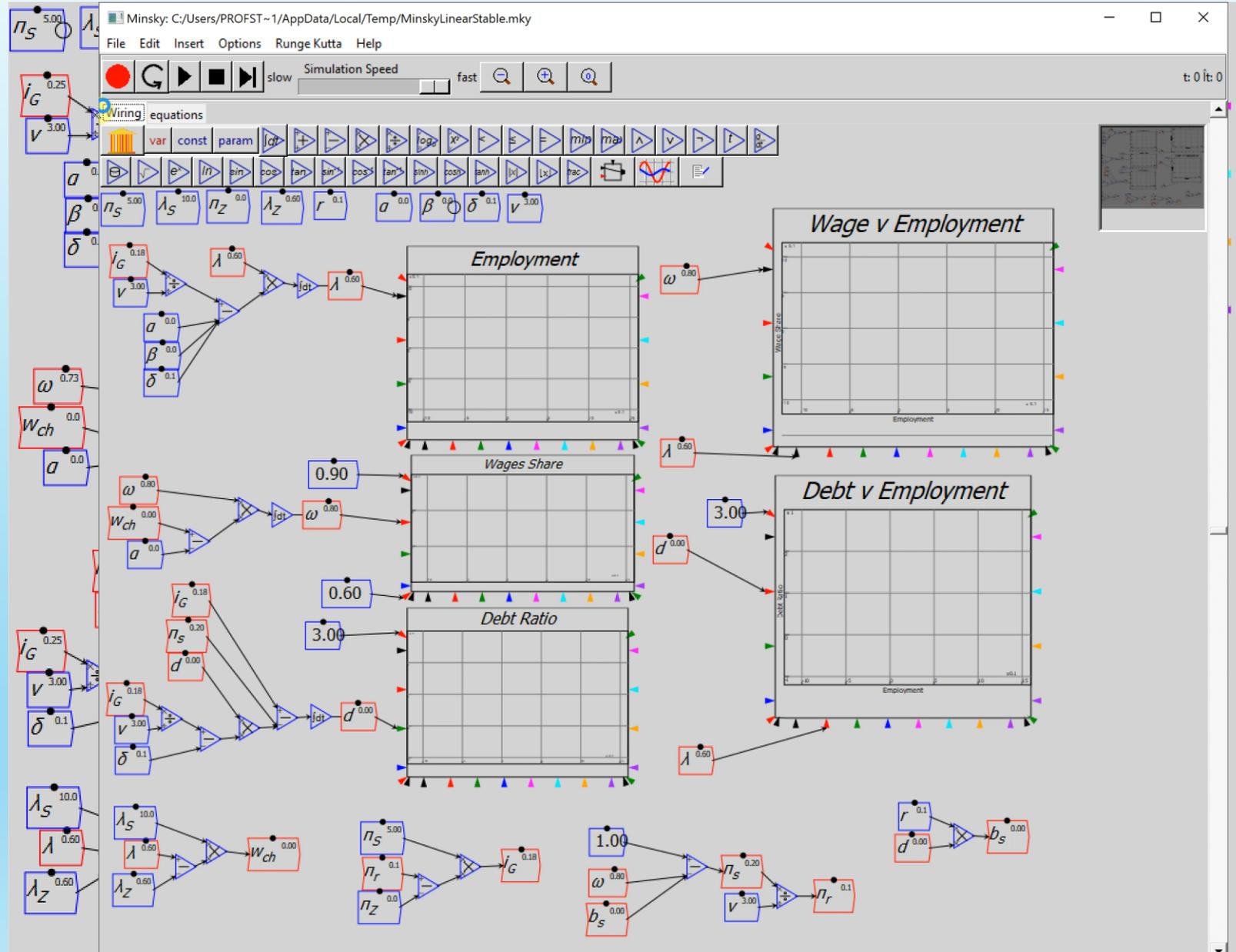
- Take 3 **undeniably true** macroeconomic definitions
  - Employment Rate ( $\lambda \equiv L/N$ )
  - Wages share of GDP ( $\omega \equiv W/Y$ )
  - Private debt to GDP ratio ( $d \equiv D/Y$ )
  - Differentiate with respect to time
- Yields three truisms that cannot be reformed away:
  - “**The employment rate will rise if economic growth exceeds the sum of population & labor productivity growth**”
  - “**Wages share of output will rise if wage rises exceeds growth in labor productivity**”
  - “**Debt ratio will rise if rate of growth of debt exceeds rate of growth of GDP**” ...
- *Mathematically, with the simplest possible assumptions, it looks like this...*

# Minsky's fundamental insight

- With low level of capitalist desire to invest, can reach “good” equilibrium



MinskyLinearStable.mkv



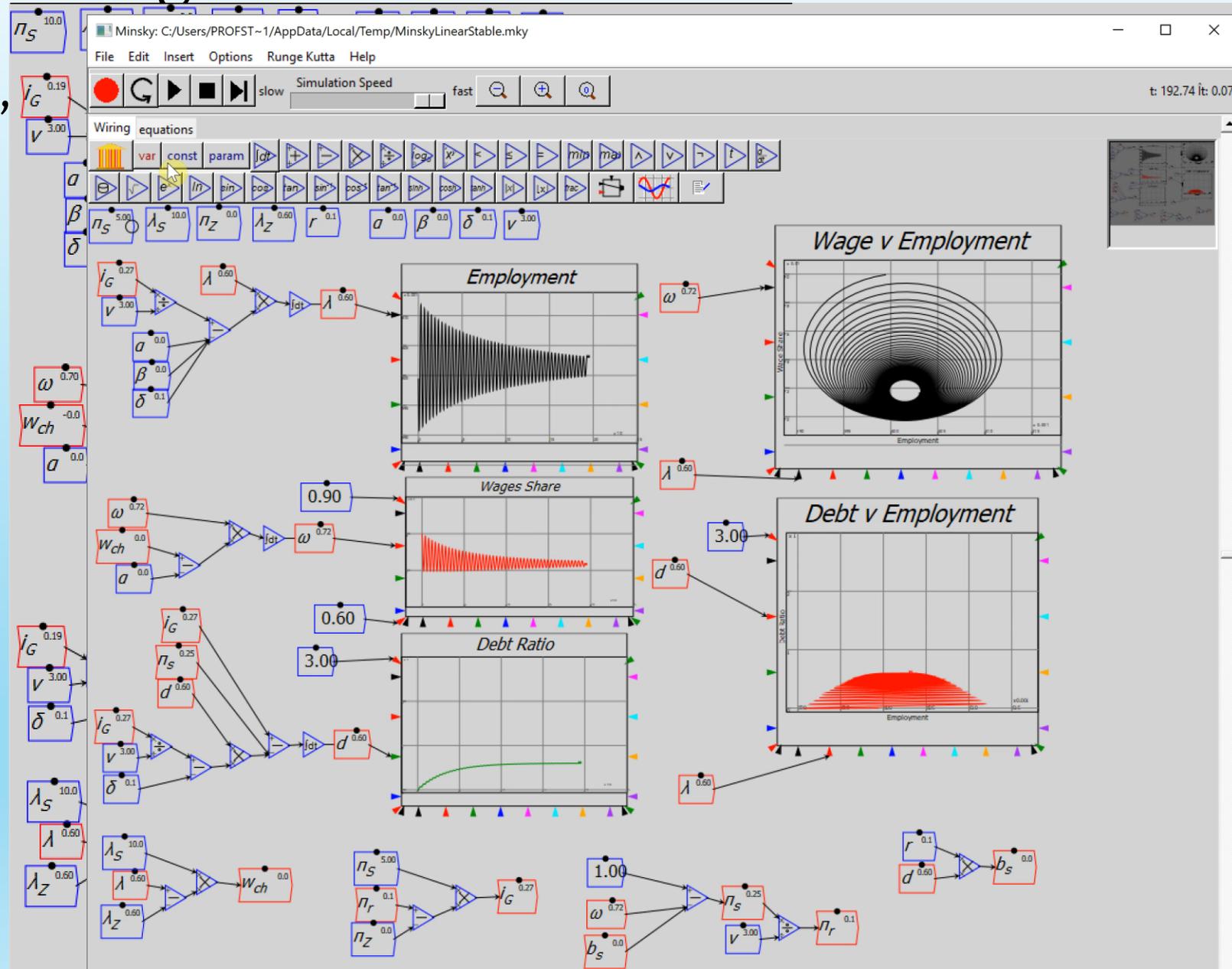
# Minsky's fundamental insight

- With higher level, apparent convergence to equilibrium, and then chaos!



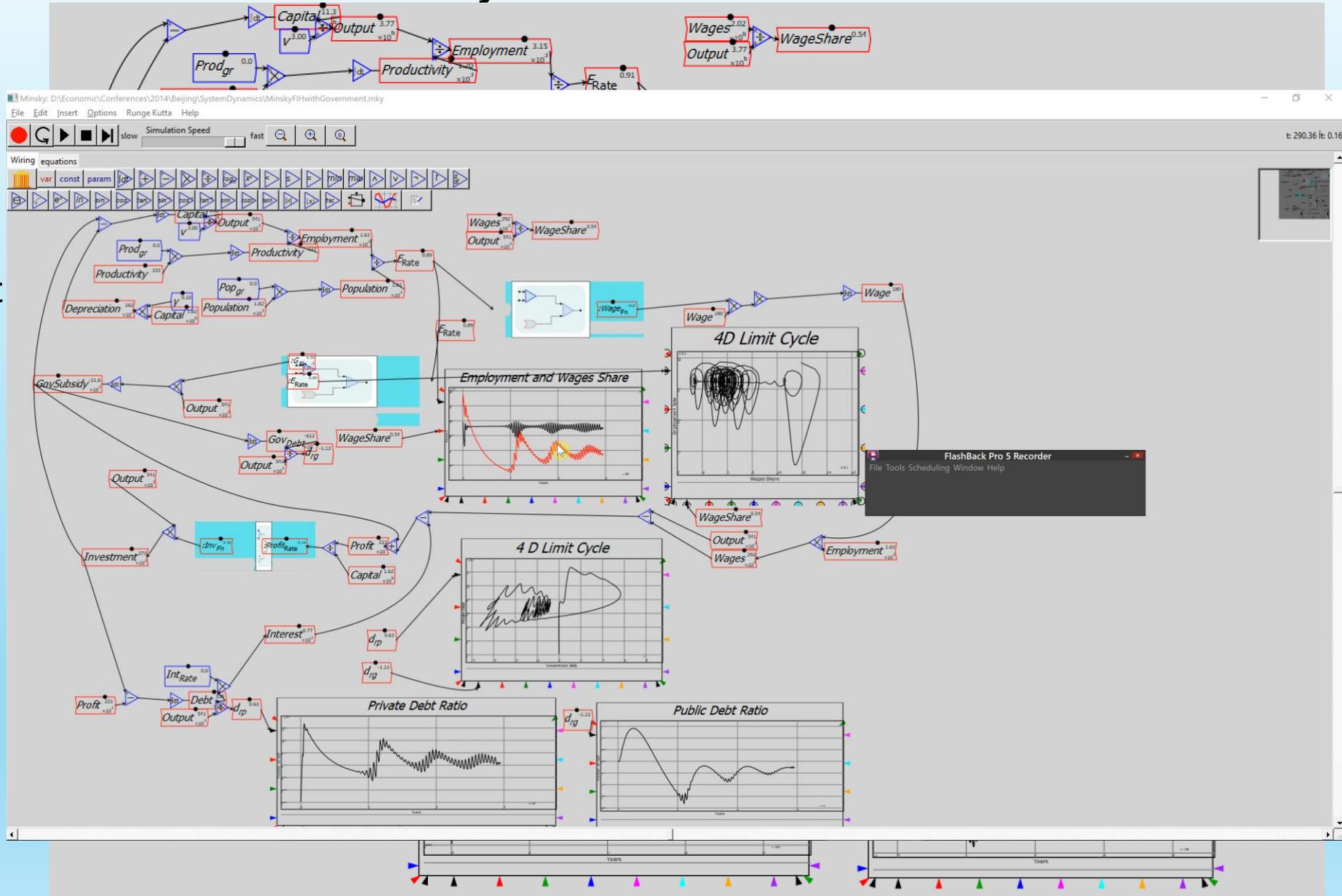
MinskyLinearUnstable.mkv

- Falling then rising volatility
  - A “Great Moderation”
- Rising inequality
  - Workers share falls
  - Bankers share rises
- Even though workers don't borrow
- Rising debt drives crisis



# Stabilizing an Unstable Economy

- Government spending as “homeostatic stabilizer”
- Finance for government debt ultimately provided by Central Bank
- No *technical* financing limits: limits are macroeconomic effects: inflation, current account deficits



# General Framework to analyse private/public/foreign debt

- Money is created by double-entry bookkeeping
  - By Banks when new loans exceed repayments
    - **Bank of England 2014**: “Rather than banks receiving deposits when households save and then lending them out, **bank lending creates deposits.**”
    - **Bundesbank 2017**: “this refutes a popular misconception that banks act simply as intermediaries at the time of lending.”
    - **Central Bank of Norway 2017**: “**banks create money out of nothing and withdraw it when loans are repaid.**”
- Banks are not limited by Reserve Requirements
  - Reserves are not needed for lending. Instead
    - Bank Reserves enable inter-bank transfers
    - Enable banks to cope with public desire to hold money as currency
      - US Required Reserve Ratio is 10% for household deposits
        - But zero for all others (corporate)
        - Affects less than 2% of US money supply, and lagged 30 days

# General Framework to analyse private/public/foreign debt

- By Government when spending exceeds taxation
  - Currency-issuing government faces no **technical** limits to net spending
    - “In theory, central banks can operate with zero or negative capital...
    - Central banks of Chile, the Czech Republic, Israel and Mexico have all pursued their policy objectives despite at times operating with negative equity.
    - However, the ability ... to operate in technical insolvency applies only to operations in the domestic currency.” ([Bank of England SWP 604](#))
  - Does not have to finance by debt: it could issue equity
    - “central banks could achieve the same ends by different bookkeeping means, issuing central bank shares in exchange for private sector assets.
    - These shares ... wouldn’t give voting rights on the activities of the central bank, but apart from that, they’d be similar.
    - An upside of using equity to buy private sector assets is that the central bank would be strengthening its capital base at a time when it’s taking on more risk.” ([Bank of England Bank Underground July 03 2017](#))

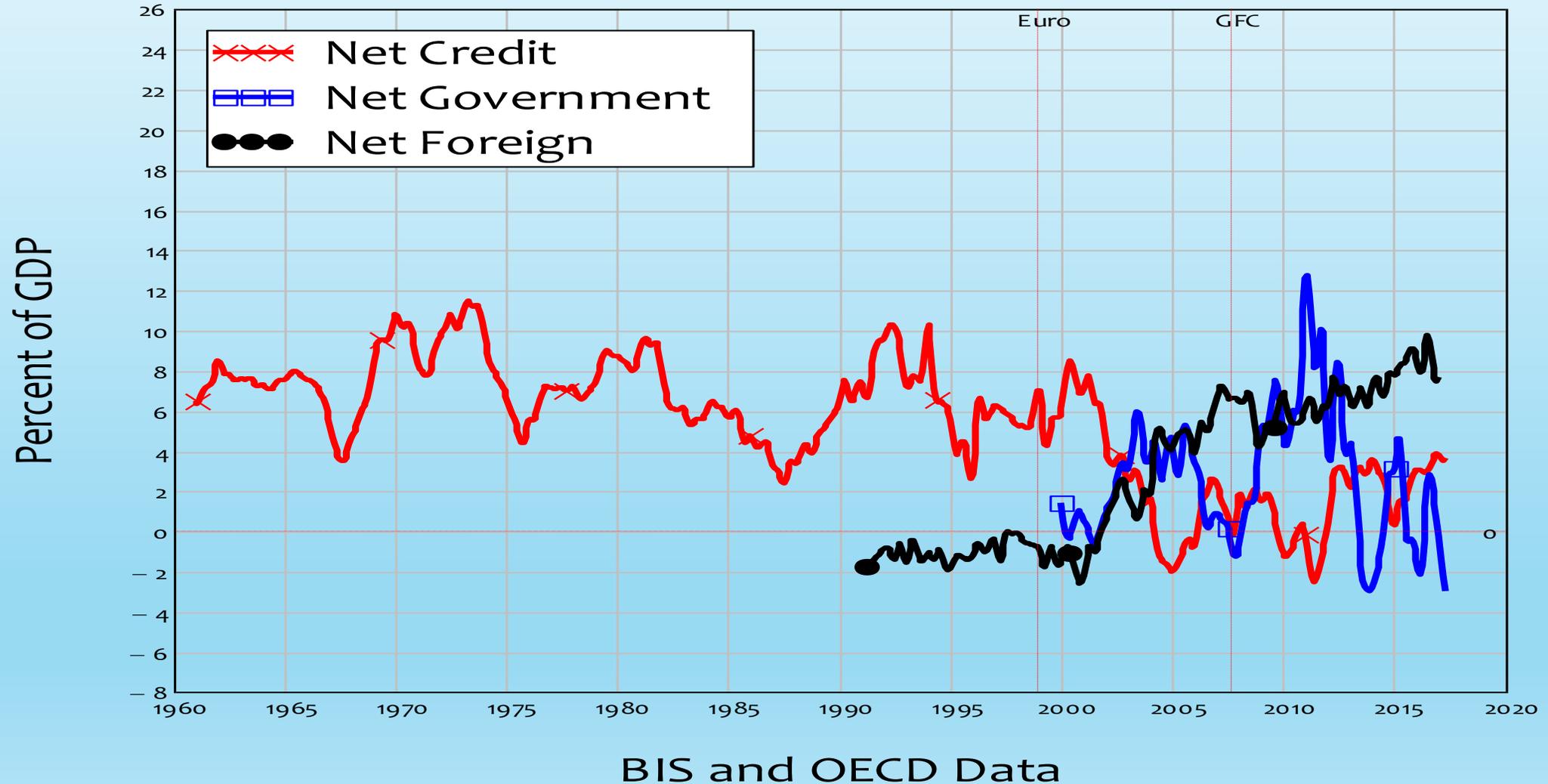
# General Framework to analyse private/public/foreign debt

- When exports of goods & services exceed imports
  - Exporter receives foreign currency
  - Submitted (via its private bank) to Central Bank
  - Central Bank issues domestic currency in exchange
  - Deposited in exporter's private bank account
- With current account surplus
  - Central Bank foreign currency reserves rise
  - Domestic bank deposits (major part of money supply) rise
- Reverse process when imports exceed exports
- Trade surplus countries effectively “outsource” money creation to rest of world

# General Framework to analyse private/public/foreign debt

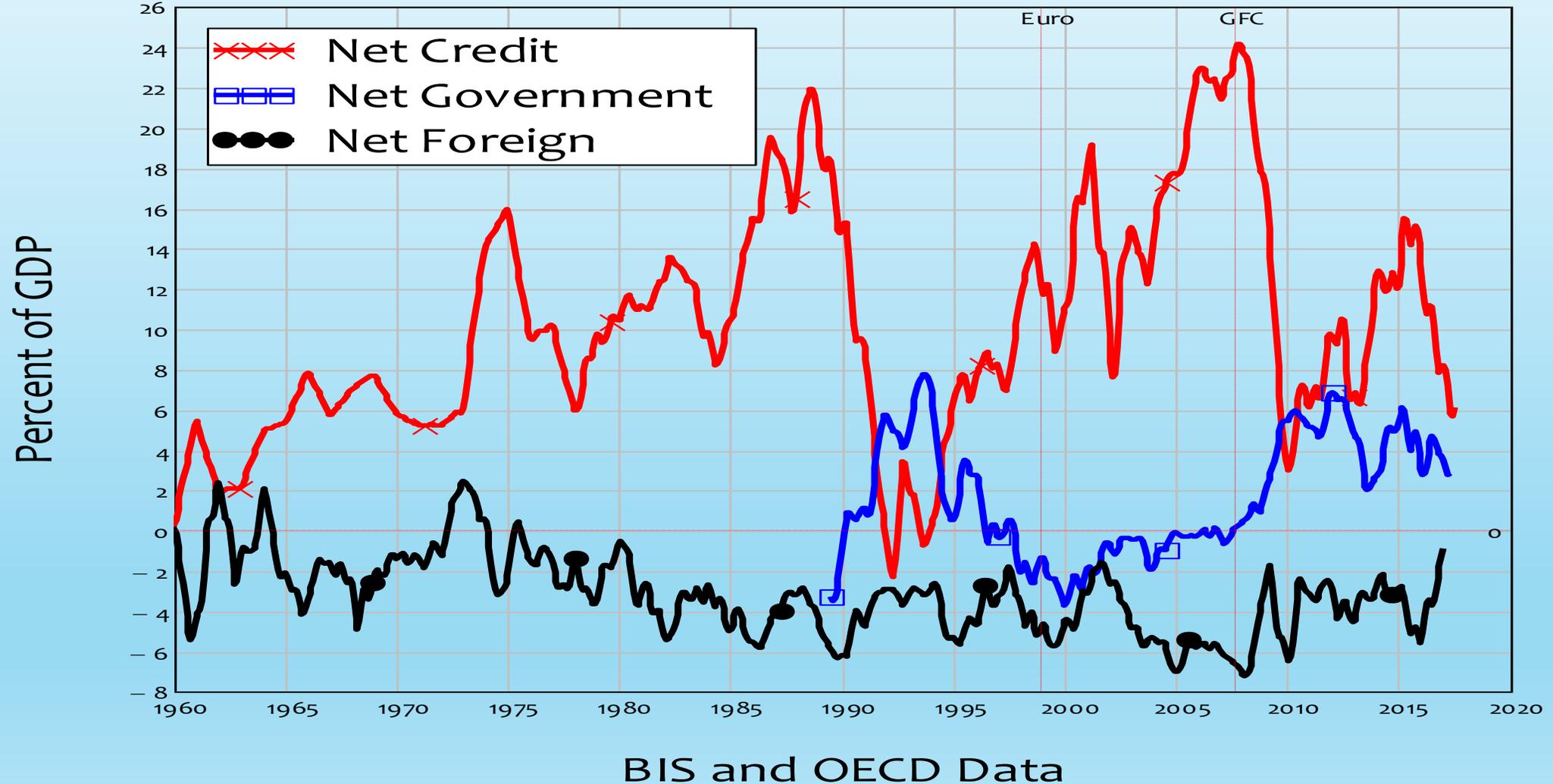
- Trade surplus counties *can* have declining government & private debt

## Germany Money Creation Flows



# General Framework to analyse private/public/foreign debt

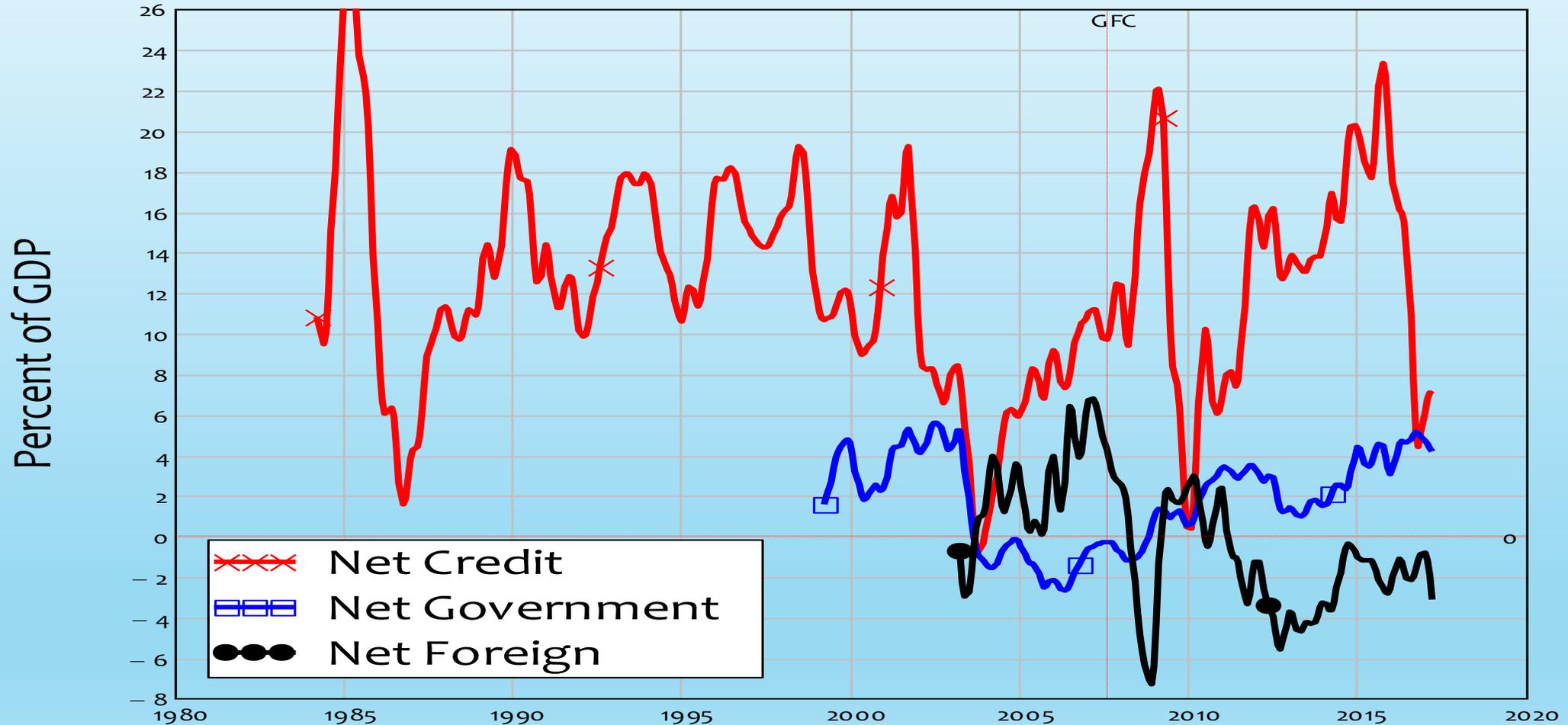
- Trade deficit countries **must** have rising government or private debt, or falling GDP
- Australia Money Creation Flows



# General Framework to analyse private/public/foreign debt

- Credit most volatile determinant of money supply & macro performance

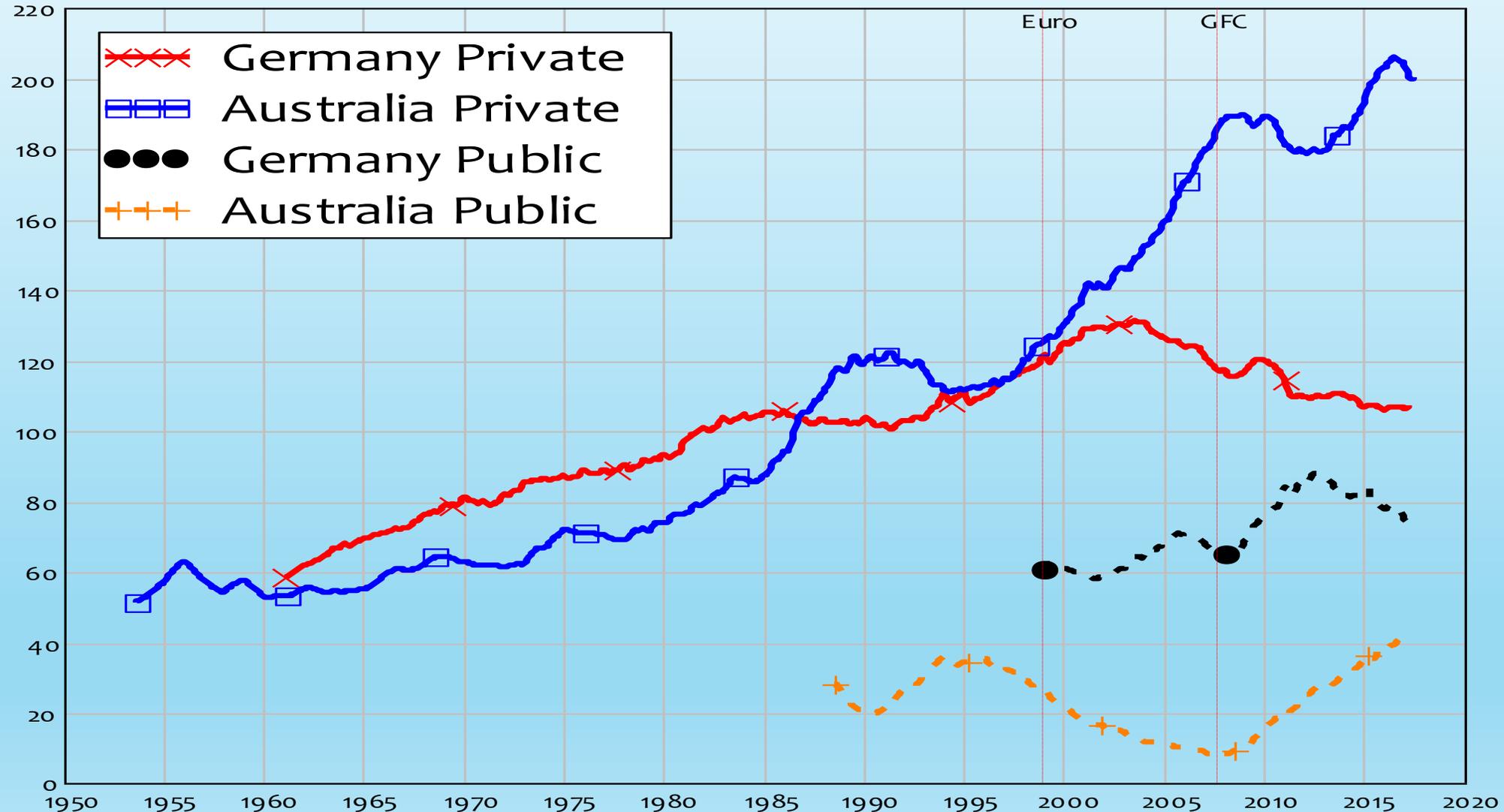
## Chile Money Creation Flows



BIS and OECD Data

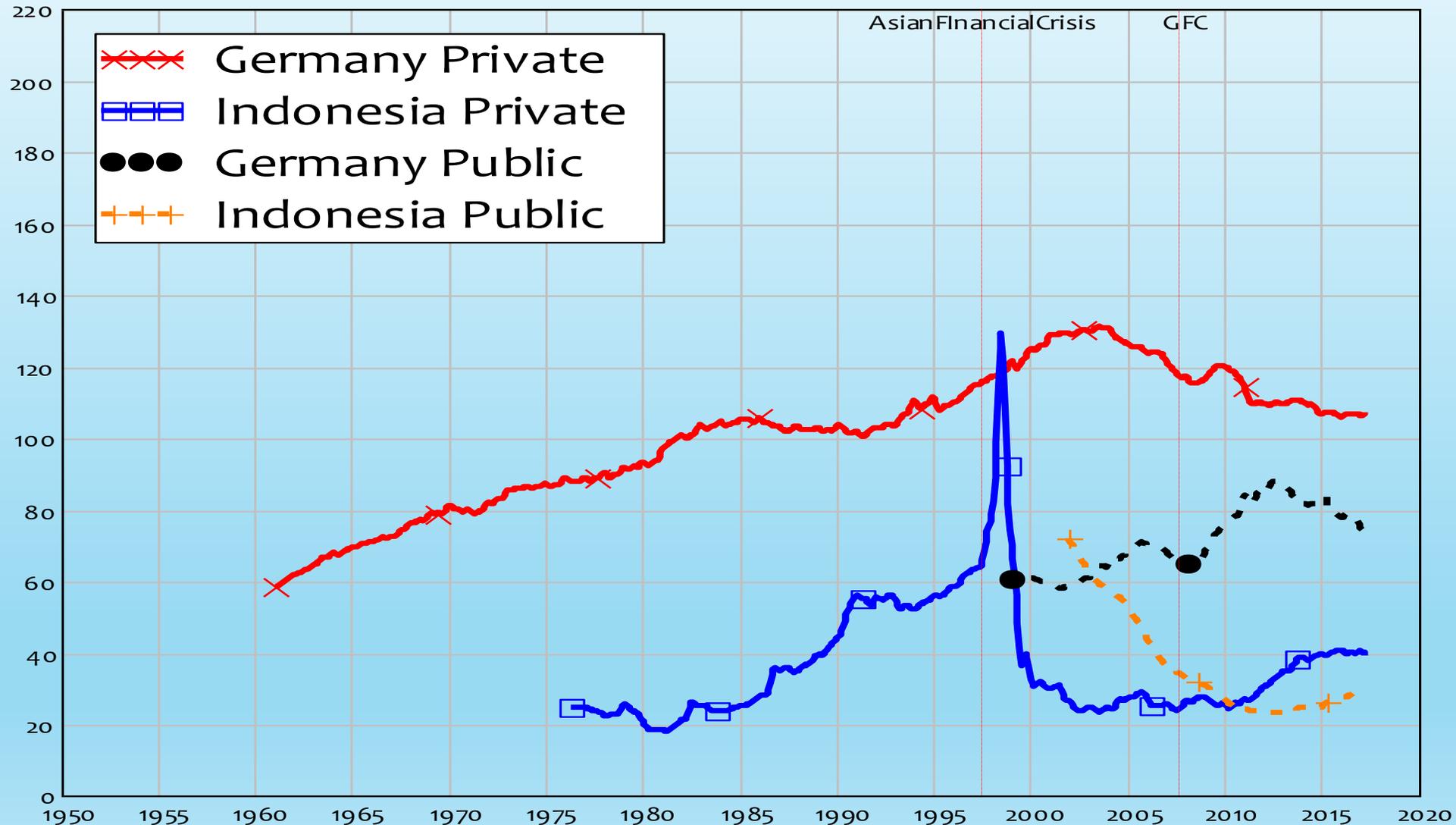
# General Framework to analyse private/public/foreign debt

- Results in dramatically different gross debt outcomes:



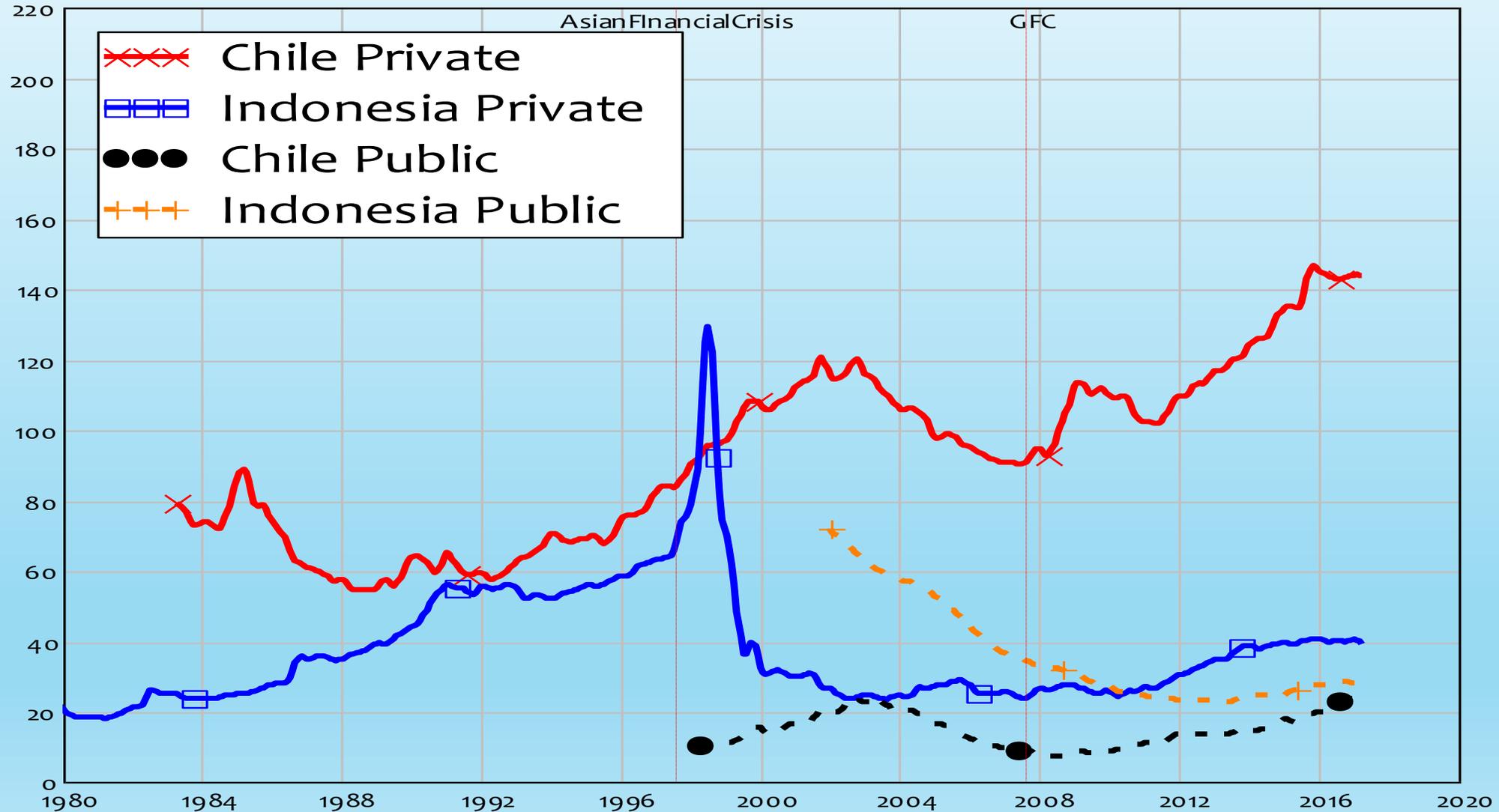
# General Framework to analyse private/public/foreign debt

- Much more volatile if private debt is denominated in foreign currency...



# General Framework to analyse private/public/foreign debt

- Main dangers come from private and foreign debt, not government domestic debt

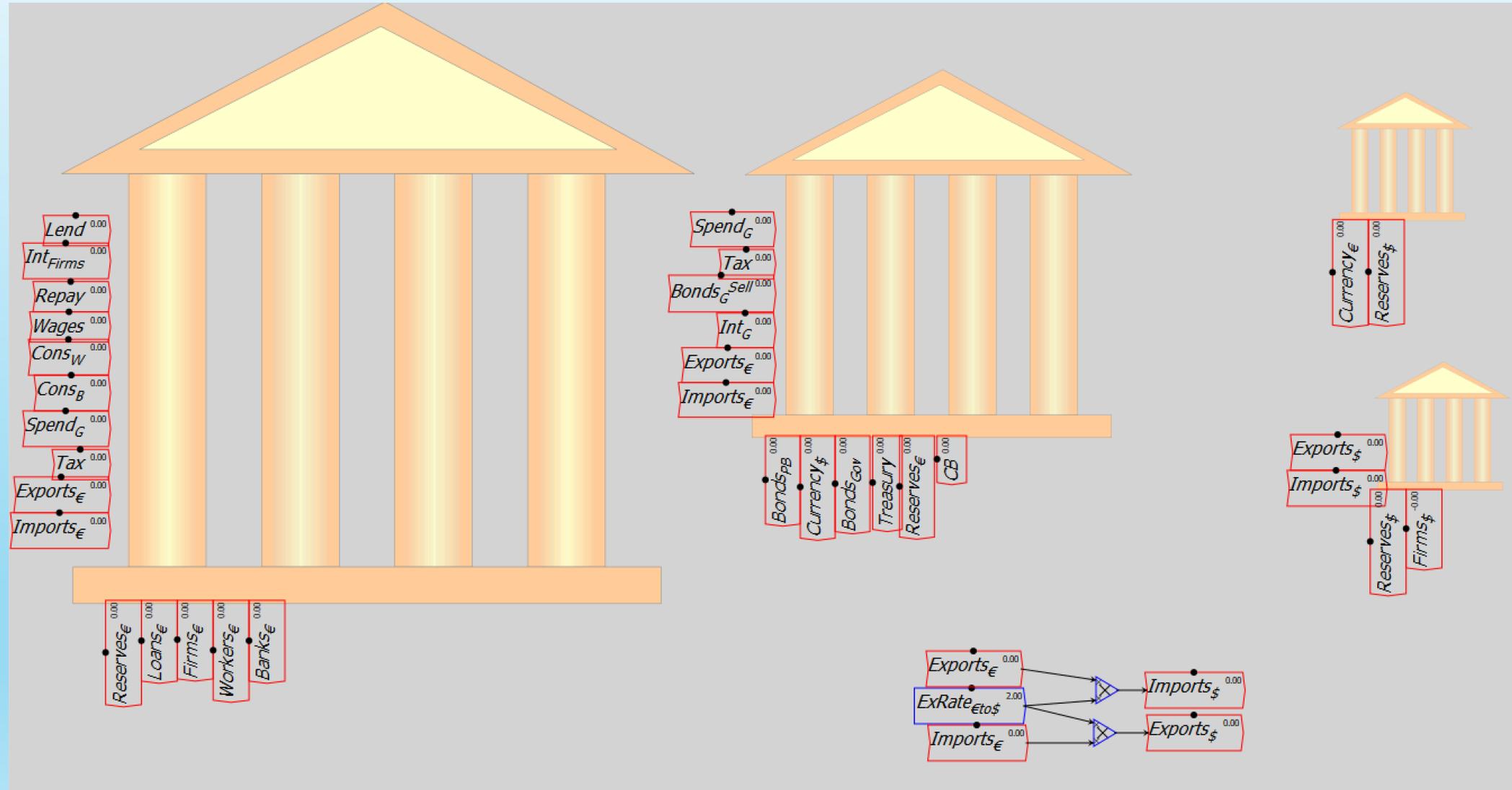


# General Framework to analyse private/public/foreign debt

- Private, public & foreign debt (& therefore current account deficits) all matter
  - Three ways to create money in a capitalist economy
    - Banks lend more than they take back in repayments (Net Credit)
      - Not a domestic or global zero sum
    - Banks spend more than they take back in tax (Net Government)
      - Not a domestic or global zero sum
    - Country exports more than it imports (Net International)
      - A global zero sum
  - All three interact and affect each other and macroeconomic performance
  - Must be understood in dynamic non-equilibrium monetary framework...

# General Framework to analyse private/public/foreign debt

- Preliminary structure mapped in Open Source system dynamics program Minsky



# From theory to policy

- Rise and bursting of private credit bubble caused “Great Recession” and “Great Moderation” before it
- Net Government stopped crisis going as far as Great Depression
  - Except by countries without their own currency & constrained by Maastricht Treaty: Spain, Greece
- Policy since (zero interest rates, QE) has attempted to revive private credit
  - But credit constrained by already historically high private debt levels
  - QE has mildly stimulated macroeconomy
  - But has massively increased already historic inequality
    - Drives up share prices
      - Rewards those who own shares
      - Relatively penalises those who do not
- Inadequate policy response driven by inadequate understanding of money & debt...

# Why the crisis is continuing

- Both high debt stock & high growth of debt (=credit) needed for crisis:
- Economy crashed *simply because rate of growth of debt slowed down*
- Aggregate demand = Turnover of existing money + credit
- Low Debt Ratio Example: Turnover of existing money
  - Initially **\$1000bn/Year**
  - Growing at 10%/Year
  - Private debt: Initially 50% of turnover of existing money = \$500bn
    - Growing at 20%/Year: Credit = **\$100bn/Year**
  - Total demand **\$1,100bn/Year**
  - Next year turnover of existing money = **\$1,100bn/Year**
  - Growth of debt slows to 10%/Year
    - Credit = **\$60bn/Year** (10% of \$600bn)
  - Total demand **\$1,160bn/Year**: \$60bn **higher** than previous year...

# Why the crisis is continuing

- High Debt Ratio Example:
  - Turnover of existing money initially **\$1000bn/Year**
    - Growing at 10%/Year
  - Private debt initially 200% of turnover of existing money = \$2,000bn
    - Growing at 20%/Year: Credit = **\$400bn/Year**
  - Total demand **\$1,400bn/Year**
  - Next year turnover of existing money = **\$1,100bn/Year**
  - Growth of debt slows to 10%/Year
    - Credit = **\$240bn/Year** (10% of \$2,400bn)
  - Total demand **\$1,340bn/Year**: \$60bn **lower** than previous year
- *Both level of private debt/GDP ratio and rate of growth matter*
- Global debt (and credit) is too high
  - *Crisis will not end until private debt levels are reduced by at least 100%/GDP*

# References

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# Minsky's fundamental insight

- To go from truisms to a model, some additional definitions
  - Labour productivity ( $a \equiv Y/L$ )
  - Profit  $\Pi = Y - W - r \times D$
- Some (genuinely) “simplifying assumptions”
  - Output is a linear function of the capital stock ( $Y=K/v$ )
  - Linear Depreciation  $\frac{dK}{dt} = I_G - \delta \times K$
  - Investment in excess of profits is financed by credit  $\frac{dD}{dt} = I_G - \Pi$
  - Wage change is a linear function of the employment rate  $\frac{\dot{\omega}}{\omega} = \lambda_S \times (\lambda - \lambda_Z)$
  - Investment is a linear function of the profit rate  $i_G = \pi_S \times (\pi - \pi_Z)$
  - Constant labor productivity growth rate  $\alpha$ ; & population growth rate  $\beta$
- Yields *simplest possible model* of capitalist economy with debt finance...

# Minsky's fundamental insight

- Just **3** variables & **9** parameters
- What can such a simple system as this tell us about as complicated a system as capitalism?
- Lots...

$$\frac{d\lambda}{dt} = \lambda \times \left( \frac{i_G}{v} - (\alpha + \beta + \delta) \right)$$

$$\frac{d\omega}{dt} = \omega \times (w_{ch} - \alpha)$$

$$\frac{dd}{dt} = i_G - \left( \pi_s + d \times \left( \frac{i_G}{v} - \delta \right) \right)$$

$$i_G = \pi_s \times (\pi_r - \pi_z)$$

$$w_{ch} = \lambda_s \times (\lambda - \lambda_z)$$

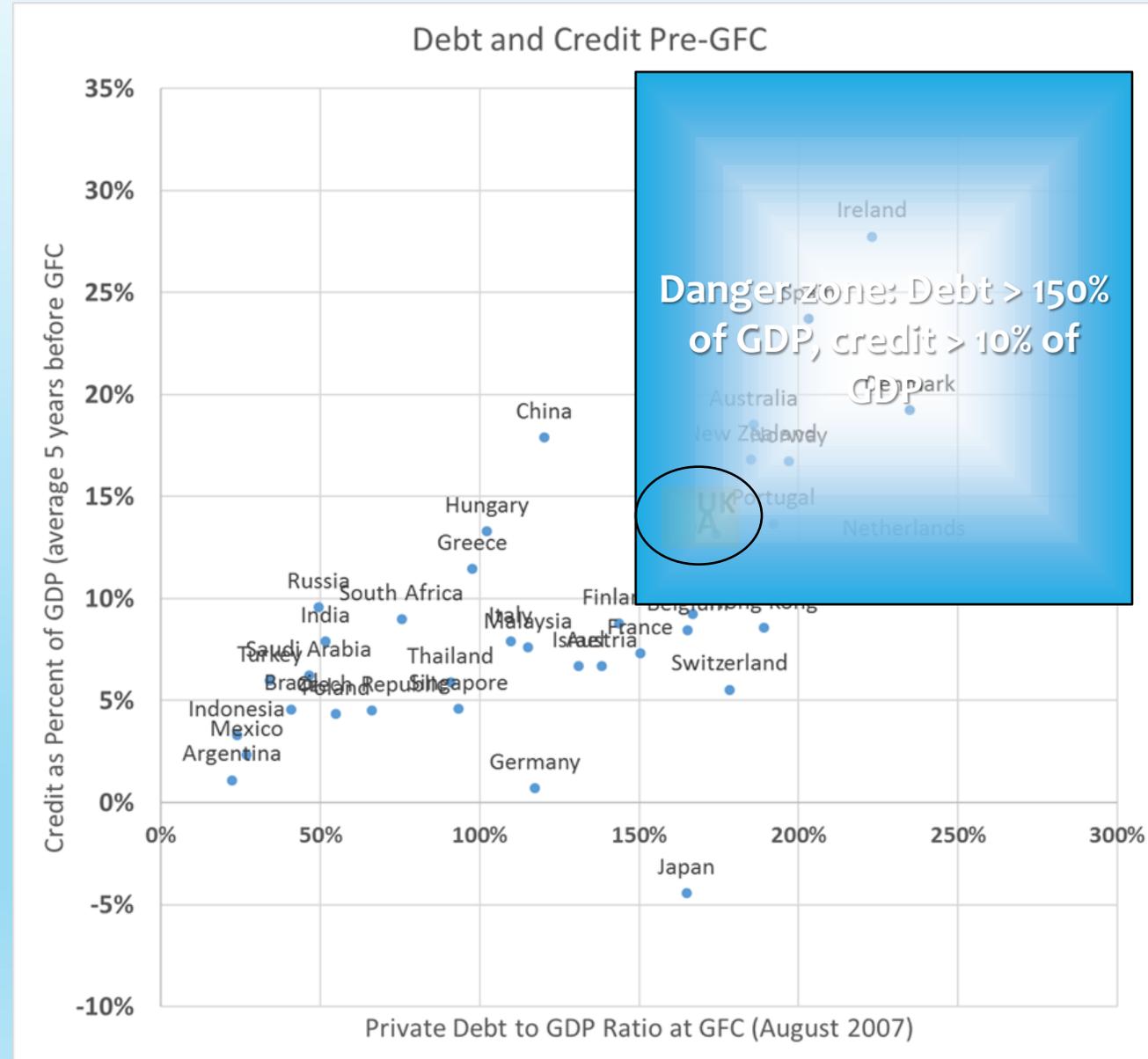
$$\pi_r = \frac{\pi_s}{v}$$

$$\pi_s = 1 - (\omega + b_s)$$

$$b_s = r \times d$$

# The “Smoking Gun of Credit” & Walking Dead of Debt

- Debt (Horizontal) and Credit (Vertical) At the time of the GFC

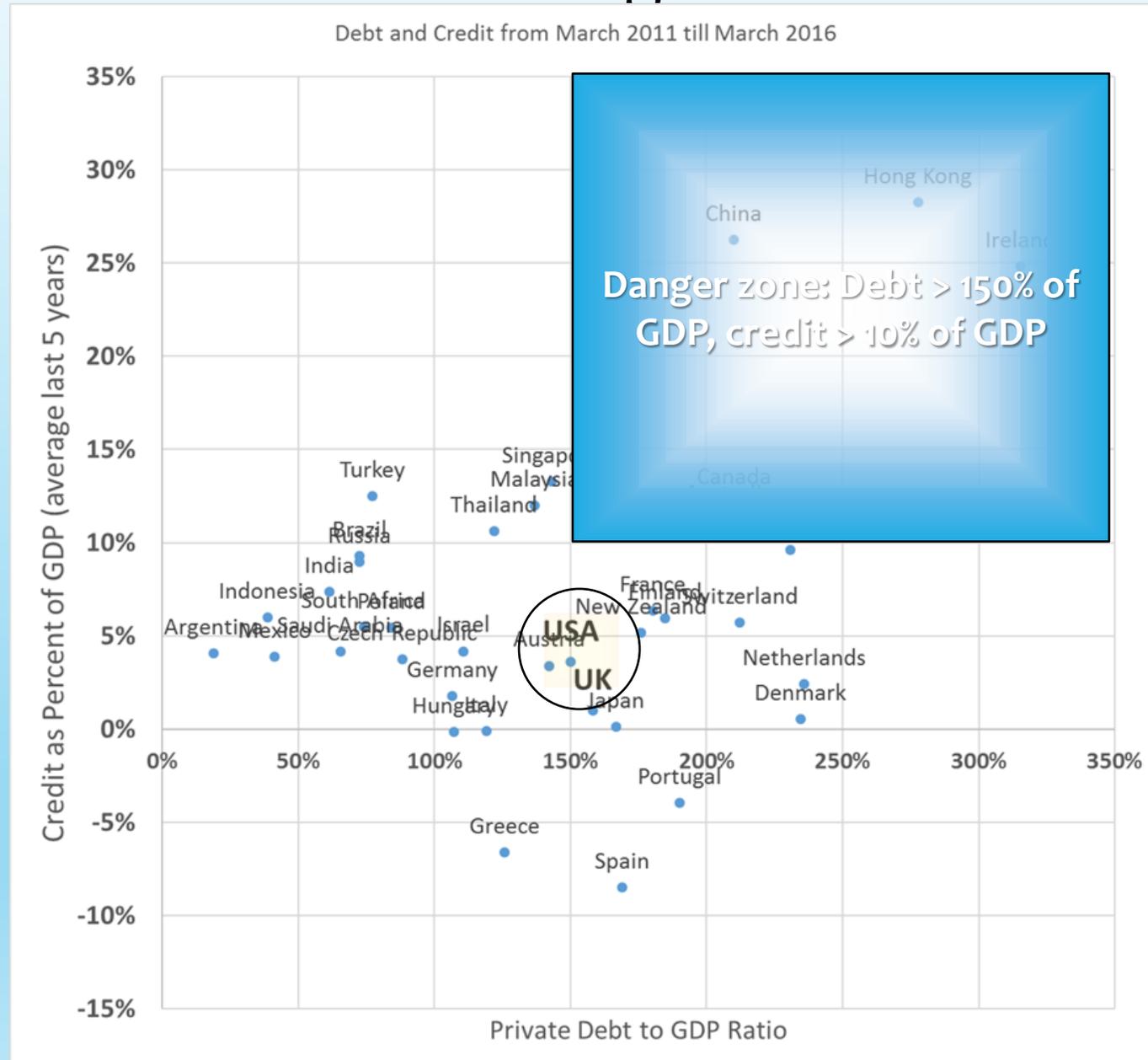


# The “Smoking Gun of Credit” & Walking Dead of Debt

- Today (Q1 2016)

- Countries facing debt crisis:
- Ireland (again!), Hong Kong, China, Canada, Australia, Korea, Sweden, Norway, Belgium
- Maybe Singapore, Malaysia, Thailand...

- **USA & UK have “turned Japanese”**



# Policy to escape debt stagnation

- Bank of England has created up to £200 Billion/Year in QE
  - Without using taxes to finance it: a “Magic Money Tree”
- Same process could be used for “People’s QE”, with two twists
  - Direct injection into private bank accounts
    - Could use BoE “digital money accounts” for this
  - Those with debt have debt reduced
  - Those without get cash injection
    - Could require them to buy shares (reversing inequality effect of QE)
      - Shares must be used to reduce corporate debt
- Include size of financial sector (Debt/GDP) as fundamental economic indicator
  - Don’t allow it to exceed 75% of GDP
- ***But we also need a realistic economics***
  - Where will that come from?

# Help bring about a new economics

- Not from Universities
  - Neoclassical paradigm too dominant
    - Reinforced by REF, TEF
      - Reward paradigm extending research, not shifting
  - Neoclassicals regrouping with initiatives like CORE
    - “Economics as if the last 30 years happened”? My take:
      - “Economics as if the last 30 years *of Neoclassical research* happened”
- Some potential from Central Banks & Treasuries
  - On the policy frontline: can't ignore failure like academic economists do
  - Serious progress being made
  - But still constrained by public-service position
  - Can't challenge politicians, even (especially!) when they're wrong
- Student movements
  - Great protest movements now: Rethinking Economics

# Help bring about a new economics

- [ESRC “Understanding the Macroeconomy”](#) a promising project
- £4 million specifically for “paradigm shifting” research
- Being run by NIESR
  - First call for projects from £20K-£150K just issued
  - Very promising start...



The screenshot shows a web browser window with the URL <https://www.rebuildingmacroeconomics.ac.uk/why-rebuild-macroeconomics/>. The page features the 'Rebuilding Macroeconomics' logo, which is a stylized triangle with red, orange, and purple segments. Navigation links include 'Big Questions', 'Research', 'Conversation', and 'N'. The main heading is 'Why Rebuild Macroeconomics?'. Below this is a banner image of a city street at night with the text 'Rebuilding Macroeconomics' overlaid. A circular profile picture of Angus Armstrong is shown, followed by his name '-Angus Armstrong-'. The text below reads: 'The Economic and Social Research Council's (ESRC) has invested in a brand-new network to understand the macroeconomy. This is an extraordinary opportunity; we know of no comparable research funding anywhere in the world. Through our network, *Rebuilding Macroeconomics*, over the next four years we will support creative and rigorous research that addresses 'real world' macroeconomic challenges. All applications are welcome and funding will go to whoever proposes the best ideas. Full details of our priorities, the funding opportunities and our progress can be found on our website [rebuildingmacroeconomics.ac.uk](https://www.rebuildingmacroeconomics.ac.uk).

# Help bring about a new economics

- I'm using Patreon to Crowdfund
  - My research and campaign for change in economics;
  - Continuous development of Minsky
- Monthly support from \$1/month up
- Currently 700+ supporters
- <https://www.patreon.com/ProfSteveKeen>

Prof Steve Keen is creating realistic economics for the post-crash world

Overview Posts Community

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This base level funding will allow me to develop my dynamic, monetary approach to economics. I'll be able to work full-time on 3rd edition of Debunking Economics, and new papers on the role of energy in economics, and how credit causes housing bubbles. And I'll continue producing videos and posting them to YouTube.

1 of 5

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In 2008, conventional economics **led us blindfolded** into the greatest economic crisis since the Great Depression. Almost a decade later, with the global economy wallowing in low growth that mainstream economists also can't explain, they are reluctantly coming to realise that **their models are useless for understanding the real world.**

I realised that over 45 years ago, when I was an undergraduate student. Since then, I have worked tirelessly to develop an alternative, realistic economics. My book **Debunking Economics** has let tens of thousands of readers learn in one month the critical knowledge of economics that I spent four decades acquiring. The **"complex systems" model of Hyman Minsky's "Financial Instability Hypothesis"** I developed in 1992 let me **warn of the 2008 crisis before it happened.** I designed **Minsky**, the Open Source dynamic modelling program, to make it possible for anyone to build and understand monetary models of the economy. My latest book **Can We Avoid Another Financial**

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- The graphic novel **On The Money**, to be written by me and illustrated by Miguel Guerra. Estimated date of delivery September 2018