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International Imbalances
in the
Global Financial Crisis

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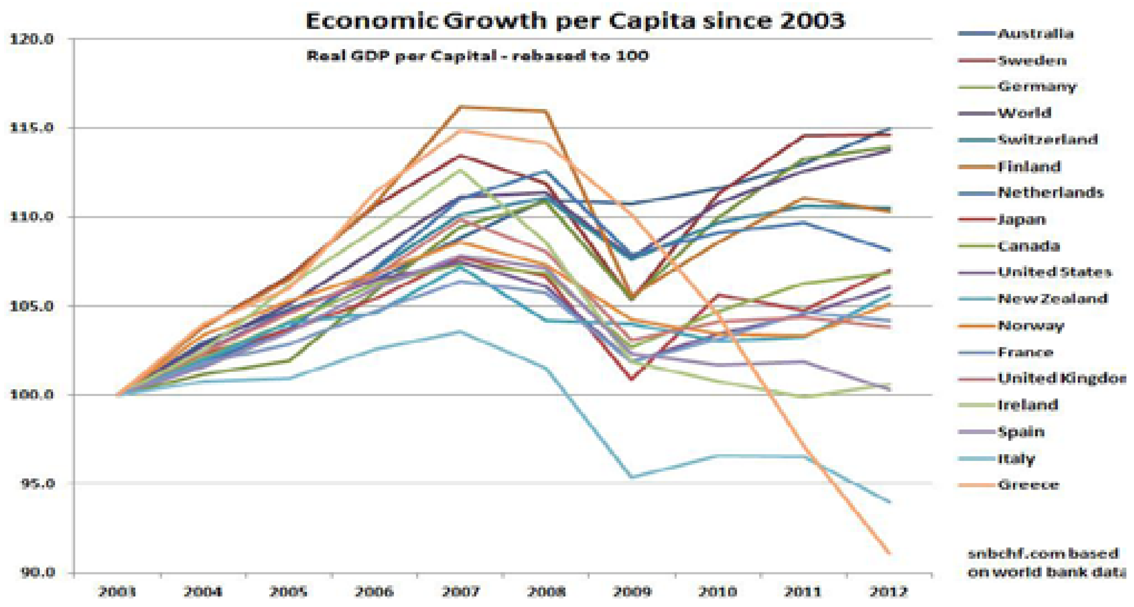
"**The idea that markets can be left to police themselves turned out to be the world's most expensive mistake**" *The Economist Feb 11th 2010*



Financial Crises are as old as Finance itself

33AD Rome, Tiberius used public money to stop a full-scale bank run
1841 "Extraordinary Popular Delusions and the Madness of Crowds" by Charles Mackay
1951 "Manias, Panics and Crashes", Charles Kindleberger
2010 "This Time is Different, Eight Centuries of Financial Folly" by Reinhart & Rogoff

Financial Crises grow out of Financial Instability

- **crises do not occur randomly in time, . . . they always follow booms**
- **crises always start in the financial sector**
- **financial markets are inherently unstable**

And yet...

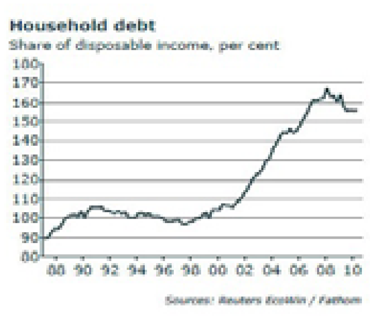
there is a sense in which this one IS different
- truly global and massive in its impact
- very long and slow recovery process
  > interest rates still at record low levels seven years afterward
  > despite huge Quantitative Easing in US, UK, Japan, and Eurozone
  > current threat of deflation
  > unresolved debt overhang

Richard Koo proposed the term "Balance Sheet Recession" to describe a similar process in Japan following the bubble of the 1980s.

DEBT  **CREDIT**

Two sides of the same coin

BUT
credit expansion led to explosion in household debt

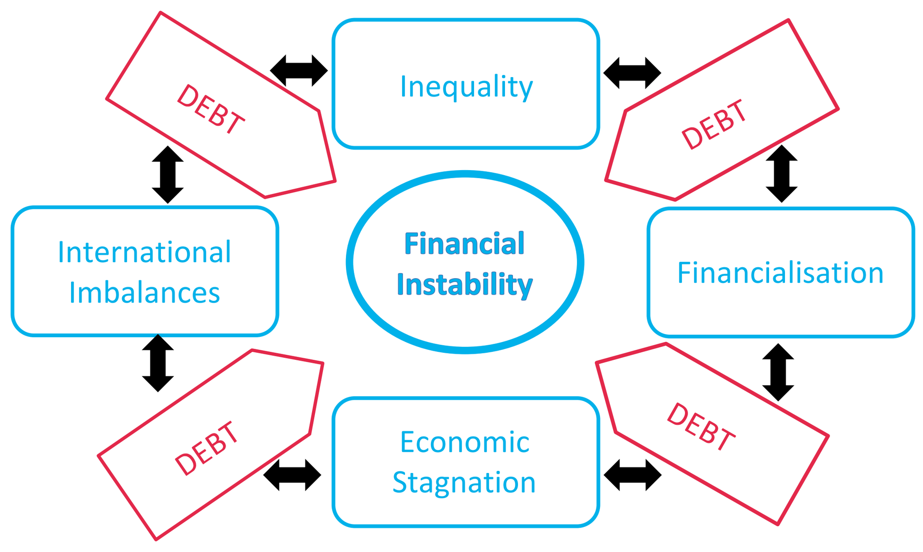


Over the three decades leading up to the crisis, credit expansion was required to maintain demand in the face of:
- falling median incomes, and the resulting underconsumption
- declining productive investment
- reduced public sector demand

Credit expansion provided an outlet for surplus capital

Unsustainable Debt
contributes to
Financial Instability

Causes of Financial Instability



A wakeup call for Macroeconomics

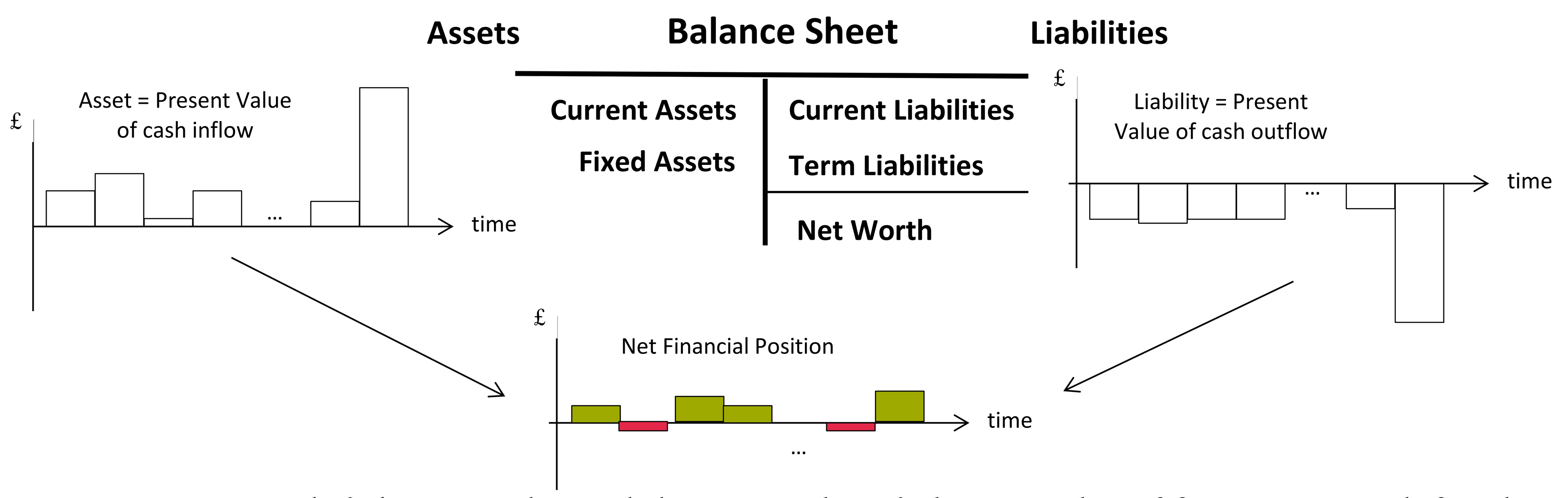
"macroeconomics [...] has succeeded: Its central problem of depression prevention has been solved, for all practical purposes, and has in fact been solved for many decades"
R. Lucas, Presidential Address to American Economic Society, 2003

In the period leading up to the crisis
> accumulating debt levels were considered harmless
> growing instabilities not recognised

In the period following the crisis
> analysis of the causes have been controversial
> policy responses have been contested

Research Question:
To what extent did International Imbalances contribute to the Financial Instability that caused the GFC?

The Financial Position of Economic Agents

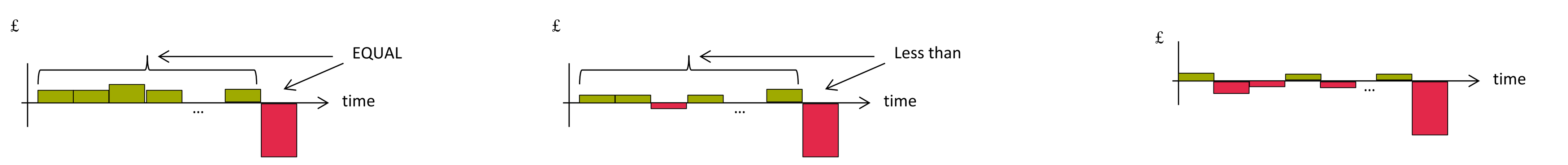


In Hyman Minsky's 'Financial Instability Hypothesis', three modes of financing are defined:

Hedge Finance: cash inflows are able to cover both interest payments and repayment of the principal.

Speculative Finance: cash inflows are able to cover the interest payments but not repayment of the principal. The debt needs to be rolled over

Ponzi Finance: cash inflows are not even able to cover the interest payments. Additional borrowing is required to meet day-to-day requirements



Indicator of the Financial Instability of an Economy → **The proportion of agents that are Speculative or Ponzi Financed**

SOLVENCY:
An enterprise is insolvent if liabilities exceed assets, so **net worth < 0**
. . . but this situation can continue for some time before the enterprise fails

LEVERAGE:
The ratio of liabilities to total assets, a measure of the financial fragility of an enterprise

DEBT + LEVERAGE = FINANCIAL INSTABILITY

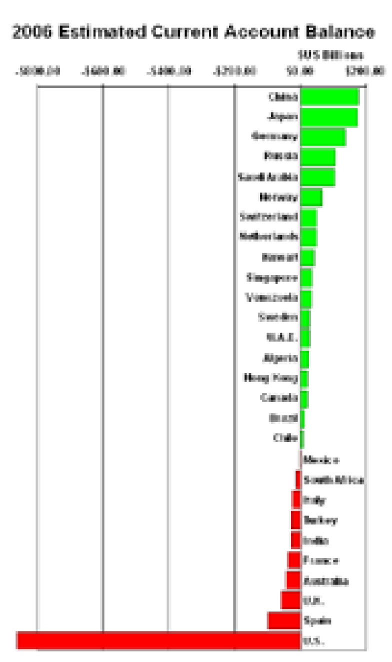
LIQUIDITY:
An enterprise will fail immediately if it can't meet its cash flow commitments

Liquidity is less a feature of assets than of the **markets** in which they are traded.

Market liquidity tends to reduce during times of financial stress

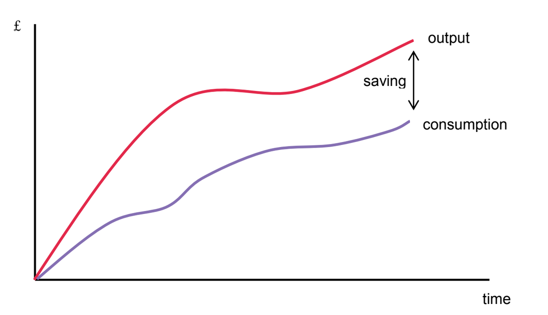
Conditions for a Financial Crisis
- Financial Instability
- a Trigger
- a propagation mechanism, usually a loss of liquidity, leading to contagion (commonly called panic)

International Imbalances



Globally, all current accounts must balance to zero

Saving is the gap between GDP and domestic consumption



The gap may be caused by
Underconsumption policies to deliberately limit consumer demand. In China, final consumption has been less than 35% of GDP. In the US it is nearly 70%
Financial repression policies to enforce savings at low interest rates to subsidize investment
Trade protectionism use of tariffs or exchange rate manipulation to favour exports and discourage imports

Methodology

A technique called **Stock Flow Consistent modelling** (SFC) will be used to model changes in stocks (assets and liabilities) resulting from international trade and capital flows. SFC models consist of a sectoral balance sheet in a matrix format:

The Stock Matrix — a multi-sector balance sheet

	USA	China	EU	Oil Exporters	ROW	∑
Assets						
Liabilities						
∑						

and model transaction flows such that the row and column totals in the matrix are preserved

The Transactions Flow Matrix

	USA	China	EU	Oil Exporters	ROW	∑
Trade Flows						
Capital Flows						
⋮						
Δ Assets						
Δ Liabilities						
∑						

all flows are accounted for, nothing is lost and nothing is gained, hence assuring consistency and completeness across sectors and through time.

Models are formulated as equations based on row and column conservation conditions derived from the accounting structure. Additional equations to achieve 'closure' of the models are derived from international trade theory.

Models are calibrated and equation parameters determined from historical data sets.

Model solutions include analytical and simulation methods.

An Accounting Identity

(S-I)		(T-G)		(X-M)
(savings - investment)		(taxes - gov't spending)		(exports - imports)
private sector saving	+	public sector saving	=	trade surplus

Current Account Surplus ⟷ means ⟷ Capital Account Deficit

(and vice versa)

Surplus countries:
- export capital
- import demand

Deficit countries:
- import capital
- export demand

Changes to net exports and/or internal policies to manipulate savings and investment will affect other economies through impacts on external trade