Why Debt and Disequilibrium matter

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Why (Private) Debt and Money Matter

- According to the Bank of England, textbooks are wrong about how banks operate:
  - The Bank of England in 2014:
    - “The reality of how money is created today differs from the description found in some economics textbooks:
      - Rather than banks receiving deposits when households save and then lending them out, bank lending creates deposits.
    - In normal times, the central bank does not fix the amount of money in circulation, nor is central bank money ‘multiplied up’ into more loans and deposits.” (Money Creation in the Modern Economy)
  - Textbooks use two incorrect models of what banks do:
    - Loanable Funds: banks are intermediaries between savers and borrowers
    - Money Multiplier: banks “multiply up” deposits of base money
Mainstream economics ignores private debt because...

- Krugman 2012: “First of all, any individual bank does, in fact, have to lend out the money it receives in deposits. Bank loan officers can't just issue checks out of thin air; like employees of any financial intermediary, they must buy assets with funds they have on hand.” (“Banking Mysticism, Continued”)

- Bundesbank 2017: “look at the creation of (book) money as a set of straightforward accounting entries … money and credit are created as the result of complex interactions between banks, non-banks and the central bank.

  - “this refutes a popular misconception that banks act simply as intermediaries at the time of lending – i.e. that banks can only grant credit using funds placed with them previously as deposits by other customers.”
Why (Private) Debt and Money Matter

• Loanable Funds: banks transfer money between savers and borrowers
  • No new money or spending power is created
    • Ben Bernanke: “Absent implausibly large differences in marginal spending propensities among the groups, it was suggested, pure redistributions should have no significant macroeconomic effects.” (Essays on the Great Depression, p. 24)

• “Bank Originated Money and Debt”
  • New money and spending power are created
    • Bank loans expand money supply and demand when they increase
    • Bank loans contract money supply and demand when they decrease

• Do these differences matter?
The Role of Banks, Debt & Credit in Macroeconomics

• A logical analysis: derive relative impact from identity of Aggregate Demand & Supply
• Divide economy into 3 sectors, where each sector spends on the other two
• 3x3 “Moore Table”: diagonal is expenditure (-), off-diagonal is income (+)
• Each row must sum to zero: (Your) Expenditure IS (Someone Else’s) Income
• Column sum can be non-zero: sectoral incomes can differ from expenditures
• 3 monetary arrangements
  • “Say’s Law”: no lending possible
  • “Loanable Funds”: lending between two sectors (along diagonal)
  • “Bank Originated Money & Debt”: Bank (4th sector) lends to one sector
    • Its Assets (not shown in Table) rise in tandem with new net lending
The Role of Banks, Debt & Credit in Macroeconomics

• Firstly, “Say’s Law”: Expenditure only from existing money, no lending/borrowing

\[ SL := \begin{bmatrix} -(A + B) & A & B \\ C & -(C + D) & D \\ E & F & -(E + F) \end{bmatrix} \]

• Effectively Friedman’s “Quantity theory of money”
  • Aggregate Demand \( \equiv \) Aggregate Income \( = \) money times velocity of circulation

\[ -\text{tr}(SL) \quad \text{simplify} \quad \text{substitute}, \quad A + B + C + D + E + F = V \cdot M \quad \rightarrow M \cdot V \]
The Role of Banks, Debt & Credit in Macroeconomicses

- “Loanable Funds”
  - Sector 2 lends to sector 1 (flow across diagonal of matrix)
  - Sector 1 pays interest to sector 2
  - Sector 1 spends on sector 3

\[
\text{Expenditure of credit: } \begin{bmatrix}
-(A + B + \text{Credit} + \text{Interest}) & A + \text{Interest} & B + \text{Credit} \\
C & -[C + (D - \text{Credit})] & (D - \text{Credit}) \\
-E & F & -(E + F)
\end{bmatrix}
\]

\[
\text{Flow of credit: } -\text{tr}(\text{LF})
\]

- Credit cancels out, but Gross Interest payments are part of GDP
  - \textbf{IF} loanable funds were true, \textbf{THEN} banking could be ignored in macroeconomics
The Role of Banks, Debt & Credit in Macroeconomics

• “Bank Originated Money and Debt”: Bank lending (to sector 1) creates money
• Sector 1 spends this money on sector 3

\[
\begin{bmatrix}
-(A + B + \text{Credit} + \text{Interest}) & A & B + \text{Credit} & \text{Interest} \\
C & -(C + D) & D & 0 \\
E & F & -(E + F) & 0 \\
G & H & I & -(G + H + I)
\end{bmatrix}
\]

BOMD :=

• Credit (increase in Bank Liabilities) created by increase in debt (Bank assets—not shown)

\[-\text{tr}(\text{BOMD})\]

simplify

\[
\text{simplify, } A + B + C + D + E + F + G + H + I = V \cdot M
\]

substitute ,

\[
\rightarrow \text{Credit} + \text{Interest} + M \cdot V
\]

• Credit does not cancel out
  • SINCE BOMD is true, THEN banking cannot be ignored in macroeconomics
  • Credit is the most volatile component of aggregate demand and income
Why (Private) Debt and Money Matter

• Private Debt and Credit in the Asian Financial Crisis (1997)

• Huge growth in demand from credit caused the boom before the Asian Financial Crisis

• Collapse in credit—from 30% of GDP to minus 20% — caused the crisis

• Relatively low levels of credit since crisis, but private debt levels still too high
  • 40-60% of GDP level of 1980s a desirable target
Why (Private) Debt and Money Matter

• Credit and Employment in the Asian Financial Crisis (1997)

• Role of bank-created credit money in aggregate demand is the major issue missing from mainstream macroeconomics

• Illustrating this in Minsky: system dynamics software supporting monetary modelling using double-entry bookkeeping...
Modelling LF vs BOMD in Minsky

- Krugman & Eggertsson (2012 supplement) had “Loanable Funds” model
  - “Patient” Consumer goods producing agent lends to “Impatient” Investment goods producing agent
  - Bank charges “Intermediation Fee”

- Huge changes in credit and debt
- Trivial changes in GDP

LoanableFunds.mky
Modelling LF vs BOMD in Minsky

• Easily modify it to BOMD...

• Huge changes in credit and debt

• **Huge** changes in GDP
Economists are obsessed with equilibrium...

- Believe that capitalism is an equilibrium system
- Prove that (some way of modelling) it is unstable
  - Sonnenschein-Mantel-Debreu Theorem, Perron-Frobenius Theorem...
- Ignore/distort result (develop “Representative Agent” model...)
- Build elaborate *mythematical* framework to work around it
- Results in *extremely complicated* pseudo-mathematical models
- A magnificent failure:
  - *Models so complicated that practitioners believe they must be “scientific”*
- But disequilibrium—*far from equilibrium behaviour*—is the norm...
- Easily modelled now using “system dynamics” programs invented by engineers over 50 years ago
  - Matlab’s Simulink; Vissim; Mathematica’s System Modeler; Vensim
  - I designed Minsky for Economics: ...
Some important non-equilibrium models

- Lorenz’s model of the weather...
Some important non-equilibrium models

- Keen model of Hyman Minsky’s Financial Instability Hypothesis
Economics needs to “grow up” & embrace debt & dynamics

• “A baby is expected to first crawl, then walk, before running. But what if a grown-up man is still crawling?

• At present, the state of our dynamic economics is more akin to a crawl than to a walk, to say nothing of a run.

• Indeed, some may think that capitalism as a social system may disappear before its dynamics are understood by economists.” (John Blatt in 1982: it’s worse now!)

• We need complex systems economics

• Minsky designed to make this easy

• Download Minsky for $1 a month from https://www.patreon.com/hpcoder/

• Also available from https://www.patreon.com/ProfSteveKeen