Why banks cause crises (and how to stop them)

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Banks don't *have* to cause crises…

- Banks can create money "out of nothing"
  - Richard last night; Schumpeter in 1934
- And **not** cause financial crises
  - But they almost always do… Why?
- Versus two popular (but false) beliefs
  - Bank lending **must** cause crises
    - Lend $100, expect $105 back—rising debt must lead to crisis
  - Banks don't matter at all
    - Bank lending controlled by Central Bank
    - Belief that "banks are different" is for "banking mystics"
      - "I'm all for including the banking sector in stories where it's relevant; but why is it so crucial to a story about debt and leverage?" (Paul Krugman, 2012)
- Tackling the 1st fallacy
  - Consider a pure credit economy, like 19th century "Free Banking"…

Popular Fallacy: Crises inevitable

- 19th century experiment with "pure" private money
  - Private banks printed own notes across USA, Australia, Scotland

Manufacturers' Bank, Macon, Georgia, $20, 1862

Popular Fallacy: Crises inevitable

- Simple model:
  - Bank prints notes & stores them in "Vault"
  - Lends to Firms by transferring $ from Vault to Firm Deposits
  - Firm hires workers by transferring $ from Firm to Worker Deposits
  - Workers and Banks consume by transferring $ to Firm Deposit
  - Bank charges loan interest & pays deposit interest
- Should be unsustainable according to "lend $100, expect $105 back"
  - Constant economic activity should need rising debt; or
  - Firms' bank balance should head to zero with constant money stock
- What actually happens?
  - Develop model of financial flows using accounting table…

Popular Fallacy: Crises inevitable

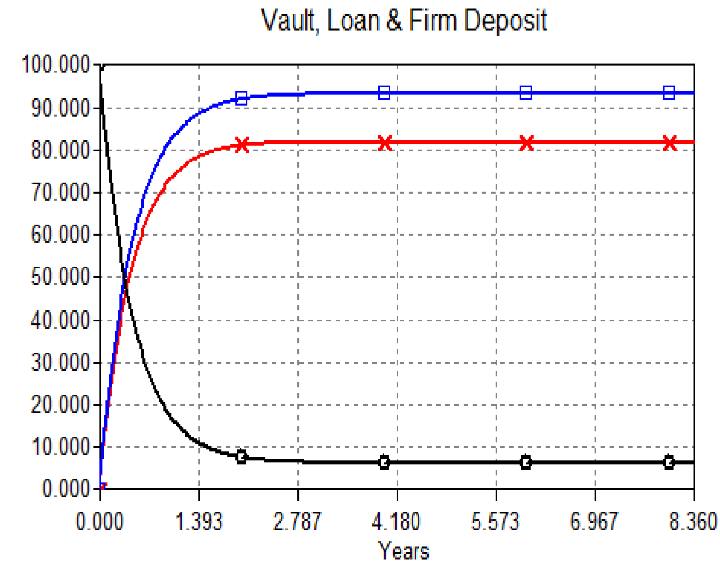
Type of Account	Bank Assets		Bank Liabilities (Deposits)		Income
Action	Vault	Loans	Firms	Workers	Safe

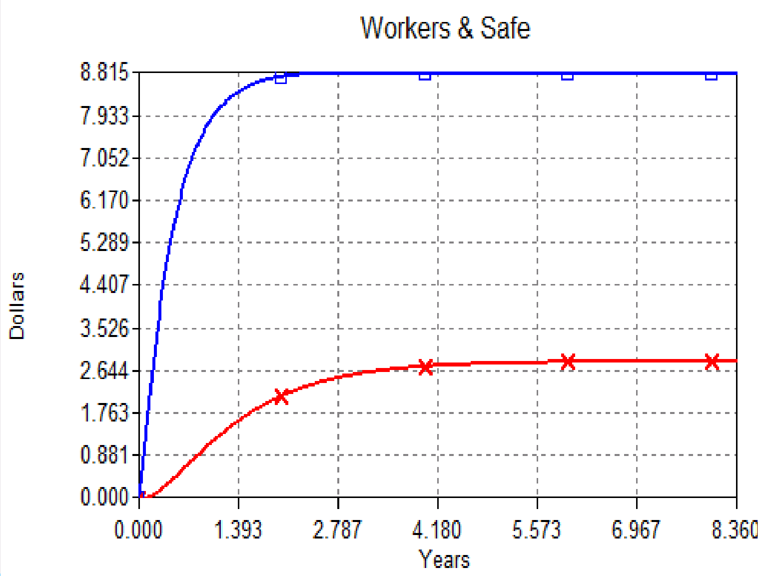
Popular Fallacy: Crises inevitable

- Stable stock of money finances stable level of economic activity:

default.sgr
Actions Options Prompt Help
Stock Flow Mode Stock Show Player Text Variable Jumper

Lend 13.333
Consume Workers 228.87
Record Loan 13.333
Vault 6.667
Loan
Firms 81.675
CW
Workers 8.803
Loans 93.333
Loan
Repay Loan 13.333
Hire Workers 228.69
Repay
Wage
Consume Banks 2.856
Charge Interest 4.667
CB
Interest
Safe 2.856
Deposit Int Firms 1.634
DF
Record Payment 4.667
Pay Interest 4.667
Interest
Interest
Deposit Int Workers 0.176
Record Repayment 13.333
DW
Repay





Popular Fallacy: Crises inevitable

- Warning… "Wonkish"…
- Model a system of "Ordinary Differential Equations":
- With functions substituted for "Repay" etc., it becomes…

$$
\mathrm{ODEs}(P_1) \rightarrow \left[\begin{pmatrix}
\frac{d}{dt}B_V(t) = \mathrm{Repay} - \mathrm{Loan} \quad \frac{d}{dt}B_V(t) = \frac{F_L(t)}{\tau_{RL}} - \frac{B_V(t)}{\tau_V} \\
\frac{d}{dt}F_L(t) = \mathrm{Loan} - \mathrm{Repay} \quad \frac{d}{dt}F_L(t) = \frac{B_V(t)}{\tau_V} - \frac{F_L(t)}{\tau_{RL}} \\
\frac{d}{dt}F_D(t) = D_F - \mathrm{Interest} + \mathrm{Loan} - \mathrm{Repay} - \mathrm{Wage} + C_W + C_B \quad \frac{d}{dt}F_D(t) = r_D\cdot F_D(t) - r_L\cdot F_L(t) + \frac{B_S(t)}{\tau_B} + \frac{B_V(t)}{\tau_V} - \frac{F_L(t)}{\tau_{RL}} - \frac{W_D(t)}{\tau_W} + \frac{F_D(t)\cdot(s-1)}{\tau_S} \\
\frac{d}{dt}W_D(t) = D_W - C_W + \mathrm{Wage} \quad \frac{d}{dt}W_D(t) = r_D\cdot W_D(t) + \frac{W_D(t)}{\tau_W} - \frac{F_D(t)\cdot(s-1)}{\tau_S} \\
\frac{d}{dt}B_S(t) = \mathrm{Interest} - D_F - D_W - C_B \quad \frac{d}{dt}B_S(t) = r_L\cdot F_L(t) - r_D\cdot F_D(t) - r_D\cdot W_D(t) - \frac{B_S(t)}{\tau_B}
\end{pmatrix}\right]
$$

- Yes, it's complicated!
- But if you understood previous table, you understand this
- Realistic parameter values (workers share of output roughly 70%, Loan rate 5%, 7 years to repay loans, etc.) can derive equilibrium incomes…

Popular Fallacy: Crises inevitable

- With $100m in circulation, incomes settle down to:

Income	Gross
Wages	228.687 p.a.
Profits	98.009 p.a.
Interest	4.667 p.a.
Sum	331.362 p.a.

- Incomes **exceed** loan level by factor of 3!
- $100m in cash turns over several times a year
  - Generates incomes out of which interest is paid
- Popular “can’t repay loan” fallacy a stock/flow confusion
  - Loan: $—Stock
  - Incomes: $/Year—Flow
- Borrow $100, generate $300 p.a. in turnover, pay $200 p.a. in costs, pay $5 p.a. in interest from $100 profit—no big deal
- Now the 2nd ***Neoclassical*** fallacy

Neoclassical Economic Fallacy—Banks don't matter

- Krugman on Keen:
  - Minsky and Methodology (Wonkish):
    - "Keen then goes on to assert that lending is, by definition (at least as I understand it), an addition to aggregate demand.
    - I guess I don't get that at all.
    - *If I decide to cut back on my spending and stash the funds in a bank, which lends them out to someone else, this doesn't have to represent a net increase in demand…"*
  - Banking Mysticism
    - "… banking is where left and right meet. Both the Austrians and the self-proclaimed true Minskyites view banks as institutions that are somehow outside the rules that apply to the rest of the economy, as having unique powers for good and/or evil…
    - Banks don't create demand out of thin air any more than anyone does by choosing to spend more; and *banks are just one channel linking lenders to borrowers."*

Neoclassical Economic Fallacy—Banks don't matter

- Patient lends to Impatient

- Patient's spending power goes down
- Impatient's spending power goes up
- No change in aggregate demand
- Banks mere intermediaries (ignored in analysis)

Neoclassical Economic Fallacy—Banks don't matter

- The real world: Entrepreneur (or speculator) approaches bank for loan

Assets	Liabilities

- Bank grants loan & creates deposit **simultaneously**
- **Alan Holmes, Senior V-P, New York Fed**
- **"In the real world, banks extend credit, creating deposits in the process, and look for the reserves later." (1969)**

- New loan puts additional spending power into circulation
- Aggregate demand ***exceeds*** demand from income alone
- Neoclassical macro wrong to ignore change in debt

Neoclassical Economic Fallacy—Banks don't matter

- Neoclassicals ignorant of own literature:
  - Kydland & Prescott: Credit money leads base money
    - "There is no evidence that either the monetary base or M_1 leads the cycle, although some economists still believe this monetary myth…
    - The difference of M_2-M_1 leads the cycle by even more than M_2, with the lead being about three quarters…" (1990, p. 4)
  - Fama & French: change in debt finances investment
    - "*The source of financing most correlated with investment is long-term debt.* The correlation between I_t and $dLTD_t$ is 0.79….
    - debt plays a key role in accommodating year-by-year variation in investment." (1999, p. 1954)
- So debt & endogenous increase in demand do matter
  - Rising debt main source of investment finance (good) and speculative finance (bad)
- But neoclassical models ignore banks, debt & money completely!
  - Not to mention fallacies in own models

The absurd foundations of Neoclassical macro

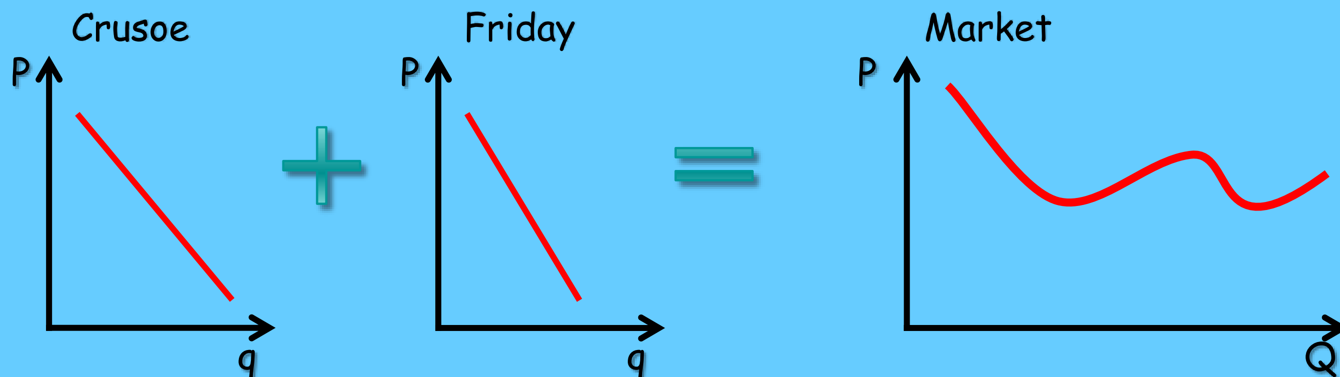
- "The preferred model has a single representative consumer optimizing over infinite time with perfect foresight or rational expectations, in an environment that realizes the resulting plans more or less flawlessly through perfectly competitive forward-looking markets for goods and labor, and perfectly flexible prices and wages.
- ***How could anyone expect a sensible short-to-medium-run macroeconomics to come out of that set-up?****…* (Solow 2003, p. 1)
- 'The simpler sort of RBC model that I have been using for expository purposes has had little or no empirical success…
- As a result, some of the freer spirits [i.e., Woodford, Krugman, Bernanke, Blanchard] in the RBC school have begun to loosen up the basic framework by allowing for 'imperfections' in the labor market, and even in the capital market…
- The model then sounds better and fits the data better. *This is not surprising: these imperfections were chosen by intelligent economists to make the models work better…"* (Solow 2001, p. 26)

The absurd foundations of Neoclassical macro

- "the main argument for this modeling strategy has been a more aesthetic one:
- its virtue is said to be that it is compatible with general equilibrium theory, and thus it is superior to ad hoc descriptive models that are not related to 'deep' structural parameters.
- The preferred nickname for this class of models is 'DSGE' (dynamic stochastic general equilibrium). I think that this argument is fundamentally misconceived…
- *The cover story about 'microfoundations' can in no way justify recourse to the narrow representative-agent construct…*" (2007, p. 8)
- Solow's critique noted the "SMD" conditions (Sonnenschein–Mantel–Debreu)
  - These invalidate "microfoundations" macroeconomics
    - Even invalidate "supply & demand" in single market!

The absurd foundations of Neoclassical macro

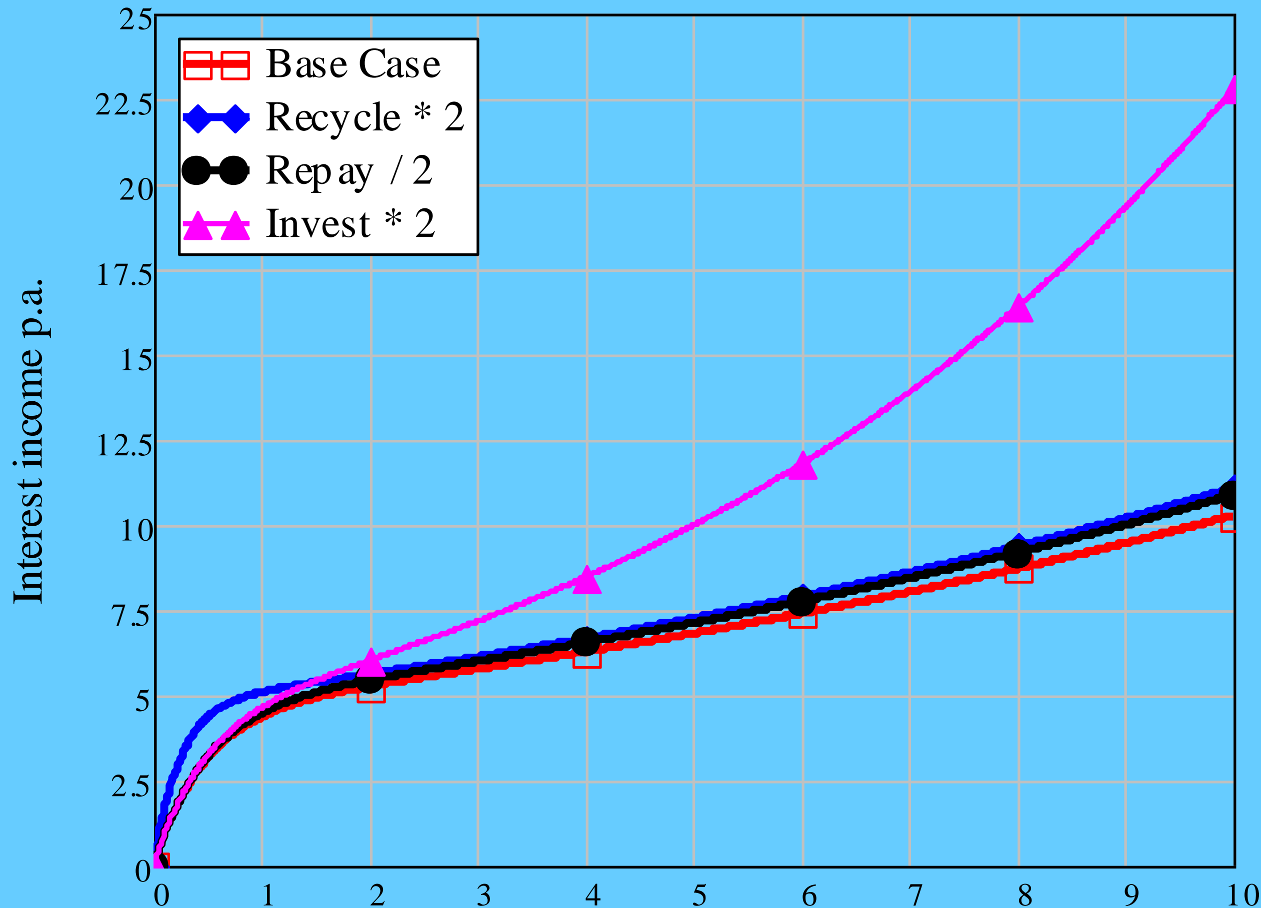
- SMD theorem:
  - "we prove that every polynomial … is an excess demand function for a specified commodity in some *n* commodity economy… every continuous real-valued function is approximately an excess demand function." (Sonnenschein 1972 , pp. 549-550)
- Market demand curves do not obey the "Law of Demand"
- Even if summing "well behaved" individual demand curves



- Can't even treat single market demand curve as "scaled up consumer"
- Yet Neoclassicals model entire macroeconomy as scaled-up individual
- Their advice on macroeconomy—and banks, debt & money—is useless
- Back to why banks don't have to cause crises, but do…

Why bank cause crises

- Bank income depends on how much debt they create
  - Main way to create more is to finance investment ***or speculation***



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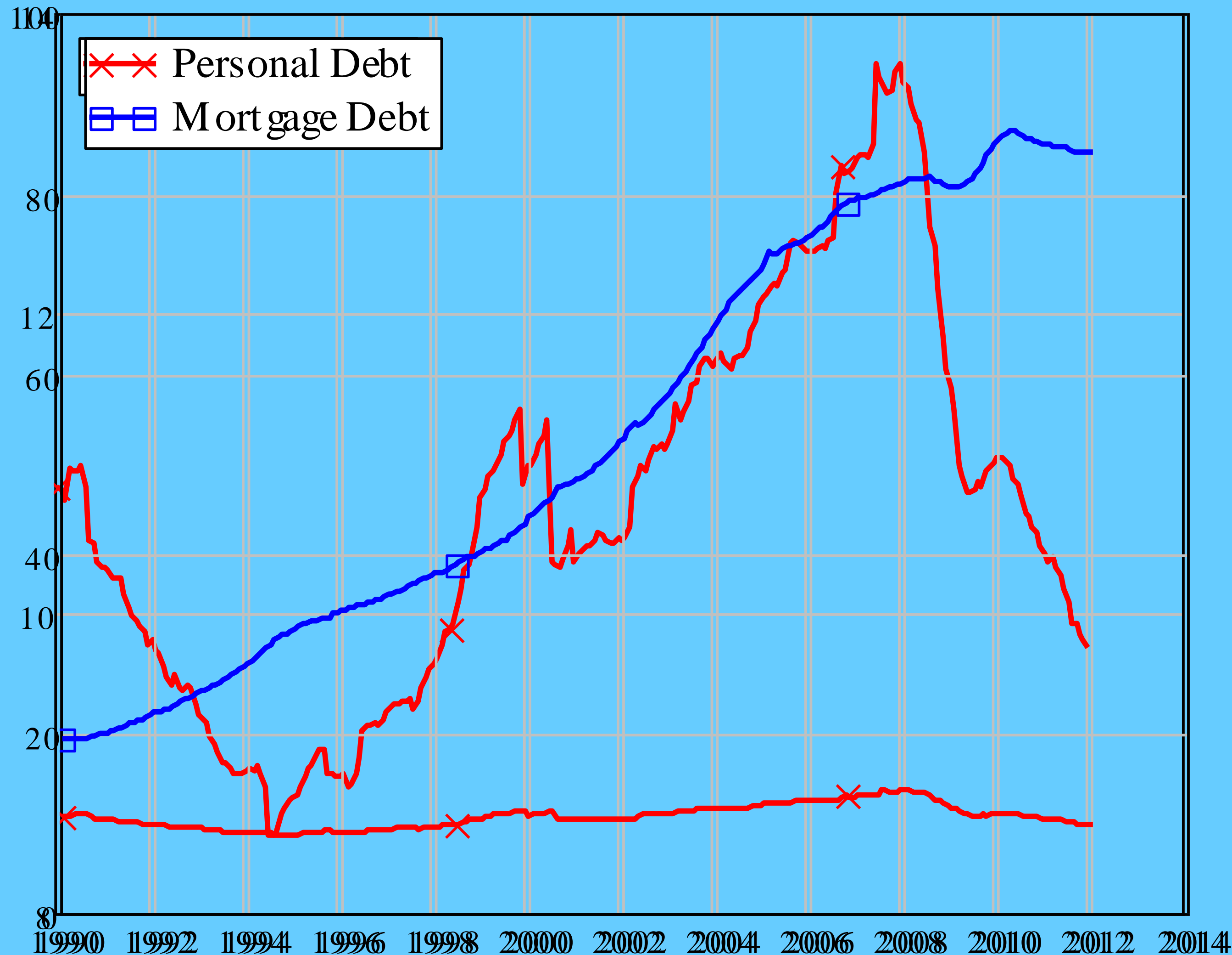
Why bank cause crises

- Best way to encourage debt is to finance speculation on asset prices
  - Australian households, for example:



- Bank lending actually causes asset price rises
- Positive feedback loop that caused both boom of "Great Moderation" and this crisis
- We need monetary analysis of capitalism…

A strictly monetary view of aggregate demand

- Two sources of monetary demand
  - Income (Wages + Profits)
  - Borrowing (Change in Debt)
- Two categories of supply
  - Goods & Services (Consumer + Investment Goods/Services)
  - Net new financial assets
- Schumpeter:
  - Incomes mainly spent on consumption
  - Change in debt main source of funds for investment
- Minsky: Change in debt also finances Ponzi behavior

$$Wages + Profits + \frac{d}{dt}D = Consumption + Investment + NetFIRE$$

Walras-Schumpeter-Minsky Law

- Aggregate Demand = Income ***+ Change in Debt***
- Aggregate Supply = Good & Services ***+ Net Asset Turnover***

$$Y + \frac{d}{dt}D = GDP + NetFIRE$$

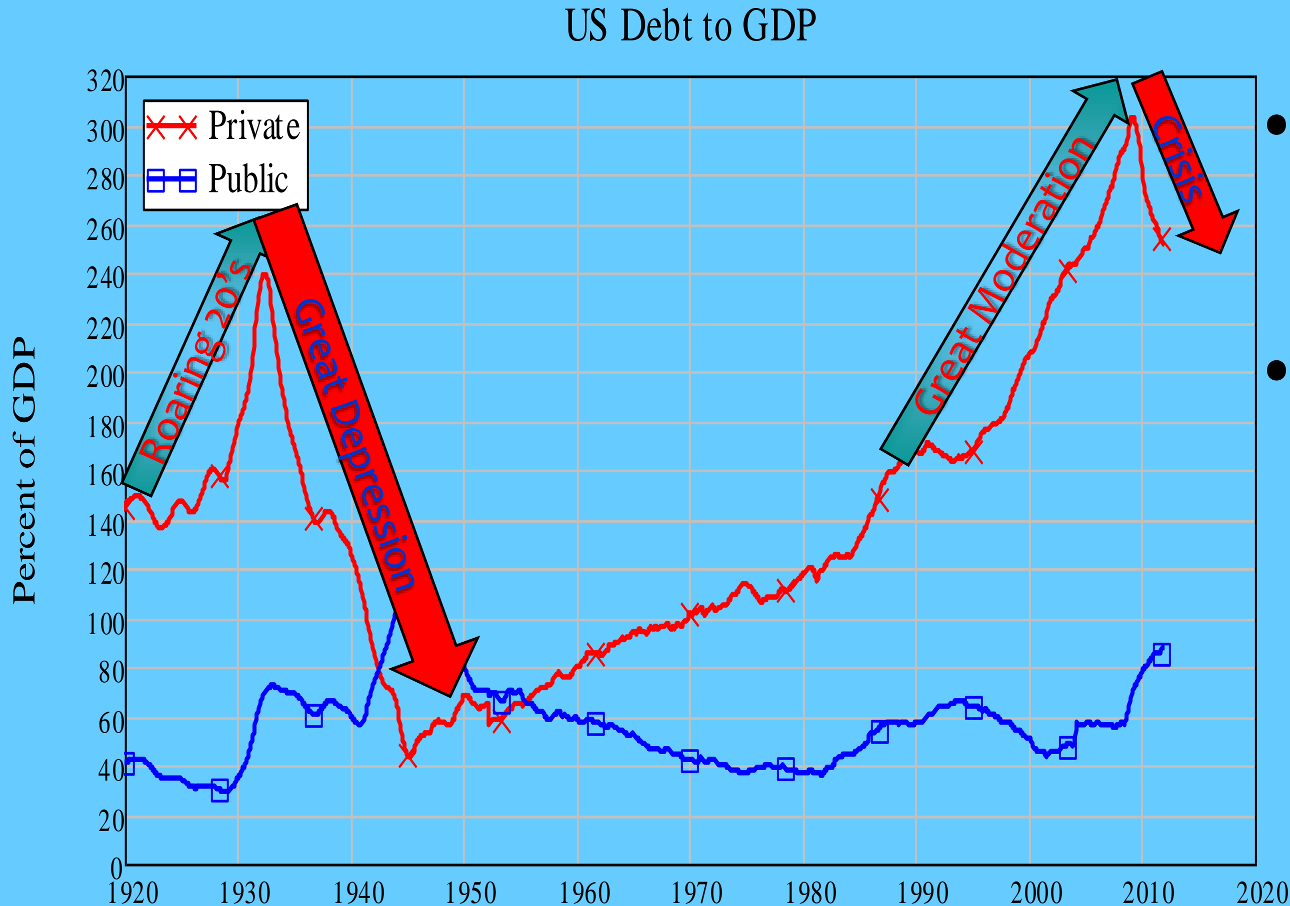
- Implications for macro & finance: $NetFIRE = P_A \cdot Q_A \cdot T_A$
  - Change in debt a factor in level of employment, output
  - Debt acceleration drives change in GDP & asset prices

$$\frac{d}{dt}Y + \frac{d^2}{dt^2}D = \frac{d}{dt}GDP + \frac{d}{dt}\left(P_A \cdot Q_A \cdot T_A\right)$$

- Change in debt explains crisis (& "Great Moderation" before it)
- Accelerating debt explains why asset bubbles ***must*** burst

Aggregate debt overview

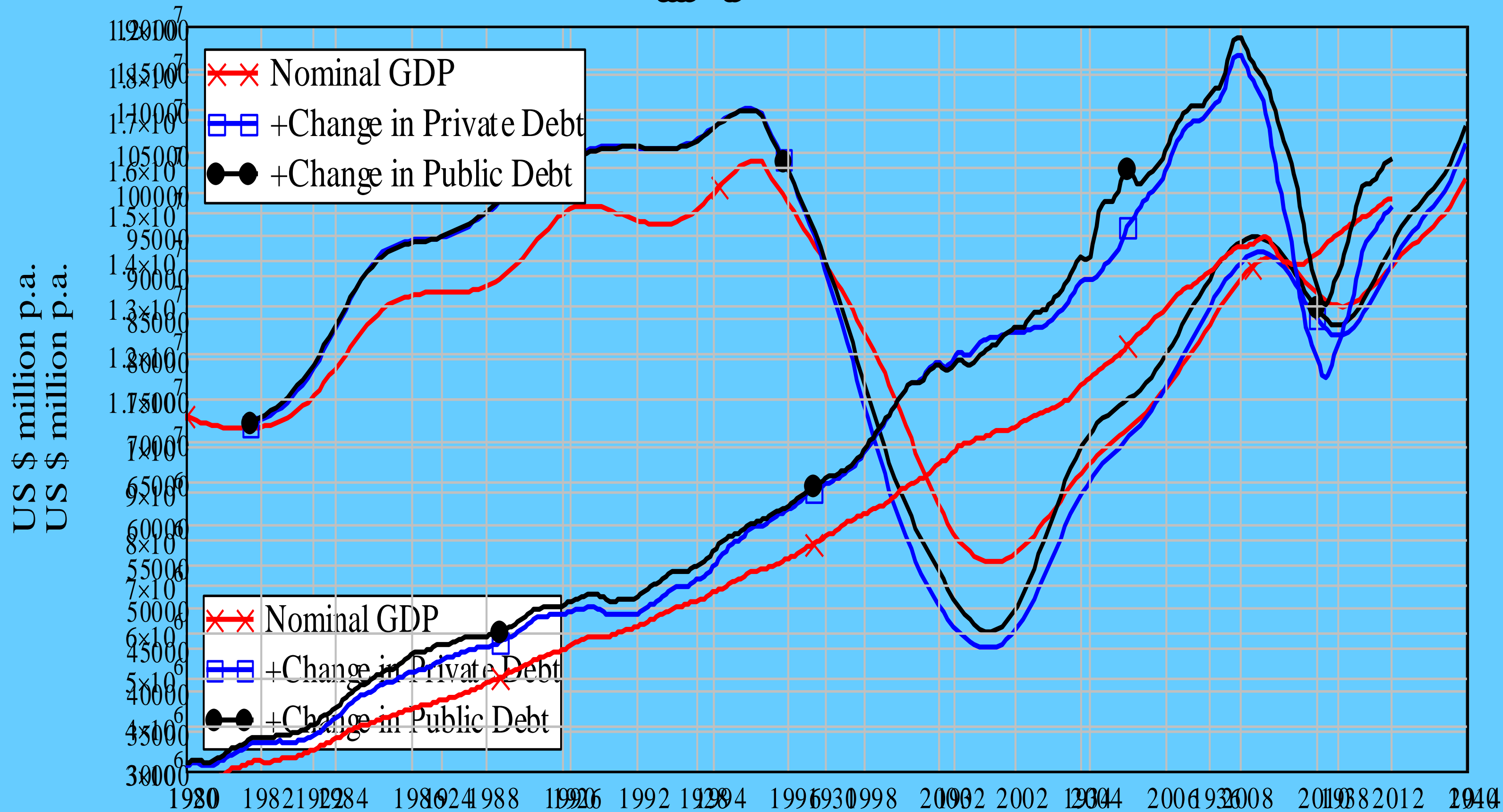
- Private debt far more important than government debt:



- Only the Great Depression compares to now
- & "Roaring Twenties" to "The Great Moderation"

Change in Debt & Aggregate Demand

- Today—compared to Then



Acceleration in Debt & Change in Employment

- Now (compared to then)

Credit Acceleration & Employment Change (Corr=0.76)

Private Debt Acceleration p.a. as percent of GDP

Change in 100 minus unemployment rate p.a.

Credit Acceleration

Employment Change

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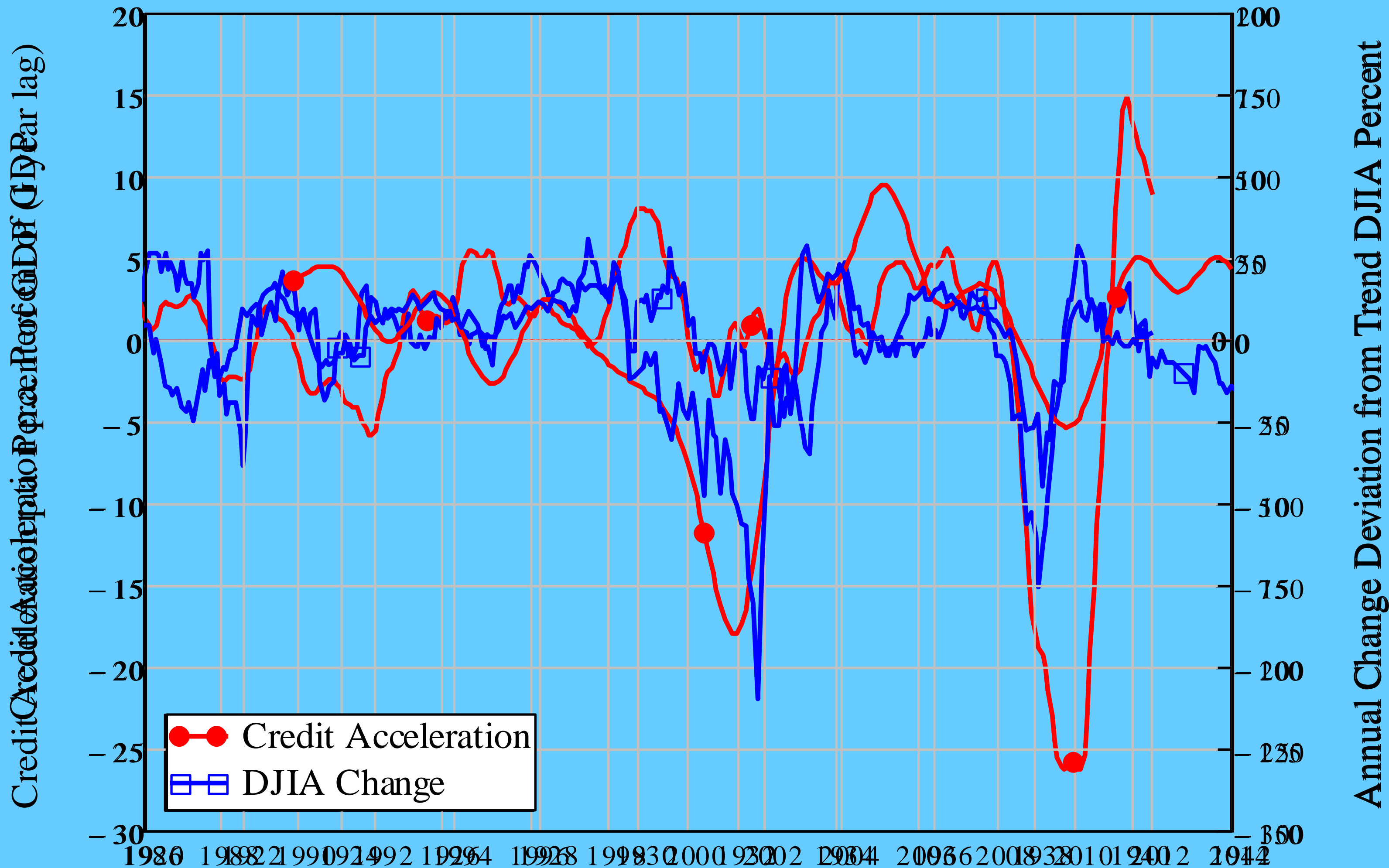
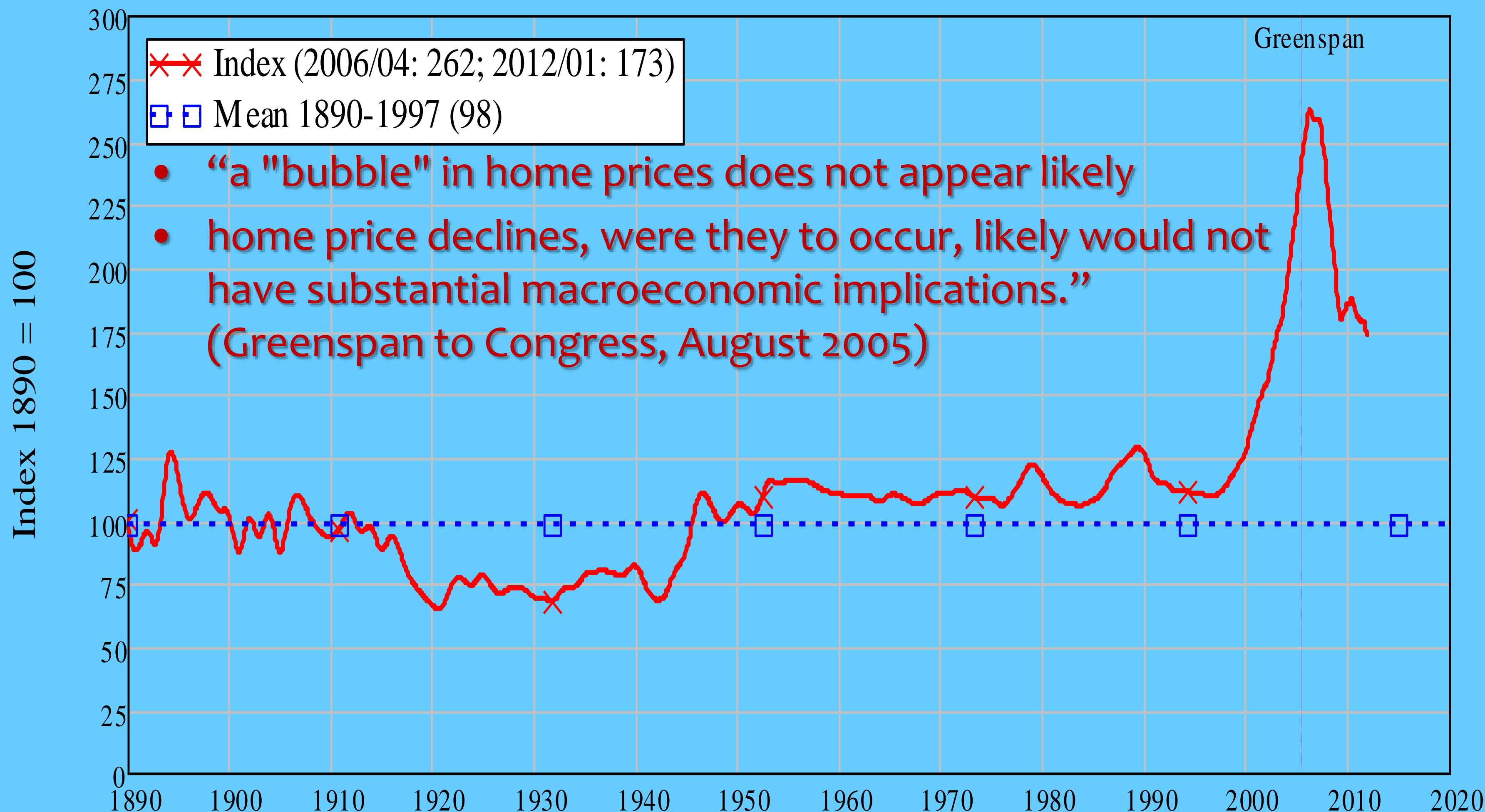
Acceleration in Debt & Change in Dow Jones

- Now (compared to then)

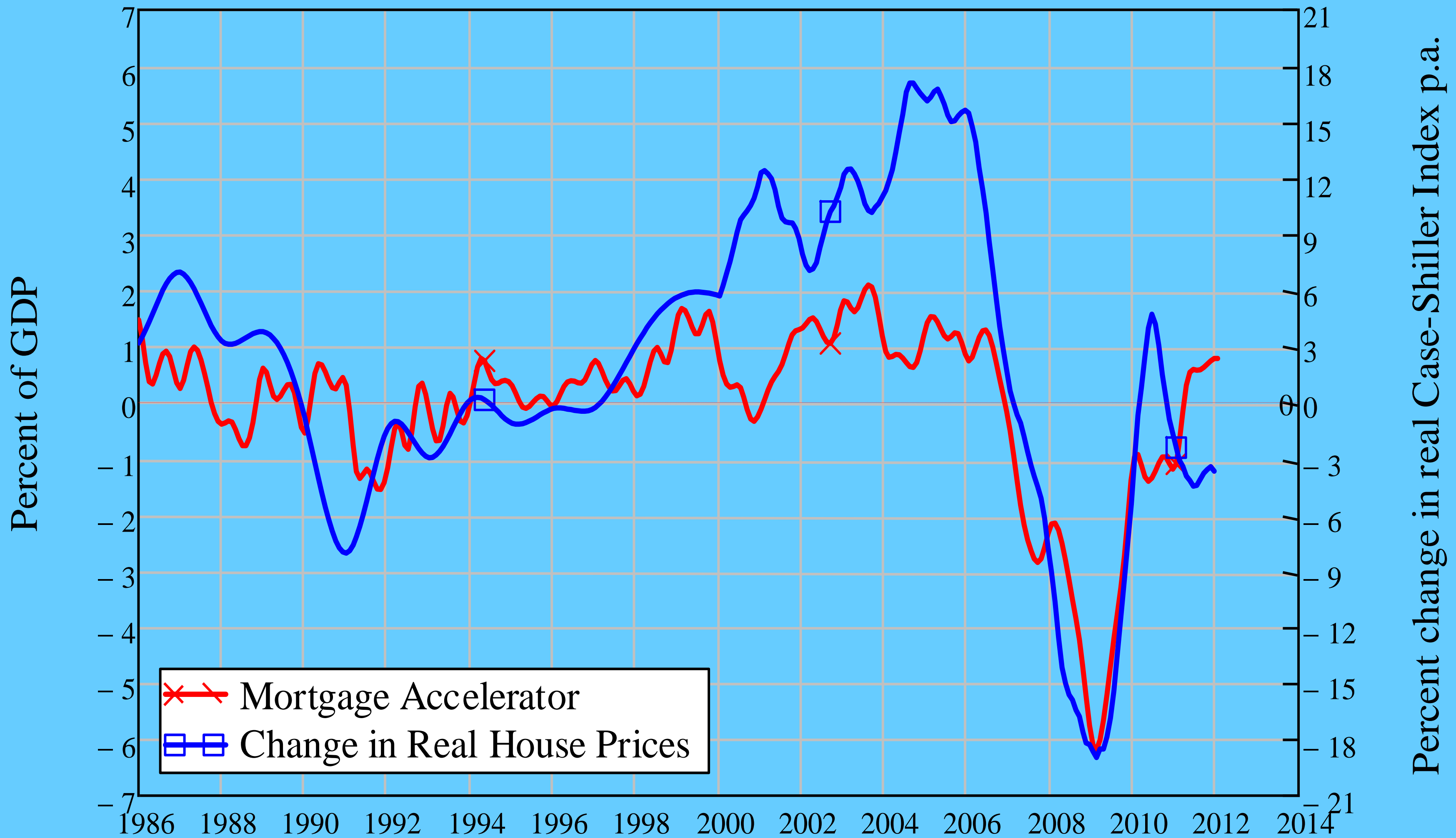


House Prices deflated by CPI—the long view

- **No** trend; long term average 1890-1995 was 98



Acceleration in Mortgages & Change in House Prices



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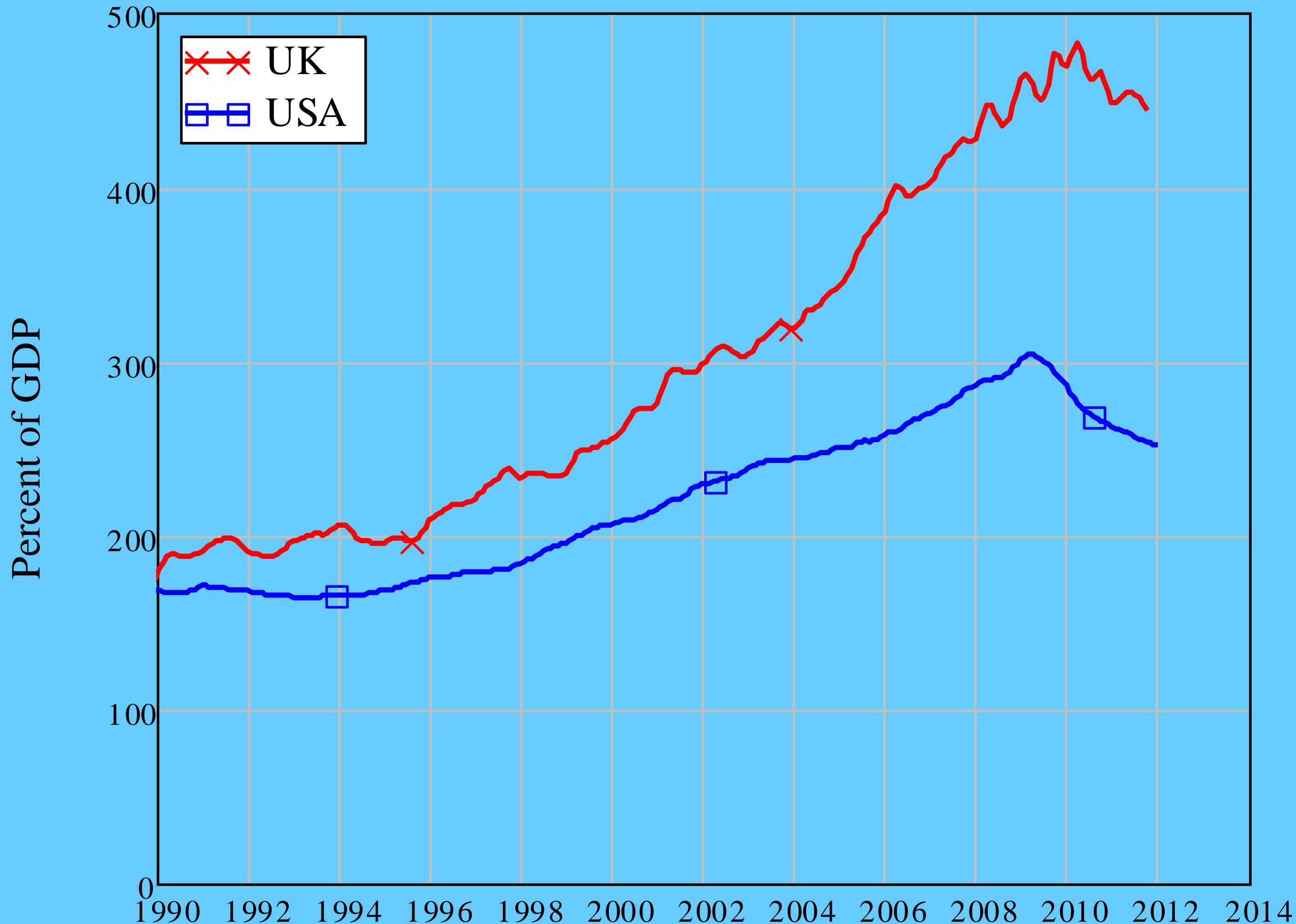
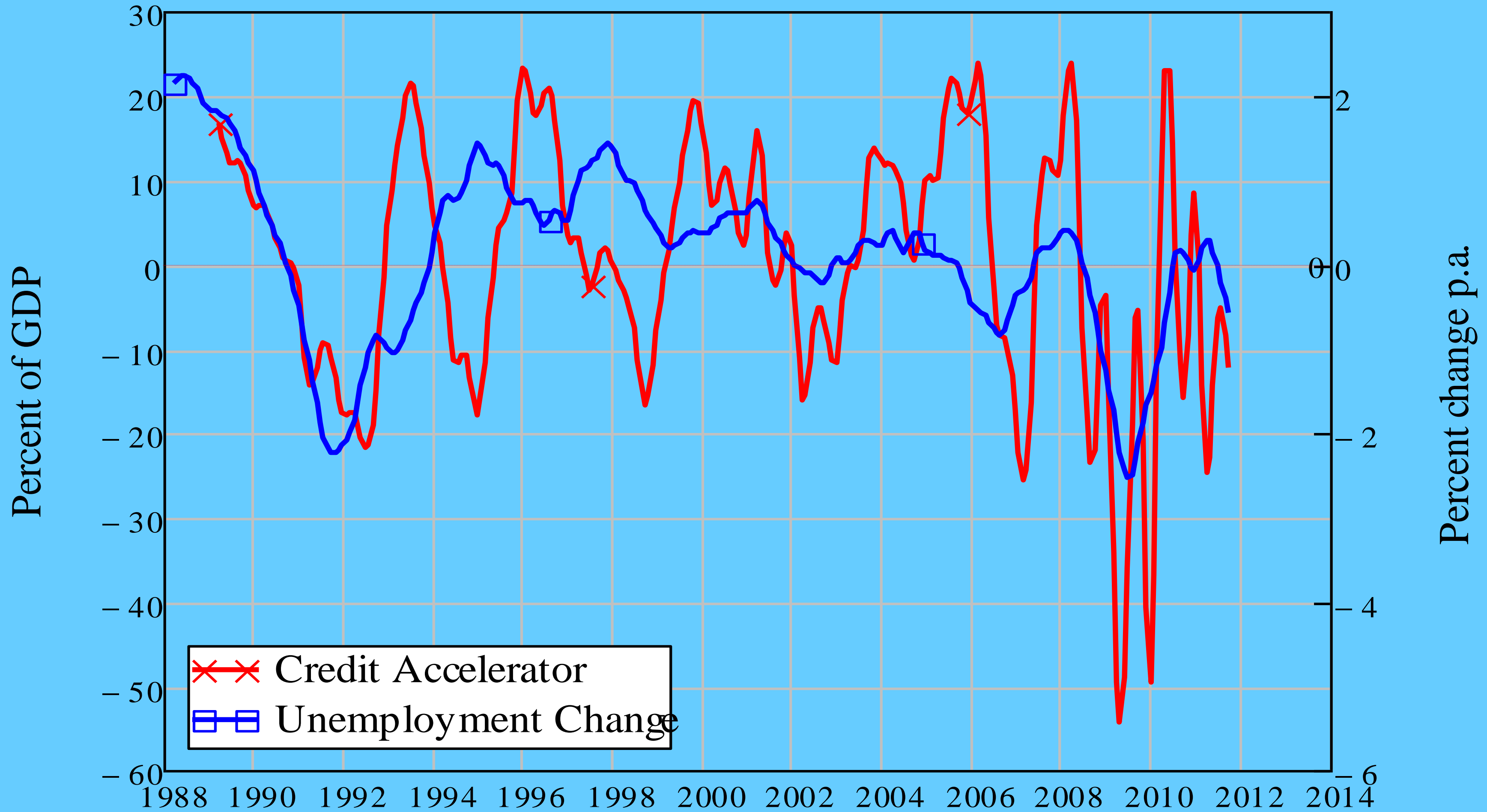
What about England?

- Faster your seat belts… on the Roller Coaster of Debt



- Remedies left till later given time constraints

What about England? Employment…



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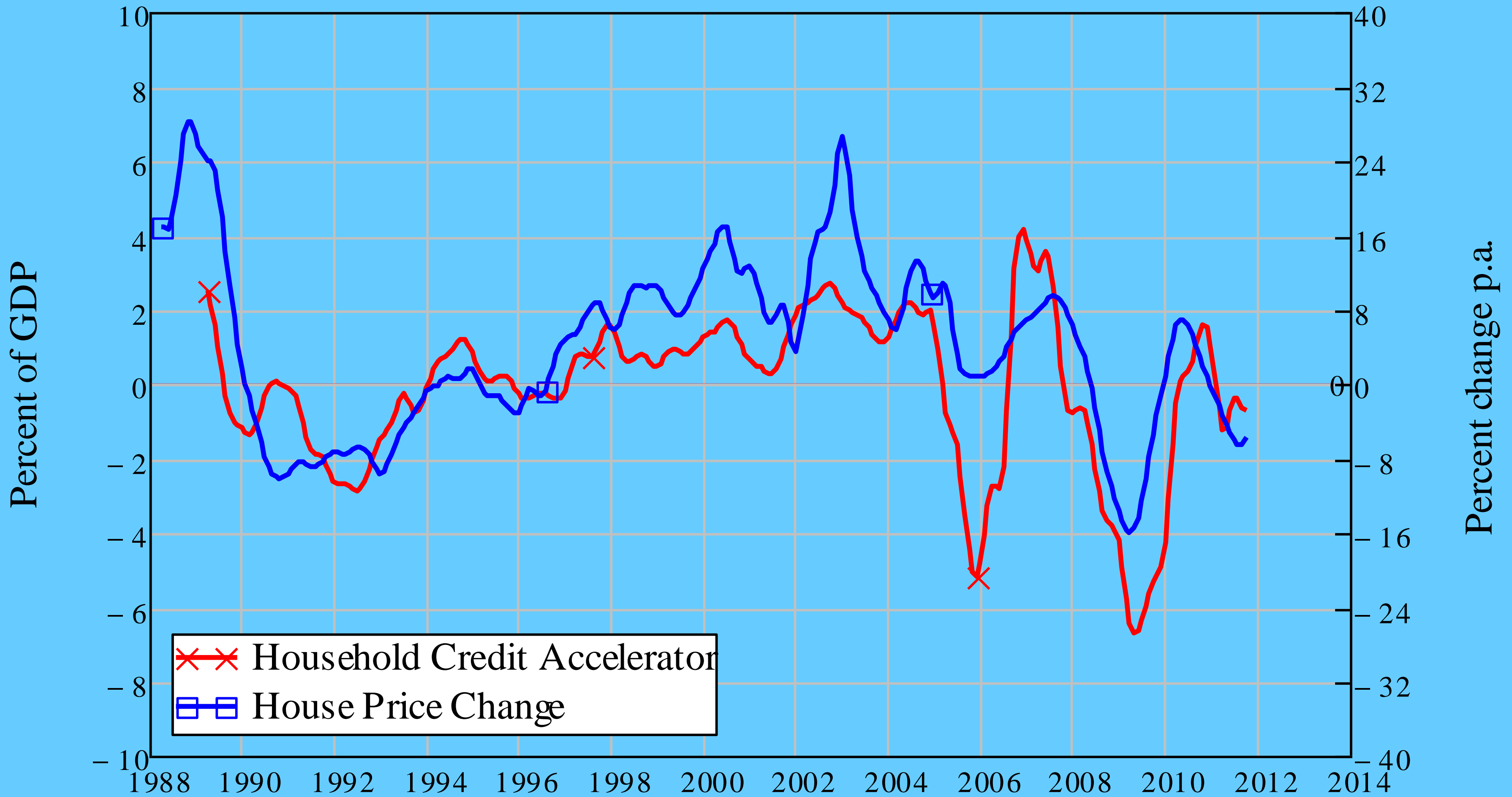
What about England? House Prices…



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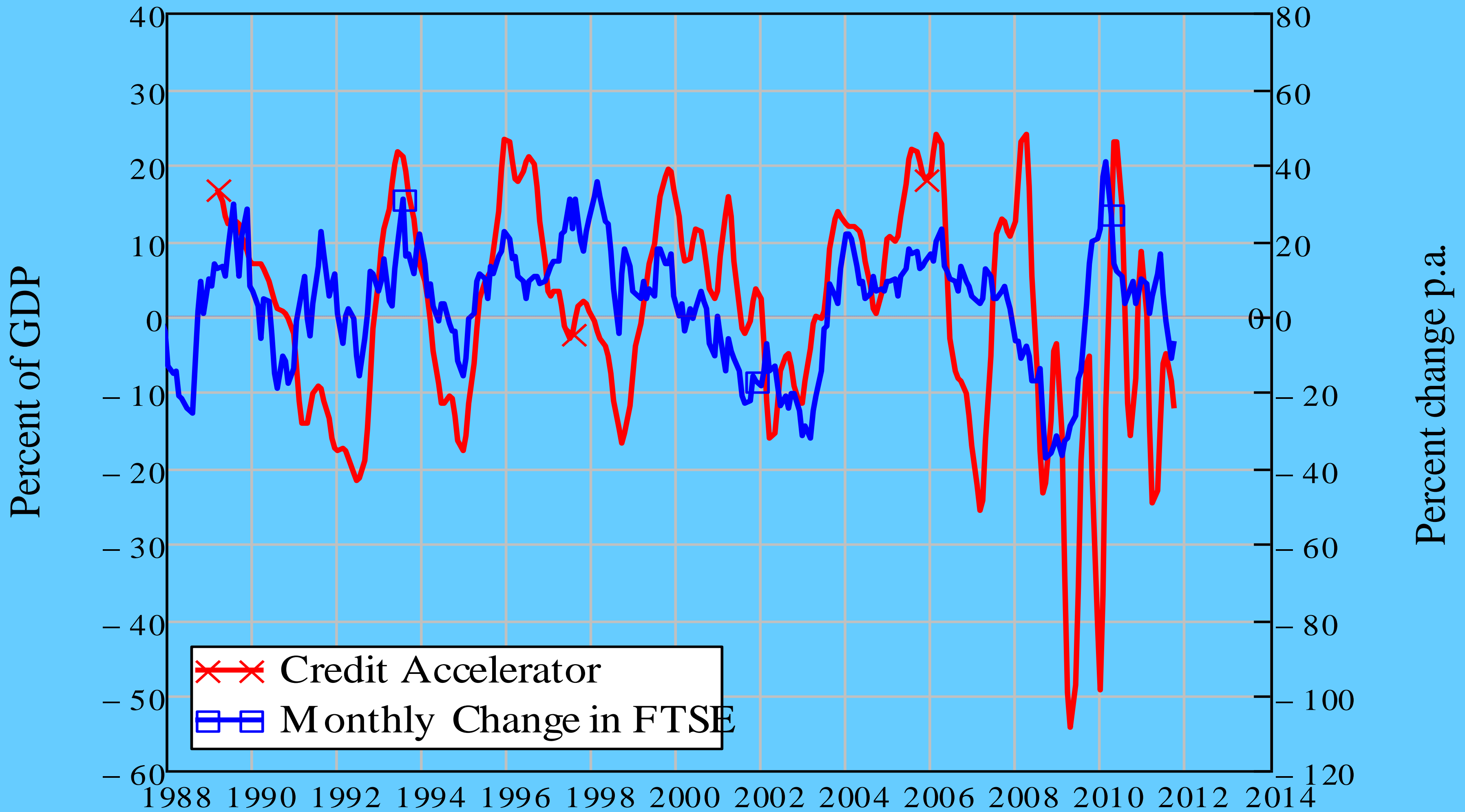
What about England? Shares…



Sources & Remedies

- Accelerating debt **THE** source of asset price bubbles
- Breaking debt-asset price nexus essential to stop bubbles
- Two modest but fundamental proposals
  - ***"Jubilee Shares"***
    - Last forever when purchased from firm
    - Can be sold on secondary market 7 times
    - After 7th sale, last 50 years then expire
  - ***"The Pill"***
    - **P**roperty **I**ncome **L**imited **L**everage
      - Maximum mortgage (say) 10 times property income
- NO reliance on regulators, fine tuning, etc.
- Negative feedback loop between asset prices & change in debt
- Debt reserved for beneficial investment, not Ponzi Schemes

Remedy for today's crisis

- "Modern Debt Jubilee"
  - "Quantitative easing for the public"
- Cancel irresponsibly created debt ***without penalizing savers***
  - Fiat money injection via private bank accounts
    - First usage **must** be debt reduction
    - Bank debt necessarily paid down
      - Solvency maintained, liquidity challenged
    - Bonds reduced in value
    - But non-debtor bond-holders receive cash injection
  - Minimal damage to aggregate demand, inflation/deflation