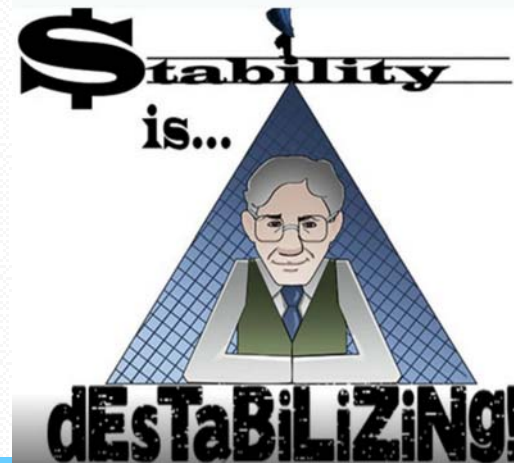
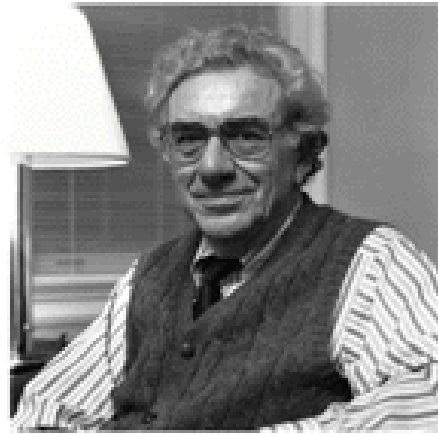


Kingston  
University  
London



## The Impact of Private Debt on the Global Financial System

Steve Keen

Kingston University London

IDEAeconomics

Minsky Open Source System Dynamics

[www.debtdeflation.com/blogs](http://www.debtdeflation.com/blogs)

## The Mainstream on Debt in Macroeconomics

- Private Debt plays no role in mainstream macroeconomics
  - “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)
  - “Given the prominence of debt in popular discussion of our current economic difficulties and the long tradition of invoking debt as a key factor in major economic contractions, one might have expected debt to be at the heart of most mainstream macroeconomic models—especially the analysis of monetary and fiscal policy.
  - ***Perhaps somewhat surprisingly, however, it is quite common to abstract altogether from this feature of the economy.***” (Eggertsson & Krugman 2012 pp. 1470-71) ...

## The Mainstream on Debt in Macroeconomics










- Source of mainstream attitude is the empirically false ([Bank of England 2014](#)) “Loanable Funds” model of banking:
  - “Think of it this way: when debt is rising, ***it’s not the economy as a whole borrowing more money.***
  - It is, rather, a case of less patient people—people who for whatever reason want to spend sooner rather than later—borrowing from more patient people.” (Krugman 2012, pp. 146-47)
  - “Maybe part of the problem is that Koo envisages an economy in which everyone is balance-sheet constrained, as opposed to one in which lots of people are balance-sheet constrained.
  - I’d say that his vision makes no sense: where there are debtors, there must also be creditors, so there have to be at least some people who can respond to lower real interest rates even in a balance-sheet recession.” ([Krugman 2013](#))

## The Non-Mainstream on Debt in Macroeconomics

- Credit plays no *fundamental* role in non-mainstream macro either, because of the income $\equiv$ expenditure identity:
  - “In this primer we will examine the macroeconomic theory that is the basis for analysing the economy as it actually exists. We begin with simple macro accounting, starting from the recognition that at the aggregate level spending equals income.” ([Wray 2011](#))
  - “Unless Keen (2014a) can explain how a purchase of a good or service does not provide income for the seller, then he should rethink his claim that debt extensions can force an inequality between expenditure and income at the aggregate level.
  - As any student of national accounting knows, a sector can spend more than its current income, but the sum of sectors cannot.” (Fiebiger 2014, p. 296)
- Non-mainstream uses empirically accurate “Endogenous Money” model of banking
- Easy to show that credit plays essential role given both Income $\equiv$ Expenditure identity & Endogenous Money...

## Credit and Income $\equiv$ Expenditure

- An expenditure table view:
  - Divide economy into 3 non-bank sectors plus banking sector
  - Aggregate Expenditure negative sum of diagonal
  - Aggregate Income positive sum of off-diagonal elements
  - All flows (in \$/Year) shown in lowercase
  - All stocks (in \$) shown in uppercase
  - Greek  $\rho$  used for interest rate
  - First case: lending/borrowing does not occur:

	Assets	Liabilities			Equity
	Loans	$S_1$	$S_2$	$S_3$	$B_E$
	Level (\$)	Flows (\$/Year)			
$S_1$					
$S_2$					
$S_3$					
$B_E$					

$$AE = (a + b) + (c + d) + (e + f)$$

$$AY = a + b + c + d + e + f \equiv AE$$

# Credit and Income $\equiv$ Expenditure

- Loanable Funds and (almost) no role for credit
  - Sector 1 borrows  $L$  (\$/Year) from Sector 2
  - Pays interest of  $\rho \cdot L$  (\$/Year) to Sector 2















	Assets	Liabilities			Equity
	Loans	$S_1$	$S_2$	$S_3$	$B_E$
	Level (\$)	Flows (\$/Year)			
$S_1$					
$S_2$					
$S_3$					
$B_E$					

$$AE = (a + b + \rho \cdot L) + (c + d) + (e + f)$$

$$AY = a + b + \rho \cdot L + c + d + e + f \equiv AE$$

## Credit and Income $\equiv$ Expenditure

- Endogenous Money and *an essential* role for credit
  - Sector 1 borrows  $I$  (\$/Year) from banking sector
  - Pays interest of  $\rho \cdot L$  (\$/Year) to banking sector...

Assets		Liabilities			Equity
Loans		$S_1$	$S_2$	$S_3$	$B_E$
Level (\$)		Flows (\$/Year)			
$S_1$	L      I				
$S_2$					
$S_3$					
$B_E$					

$$AE = (a + b + I + \rho \cdot L) + (c + d) + (e + f) + (g + h + i)$$

$$AY = a + b + I + \rho \cdot L + c + d + e + f + g + h + i \equiv AE$$

- Change in debt ( $\equiv$ credit) plays an *essential* role in aggregate expenditure & aggregate income with endogenous money
- Expenditure is fundamentally monetary
- 2 sources of expenditure: turnover of existing money
- New expenditure financed 1:1 by new debt

## Credit and Income $\equiv$ Expenditure

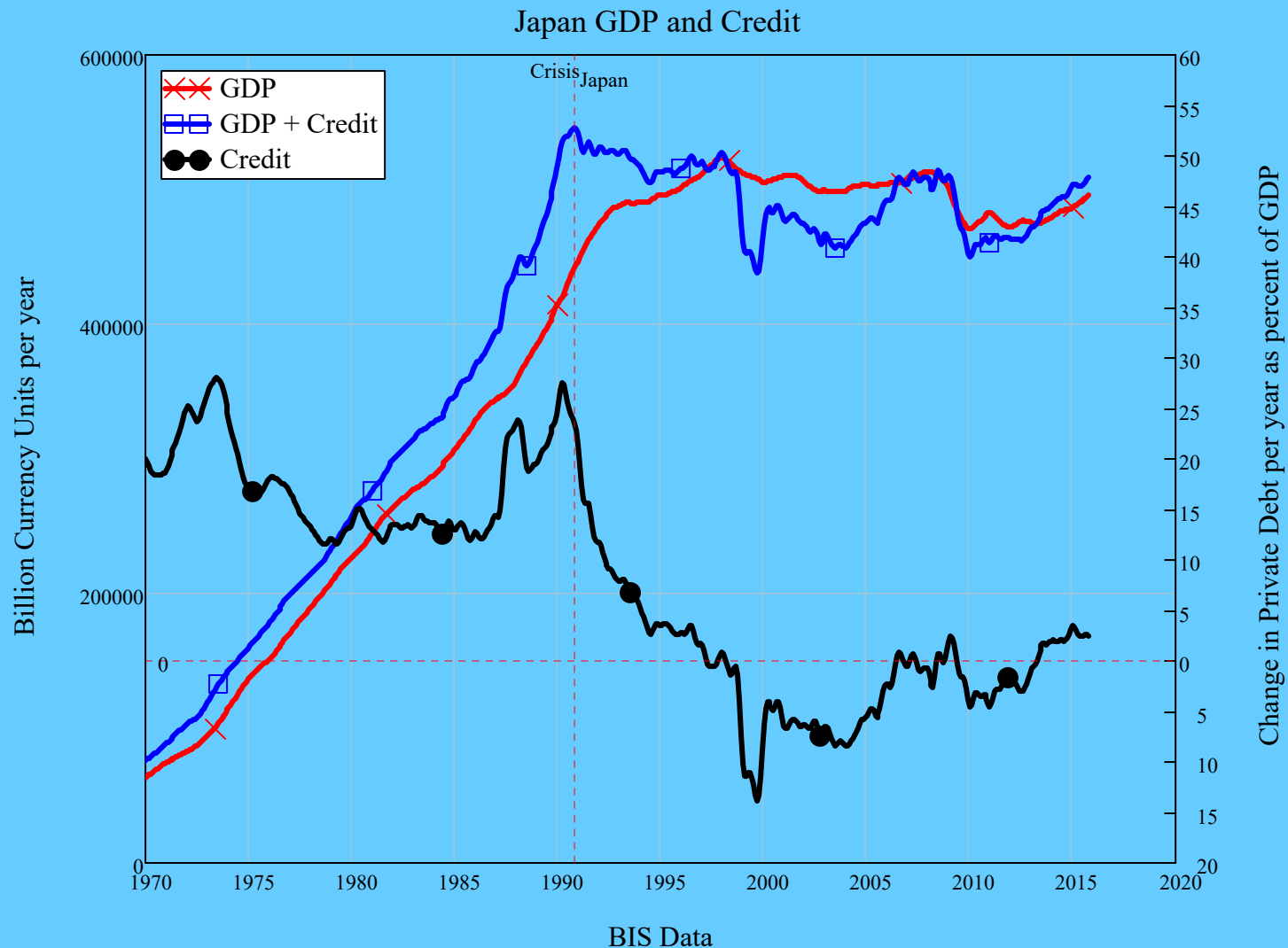
- How to measure?
  - GDP a (poor) approximate measure of flow of expenditure **financed by existing money** in  $\$/\text{Year}$
  - Change in debt a (better) measure of flow of credit **created by new debt** in  $\$/\text{Year}$
  - Dimensionally accurate & empirically OK to add together to measure aggregate expenditure at a point in time
  - Analogy
    - Flow in river
    - with a pump injecting or removing water:





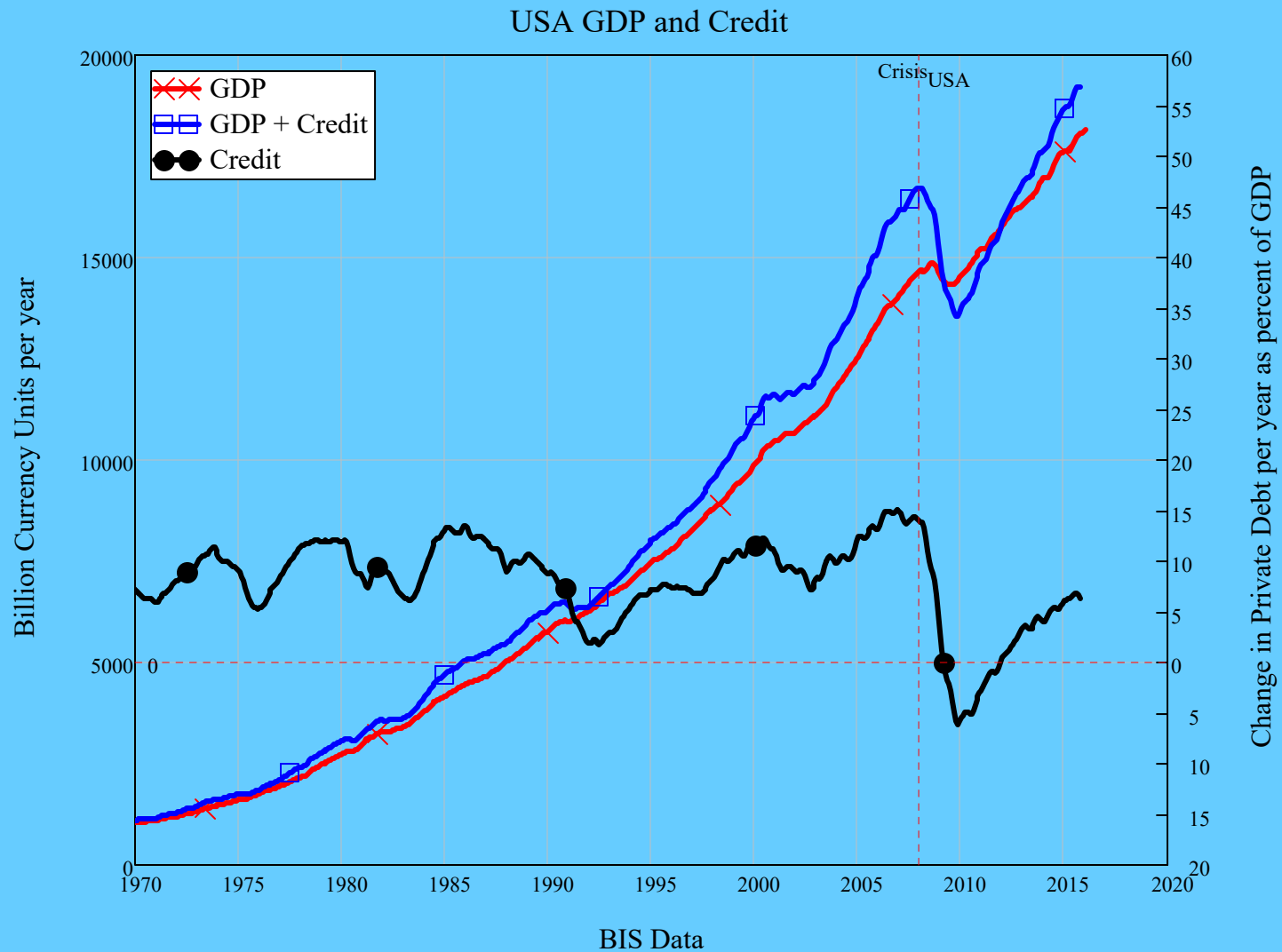
# The “Smoking Gun of Credit”

- Add GDP to change in debt (credit) to measure aggregate expenditure
- Peak GDP+Credit identifies every economic crisis since Japan...



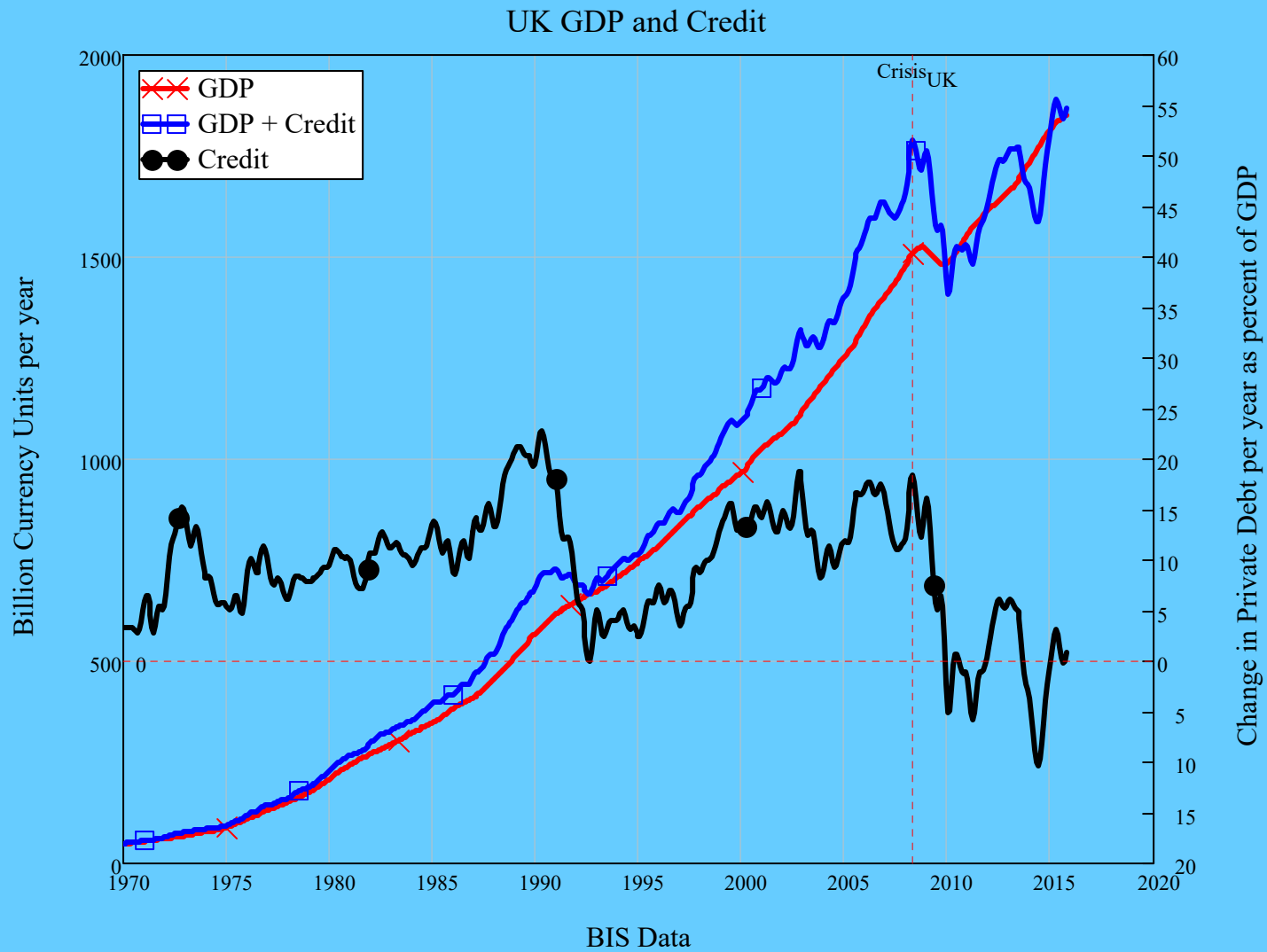
# The “Smoking Gun of Credit”

- USA



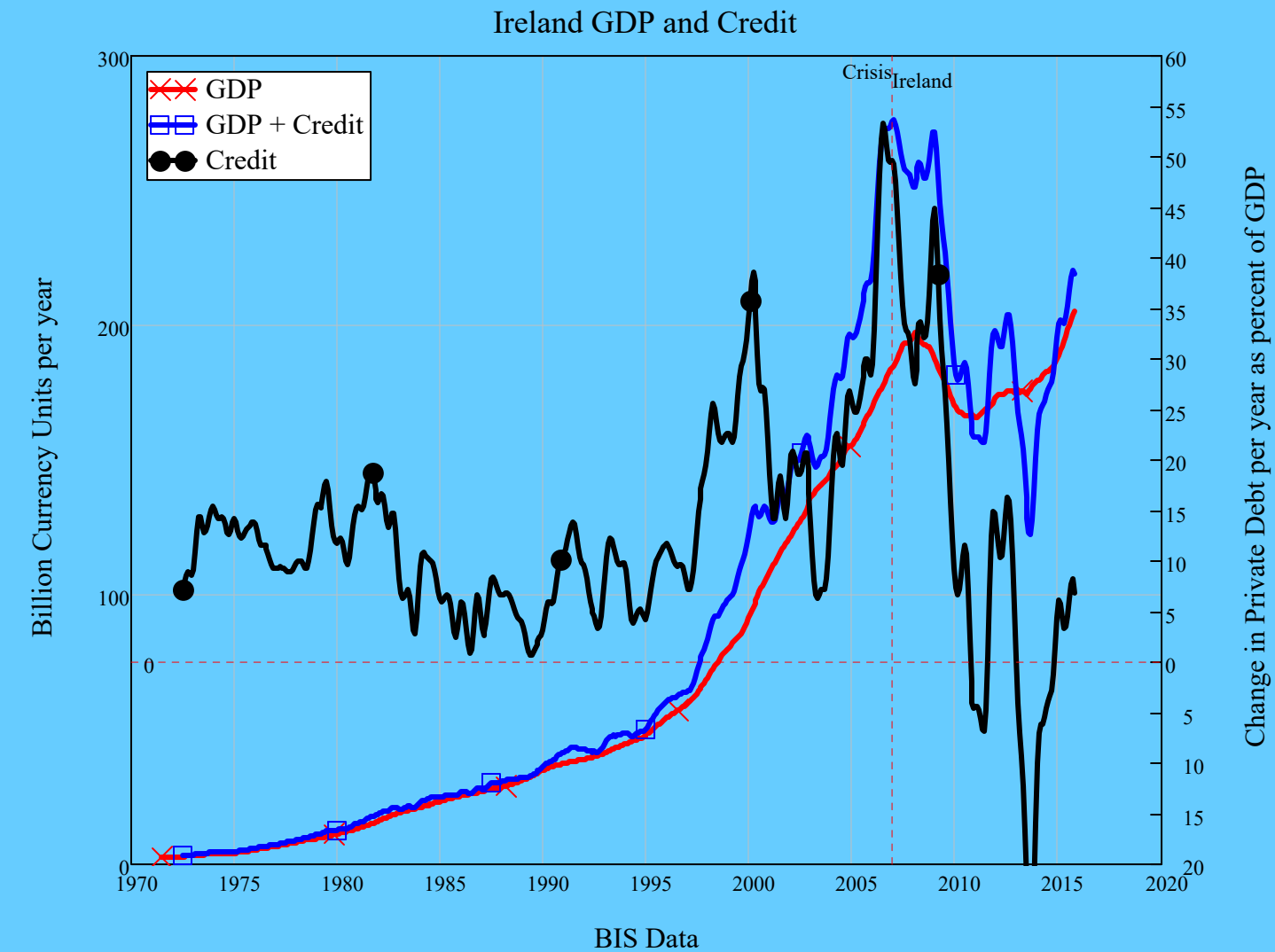
# The “Smoking Gun of Credit”

- UK



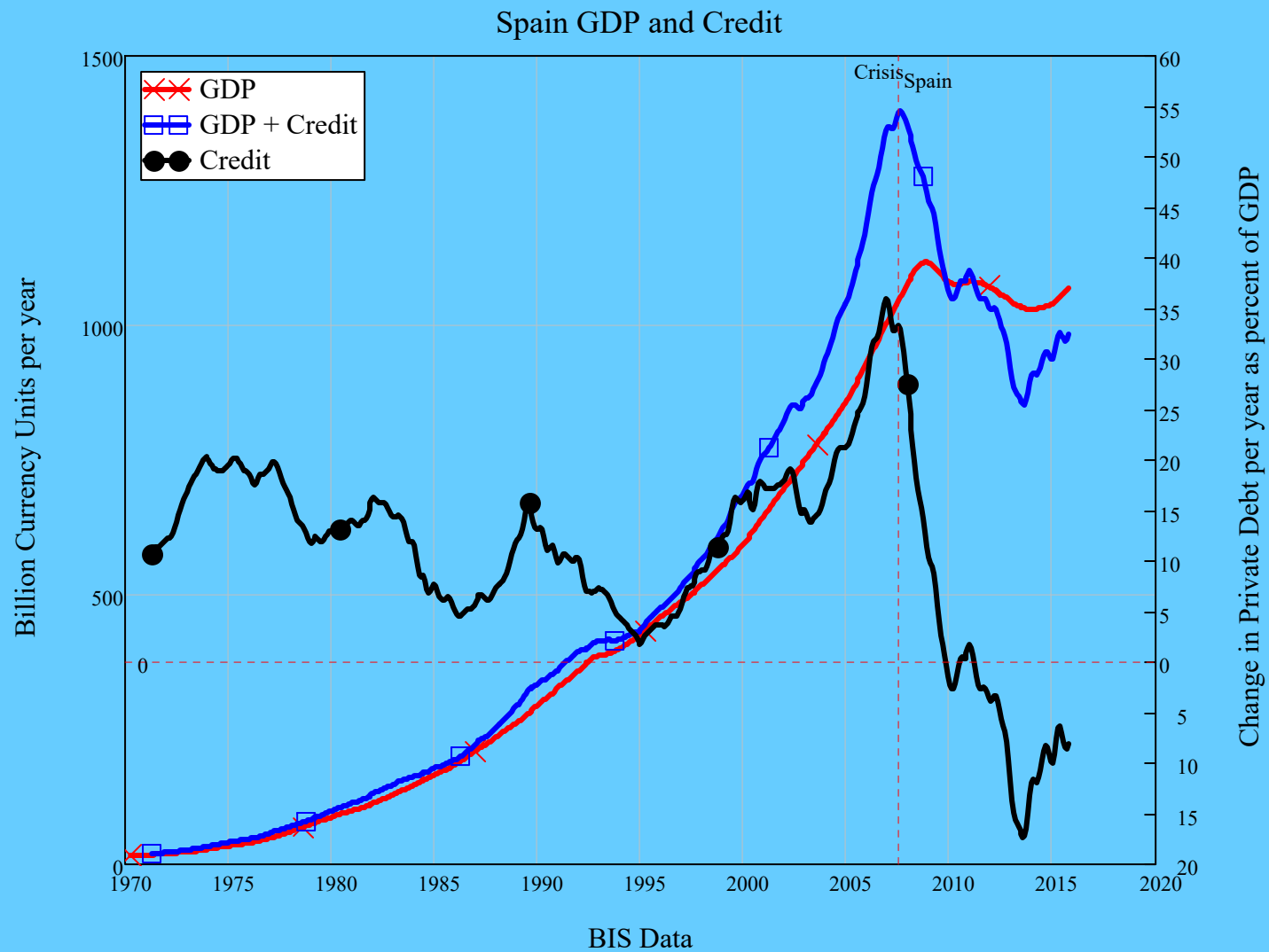
# The “Smoking Gun of Credit”

- Ireland



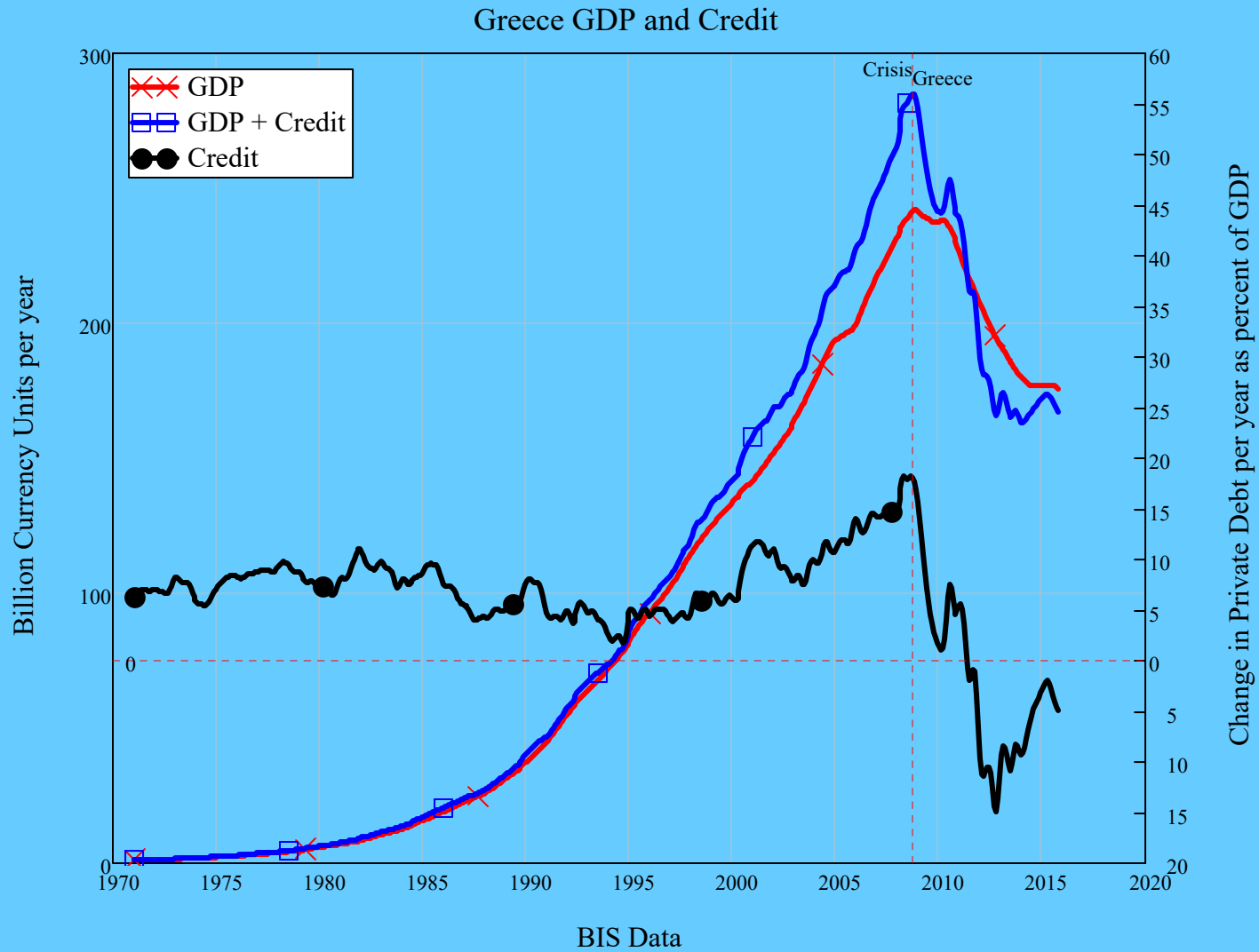
# The “Smoking Gun of Credit”

- Spain



# The “Smoking Gun of Credit”

- Greece



## The “Smoking Gun of Credit”

- Future Debt-Zombies:
  - Countries with  $>150\%$  GDP private debt to GDP
  - Where debt is growing quickly (above 10% of GDP per year)
  - Can’t predict timing
    - Can be delayed by government enticement into private debt
      - Australia 2008 “First Home Vendors Boost”
      - UK “Help to Sell”
  - But inevitable since at high levels even stabilisation of debt/GDP ratio causes fall in aggregate demand & income

# The “Smoking Gun of Credit”

- Low debt ratio

GDP Growth Rate	10%						
Debt Growth Rate	20%						
Final Debt Growth Rate	10%						
Initial Debt Ratio	50%						
Years	0	1	2	3	4	5	6
GDP	1000	\$1,100	\$1,210	\$1,331	\$1,464	\$1,611	\$1,772
Debt	\$500	\$600	\$720	\$864	\$1,037	\$1,244	\$1,369
Debt to GDP Ratio	50%	55%	60%	65%	71%		
Credit		\$100	\$120	\$144	\$173	\$207	\$124
Total Demand		\$1,200	\$1,330	\$1,475	\$1,637	\$1,818	\$1,896
Demand Growth Rate			10.8%	10.9%	11.0%		



# The “Smoking Gun of Credit”

- Medium debt ratio

GDP Growth Rate	10%						
Debt Growth Rate	20%						
Final Debt Growth Rate	10%						
Initial Debt Ratio	100%						
Years	0	1	2	3	4	5	6
GDP	\$1,000	\$1,100	\$1,210	\$1,331	\$1,464	\$1,611	\$1,772
Debt	\$1,000	\$1,200	\$1,440	\$1,728	\$2,074	\$2,488	\$2,737
Debt to GDP Ratio	100%	109%	119%	130%	142%		
Credit		\$200	\$240	\$288	\$346	\$415	\$249
Total Demand		\$1,300	\$1,450	\$1,619	\$1,810	\$2,025	\$2,020
Demand Growth Rate			11.5%	11.7%	11.8%		

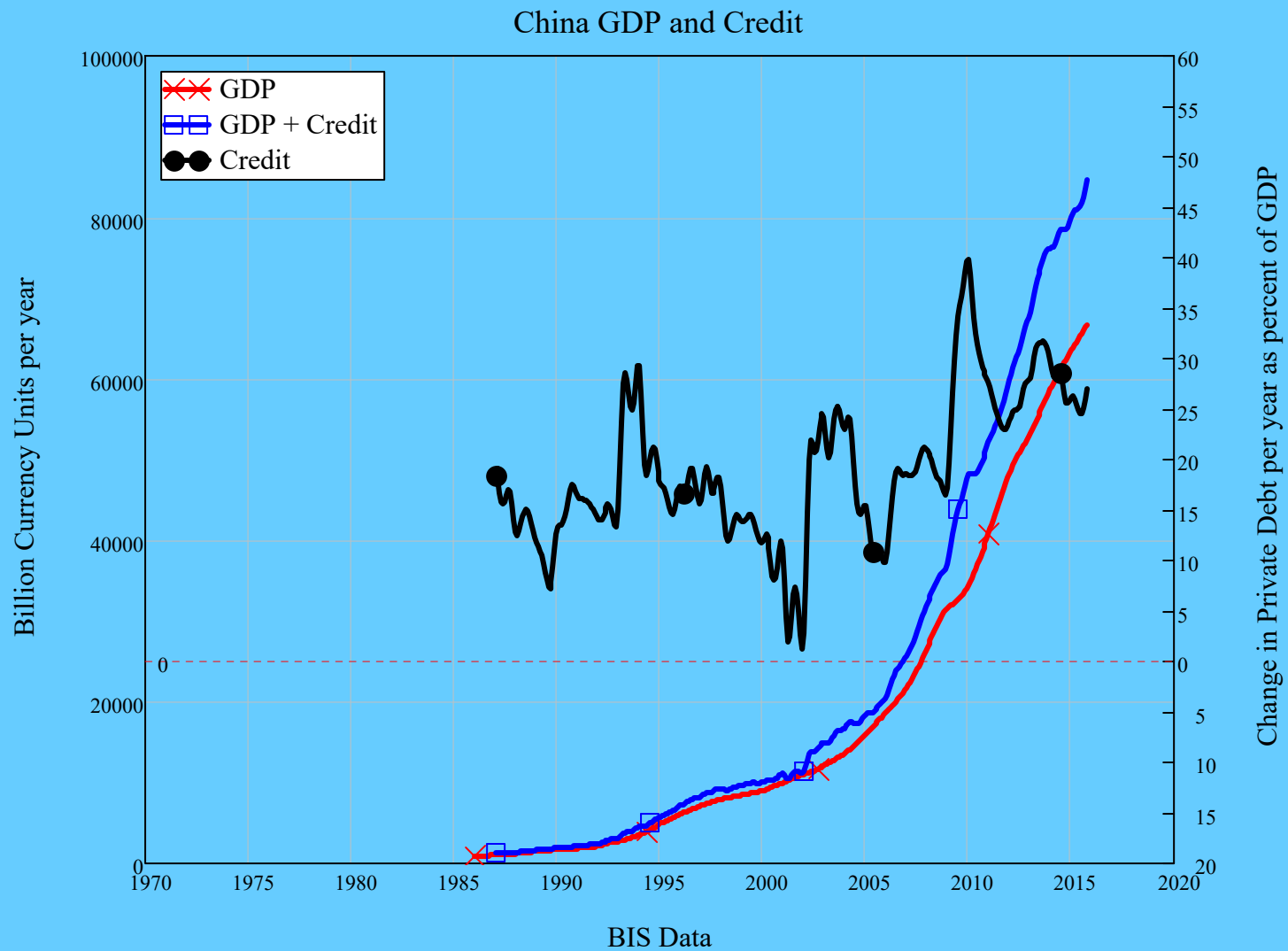
# The “Smoking Gun of Credit”

- High Debt Ratio

GDP Growth Rate	10%						
Debt Growth Rate	20%						
Final Debt Growth Rate	10%						
Initial Debt Ratio	125%						
Years	0	1	2	3	4	5	6
GDP	\$1,000	\$1,100	\$1,210	\$1,331	\$1,464	\$1,611	\$1,772
Debt	\$1,250	\$1,500	\$1,800	\$2,160	\$2,592	\$3,110	\$3,731
Debt to GDP Ratio	125%	136%	149%	162%	177%		
Credit		\$250	\$300	\$360	\$432	\$518	\$311
Total Demand		\$1,350	\$1,510	\$1,691	\$1,896	\$2,129	\$2,083
Demand Growth Rate			11.9%	12.0%	12.1%		

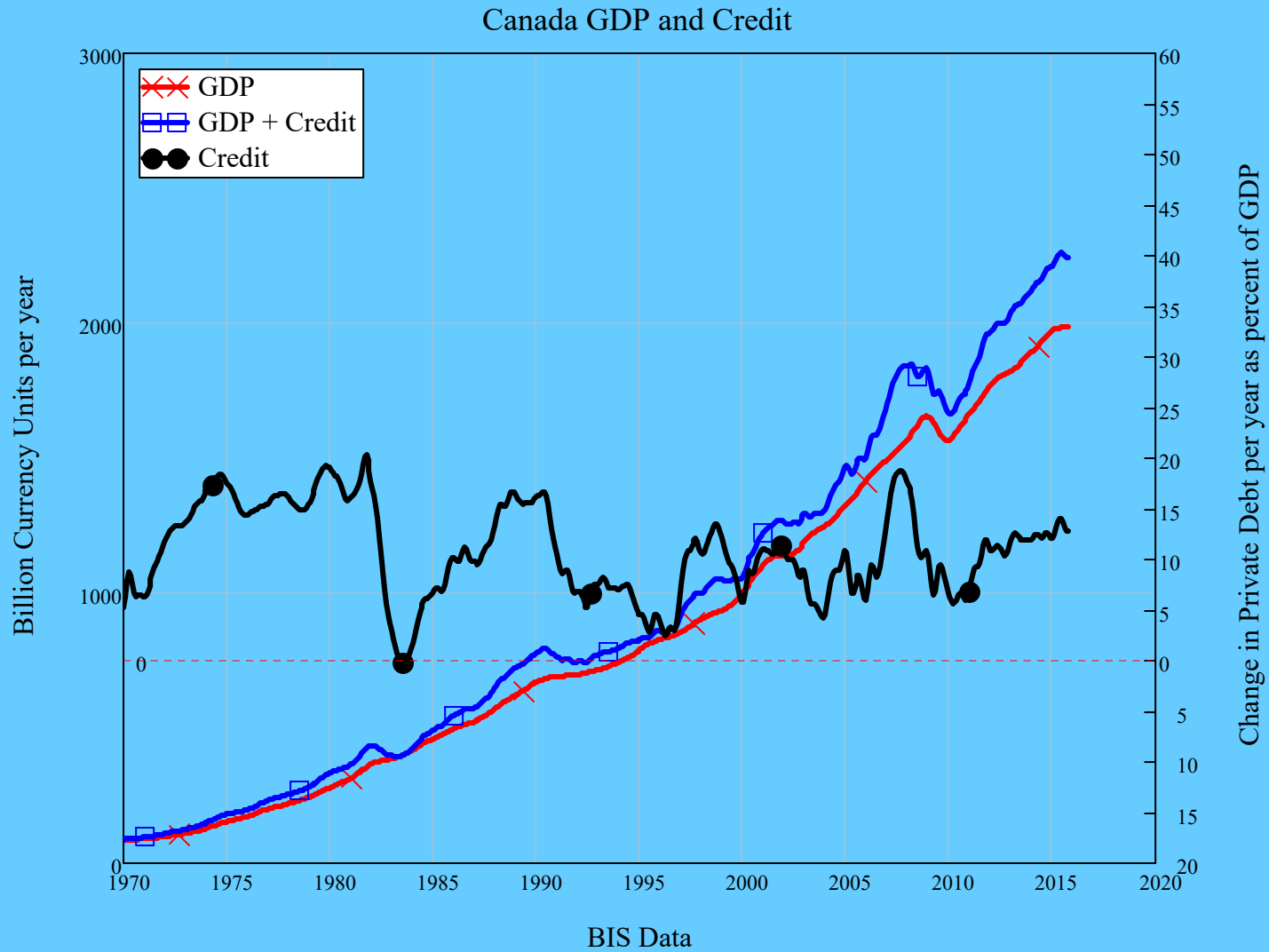
# The “Smoking Gun of Credit”

- China



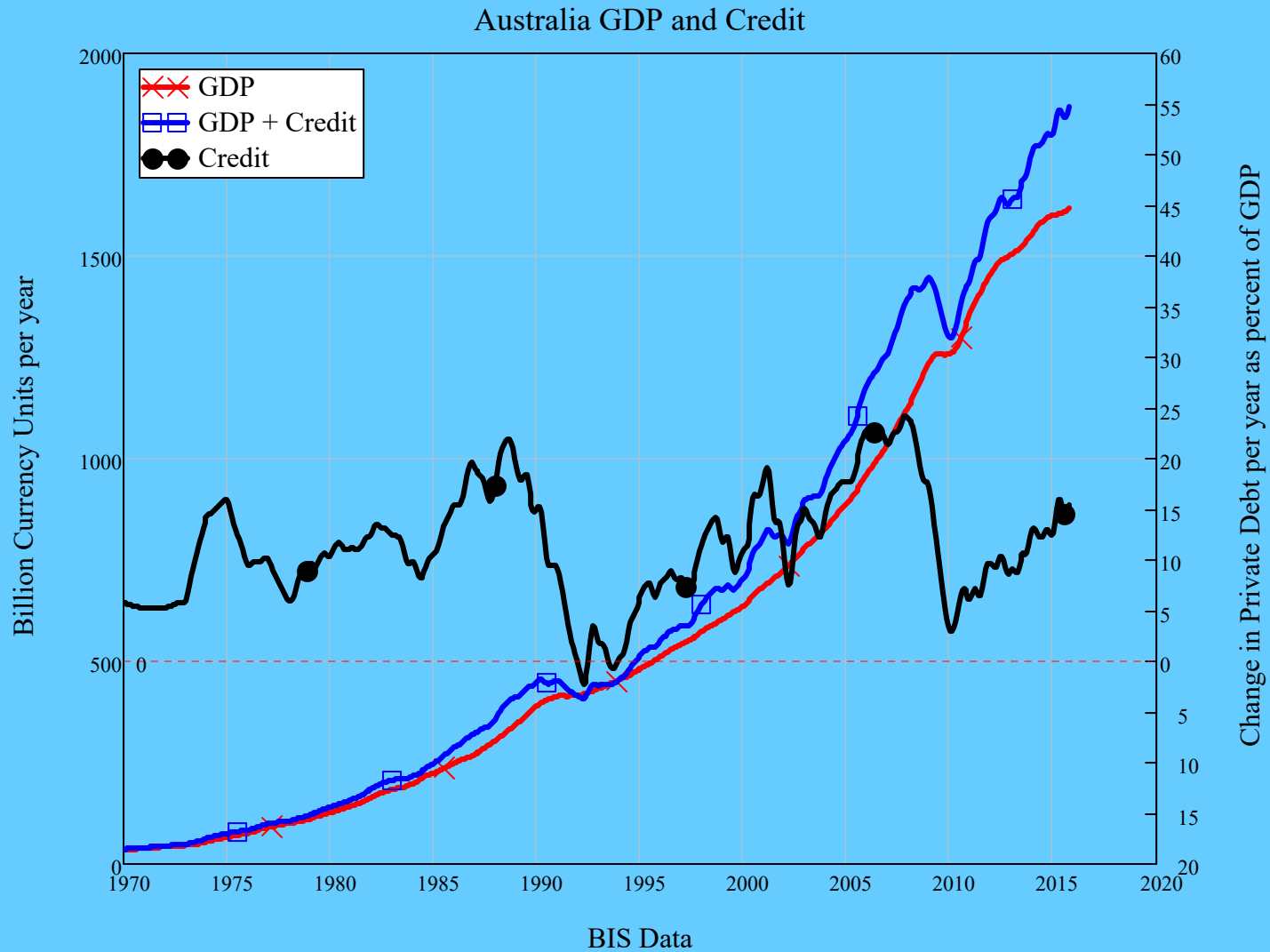
# The “Smoking Gun of Credit”

- Canada



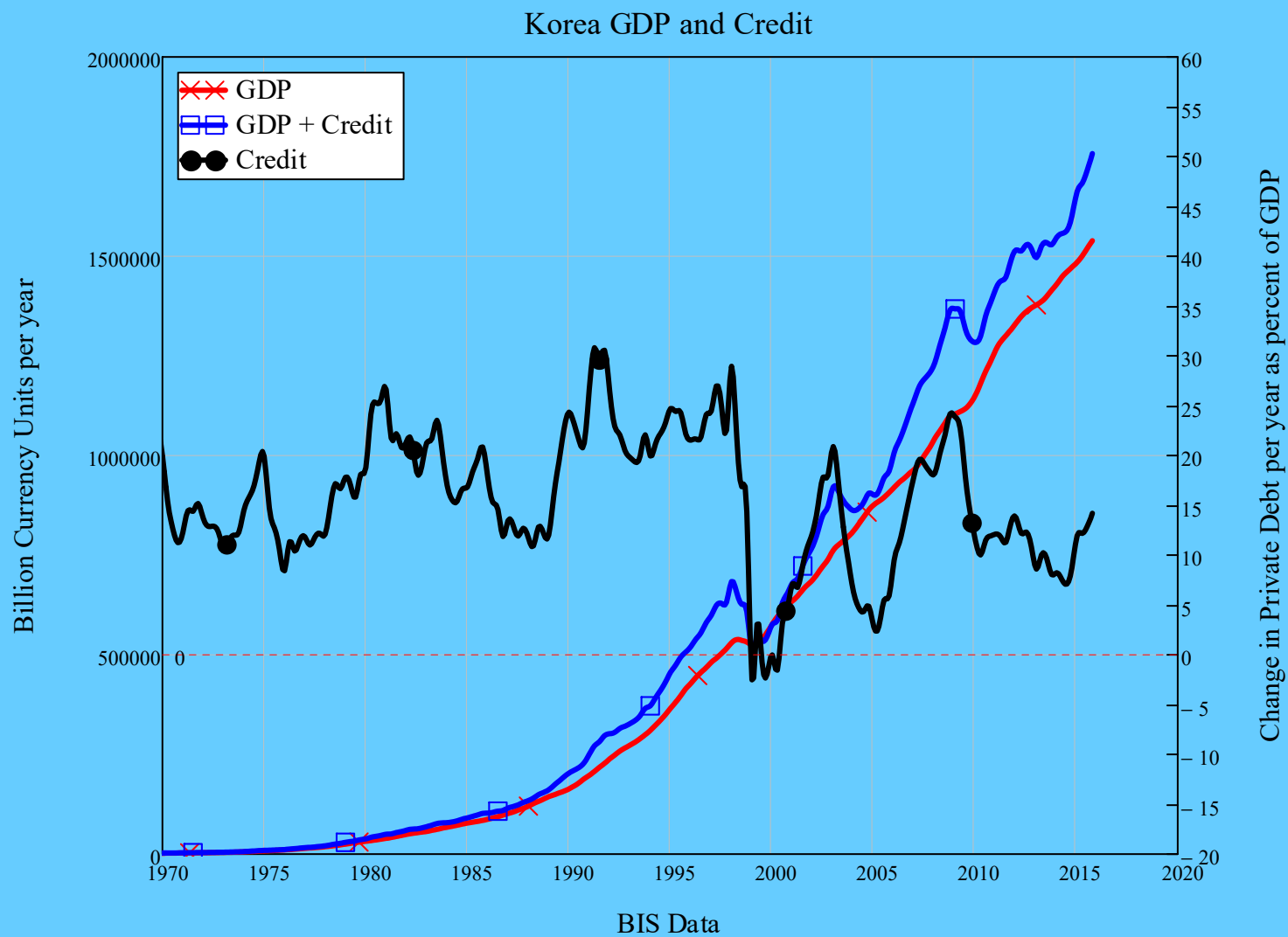
# The “Smoking Gun of Credit”

- Australia



# The “Smoking Gun of Credit”

- Korea



# The “Smoking Gun of Credit”

- Potential future Debt Zombies

Country	2015 GDP		Private Debt		Growth Rate in 2015			
	2015 GDP order	in US\$	% of world	% of GDP	% of World	GDP	Credit	Debt Ratio
China		\$10,485	15.9%	205.2%	21.7%	6.8%	15.1%	7.8%
France		\$2,431	3.7%	181.0%	4.4%	2.0%	2.1%	0.1%
Canada		\$1,481	2.2%	207.4%	3.1%	1.7%	6.6%	4.9%
Korea		\$1,289	2.0%	193.2%	2.5%	4.5%	7.9%	3.3%
Australia		\$1,137	1.7%	206.2%	2.4%	1.4%	8.1%	6.6%
Netherlands		\$757	1.1%	236.8%	1.8%	2.5%	3.2%	0.7%
Switzerland		\$659	1.0%	210.1%	1.4%	0.2%	1.3%	1.1%
Sweden		\$487	0.7%	236.6%	1.2%	5.4%	6.7%	1.3%
Belgium		\$456	0.7%	207.0%	1.0%	2.1%	4.0%	1.9%
Austria		\$376	0.6%	148.2%	0.6%	2.1%	3.5%	1.4%
Norway		\$371	0.6%	233.2%	0.9%	0.2%	4.6%	4.4%
Thailand		\$353	0.5%	122.7%	0.5%	2.7%	6.5%	3.7%
Hong Kong		\$306	0.5%	285.2%	0.9%	6.3%	5.3%	-1.0%
Singapore		\$235	0.4%	146.7%	0.4%	1.9%	5.8%	3.8%
Malaysia		\$257	0.4%	138.5%	0.4%	4.7%	12.4%	7.3%
Finland		\$231	0.4%	179.4%	0.4%	0.6%	2.3%	1.6%