



Monetary policy in a time of high public debt

Dr. Steve Keen

www.debtdeflation.com/blogs

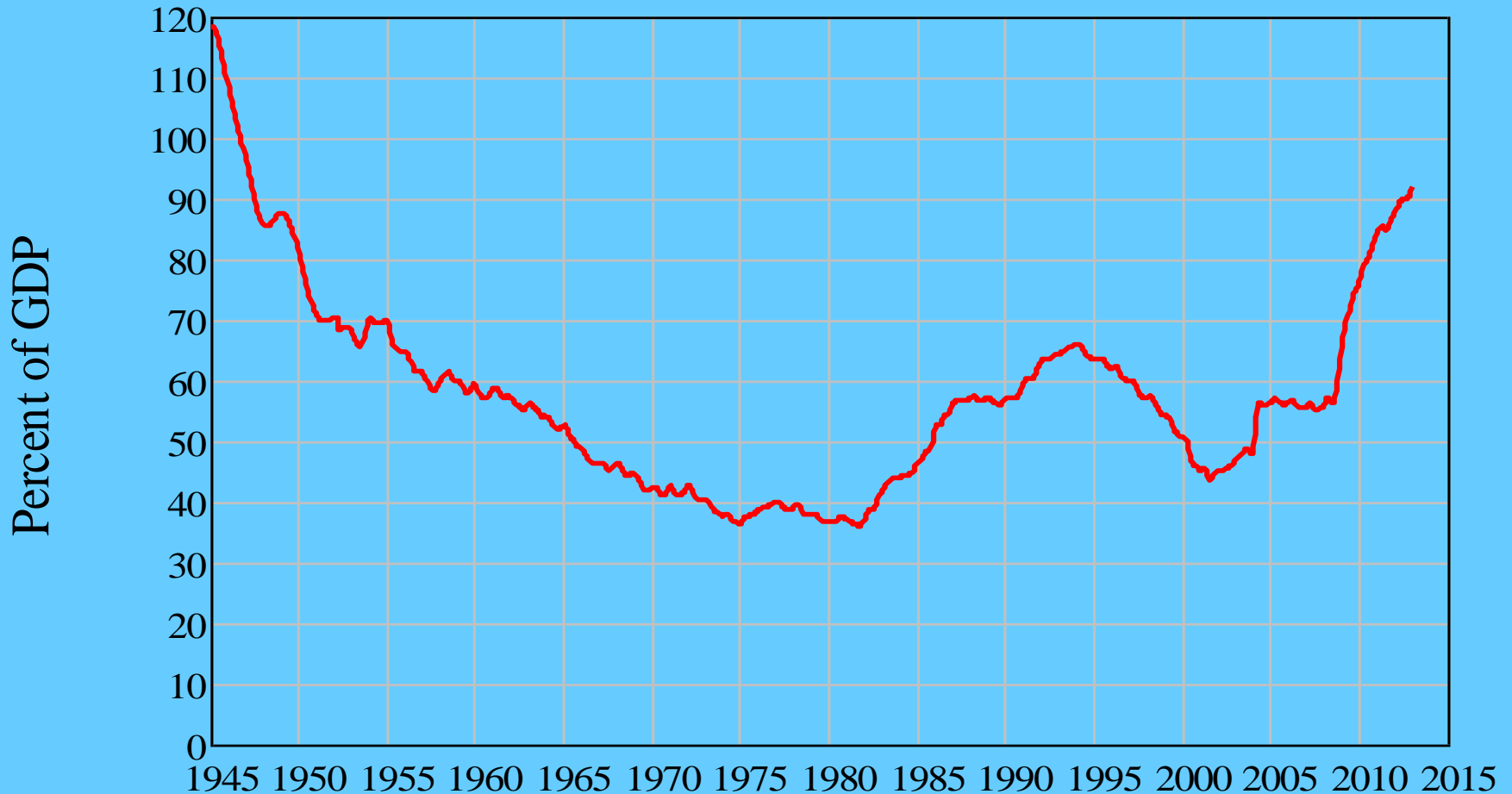
<https://sourceforge.net/p/minsky/>



Public debt is certainly high and rising...

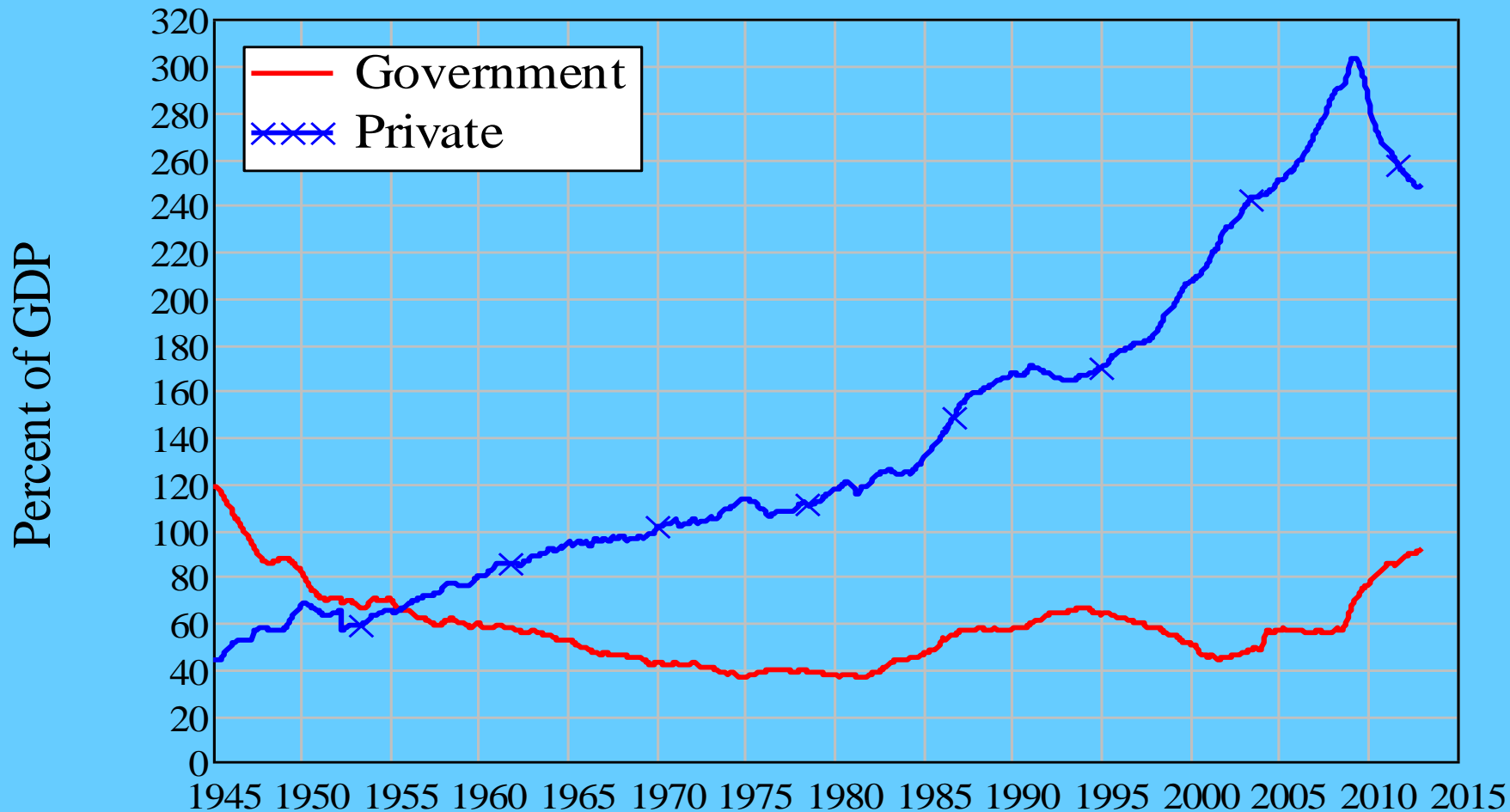
- Highest level since post-WWII demobilization...

US Government Debt to GDP Ratio



But private debt higher—& falling since crisis began

US Debt to GDP Ratios

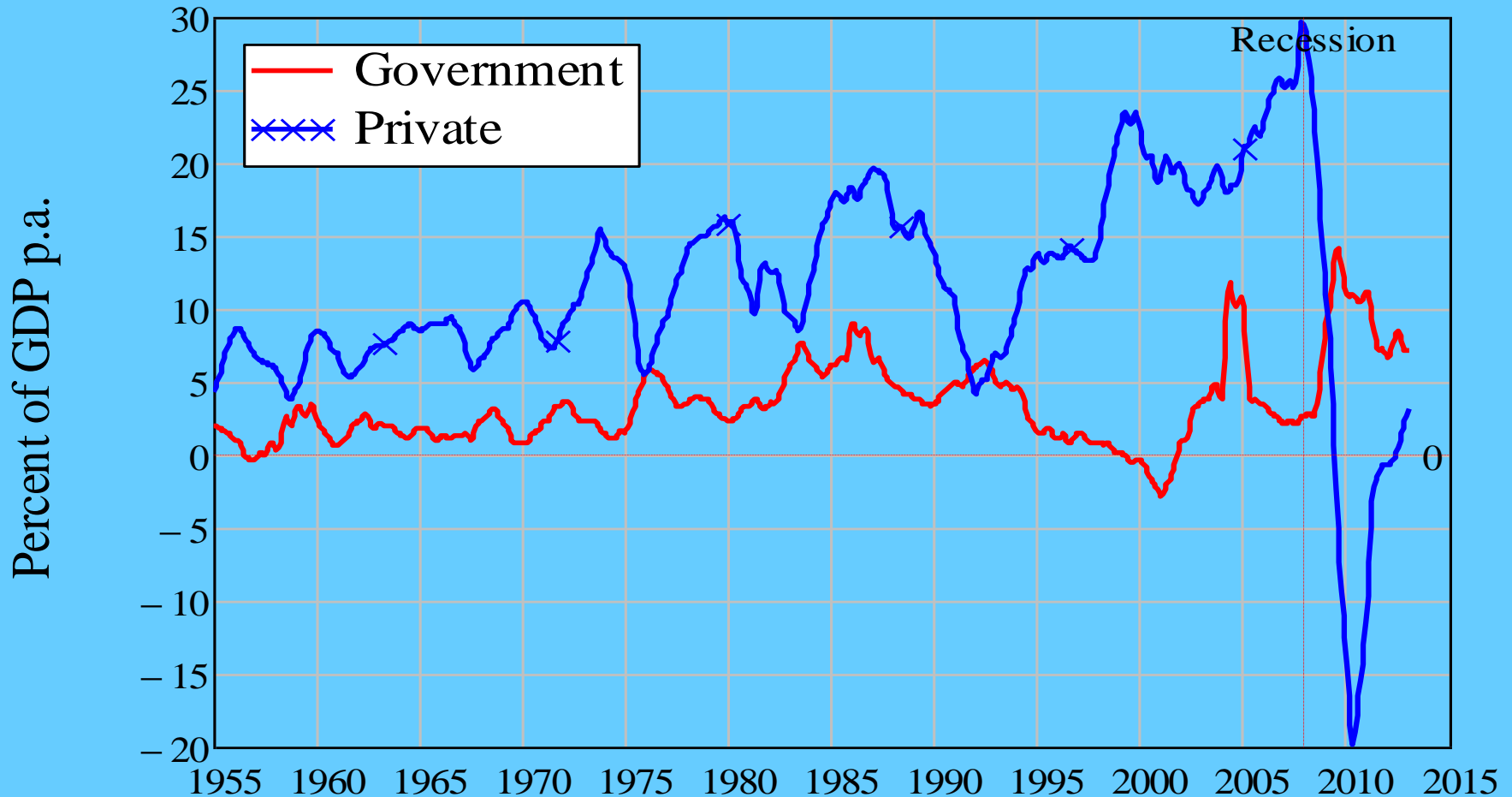


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Government & private change negatively correlated

- Correlation -0.35 1955 till Now; -0.88 2005 till Now

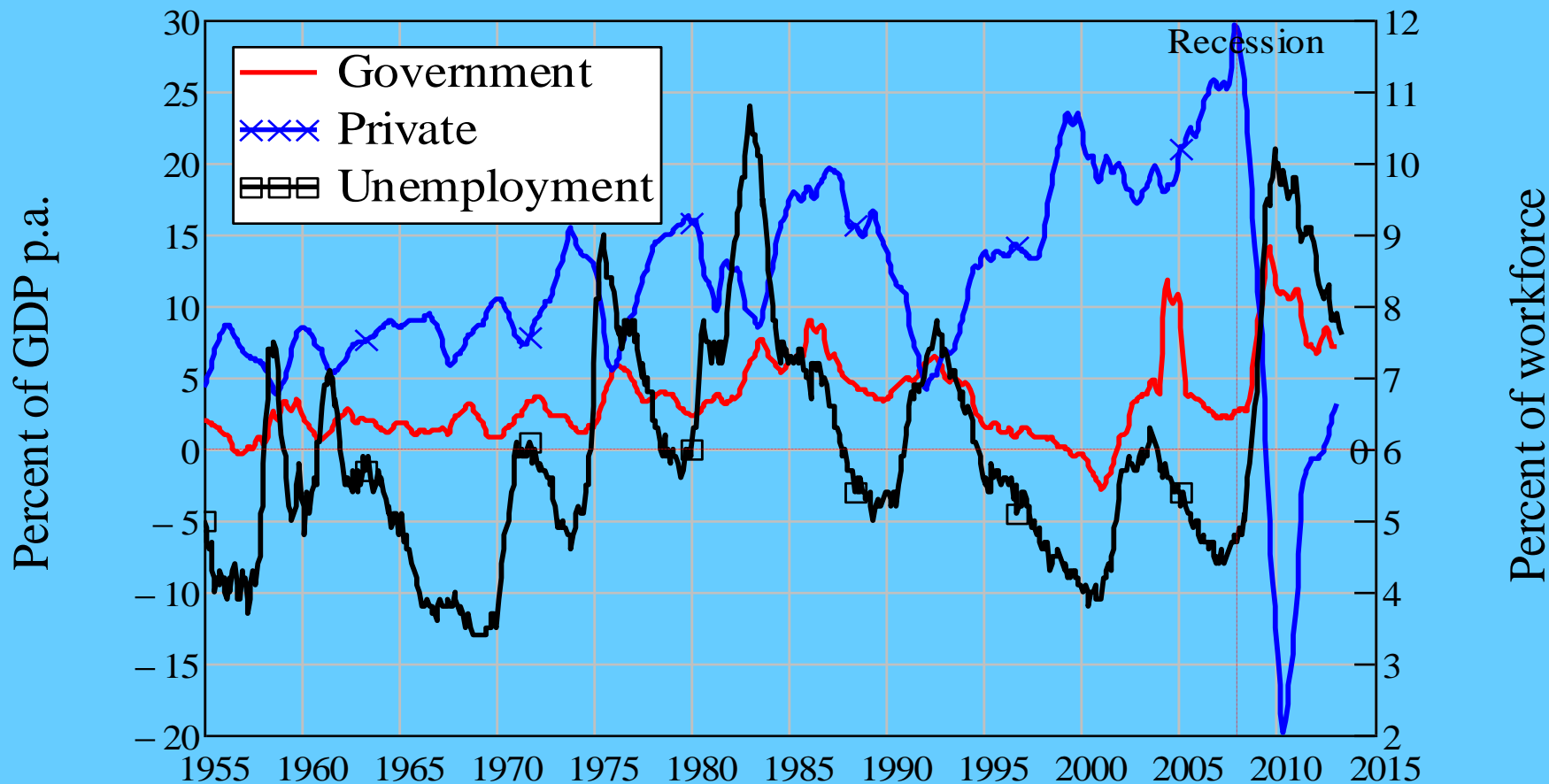
Annual Change in US Debt to GDP Ratios



Which drives which?

- Change in government debt & unemployment: correlation 0.72
- Change in private debt & unemployment: correlation -0.45

Change in Debt & Unemployment



Correlation is not causation but...

- Correlations over post-WWII period:
 - Rising private debt & falling government debt
 - Rising private debt and falling unemployment
 - Rising unemployment and rising government debt...

Variable	Gov Debt Change p.a.	Private Debt Change p.a.	Gov Debt Change p.a.
Compared to	Private Debt Change p.a.	Unemployment Rate	Unemployment Rate
Start Date	1955	1955	1955
End Date	2013	2013	2013
Correlation	-0.35	-0.45	0.72

- Correlations have strengthened with rising private debt
 - Private & Government debt change:

Start Date	End Date	Correlation	Start Date	End Date	Correlation
1955	2013	-0.35	1955	1965	-0.16
1965	2013	-0.49	1965	1975	-0.21
1975	2013	-0.60	1975	1985	-0.45
1985	2013	-0.61	1985	1995	0.24
1995	2013	-0.69	1995	2005	-0.07
2005	2013	-0.88	2005	2013	-0.88

Correlation is not causation but...

- Correlations have strengthened with rising private debt
 - Private debt change and unemployment:

Start Date	End Date	Correlation
1955	2013	-0.45
1965	2013	-0.54
1975	2013	-0.77
1985	2013	-0.86
1995	2013	-0.92
2005	2013	-0.97

Start Date	End Date	Correlation
1955	1965	-0.48
1965	1975	0.32
1975	1985	-0.63
1985	1995	-0.32
1995	2005	-0.46
2005	2013	-0.97

- Government debt change and unemployment:

Start Date	End Date	Correlation
1955	2013	0.72
1965	2013	0.72
1975	2013	0.70
1985	2013	0.83
1995	2013	0.84
2005	2013	0.91

Start Date	End Date	Correlation
1955	1965	0.42
1965	1975	0.41
1975	1985	0.57
1985	1995	0.68
1995	2005	0.63
2005	2013	0.91

Data contradicts conventional theory

- Empirically speaking:
 - Change in private debt drives employment
 - Crisis began when change in private debt turned negative
 - Government debt rose in response to rise in unemployment
- But conventional theory sees no role for private debt
 - Debt simply a redistribution between debtors & creditors
 - “debt-deflation represented no more than a redistribution from one group (debtors) to another (creditors).
 - *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)
 - “Ignoring the foreign component, or looking at the world as a whole, we see that the overall level of debt makes no difference to aggregate net worth—*one person’s liability is another person’s asset.*
 - It follows that the level of debt matters only if the distribution of net worth matters, if highly indebted players face different constraints from players with low debt.” (Krugman 2012)

Theory constrains understanding of data...

- “Loanable Funds” essential to “Debt doesn’t matter” perspective
 - Lending “Patient to Impatient”

76 Godley Table: Godley11

Godley11

Double Entry

		asset		liability		liability		equity		
		Reserves	Patier	Impatient	Workers	Safe			Row Sum	
	Flows V / Stock Variables ->									
	Initial Conditions	100			0	0			0	
	Lending		LendP	-LendP					0	
	Service Debt		-IntP	IntP					0	
	Repay Debt		-RepayP	RepayP					0	
	Pay Wages			Wage	-Wage				0	
	Consume		ConsP	-ConsP					0	
	Consume			ConsW	-ConsW				0	

Source to Sink (blue arrow from Reserves to Lending)

Liability to Liability (orange arrow from Impatient to Workers)

- Endogenous money:
 - Lending is bank to non-bank; Loans occur on Asset side of ledger

76 Godley Table: Godley0

Godley0

Double Entry

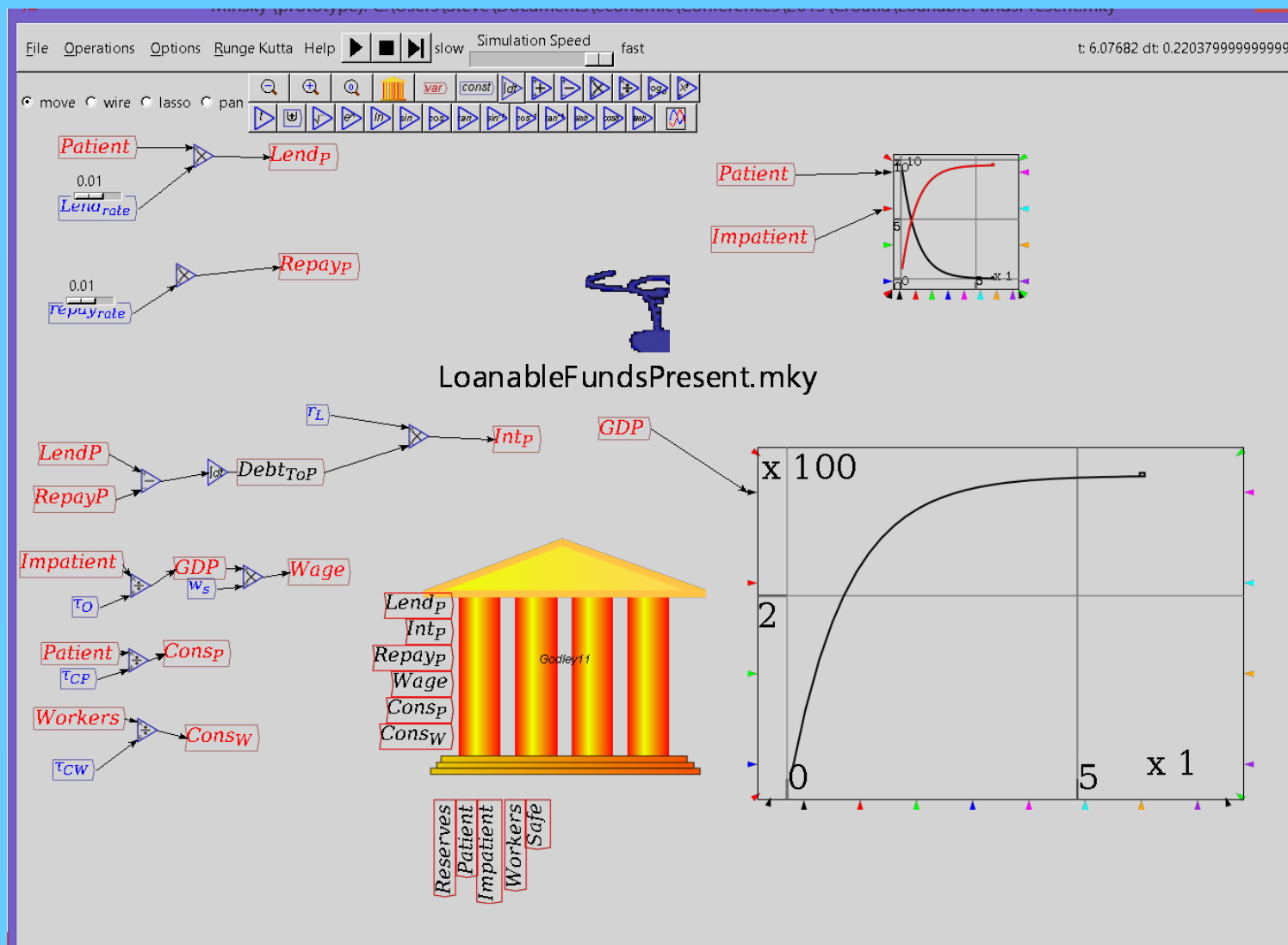
		asset		asset		liability		liability		equity		
		Loans	Reserves	Loans	Impatient	Workers	Safe			Row Sum		
	Flows V / Stock Variables ->											
	Initial Conditions	0	0	0	0	0	0			0		
	Lending	Lend		-Lend						0		
	Service Debt			Int			-Int			0		
	Repay Debt			Repay						0		
	Pay Wages			Wage		-Wage				0		
	Consume			-ConsW		ConsW				0		
	Consume			-ConsB			ConsB			0		

Source to Sink (blue arrow from Loans to Lending)

Asset to Liability (orange arrow from Loans to Impatient)

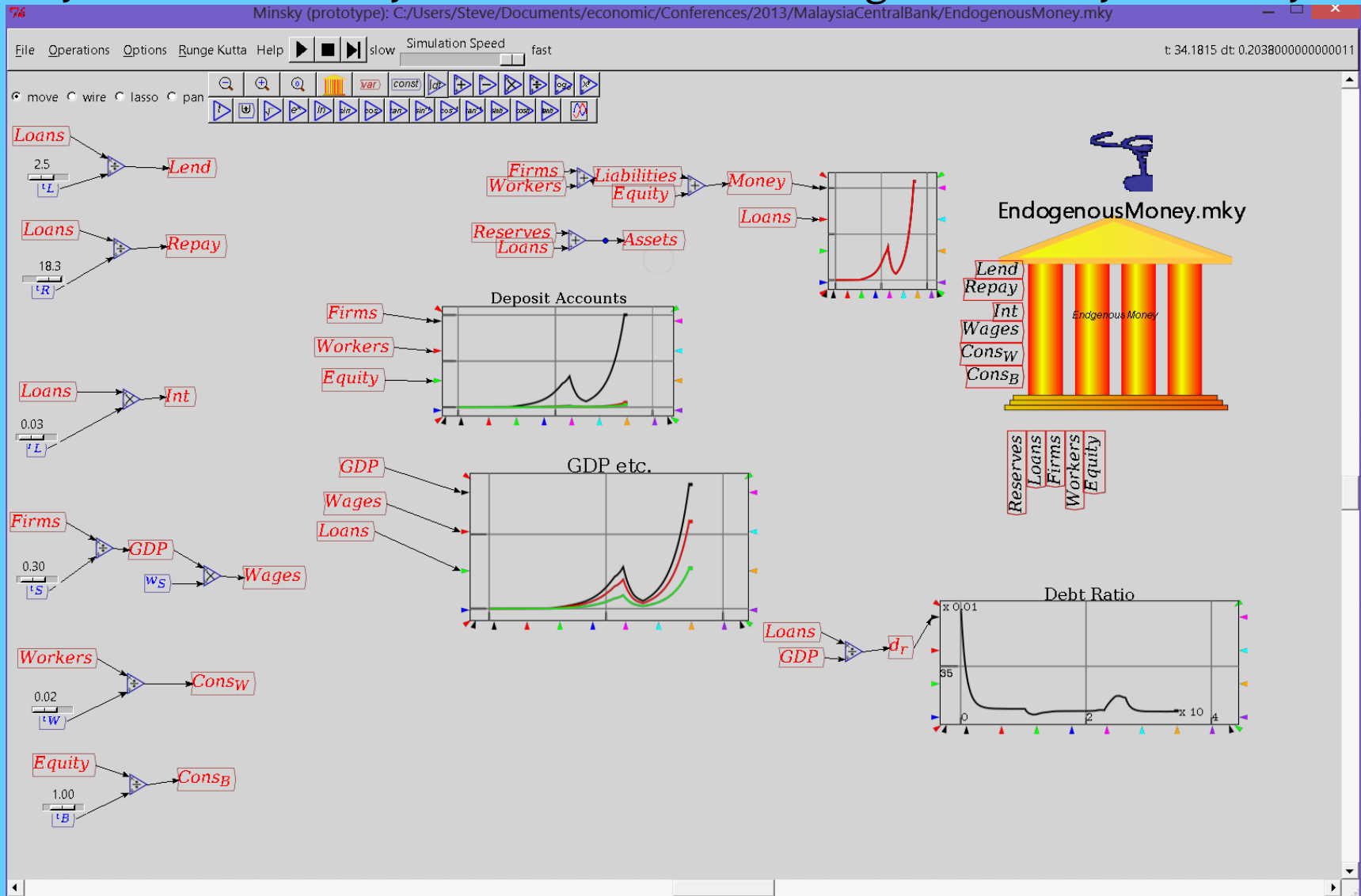
Loanable Funds

- Dynamics of money unimportant even in monetary economy...



Endogenous Money

- Dynamics of money crucial to understanding a monetary economy



- **The** monetary theory is Minsky's "Financial Instability Hypothesis"

The Financial Instability Hypothesis

- Economy in **historical time**
- Debt-induced recession in recent past
- Firms and banks conservative re debt/equity, assets
- Only conservative projects are funded
 - Recovery means most projects succeed
- Firms and banks revise risk premiums
 - Accepted debt/equity ratio rises
 - Assets revalued upwards...
- “Stability is destabilising”
 - Period of tranquility causes expectations to rise...
- Self-fulfilling expectations
 - Decline in risk aversion causes increase in investment
 - Investment expansion causes economy to grow faster
- Rising expectations leads to “The Euphoric Economy”...

The Financial Instability Hypothesis

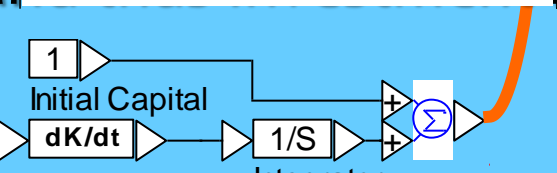
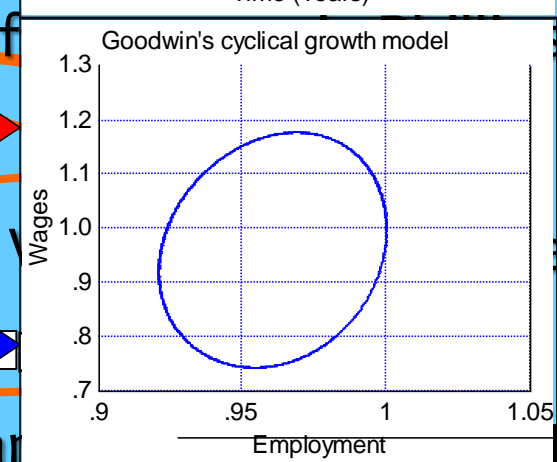
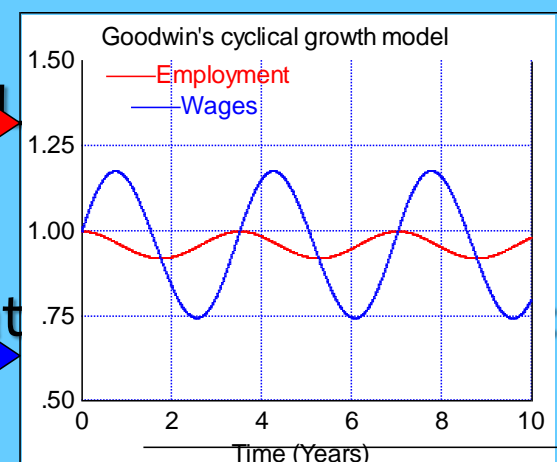
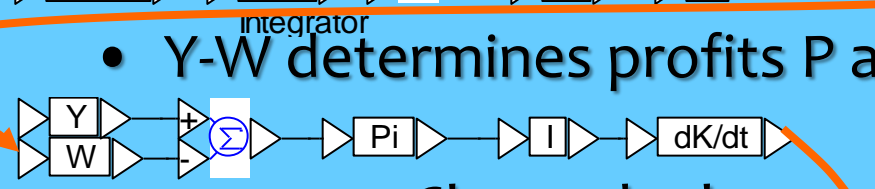
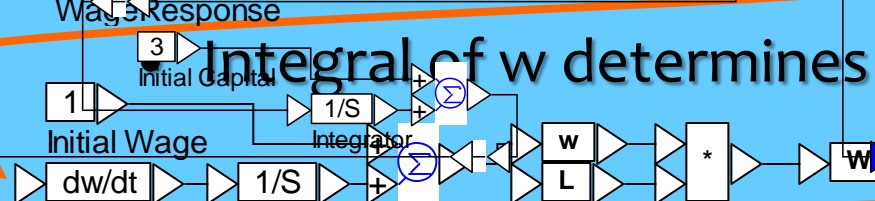
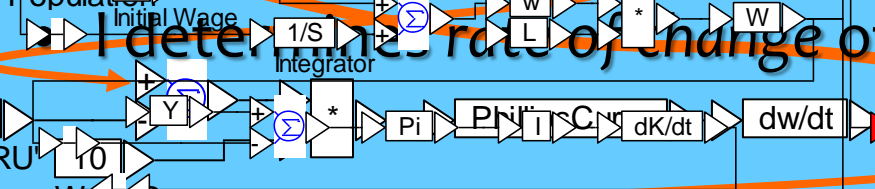
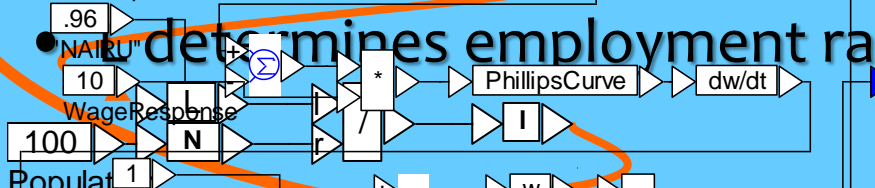
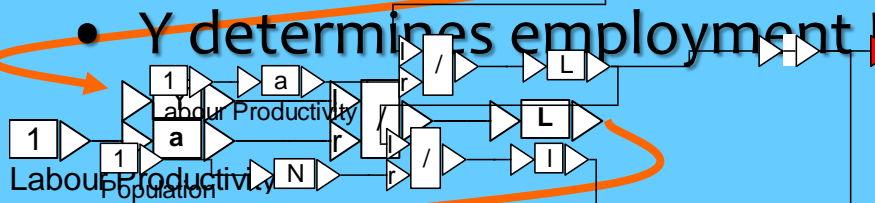
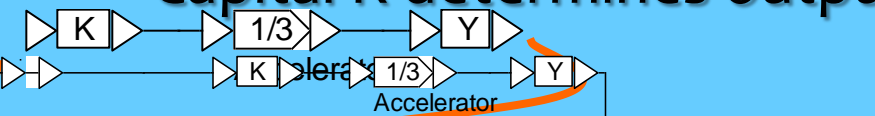
- Asset prices rise: speculation on assets profitable
- Increased willingness to lend increases money supply
 - Money supply endogenous, not controlled by CB
 - Riskier investments enabled, asset speculation rises
- The emergence of “Ponzi” financiers
 - Cash flow less than debt servicing costs
 - Profit by selling assets on rising market
 - Interest-rate insensitive demand for finance
- Rising debt levels & interest rates lead to crisis
 - Rising rates make conservative projects speculative
 - Non-Ponzi investors sell assets to service debts
 - Entry of new sellers floods asset markets
 - Rising trend of asset prices falters or reverses

The Financial Instability Hypothesis

- Boom turns to bust
- Ponzi financiers first to go bankrupt
 - Can no longer sell assets for a profit
 - Debt servicing on assets far exceeds cash flows
- Asset prices collapse, increasing debt/equity ratios
- Endogenous expansion of money supply reverses
- Investment evaporates; economic growth slows
- Economy enters a debt-induced recession
 - Back where we started...
- Process repeats once debt levels fall
 - But starts from higher debt to GDP level
- Final crisis where debt burden overwhelms economy
- But government spending can stabilize:
 - Cash flow when private sector stops spending
 - Modeling Minsky...

Keen 1995 Model Foundations: Nonlinear dynamics

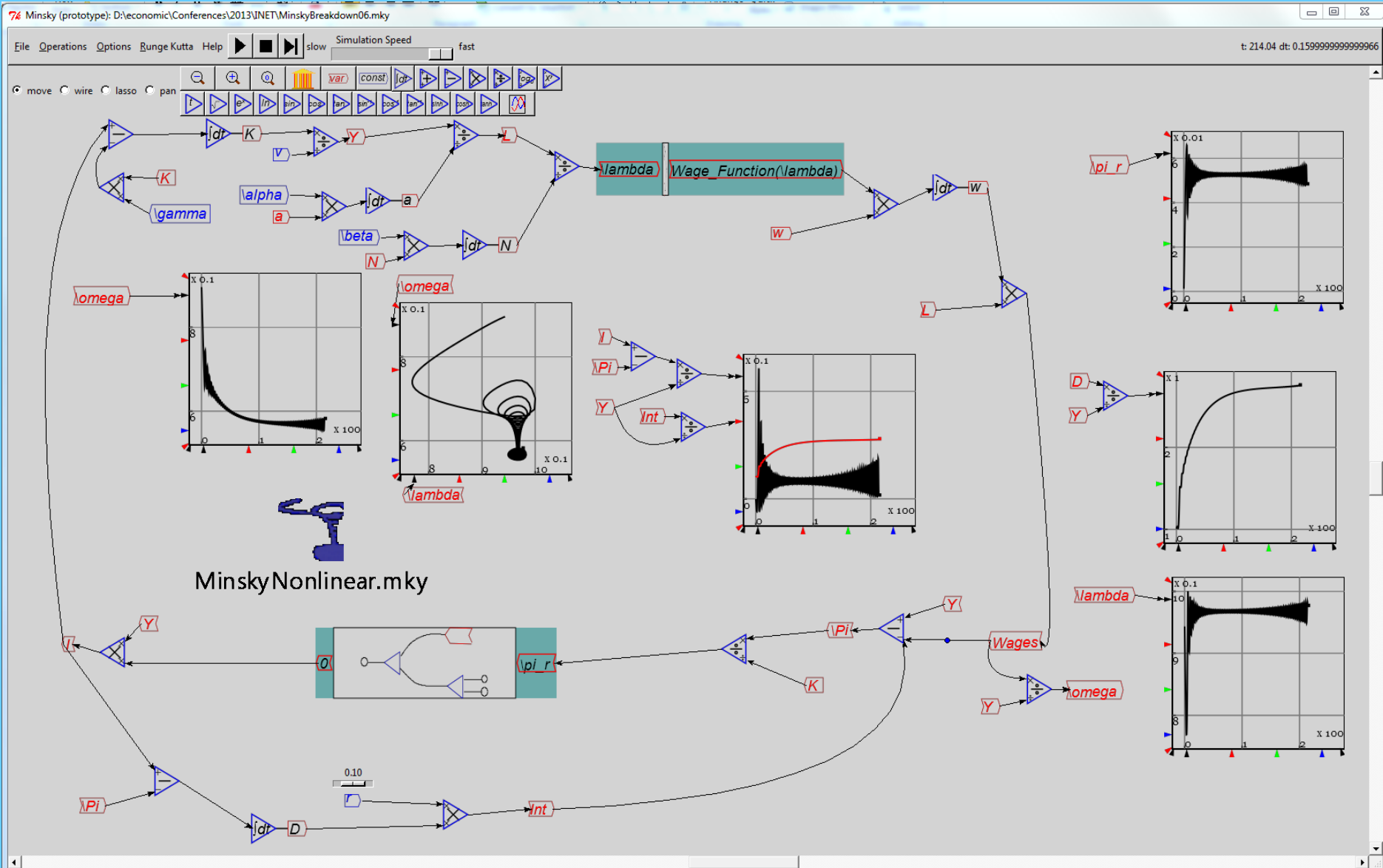
- Growth Cycle model (Goodwin 1967, Blatt 1983)
 - Capital K determines output Y via the accelerator:



- Closes the loop:

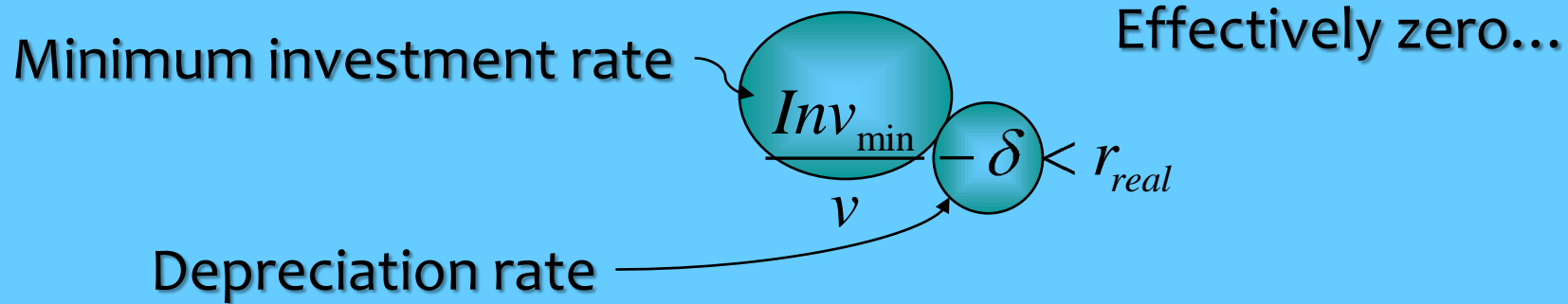
Modeling Minsky in Minsky

- 2007 crisis can be seen as collapse towards “Bad Equilibrium”...



Fiscal & Monetary policy in the Bad Equilibrium

- Grasselli & Costa Lima (2013, unpublished) show Bad Equilibrium is locally stable iff **minimum** growth rate less than real interest rate



- i.e., to get out of “Black Hole of Private Debt” with interest rate policy alone requires after-inflation interest rate to be *not merely negative but lower than the negative of the depreciation rate* (say -2% p.a.)
- Also with respect to fiscal policy:
 - Strong government stimulus is needed (but may not be enough)
 - Austerity **strengthens** the bad equilibrium
 - Prevents escape from “Black Hole of Private Debt”

A framework for a mixed fiat-credit economy

- We need model of mixed economy in a debt crisis
 - Neoclassical economics can't provide it
 - Equilibrium emphasis when economy far from equilibrium
 - Absence of banks & money in core model
- Modern Monetary Theory (MMT) provides part of this—dynamics & relation with private money creation needed as well
- A framework for this...
 - Simplified Treasury/Central Bank—borrowing relationship
 - Added to aggregate private banking sector model...

A framework for a mixed fiat-credit economy

- Government sector...

Godley Table: Central Bank

Central Bank

Double Entry		+	+	-	-	+	-	-	-	+	-	-	-	+	-	-	-	+	-	-	-	
				asset		asset		liability		liability												
Flows V / Stock Variables ->		Loan_{Gov}		Loan_{Banks}		Dep_{GovCB}		Reserves		Row Sum												
Initial Conditions		-0		-0		-0		-0		0												0
Government spending		Gov_{Spend}						-Gov_{Spend}		0												0
Government Welfare		Gov_{SocSec}						-Gov_{SocSec}		0												0
Corporate Taxation		-Gov_{TaxF}						Gov_{TaxF}		0												0
Taxes on Wages		-Gov_{TaxW}						Gov_{TaxW}		0												0

- Private banking sector...

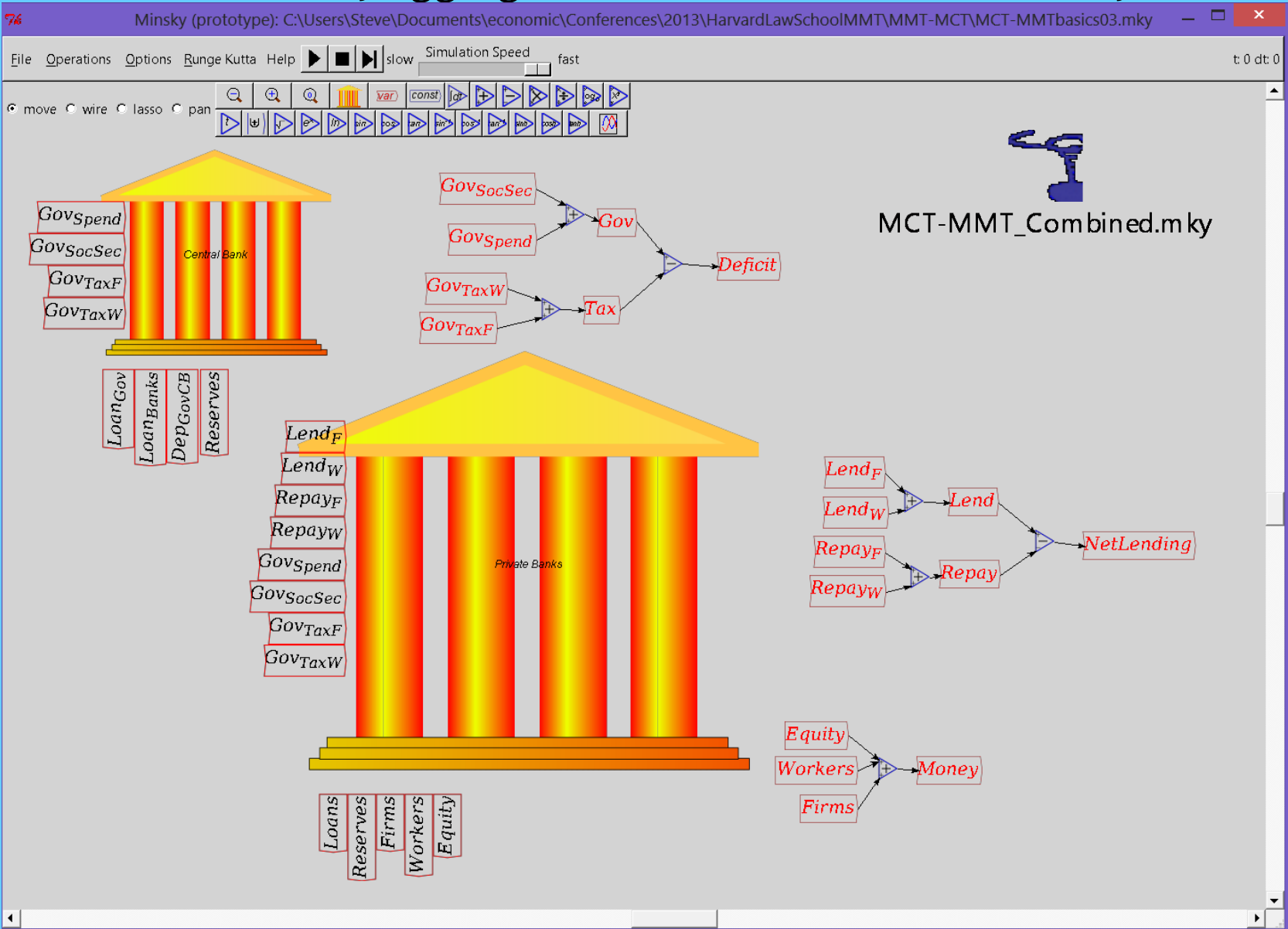
Godley Table: Private Banks

Private Banks

Double Entry		+	+	-	-	+	-	-	-	+	-	-	-	+	-	-	-	+	-	-	-	
				asset		asset		liability		liability		equity										
Flows V / Stock Variables ->		Loans		Reserves		Firms		Workers		Equity		Row Sum										
Initial Conditions		0		0		0		0		0		0										0
Lend to Firms		Lend_F				-Lend_F				0		0										0
Lend to workers		Lend_W						-Lend_W		0		0										0
Firms repay		-Repay_F				Repay_F				0		0										0
Workers repay		-Repay_W						Repay_W		0		0										0
Government spending				Gov_{Spend}		-Gov_{Spend}				0		0										0
Government Welfare				Gov_{SocSec}		-Gov_{SocSec}				0		0										0
Corporate Taxation				-Gov_{TaxF}		Gov_{TaxF}				0		0										0
Taxes on Wages				-Gov_{TaxW}		Gov_{TaxW}				0		0										0

A framework for a mixed fiat-credit economy

- Basic monetary aggregates in a mixed fiat-credit money economy...



A framework for a mixed fiat-credit economy

- Dynamics of money...

$$\text{Money} = \text{Equity} + \text{Workers} + \text{Firms}$$

$$\text{Lend} = \text{Lend}_F + \text{Lend}_W$$

$$\text{Repay} = \text{Repay}_F + \text{Repay}_W$$

$$\text{NetLending} = \text{Lend} - \text{Repay}$$

$$\text{Gov} = \text{Gov}_{\text{SocSec}} + \text{Gov}_{\text{Spend}}$$

$$\text{Tax} = \text{Gov}_{\text{TaxW}} + \text{Gov}_{\text{TaxF}}$$

$$\text{Deficit} = \text{Gov} - \text{Tax}$$

$$\frac{d\text{Equity}}{dt} = 0$$

$$\frac{d\text{Firms}}{dt} = \text{Lend}_F + \text{Gov}_{\text{Spend}} - \text{Repay}_F + \text{Gov}_{\text{TaxF}}$$

$$\frac{d\text{Workers}}{dt} = \text{Lend}_W + \text{Gov}_{\text{SocSec}} - \text{Repay}_W + \text{Gov}_{\text{TaxW}}$$

$$\frac{d\text{Money}}{dt} = \text{NetLending} + \text{Deficit}$$

A framework for a mixed fiat-credit economy

- If private sector deleveraging then Net Lending is negative
 - Reducing money in economy
 - Government should act in opposite direction: Deficits not Austerity

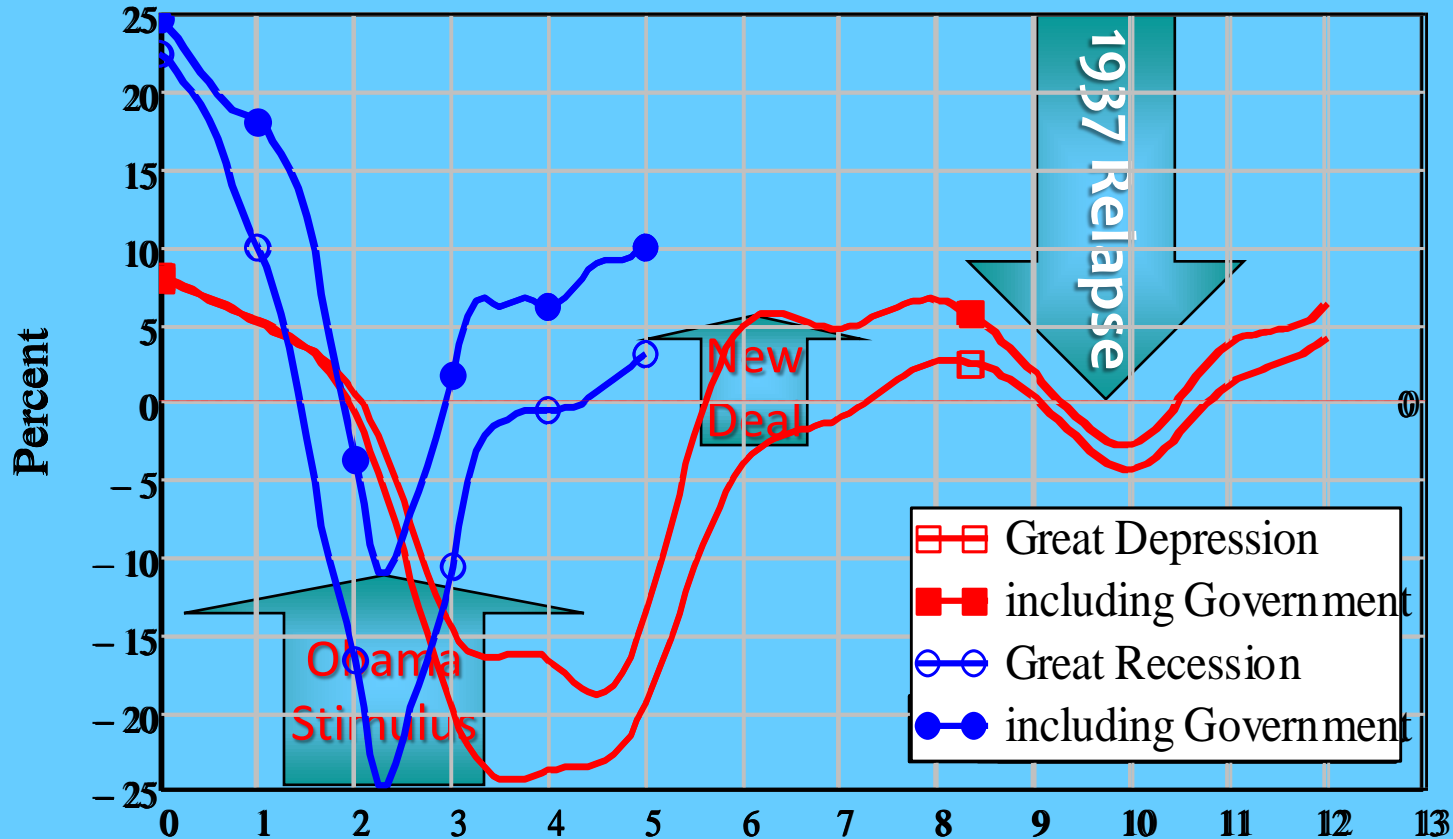
$$\frac{d\text{Money}}{dt} = \text{NetLending} + \text{Deficit}$$

- Government deficit can reduce impact (but not prevent) of private sector deleveraging
- Monetary policy should support this even if public debt high
- USA's strong fiscal stance 2008-2012 main reason why this crisis not as severe for USA as Great Depression
- Euro region's opposite austerity main reason why this crisis is worse than the Great Depression for much of Europe
- Comparing USA 1920-40 versus 2000-Now...

Why is US crisis not as bad as Great Depression?

- Because of a *much faster & bigger* government stimulus...

Debt-financed demand percent of aggregate demand



Years since 1928 & 2008 respectively; www.debtdeflation.com/blogs

- Austerity might renew crisis *by renewing private sector deleveraging*, as happened in 1937.

Conclusion

- Government monetary injections needed to reduce damage from private sector deleveraging ***even if public debt already high***
- Better method could be direct reductions in private debt via CB money injections into private bank accounts
 - Use CB money creation capacity to write off private debt
 - While equally compensating those not in debt
 - See IMF statements on Greece
 - Should have conducted debt writeoffs
 - Did not for political reasons it now apologises for
 - “Modern Debt Jubilee” same principle at national level
 - Power exists (e.g. Section 13(3) of Federal Reserve Act)
 - Should be used as fastest way to reduce private debt & end private sector deleveraging
- Future economic theory & policy must be dynamic, monetary, & monitor the ***private*** debt to output ratio