ESRC Conference on Diversity in Macroeconomics:
Developing Macroeconomics and Macro-Prudential Policy

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The Wivenhoe Problem

- SatNav (the DSGE model) said 75 minutes from my house to my hotel at Wivenhoe s.t. binding constraint to meet Sheri et al. at 7pm.
- What time did I get to my hotel?
  - Early, On Time or Late?

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    - But the model could not deal with a burst watermain in my room at Wivenhoe and the need for relocation!

Three Important Ideas

1. Charles Goodhart - The Rationale of Macro-Pru
   - more tools with more objectives
   - build models with richer (financial) structure

2. Neil Ericsson - The Rationale of Forecasting
   - Forecasts provide consistent projections of macro data
   - They will always be "wrong" - the question is the response i.e. improve statistical forecasts or tell better stories

3. Mark Manning - The Rationale of Financial Regulation
   - Societal choice about capital and regulatory norm
   - Any optimum is s.t. errors in magnitude and direction.

The Policy Response

- Monetary policy is constrained at the zero lower bound - or in a fixed exchange rate zone - rediscovery of importance of open market operations
- Fiscal policy operates to help aggregate demand but also to recapitalise banks i.e. fiscal 'backstop' s.t. borrowing constraints
- Banks are maturity transformers and have insufficient liquidity in the event of risk aversion
- Balance sheet operations expand the size and composition of the central bank balance sheet and reduce the duration of financial markets' bond holdings and increase liquidity
- Involve the issuance of short term debt-fiscal instruments (interest rate bearing reserves or T-Bills)
- Monetary-fiscal operation to hedge liquidity risk.

Simple Monetary Policy Rule
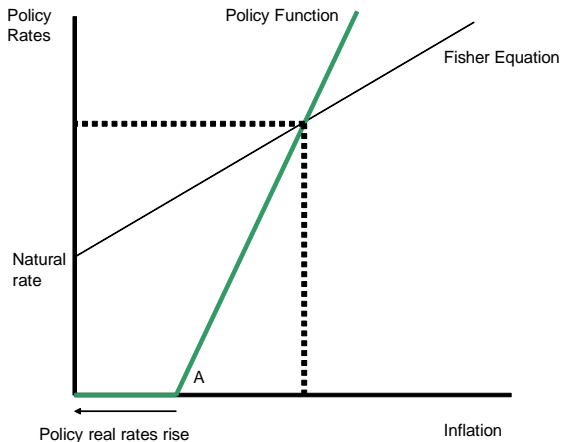
- Policy Rate sufficient statistic to stablise output and inflation
- Asset prices, bank behaviour, debt, gearing all missing

Flow of Funds

Private Sector		
Assets	Liabilities	
Deposits D	Loans $(D - r)$	
Bonds γB	Tax $\sum_{i=0}^{\infty} \beta^i t_i$	
Capital $\gamma_k K$	K	

Government	
Assets	Liabilities
Tax $\sum_{i=0}^{\infty} \beta^i t_i$	Bonds B

Commercial Banks	
Assets	Liabilities
Reserves r	Deposits D
Loans $(D - r)$	

Central Bank	
Assets	Liabilities
Bonds $(1 - \gamma)B$	Reserves r
Capital $(1 - \gamma_k)K$	

- Reserves injection: (i) expands central bank balance sheet; (ii) increases liquidity of banks i.e. loans for reserves swap; (iii) does not necessarily change government debt position: (iv) shrinks private sector balance sheet by reducing loans and bond/capital holdings.
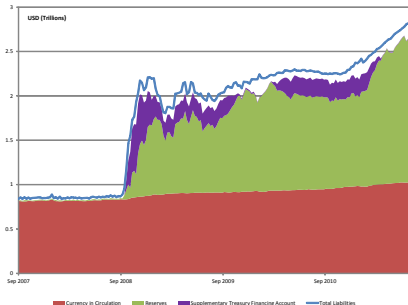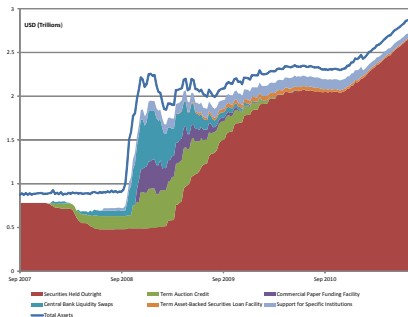
- Expansion of balance sheet typical of central banks around the world

Liquidity Shortfall

- Interbank (wholesale) lending - banks facing excessive withdrawal borrow from other banks and repay when the high return asset pays off the next period
- Common shock to all banks requires centralised liquidity provision - opens the question of the centralised liquidity provision
- Government deposit insurance - can insure perfectly if the λ (fraction of early period withdrawls) is known but if it is random and/or returns are stochastic then it might be costly and so not believable by 'savers'
- Macro story is about maintaining consumption or investment when collateral is required for transaction technology
- Efficient allocation allows optimality subject to risky preferences i.e. liquidity is short (long) in the market place when consumers are risk averse (loving) and so need a mechanism of providing countercylical liquidity provision

Definition

Liquidity must be connected with providing savers sufficient confidence not to withdraw early

The Fiscal Policy and Debt Management

- Fund public expenditures with portfolio mixture of short-long-nominal-real debt ∵
- Too short - then debt st interest rate risk
- Too long - then debt pays term premium and faces lumpy rollover
- Too nominal - then face real payments uncertainty
- Too real - then face nominal payments uncertainty
- ⇒ Also offset bank liquidity risk by temporary swap of more illiquid govvies for reserves
- Consider optimal allocation of debt. Now increase liquidity risk for private sector. Illiquid asset prices fall and liquid ones rise. Selling reserves and buying illiquid assets offsets the liquidity shock.

The Monetary-Fiscal Case
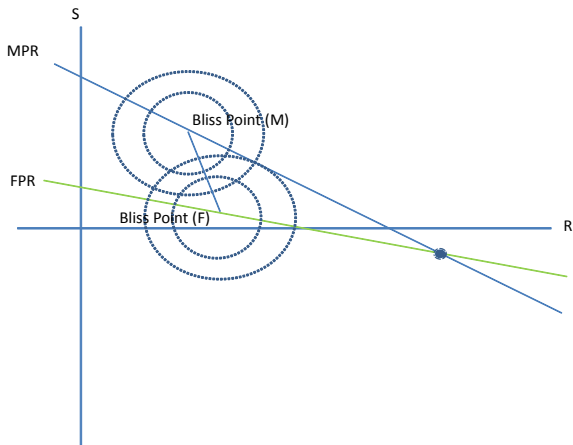
- Nordaus (1994): suggests equilibria under co-ordination on the contract curve OR under Nash with higher rates (R) and lower fiscal surplus (S)
- Monetary (MD) or Fiscal Dominance (FD) will determine where we lie on

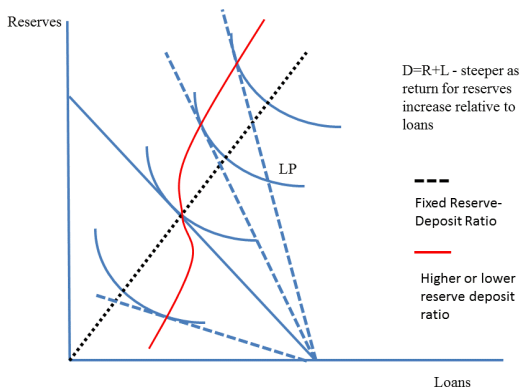# The Monetary-Fiscal-Financial Case
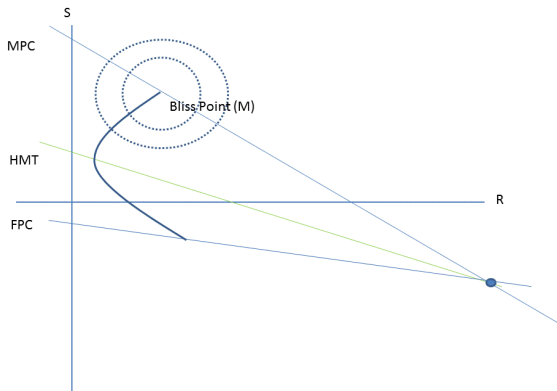
- Risk of move away from original guess about social welfare optimum.
- Nash $\longrightarrow$ higher rates and higher deficits if it exists.
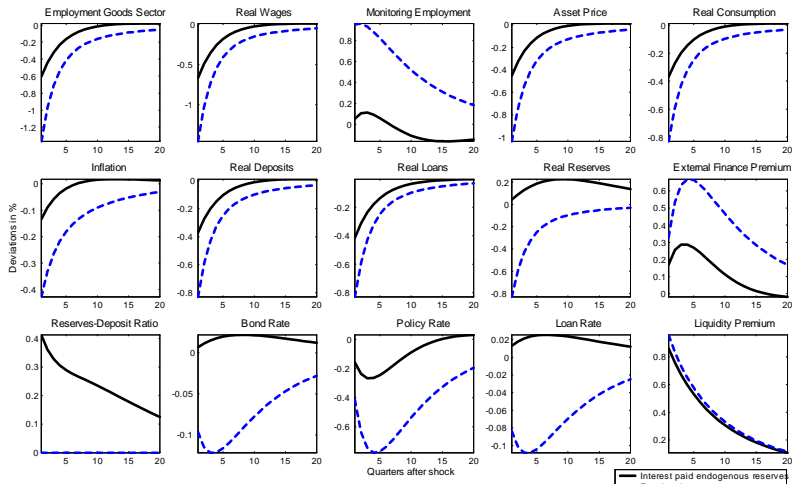
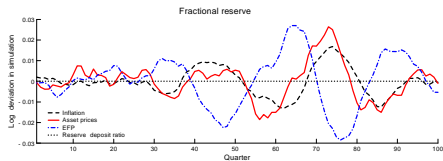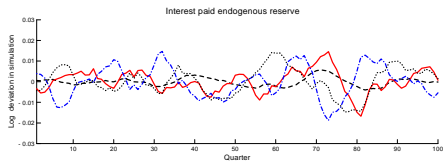# DSGE Banking Model with Fiscal and Monetary Co-operation
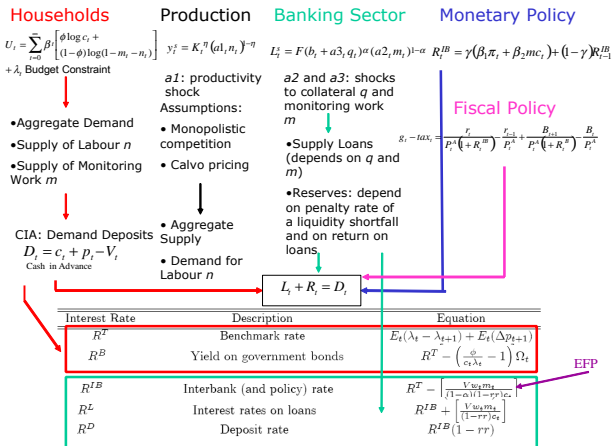
- Providing reserves through monetary-fiscal instrument induces more reserves in an upswing and more loans in a downswing by increasing (reducing) rate of return on reserves relative to loans
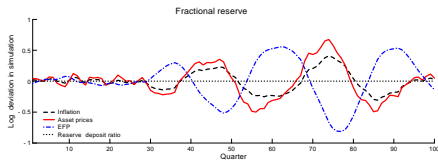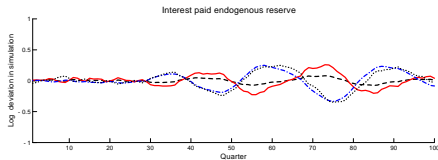
Simulation of Consumption, Asset Prices, EFP and Reserve-Deposit Ratio
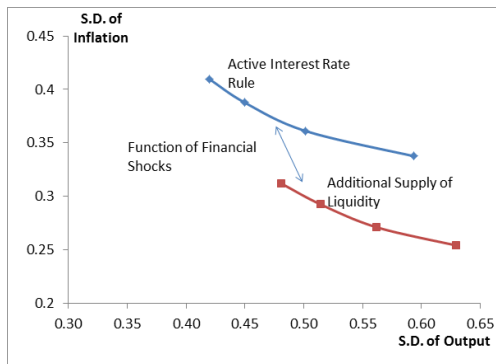

Equal Weight All Shocks

Banking Shocks Dominant

- Endogenous Reserves: countercyclicality of reserve/deposit ratio so less gearing
- EFP, inflation and asset prices less volatile

The Policy Frontier

- Some possible improvement but not large unless financial sectors shocks dominate

Complete Forward Guidance

- Debate in c2006-7 about publishing interest rate forecast
- 'Conservative' view: (i) do not tie future decision-makers hands, (ii) forecasts subject to news and 'error', (iii) may prevent private sector views being traded into market prices and (iv) practically difficult to agree on path
- 'Transparency' view: (i) level and path of interest rates matter, so provide more clarity; (ii) produce explicit projections conditional on expected state of economy; (iii) invites alternate views.
- Forward Guidance on first change in rates only, although helpful, seems to be somewhere between the former and the latter

Publish Instrument Forecasts
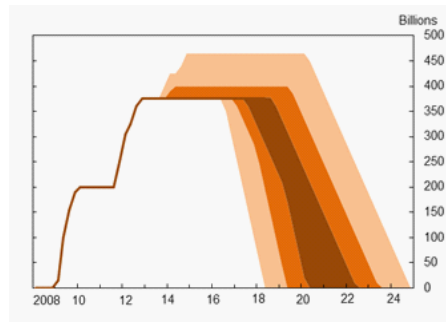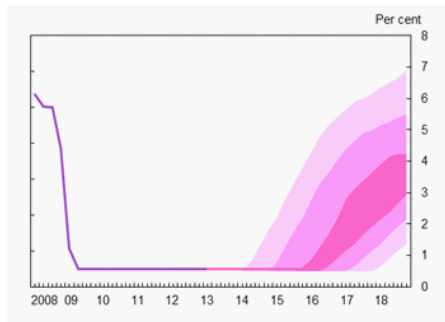
- Consider complete 'state contingent-time dependent' guidance that respects uncertainty
- Question whether this would lead to herding

Concluding Remarks

- Supply of liquidity/reserves offsets the private sector's inability to provide sufficient liquidity
- New regime of excess reserves commercial reserves against backdrop of large central bank balance sheets, ZLB and considerable fiscal exposure
- Can extend to include question of capital
- Bank perceptions of interbank funding or refinance risk also impact on liquidity demand
- DSGE models can providing an incentive for banks to hold reserves and suggest that there is an improvement in the policy frontier from this new instrument
- Fiscal costs/output costs and optimal quantity of reserves/capital w.r. business cycle costs next question.

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