

PREVIOUS LECTURE

Monetary policy in practice

- Legislation
- Independent CB with credibility
- Evaluation of policy
- Accountability

Particular problems

- CB forward looking
- Policy decisions based on forecasts
- Difficult to evaluate

FROM DATA TO POLICY

Data

Models

- Theory, difficult with dynamics
- Econometrics
 - Estimation
 - Calibration
 - Error correction model
- Forecasts
- Judgement
- Policy decision
- Policy evaluation

FORECAST EVALUATION

Post-sample evaluation

Accuracy

- RMSE

Bias

- ME

Horizon

- Nowcasting
- 1 quarter
- 2 years
- > 2 years

Compare with simple model AR(1)

EX POST FORECAST EVALUATION

Forecast

Shocks during forecast horizon

CB cannot counteract the shocks, it takes time

Ex post failure could be good policy

Forecast

Shocks during forecast horizon

Ex post success could be worst policy and pure luck

Shock identification is model dependent

Table 1: RMSE for quarterly forecasts 2000-2006, variables expressed as quarterly or annual per cent growth

Variable	FC	Forecast horizon (quarter)							
		1	2	3	4	5	6	7	8
Policy rate	RB	0.06	0.27	0.45	0.60	0.66	0.80	0.98	1.10
	NIER	2.17	0.80	0.70	0.78	1.06	1.12	1.17	1.31
	AR	4.24	1.68	1.38	1.25	1.23	1.13	1.08	1.04
	StD	0.95							
UND1X (quarterly rate)	RB	0.14	0.40	0.38	0.40	0.42	0.44	0.33	0.33
	AR	2.95	1.05	1.11	1.07	1.07	1.06	1.28	1.32
	StD	0.58							
	StD SA	0.38							
UND1X (annual rate)	RB	0.10	0.49	0.54	0.50	0.47	0.53	0.62	0.76
	NIER	1.09	0.84	1.05	1.26	1.43	1.11	1.00	0.90
	StD	0.80							
	StD	0.80							
CPI (quarterly rate)	RB	0.10	0.38	0.37	0.41	0.45	0.51	0.41	0.41
	AR	4.37	1.17	1.13	1.05	1.04	0.93	0.97	1.04
	StD	0.53							
	StD	0.53							
CPI (annual rate)	RB	0.11	0.46	0.51	0.53	0.67	0.87	1.05	1.19
	NIER	0.73	0.91	1.09	1.18	1.11	1.03	1.01	1.04
	StD	0.90							
	StD	0.90							
GDP	RB	0.30	0.31	0.28	0.28	0.36	0.37	0.34	0.31
	NIER	0.99	1.06	0.98	1.09	1.01	1.06	1.33	1.22
	AR	0.75	1.05	1.29	1.32	0.98	0.92	1.02	1.07
	StD	0.35							
Employ.	RB	0.35	0.32	0.36	0.36	0.38	0.40	0.38	0.37
	NIER	0.94	1.03	0.87	0.97	1.00	1.04	1.09	1.09
	AR	0.95	1.14	1.07	1.13	1.09	1.05	1.13	1.15
	StD	0.41							
GDP/employ.	RB	0.41	0.49	0.40	0.49	0.43	0.45	0.37	0.42
	AR	0.88	0.71	0.86	0.88	0.96	0.91	1.06	0.97
	StD	0.50							
	StD	0.50							

FORECAST PERFORMANCE

Table 2. Forecast errors for different variables and horizons 2000Q1 – 2006Q3. Bias (ME) and size (RMSE). Data as annual changes. The p values for the no-bias hypothesis are in parentheses under Bias and the standard deviation for each variable in parentheses under Size. Data for PPI and distribution margin are for 2004Q2–2006Q3.

Horizon	Bias (ME)			Size (RMSE)		
	1	2-5	6-9	1	2-5	6-9
UNDIMPX	0,039 (0,292)	-0,054 (0,559)	-0,208 (0,053)	0,187 (1,761)	0,932 (1,776)	0,999 (1,744)
UNDINHx	0,028 (0,226)	0,114 (0,005)	-0,042 (0,335)	0,119 (0,561)	0,403 (0,627)	0,380 (0,508)
UND1X	0,024 (0,209)	0,059 (0,149)	-0,096 (0,022)	0,095 (0,564)	0,414 (0,572)	0,376 (0,533)
TCW index	0,185 (0,466)	0,891 (0,000)	0,033 (0,845)	1,221 (1,840)	1,847 (1,828)	1,559 (1,615)
Residual price	-0,146 (0,565)	-0,963 (0,000)	-0,287 (0,089)	1,228 (2,462)	1,756 (2,414)	1,517 (2,233)
PPI	0,224 (0,875)	0,106 (0,715)	0,586 (0,001)	4,358 (3,858)	1,036 (3,685)	0,566 (3,751)
Distrib. margin	-0,100 (0,952)	-0,839 (0,050)	-0,532 (0,145)	4,815 (5,447)	1,990 (5,273)	1,091 (5,180)

FAILURE FOR A LONG TIME PERIOD

A sequence of shocks

Bad forecasts

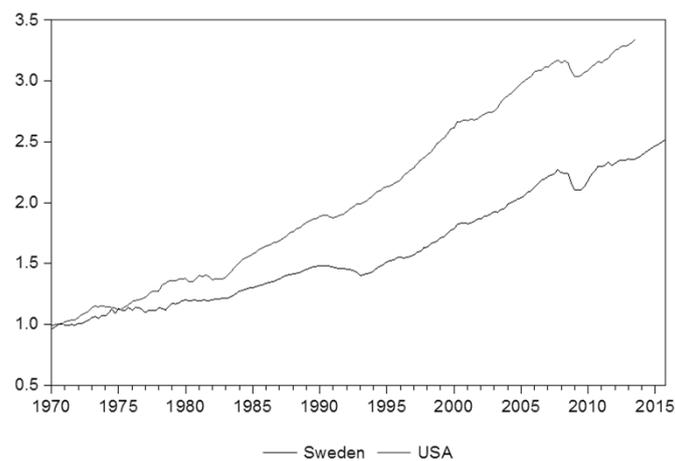
Bad policy

How to evaluate?

Compare central banks

- Compare with business evaluations, compare with competitors

THE FINANCIAL CRISIS 2008 - GDP



WITH "FINANCIAL INTERMEDIATION AND FRICTIONS"

Extend the basic model with financial inter-mediation, sector that produces financial services, pooling risks, etc.

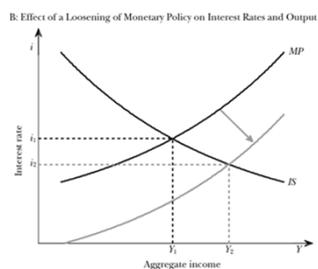
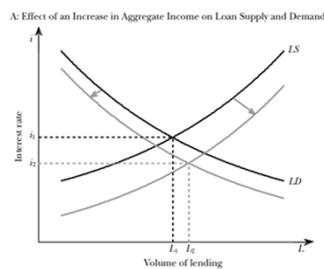
Introduce spreads, the difference between interest rate payed by borrowers and interest rate payed to supplier of funds payed by intermediaries

Study different effects of financial distress

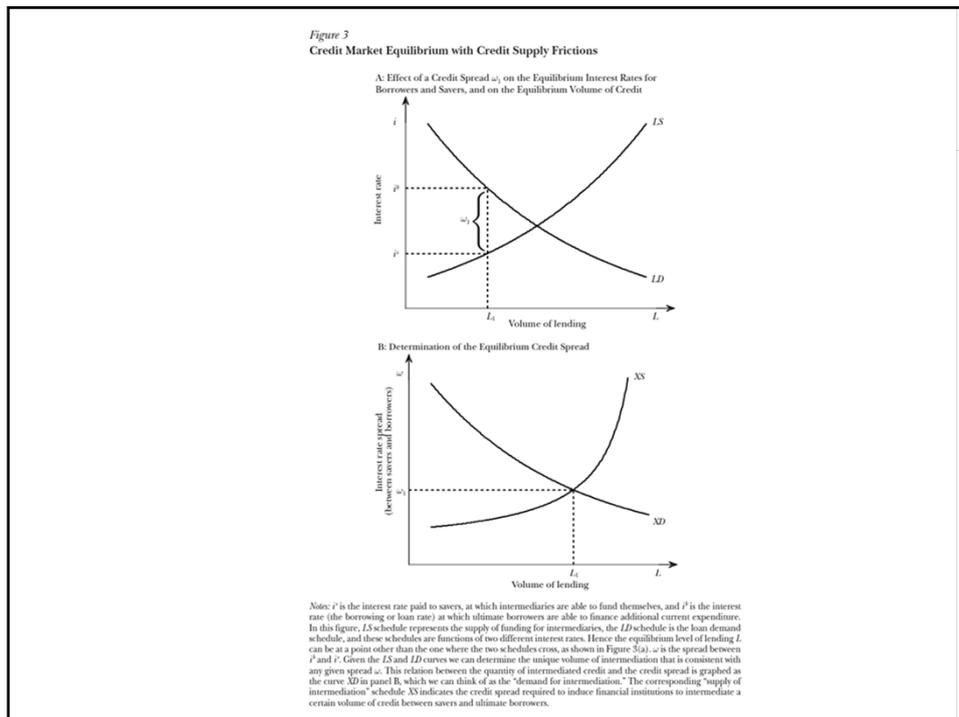
Monetary policy and financial stability

Note. Buiters's housing no wealth and aggregation

Figure 2
Interest-Rate and Output Determination in the Standard Model



Notes: In panel A, LS is the loan supply schedule and LD is the loan demand schedule, which are specified holding constant aggregate income, Y . The arrows show how the curves shift with an increase in Y . Panel B shows an IS schedule, derived by tracing out the equilibrium interest rate for any assumed level of current income Y , and a monetary policy reaction function (MP), showing how the central bank's interest rate targets will vary with the level of economic activity. The MP curve is drawn for a given inflation rate. The arrow shows the consequence of an exogenous shift in the policy reaction function that implies a lower interest rate for any given level of economic activity.

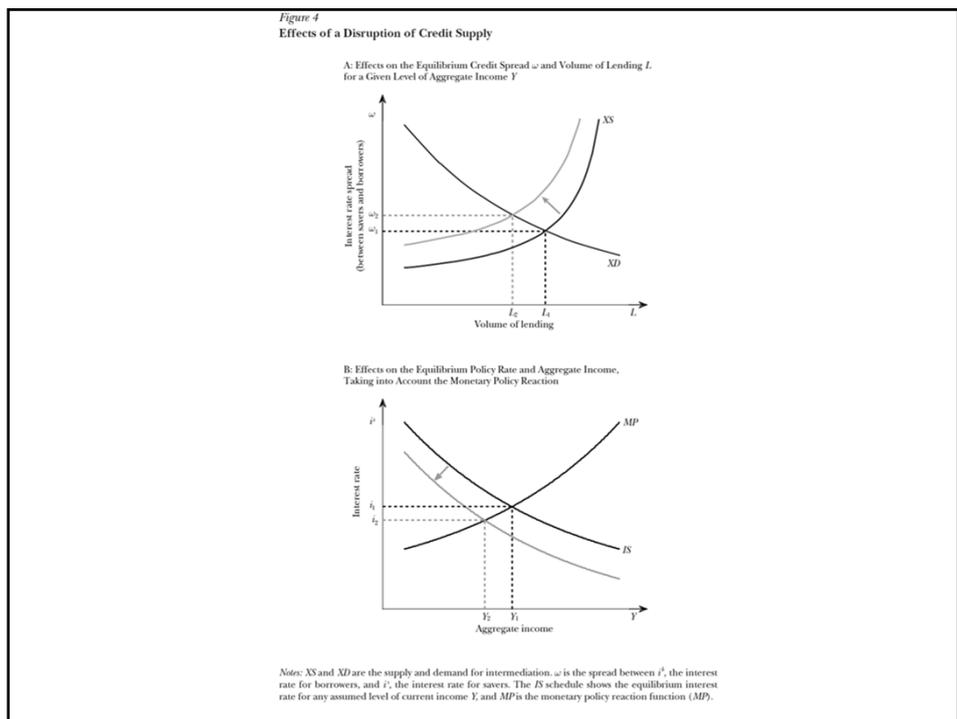


SHIFT IN AGGREGATE SUPPLY OF INTERMEDIATION

Regulations etc.

- Credit controls
- Reserve requirements
- Shocks to highly leveraged intermediaries (subprime)
- Changes in leverage constraints
- Risk evaluation

Shifts in XS represents another source of change in Aggregate Demand (shift in IS curve)



MONETARY POLICY

Taylor rule should take account of the spread
Increased spread \Rightarrow IS curve shift downwards
Lower policy rate to increase aggregate demand

Business as usual but take account of financial conditions
Fall in housing prices has effect through the intermediaries
New DSGE model in Curdia and Woodford (2009)

SUMMARY

New Keynesian Model: Three equations

$$\tilde{y}_t = E_t \{ \tilde{y}_{t+1} \} - \frac{1}{\sigma} (i_t - E_t \{ \pi_{t+1} \} - r_t^n)$$

$$\pi_t = \beta E_t \{ \pi_{t+1} \} + \kappa \tilde{y}_t$$

$$i_t = r_t^n + \phi_\pi (\pi_t - \pi^T) + \phi_y \tilde{y}_t$$

THE KEY INEFFICIENCIES

Monopolistic competition

- Aggregate output too low in steady state
- Inflation bias with discretionary policy
- Might be rescued with a commitment policy (time inconsistency problem)

Sticky prices

- Relative prices change
- Resource allocation change
- Consumers buy the wrong things (compared to the optimal allocation without price stickiness)

PHILLIPS CURVE

Forward-looking

Backward-looking

Both

MONETARY POLICY

Policy rule

Forward-looking

Based on difficult problems

- Target variables
- Unobservables (output gap)
- Inflation target

EXTENSIONS

Labor market

- Flows in the labor market
 - Unemployment
 - Employment
 - Out of labor force
- Search

Open economy

- Chapter 7 in Gali
- Surprisingly similar to the basic model

Financial markets

Fiscal policy

ALTERNATIVE THEORIES

Theories have changed, some are presently vogue

Basic: inflation is determined by domestic MP

Output is unaffected by MP in steady state

Near-rational expectations

- Akerlof's Phillips curve
- Mankiw/Reis inattentive agents

Hysteresis models

- Temporary shocks -> Permanent effects
- Insider-outsider

Friedman's rule - zero interest rate

Inflation tax

WRITING ESSAY

Outline:

Problem

Relate to NKM

- Part of NKM (example PC)

Analysis with model

- The simple model has more answers than you think!

Conclusions

- Work with this!

I FOCUS ON

Finish

Analysis

- Problem
- Model – analysis
- Conclusions

Independence

Your text is run through text analysis program