Gray, Luna and Restrepo's

Incorporating Financial Sector Risk into Monetary Policy Models: Application to Chile

Comments by Felipe Zurita

- Sorry, not much to say:
  - 95% macro, 5% financial (my fault!)
  - incomplete draft: missing explanations and tables
- 5-equation neo-Keynesian model (output gap *, Phillips curve, interest parity*, yield curve, Taylor rule*)
- with variable “average distance to default for the banking system” (DD) at the right hand side in *
- where DD is made to depend on output (ancillary model)

- Aim:
  - (1) Was DD considered in monetary policy?
  - (2) Should it be?
- DD has many good qualities as a measure of financial stability
- (1) justifies inclusion of DD in Taylor rule, but
  - Why to include it in output gap and interest parity equations?
    (Sorry to ask: microfoundations?)
- Motivation: regressions in annex 2 "show that changes in DD are significant in **explaining** ... growth ... and output gap"
  - Causality?

My summary:

- Very interesting question,
- in an early stage of development.
- Minor comments on draft, but
- mostly looking forward to see the final version!

Gray, Merton and Bodie's

New Framework for Measuring and Managing Macrofinancial Risk and Financial Stability

Comments by Felipe Zurita

Proposal:

- use accounting identities (balance sheets),
- with standard option pricing model to decompose asset value (guarantees)
- for a 4 sector economy

Doesn't provide an example; in turn, it discusses alternative modeling/measurement choices

Figure 3 Economy-wide Contingent Claim Balance Sheet with Risk Exposures Across Sectors (Implicit Put and Call Options)

	Corp	Households	Financial	Sovereign	Foreign
Asset	A_C	A_{FIN} $+A_L$ $+(A_{H,RE}$ $-\overline{B}_{H,RE}$ $P_{H,RE})$	A_F	R_{FX} $+A_G$ $+A_{S,Other}$	
Cont. A & L			$+\alpha P_F$	$-\alpha P_F$	
Equity/ Jr. & Sub. Claims	$-E_C$	$-E_H$ $-c_D$	$-E_F$	$-M_{BM}$ $-\overline{B}_{SLC}$ $+P_{SLC}$	*Foreign Claims*
Barrier	$-\overline{B}_C$		$-\overline{B}_F$	$-\overline{B}_{SFX}$	
EL (Put)	$+P_C$		$+(1-\alpha_G)P_F$	$+P_{SFX}$	
Sum	0	0	0	0	0

I like the approach:

- accounting identities are very useful
- huge fan of CCA!

I wonder:

- option pricing with aggregate data

I miss:

- Causal links among variables

Comment 1: the aggregation problem

$$a_i = \max\{a_i - d_i, 0\} + d_i - \max\{d_i - a_i, 0\}$$

$$assets = call + (risk\ free debt - put)$$

However, this is not true at the aggregate level:

$$E_i[a_i] \neq \max\{E_i[a_i - d_i], 0\} + E_i[d_i] - \max\{E_i[d_i - a_i], 0\}$$

Example: debt $ 60 (face value), uniform risk neutral probabilities, r=0

	State 1	State 2	Market value
Firm 1			
Assets	100	40	70
Debt (actual value)	60	40	50
Equity	40	0	20
Firm 2			
Assets	40	100	70
Debt (actual value)	40	60	50
Equity	0	40	20
Aggregate			
Assets	140	140	140
Debt (actual value)	100	100	100
Equity	40	40	40

Default frequency is 50%, volatility is 0

- How to calibrate Merton's model so it still be useful for aggregate data?:
  - adjust volatility
  - adjust barrier
  - But, how to interpret?
  - How stable is the calibrated model? (empirical issue)

Comment 2:

- risk transmission between sectors: clearer when looking at the economy as a network of promises (causality again)

In sum:

This paper provides:

- an interesting sketch of a model, and
- some thoughts on how to use it

Many open questions

Great appetite-opener!