Discussion of Risk Allocation, Debt Fueled Expansion and Financial Crisis
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Summary

- Model of risk premia & macro quantities
- Two familiar ingredients
  1. Risk premia matters for production decisions
  2. With heterogenous agents, wealth distribution matters for risk premia
- Discussion
  - isolate two main ingredients
  - how they are put together in paper
  - relate paper to literature
  - what is this a model of?
Risk premia matter for production

- 2 period RBC model; resources $Y$ given today
- Linear technology with productivity $A$, realized tomorrow
- Risk premia reflect representative agent (RA) risk aversion
- Social planner chooses capital/savings today to maximize

$$E[U(C_1, C_2)] = E[U(Y - K, AK)]$$

- Epstein-Zin utility with risk aversion $\gamma$, IES $\sigma$:

$$K = \frac{Y}{1 + \beta^{-\sigma} CE(A)^{1-\sigma}}$$

with certainty equivalent

$$CE(A) = E[A^{1-\gamma}]^{\frac{1}{1-\gamma}}$$

- With $\sigma > 1$, higher risk aversion $\implies$ lower CE, $K$, output tomorrow.
Decentralization: risk premia and RA risk aversion

- Two equally likely states tomorrow $A_h > A_l$; state prices $p_h, p_l$
- Representative agent optimality
  
  \[
  \frac{p_h}{p_l} = \left( \frac{A_hK}{A_lK} \right)^{-\gamma}
  \]

- RA risk aversion drives risk premium $p_h/p_l$
- If firms issue shares, firm FOC is
  
  \[
  p_hA_h + p_lA_l = p_s
  \]

- Riskless bond price $p_b = p_h + p_l$, equity premium $E[A] p_b / p_s$
- Risk premia matter for production if business cycle model allows for time-varying risk premia (Rudebusch-Swanson, Fernandez-Villaverde et al., Guvenen)
Heterogeneity in risk aversion

- many agents $i$ with power utility, but different risk aversion $\gamma_i$
- complete markets
- MRS for all agents $= \text{MRS of representative agent with felicity } \nu$

$$\left( \frac{C_h^i}{C_l^i} \right)^{-\gamma_i} = \frac{\nu' \left( \sum_i C_h^i \right)}{\nu' \left( \sum_i C_l^i \right)} = \frac{p_h}{p_l}$$

2 effects

1. Low risk aversion agents take riskier positions
   - they are more exposed to bad shock
   - their share in total consumption declines if bad shock

2. RA exhibits “wealth-weighted” risk attitude
   - if agent $i$ very rich (high share in aggregate consumption), then RA risk aversion close to $\gamma_i$
   - if low risk aversion agents poorer, RA becomes more risk averse!
Simple version of dynamics

- Concatenate many two period economies; iid shocks
- Dynasties of high/low risk aversion agents, who inherit share of parental wealth
- On a lucky path, good shocks arrive,
  - low risk aversion agents become relatively richer
  - representative agent becomes less risk averse
  - risk premia fall, output rises
- Bad shock $\Rightarrow$ RA more risk averse, higher risk premia, lower output
- Shutdown of contingent claims markets also bad if it shuts out low risk aversion agents

In paper:

- commit to labor (not capital)
- risk neutral financiers & risk averse workers
- disruption to markets from lemons problem
Risk premia and heterogeneity

- Large literature on heterogenous agent models in finance
  - explain countercyclical risk premia:
    - low prices forecast high excess returns
  - observed in many markets (stocks, long bonds, foreign exchange etc.)

- Two types of agents: Alan and Ben
  - Alan likes claims on aggregate risk (e.g. stocks) more
  - State prices reflect average of state prices if Alan and Ben were alone
    - with power utility: average is wealth weighted
    - true also if incomplete markets, borrowing constraints etc.

- Story for countercyclical risk premia:
  - good times for risky claims ⇒ Alan’s wealth rises more
  - Alan’s preferences reflected more in state prices
  - Price of risky claims rises; risk premia fall ⇒ low excess returns
  - bad times for risky claims ⇒ Alan’s wealth falls more
  - Ben’s preferences reflected more in state prices
  - Price of risky claims falls; risk premia rise ⇒ high excess returns
Features of existing models

1. Different appetites for risky claims
   - risk aversion (Chan-Kogan, Gomes-Michaelides)
   - age (Garleanu-Panageas)
   - participation constraints (Saito, Basak-Cuoco, Guvenen)
   - beliefs (Detemple-Murthy, Cao)
   - investor sophistication (Chien-Cole-Lustig)

2. No representative agent for dynamic model: wealth distribution a state variable w/ long-lived agents

3. Stationary wealth distribution process, although permanent differences between agents
   - preference features (external habit, heterogenous IES)
   - exit and entry of agents
   - trading constraints
   - incomplete markets

- Literature has moved to quantitative analysis of asset price volatility, excess return predictability
- Production implications: Guvenen, Garleanu-Panageas
What is this a model of?

- Basic themes are sensible, present in many models
- They may be interesting for thinking about crisis
- But the details matter
  - stock price $=\text{wage}$?
  - period length?
  - precommitting labor?
- Hard to tell what is first order
- Need a structure that more easily connects to data
- Policy?
  - efficiency within-period suggests no scope for policy
  - but: concatenated dynasties $=\text{market incompleteness}$
  - welfare?