Discussion of "Macroeconononomic Effects of Financial Shocks" by Urban Jermann and Vincenzo Quadrini

Monika Piazzesi
Stanford & NBER

Gary Stern Conference April 2010

Interesting paper

- studies RBC model with "financial shocks" and frictions:
  standard statistics
  (std of output, investment, consumption, hours, TFP)
  but also
  equity payouts (dividends + repurchases − equity issuance)
  debt repurchases (− debt issuance)
- finds that productivity shocks alone
  do not account for recently observed fluctuations,
  do in conjunction with "financial shocks" and frictions

Main mechanism

- Single firm, prefers debt because of tax advantage τ
- Firm pays factors *before* getting revenues, so mismatch
- Firm needs *intra-period* loans, on which it can default, faces enforcement constraint $\xi_t (V_t - d_t) \geq y_t$
- Negative financial shock ξ_t
  lowers the amount that firm can borrow
  - firm cannot issue equity, lowers dividend d_t
    but faces quadratic adjustment cost
    $\varphi(d) = d_t + \kappa (d_t - \overline{d})^2$
  - less employment
- debt repurchases countercyclical, equity payouts d_t are procyclical
- Key parameters for the importance of frictions: τ, κ

Stylized facts from corporate finance

- dividends, equity repurchases, equity issuance are all **pro**cylical
  Choe, Masulis, Nanda 1993,
  Korajcyzk & Levy 2003,
  Dittmar & Dittmar 2008
- composition effect: firms that want to repurchase do so in booms, firms that want to issue equity do so in booms

- *here*: equity payouts = dividends + repurchases − equity issuance are **pro**cyclical

Theoretical explanations for procyclical equity issuance

- Levy & Hennessy 2007, JME
  RBC model with agency problem: managers can divert earnings
- managers need to hold equity stake in their company
  to be able to raise external equity
- negative productivity shock/recessions:
  lowers wealth of the managers,
  can raise less external equity, raise debt
  (less affected by misreporting)
- positive productivity shock/booms:
  increases wealth of managers,
  raise more external equity, less debt

Theoretical explanations for procyclical equity issuance

- Levy & Hennessy 2007
  Choe, Masulis, Nanda 1993
  Covas & Den Haan 2006
  firms choose **equity over debt** in booms

- here, *opposite* effects:
  firm chooses **debt over equity** in booms,
  debt easier to issue

Theoretical explanations (Cont'd)

- Levy & Hennessy 2007: **model with heterogeneous firms**
  have different diversion technologies,
  idiosyncratic productivity shocks
  face financing constraints that bind more or less
- less constrained firms issue more equity in booms
  than more constrained firms
- empirical evidence: Korajcek and Levy 2003

- here: **model with single firm**, always constrained

Measurement of financial shocks

- Measure productivity shocks z_t as Solow residuals.
  How about financial shocks ξ_t?
- For representative firm, the borrowing constraint binds

$$\xi_t (V_t - d_t) = y_t$$
$$\longrightarrow \text{get time series of } \xi_t$$

- V_t = value of the stocks issued by the firm
  could use stock market data to measure V_t
- however, in the model:
  $V_t \approx$ book value of equity $= k_t - b_t / R_t$
  not like market value of equity
- so, instead use model implied value:
  $\xi_t = c_z \widehat{z}_t + c_y \widehat{y}_t + c_k \widehat{k}_t + c_b \widehat{b}_t$

Quadratic adjustment costs for equity

$$\varphi(d) = d_t + \kappa \left(d_t - \overline{d}\right)^2$$

- reduced form for something else:
  costly to lower dividends, because of signalling
- symmetric??
- calibration of κ :
  - key parameter for quantitative importance of frictions
  - match the volatillity of equity payouts/GDP
  - $\kappa = 0.25$ high?? low??
  - lower κ: financial shocks are less important for output, hours more volatile equity payouts/GDP

Conclusions

- Theoretical explanation based on single firm:
  need preference for *debt over equity* in booms
- empirical patterns for individual firms who raise external funds:
  preference for *equity over debt* in booms
- compositional effects
- what happens if "financial shock" $\tilde{\zeta}_t$ is measured from data?
- quadratic adjustment costs?
- calibration of κ?