Long-Term Investment and Collateral Building with Limited Contract Enforcement

Burak Uras

Discussion by: Ctirad Slavík, Goethe Uni Frankfurt

2012 Cologne Macro Workshop

Outline

- Introduction.
- Summary of the paper.
- My comments.
- Conclusions.

Introduction

- The big question addressed in this paper:

  The relationship between contract enforcement and macroeconomic performance.

- Mechanism in this paper: better enforcement, more entrepreneurs invest (more) in productive long run projects.

- What if Turkey had the same contract enforcement as the US?

  GDP would be higher by 15%.

Model

- 3 period OLG with financiers (households) and entrepreneurs.
- Financiers
  - In period 1 have endowment 1, decide whether to lend for 1 period or 2 periods (or store).
  - Diamond-Dybvig type of uncertainty - early vs. late consumers.
  - No runs because late consumers don't like to consume early.
- Entrepreneurs
  - Invest in 1 or 2 period projects, a $0-1$ decision.
  - Heterogenous in their 2 period efficiency, 1 period efficiency and 'pledgeability' - ability to run away; i.e. (θ, z, λ).
  - All this public info. No 'residual' uncertainty.

Equilibrium

- 1 period interest rate R_1 and 2 period interest rate R_2 s.t. the supply of 1 and 2 period credit equals demand.
- Focus on steady state equilibrium.

Inefficiency

Because of limited contract enforcement:

- Not enough entrepreneurs start more productive long-run projects (extensive margin).
- Long-run projects are not large enough (intensive margin).

Key Results

- Pledgeability λ along with aggregate pledgeability $1/\zeta$ determines whether an entrepreneur is financially constrained.
- Productivity and pledgeability parameters determines whether an entrepreneur undertakes a LR project.
- (Some) financially constrained SR entrepreneurs switch to LR/increase the size of it when λ or $1/\zeta$ increase.
- Extends the model to account for investment claims trading.

Quantitative Exercise

- Parameterize/calibrate the model to the US and Turkey.
- Calibration implies lower contract enforcement in Turkey.
- If Turkey had US enforcement, GDP$\uparrow$ by 15%.

Evaluation

- Very interesting research topic and paper.
- Able to study maturity structure in ∞ horizon GE model.
- My comments:
  - Link to the data.
  - Model features.
  - Quantitative analysis.
  - Suggestions for future work.
  - Minor comments.

Link to the Data

- Motivation:
  - Richer countries invest more in IT (computers and software) assumes IT = LR investment. Is that so?
  - Anecdotal evidence: average life of a Dell laptop (IT investment) vs. the Great Wall of China.
  - Empirical evidence: equipment (machines and software) depreciates much faster than structures (buildings) as documented by GHK (1997) and KORV (2000).
  - Or should I think about the output in the model as new capital? Than why match with GDP? More below.
- Using LR borrowing data in the quantitative part better, but:
  - Evidence for other countries missing.
  - Model period, i.e. SR = 25 years, LR = 50 years. Data?

Model Features

- What happens with early financiers LR lending?
  - He does not recover it.
  - The entrepreneurs don't get it.
  - Define the CE, include the good market clearing condition.
  - The extension seems to be going in that direction, but not entirely clear (to me).
- Debt Market Structure.
  - Why cannot entrepreneurs roll over debt?
  - Why cannot a 2 period loan be used for 2 SR investments?
  - Are these suboptimal, it is WLOG?
- Why is the SR vs. LR by entrepreneurs a 0-1 decision?

Quantitative Analysis

Could use a bit more work.

- Which parameters are set outside the model and which calibrated not clear (to me).‘
- Calibration targets are not hit exactly, what is the criterion?
- Firm size in the model is identified with the degree of pledgeability? Is that a good match? Report the size as well.

Quantitative Analysis

The role of heterogeneity in λ.

- Seems very important, yet hard to understand.
- Would be nice to plot the distributions.
- Is there any model independent evidence on its shape and the differences between countries?
- Cagetti-DeNardi? Antunes at el? Ramey-Shapiro?

Suggestions for Future Work

- Disentangle the extensive vs. intensive margin.
- No capital and labor - would be a great extension to make it into a growth model, would address my comment above.
- Could study business cycle properties, propagation of TFP shocks (as in CMQ, 2004) etc.
- What about policy implications?
- Maybe use some of the ideas of this paper to make 2-3 period banking models (Allen-Gale, Diamond-Rajan) into ∞ horizon macro models with a better link to the data.

Conclusions

- Very interesting research topic and paper.
- Looking forward to more.
- Tighten the paper a little.

Minor Comments

- Tighten the intro.
- Value function is a function of states, not function of the (optimal) choice variable (section 3).
- Proposition 3.1 is not proved. If it is that obvious, maybe don't call it Proposition. Moreover, I would define:

$$d^{opt} = max\{1, \frac{\pi R_2}{R_2 - (R_1)^2}\}$$

- Proposition 3.3 is important, provide a proof.
- Ass. 2 should say $a \leq \lambda^*(z_b)$ instead of $a \leq \underline{a}$. What is $\underline{a}$?

Minor Comments

- Page 18 discussion could be linked to firm-dynamics papers by Hopenhayn and others.
- Page 18: *Therefore, entrepreneurs who are at the low end of the distribution within intermediate levels of financial pledgeability entrepreneurs" choose to invest short-term more intensely relative to those who are at the high end of the same distribution.*

  This is not clear to me given that the investment decision is a 0-1 decision. Needs to be discussed better.
- Table 1 last line needs an explanation.
- Why are some figures in main text and some in appendix?
- Fix Chart 3.
- Footnote 5 is interesting. Would be interesting to know under which conditions storage is used.

Lemma 3.2

- I believe the lemma is correct, but ...
- Confusing: (7) and (9) should have R_1 and not R_2 and R.
- Proof of Lemma 3.2.1 unclear/incomplete. LHS of (9) does not contain z_j, the RHS does. The RHS is also not constant in λ though the dependence of x_1.
- Proof of Lemma 3.2.2 not quite clear + typo on the line below equation (22).
- I suggest the following strategy for Lemma 3.2.2
  - Assume $\lambda_j \geq \lambda^{**} = \zeta\alpha$. Guess that (8), (11) is slack, solve the max problem, verify that the guess is satisfied given the ass.
  - Assume $\lambda_j < \lambda^{**} = \zeta\alpha$. Show that (8), (11) are binding.
- Then prove 3.2.1 in a similar way along with the relationship of λ^* and λ^{**}.