Long-Term Investment and Collateral Building with Limited Contract Enforcement

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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. \((\theta, z, \lambda)\).
  - 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 $\lambda$ 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 $\lambda$ 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↑ by 15%.
Evaluation

- Very interesting research topic and paper.
- Able to study maturity structure in $\infty$ horizon GE model.

My comments:
- Link to the data.
- Model features.
- Quantitative analysis.
- Suggestions for future work.
- Minor comments.
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.
- 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 \( \lambda \).

- 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 $\infty$ 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 \( a \leq a \). What is \( a \)?
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.
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 $\lambda$ 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

1. 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.
2. 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 $\lambda^*$ and $\lambda^{**}$. 