

Credit Allocation under Economic Stimulus: Evidence from China

Discussion

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Broad Facts for China (Pre 2008)

- Aggregate investment rate is high – 40%
- Rates of return on capital are high – 20-30% – and increasing.
- SOEs account for a large but declining share of economic activity (DPEs increased from 4 to 56% of employment between 1997-2007).
- SOEs are heavily represented in capital rather than labor intensive industries.

- SOEs have lower productivity but better access to finance.
- DPEs mostly grow through internal funds.
- As economy transitions, efficient DPEs have access to highly elastic input supply as inputs are reallocated from SOEs to DPEs.
- Combined with lack of internal investment opportunities for savers this implies current account surpluses combined with high and growing rates of return on capital.

- Massive increase in bank lending – growth rate roughly doubles pre-stimulus.
- In 1 quarter alone bank lending increased 6 fold – since loan size remained roughly constant this implies a six fold increase in the number of loans made between 2008:Q4 and 2009:Q1.
- In stimulus years (2009-2010) growth rate of loans at firm level roughly doubles from 10 to 20 percent.

How was this accomplished?

- Reduction in required reserves
- Reduction in lending rate.
- Both appear to be highly effective.

- Was such a massive increase in credit efficiently allocated?
- Did SOEs distort the process?
- Did credit flow to firms with high or low return to capital?
- Did credit expand capital relative to labor or vice-versa?

- Credit flowed more to SOEs
- Credit flowed more to firms with low capital productivity.
- Reversed allocative efficiency gains of the prior decade.
- Achieved through implicit guarantees to state-owned firms.

Identification of credit supply

- Firm-bank relationships are highly persistent.
- Stimulus policy was heterogeneous across banks (delivers cross-firm supply variation).
- Supply measure is weighted average of total bank lending at each bank:

$$S_{i,t} = \sum_b \omega_{i,b,t} \Delta \log(l_{b,t,-i})$$

- Firm-specific weights reflect borrowing share of firm i across banks b .
- Bank lending variable $\Delta \log(l_{b,t,-i})$ is total loan growth for bank b omitting lending to city-industry pair corresponding to firm i .

Comment I: Demand vs Supply

- This does not explicitly control for firm-level demand.
- Paper exploits subset of data of firms with multiple banking relationships to show robustness of supply effects on firm-level lending.
- In outcome regressions, paper include firm-specific variables to soak up demand.
- Concern: there may unobservables that matter (including industry or regional variation in cyclical).

Comment II:

- Why are banks reacting differentially to stimulus policy?
- Heterogenous bank effects primarily due to variation in reserves.
- Why do some banks hold excess reserves?
 - More expected loan losses?
 - More lending opportunities?

Alternative approach:

- Use sample of firms with multiple banking relationships to estimate fixed effects model for lending to firm i by bank b :

$$\Delta \log l_{i,b,t} = \alpha_{i,t} + \gamma_{b,t} + \varepsilon_{i,b,t}$$

- $\alpha_{i,t}$ captures firm demand in time t
- $\gamma_{b,t}$ capture bank supply in time t .
- Construct weighted-average of bank supply effects to obtain firm-specific credit supply shock:

$$S_{i,t} = \sum \omega_{i,b,t} \gamma_{b,t}$$

- Exploits multiple banking relationships to identify supply but once estimated this supply shock is a valid instrument arguably even for firms with only one bank.

Key results on lending outcomes

- 1% increase in credit supply leads to 1% increase in firm borrowing.
- SOEs receive 36% more credit during stimulus.
- No obvious difference across firm lending outcomes based on capital productivity (APK) – noisy estimates.
- Dynamics: many interactions and large standard errors, better to split sample pre and post stimulus?

Comments on lending outcomes:

- SOE not independent of APK so what do we learn by using multiple interactions?
- Include industry-time and region-time effects.
- Look at within-industry variation in APK for interactions.
- Question – can we measure TFP or profit rates?

Key results on outcome variables

- Credit expansion implies substantial decrease in capital-labor ratios (0.2 for $\Delta \log K$ versus 0.3 for $\Delta \log E$).
- This is especially true for SOEs during and post stimulus.
- SOEs also experience lower loan losses from lending during and post stimulus.
- In contrast, DPEs experience increase in loan losses from lending during and post stimulus.

- Implicit government guarantees explain lower post-stimulus loan losses for SOEs.
- Evidence also consistent with SOEs shift towards less reliance on capital and as a result have higher profits and lower default rates?
- Empirical results also imply that high APK firms increase labor relative to capital more than low APK firms – consistent with stimulus providing gains in allocative efficiency.

- Rich data set that combines firms and banks allows one to understand economic implications of credit supply shift during massive banking stimulus.
- Key results suggest stimulus led (treated) firms to increase inputs and hence firm size and also increase labor relative to capital.
- Questions:
 - Was this shift in factor allocation productivity enhancing or productivity weakening?
 - Is reduction in loan losses for SOEs evidence of government bailouts or efficiency gains?