Discussion of Feng Dong, Pengfei Wang, Yi Wen
"Credit Search and Credit Cycles"
Multiple Equilibria and Financial Crises Conference

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Context

- Tremendous increase in excess reserves in banks since the start of the financial crisis.
- Models of information asymmetries a la BGG, KM:
  - Firms lack capital, problem of skin in the game
  - but... liquidity seems actually rather abundant!
- We need other models to try and understand what is really going on.
- This paper proposes one such model.
Context

- **This model**: all about search frictions on the credit market.
- Depositors, banks, and firms. **Two frictions:**
  1. Banks have a hard time finding firms: \( u_t = K_t / \tilde{S}_t \).
  2. Depositors have a hard time finding banks: \( e_t = \tilde{S}_t / S_t \).

  ⇒ On aggregate, savings are therefore only utilized up to a fraction \( u_t e_t \).

- Firms that don’t find banks: interpreted as being credit constrained. Funds that don’t find firms: excess reserves.

- First assumption perhaps a bit of a black box, but it is standard in this literature. Maybe it proxies for moral hazard, etc.

- Second assumption is more uncommon...
Intuitions

Depositors search harder for banks when output is high, with elasticity that of the matching function. $e_t \sim Y_t^{\epsilon_H}$:

- Search harder if deposit rate is higher. Deposit rate is higher if loan rate is higher (because zero profit of banks), which is a fraction of profits, increasing with output.

- In practice, I am worried that: $\epsilon_H \simeq 0$? (problem: you then kill indeterminacy) Hard to find data which would suggest otherwise. (money under mattress?)

Fraction of matched firms is higher when output is high $u_t \sim Y_t^\epsilon$:

- Total entry costs need to be equal to the aggregate profits, because of free entry. So when $Y_t$ increases, more firms must be matched.

- Number of loan officers assumed to be constant.
Then the model writes as follows:

\[ Y_t = A_t \left( e_t u_t S_t \right)^\alpha N_t^{1-\alpha} \]
\[ e_t \sim Y_t^{\epsilon_H} \]
\[ u_t \sim Y_t^{\epsilon} \]
\[ \psi N_t^\xi = \frac{1}{C_t} (1 - \alpha) \frac{Y_t}{N_t}. \]

Wen (1998) uses capacity utilization to decrease the degree of IRS needed in Benhabib-Farmer. Here they use this deposit search of households equation. (equation 2)

I am not sure this is a convincing solution to this problem.

Also, the model works through \( u_t \), underutilized savings in banks, that they don’t lend out.
Excess Reserves = Underutilized savings

Figure 1: GDP Growth Rate and Excess Reserve Ratio

Countercyclical interest rate spread, but also self-fulfilling business cycles driven by the effective utilization rate of the aggregate credit resources. Moreover, our calibration exercise reveals that an endogenous multiplier-accelerator propagation mechanism is empirically plausible despite the lack of production externalities and technological increasing returns to scale (Wen (1998)).

Our framework also shed light on the issue of credit rationing. Credit rationing is not only of theoretical interest, but also plays a non-trivial role in real-world firm financing. As documented in Becchetti et al (2009), around 24% of firms are subject to credit rationing in the United States. However, the literature on credit rationing is extremely thin despite the seminal work of Stiglitz and Weiss (1983). In addition to shedding light on the cyclical behavior of banking reserve and interest spread, our search-theoretical approach also provides a short cut to quantitatively study the business-cycle property of credit rationing.

Our framework is extremely simple. The benchmark model has three type of agents: a representative household with a continuum of ex-ante identical members (depositors), a financial intermediary (bank) with a continuum of ex-ante identical loan officers, and a continuum of firms. The bank accepts deposits from the household and then lend credit to firms. We assume there are search frictions between households and banks as well as between banks and firms, similar to that in a standard Diamond-Mortensen-Pissarides (DMP) search-and-matching model of unemployment. As in the DMP model, our model features aggregate matching functions that determine the number of credit relationships between depositors and banks, and...
Before 2007
What happened?

The utilization rate decreases tremendously! What is specific to 2008? Something else is going on... (+ interest rate on reserves)
Calibration

- These intuitive remarks show up in the calibration.

- Model as it stands hard to take seriously, as least quantitatively.

- All of the difference between loan rate and deposit rate in model accounted for by unmatched savings, because of banks’ zero profit, so:

  \[ R^d_t = u_t R^l_t. \]

  Problem is that deposit rate is approximately 0 now and the loan rate is a few percentage points. \( u_t \) is that low?

- Maybe maturity, risk, etc. ?
The paper I read insists on calibration, and finding a mechanism to generate increasing returns. The condition is:

\[
\epsilon + \epsilon_H > \frac{1}{\alpha} \frac{\alpha + \xi}{1 + \xi},
\]

where \(\alpha\) is share of capital (1/3), and \(\xi\) is the inverse of Frisch elasticity.

More favorable to indeterminacy: \(\xi = 0\) - completely elastic labor supply. Robustness to elasticity of 2 – 3? Condition becomes:

\[
\epsilon + \epsilon_H > 1.
\]
Calibration 2/2

- $\rho = 1/\beta - 1 = 1\%$.

- The deposit rate is used to calibrate the $\epsilon_H$, the elasticity of looking for banks as a savers when output increases so $R_d$ increases:

  $$R^d = \frac{\rho}{1 - \epsilon_H}.$$

- At quarterly frequency, they assume the interest rate depositors get is:

  $$R^d = 5.4\% \Rightarrow R = 23.4\%!$$

  Where does this come from?

- With reasonable deposit rate, $\epsilon_H$ is very close to zero.

- Other problems with calibration...

- Always a problem to ask entrepreneurs who are denied credit. (shared by literature on information asymmetries) What if they are just too optimistic?
Conclusion

- Preliminary work but very interesting question. About the not enough lending: regulators are a bit schizophrenic.

- Perhaps not in the direction the paper is currently going. I found the theoretical part on double search and matching, and Hosios efficiency potentially more interesting.

- I am worried though that plausibility of multiple equilibria is going to remain a problem with this mechanism.

- It find it hard to believe that savers have such a hard time finding banks.

- I would concentrate on the theoretical aspects of the paper, rather than trying to do a calibration: Hosios condition with capital and labor, etc.