Discussion of: Unemployment and gross credit flows in a New Keynesian framework
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Objective

Study quantitatively role of credit reallocation in shock transmission and in recovery from recessions

Credit market with credit reallocation frictions (here, search frictions) in otherwise standard New-Keynesian DSGE model

Important: does credit reallocation matter for macroeconomy? Research has focused on net credit to economy

With significant firm heterogeneity, credit reallocation as important as net credit

What is credit reallocation?

In credit market continuos, dynamic process of reallocation of credit across heterogenous firms. Reallocation subject to frictions

Vast job reallocation literature (Davis and Haltiwanger, QJE, 1992)

Credit reallocation: inter-bank, Dell'Ariccia and Garibaldi (ReStud, 2005); inter-firm, Herrera, Kolar and Minetti (JME, 2011)

$$POS_t = \sum_{\substack{f \in s_t \\ g_{ft} > 0}} g_{ft} \left(\frac{c_{ft}}{C_t} \right),$$

$$NEG_t = \sum_{\substack{f \in s_t \\ g_{ft} < 0}} |g_{ft}| \left(\frac{c_{ft}}{C_t} \right),$$

$$SUM_t = POS_t + NEG_t,$$

$$NET_t = POS_t - NEG_t,$$

$$EXC_t = SUM_t - |NET_t|.$$

How to model credit reallocation?

Reallocation of credit across firms entails rich firm heterogeneity. Frictions can be modelled in various ways

This paper builds on Wasmer and Weil (AER, 2008), Den Haan, Ramey Watson (JME, 2003), Petrosky-Nadeau and Wasmer (JME, 2015): search credit market in dynamic general equilibrium

Credit reallocation requires firm heterogeneity but not search: yet, properties of credit reallocation (e.g., sluggish credit creation) suggest search frictions can be useful for capturing properties

Models mostly stylized, still limited quantitative analysis

Empirical evidence

VAR analysis of gross loan flows in United States. Paper is about inter-firm, not inter-bank, credit reallocation. The two can be governed by different forces and exhibit different dynamics

True, in model each bank serves one firm, and each firm served by one bank. But real world very different

Data on inter-firm credit reallocation available. Match model with data on inter-firm credit reallocation. But perhaps this for future...

Also, paper is on unemployment, not about job reallocation. Remove (or downplay) emphasis on gross job flows

Model overview

Households hold money (CIA) and deposits in banks. Supply labor to intermediate firms. Consume differentiated final goods

Final producers use single intermediate good to produce final goods

Intermediate firms use labor to produce intermediate good. Firm heterogeneity due to idiosyncratic productivity shocks

Intermediate firms must finance wages with loans. Search for "banks" in credit market

If banks unmatched in credit market, deposits in central bank as reserves. Bilateral bank-firm matches

Model overview (cont.)

Credit destruction: endogenous and exogenous separation of credit relationships. Endogenous, joint surplus bank-firm below zero due to bad productivity draw

$$\text{NEG}_t = cd_t = (1 - \varphi_t(\widetilde{\omega}_t)) - p_t^f \delta$$

Credit creation governed by matching process

$$\text{POS}_t = cc_t = \frac{m_t}{f_{t-1}^m} - p_t^f \delta$$

Implied credit reallocation and net credit growth

$$
\begin{aligned}
\text{SUM}_t &= cc_t + cd_t = \frac{m_t}{f_{t-1}^m} + (1 - \varphi_t(\widetilde{\omega}_t)) - 2p_t^f \delta \\
\text{NET}_t &= cc_t - cd_t = \frac{m_t}{f_{t-1}^m} - (1 - \varphi_t(\widetilde{\omega}_t))
\end{aligned}
$$

Comments: Model setup

Excellent idea to embed credit reallocation in a rich New Keynesian DSGE model. Quantitatively investigate its effect

Complexity: 39 endogenous variables, search frictions (and bargaining) in credit market, both staggered price and wage adjustment (Calvo) in goods and labor markets, cash in advance

- Staggered wage setting? Interest for unemployment, but in first approach can simplify wage setting (reintroduce later)
- Money? Cashless economy (Woodford, 2003)
- Cost channel of monetary policy? Can shut it down (e.g., focus on credit for fixed cost of opening vacancies)
- Endogenous destruction of credit matches?

Theoretical foundations

Why some markets modelled as search markets while others as centralized markets with staggered pricing?

In previous theory work (e.g., WW, AER, 2008), search frictions in both labor and credit markets

We need to get closer to workhorse New Keynesian DSGE model

However, need better theoretical understanding of this asymmetric treatment of markets and its implications

Dynamics of reallocation: Internal funds

In model no accumulation of internal funds

Good for model tractability but credit reallocation cannot be influenced by accumulation internal funds or cash flow shocks

Productivity shocks no effect through accumulation internal funds. Positive productivity shocks raise credit demand but do not reduce credit need through cash flow accumulation

But we know even net credit demand can be countercyclical because of internal funds accumulation (Bernanke, Gertler and Gilchrist, ReStat, 1996)

Dynamics of reallocation: Intensive margin

Bank loan = wage bill. Intensive margin of credit richer, e.g., than in WW (2008), where banks finance fixed cost of job posting

Here, intensive margin does not enter credit reallocation *definition* (based on credit relationships, regardless of credit amount). But,

- in data, cannot observe number of credit relationships (except in surveys). Integrate intensive margin in credit reallocation?
- in model, credit to firm depends on amount of labor hired; differs across firms due to idiosyncratic productivity shocks
- wages payable short term liabilities. HKM (2011): some differences short-term vs. long-term credit reallocation
- monetary policy influences only extensive margin reallocation

Dynamics of reallocation: Timing choices

Exogenously destroyed credit matches can be reformed immediately, while this not true for endogenously destroyed matches

Credit creation and destruction net of exogenously severed relationships that were reformed

Also, lag between credit match formation and production

Increase in exogenous separation rate mechanically pushes down credit reallocation

Calibration and response to shocks: Open questions

Calibration matches 2.9 % credit destruction rate (quarterly). On low side, if we interpret reallocation as inter-firm credit reallocation

Impulse responses reveal procyclical response of credit reallocation to monetary policy shocks; countercyclical response of reallocation to financial shocks (almost by construction, though)

What are model predictions about cyclical behavior of credit reallocation? In HKM (2011) inter-firm credit reallocation moderately procyclical

Most importantly, what implications for responses of excess credit reallocation?

Calibration and response to shocks: Open questions

Which shocks explain most of volatility of credit reallocation? And what does model predict for volatilities of credit creation, destruction and reallocation?

In data, credit destruction much more volatile than creation

In recent recessions, inter-firm credit reallocation has dropped due to a decrease in creation rate and an unchanged destruction. Can the model explain this?

Concluding remarks

Very promising research agenda: embedding credit reallocation in DSGE models

Need comprehensive data to track inter-firm and inter-bank credit reallocation in various countries, exploring its behavior during credit booms and busts. Maybe BIS can be interested

Discipline DSGE models with such data. Understand contribution of credit reallocation, relative to net credit growth, in business cycle