"How Much Do Bank Shocks Affect Investment? Evidence from Matched Bank-Firm Loan Data"

By

Mary Amiti
Federal Reserve Bank of New York

David Weinstein
Columbia University

Discussion

Erasmo Giambona
University of Amsterdam

De Nederlandsche Bank – October 17, 2013

How Does *Credit* Affect *Investment*?

The work of Amiti-Weinstein contributes to one of the central questions in corporate finance and macroeconomics research:

- ***understanding whether and how access to credit affect corporate investment***

The paper uses a remarkable dataset containing all short-term and long-term loans from financial institutions to non-financial firms in Japan over the sample period 1990 to 2010

Using these detailed data, the authors are able to separate "pure" bank shocks, from firm shocks (e.g., a decrease in growth opportunities), industry shocks, and general credit market conditions

How Does *Credit* Affect *Investment*?

Identification strategy: effect of "exogenous bank shock" on investment

e.g., negative shocks to the supply of loans from lender ABC to firm XYZ due to idiosyncratic-lender event, such as, Chapter 11 filing

The paper finds that bank shocks have a negative effect on corporate investment, but mainly for bank-dependent firms (i.e., firms with high Mean Loan-to-Asset ratios) relative to non-bank dependent firms: ***relative effect***

The paper also finds that these bank shocks matter for the economy at the aggregate level – i.e., there is more than just bank-dependent firms cutting investment relative to non-bank dependent firms: ***aggregate effect***

Institutional Details

Channel of the identification strategy: negative shocks to the supply of loans from lender ABC to firm XYZ due to ***idiosyncratic-lender event***, such as, Chapter 11 filing – Highly plausible!!

But it would help to describe how this channel operates by providing institutional details

This exercise might also be useful to calibrate some additional tests

Institutional Details

Take for instance the case of a lender filing for Chapter 11:

- What are the implications for lending according to the Japanese Bankruptcy Code?
- Will lenders stop all lending activities?
- How are C&I loans structured in Japan? – According to the Survey of Terms of Business Lending 80% of All C&I in the U.S. were under commitment in 2012 – Q4
- What percentage of loans is made under commitment in Japan?
- Can lenders in Chapter 11 stop drawdowns for loans made under commitment under the Japanese Bankruptcy Code?
- If not, then how is exactly the idiosyncratic-lender event working?
  - Perhaps, the effect is felt by those borrowers that need to roll over the pre-committed credit facility at the time of the idiosyncratic-lender event
  - Identification strategy: these borrowers are "exogenously" affected by the lender's event and could serve as "treated" group in a diff-in-diff setting (see, Almeida et al., 2012)

Identification Strategy: How Does it Work?

By construction the "bank shock variable" is exogenous to investment, then it seems the econometrician just needs to regress investment on the shock variable to gauge the desired effect:

i.e., effect of loan supply shock on investment

But in Table 2 the focus seems to be on

- ***Bank Shock × Mean Loan-to-Asset Ratio***
- Why not starting with a base regression with *Bank Shock* alone?
- Would also include basic control for size, cash, etc.

The interaction resembles a diff-in-diff approach, where the *Bank Shock* is the "treatment" and the *Loan-to-Asset Ratio* operates to identify "treated" and "control" groups

Identification Strategy

But, can we claim that High Mean Loan-to-Asset Ratio firms (i.e., firms that rely more on bank financing, rather than bond/equity markets) are "exogenously" such type?

Could it be that High Loan-to-Asset Ratio is correlated with growth opportunities?

- E.g., these firms lack growth opportunities, which in turn explains why they have limited access to alternative sources of financing
- When the credit shock hits, they invest less because other financing channels (bond and equity markets) are not available to firms with low growth opportunities

Relatedly, why is that "bank-dependent firms" do not hedge against idiosyncratic-lender events?

Could their inability to accumulate cash or credit lines being related to growth opportunities?

Identification Strategy

It could be useful to see descriptive stats on cash holdings for bank-dependent and non-bank dependent firms:

- For listed U.S. manufacturing firms: cash holdings/assets is 23% for bank-dependent (unrated) firms vs. 8% for non-bank dependent firms

Estimate regressions in Table 2 separately for High/Low Cash Holding firms:

- Does the sensitivity of *Investment* to *Bank Shock* decrease as much for high-cash/high loan-to-asset ratio firms?

For listed U.S. manufacturing firms, the Investment-Cash Flow sensitivity is three time as small for High Cash firms

Investment-Cash Flow: By Cash Holdings

Regress Investment on lagged Cash Flows, Tobin's Q, Size, Leverage

	Full Sample (1)	Cash Holdings < Median (2)	Cash Holdings > Median (3)
Cash Flows	0.026***	0.044***	0.014***
	(0.003)	(0.005)	(0.003)
Tobin's Q	0.004***	0.004***	0.003***
	(0.001)	(0.001)	(0.001)
Size	0.001	-0.002**	0.003***
	(0.001)	(0.001)	(0.001)
Leverage	-0.019***	-0.021***	-0.013***
	(0.002)	(0.003)	(0.004)
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Obs.	26,085	13,042	13,043
R^2	0.088	0.090	0.082

Could we observe the same for the Investment-Bank Shock sensitivity?!

Conclusion

Remarkable database to address a central question in corporate finance:

- ***nexus of finance and investment***

Clean identification strategy: ***lender-idiosyncratic events***

Could be useful to provide more institutional details on how lender events operate to affect access to finance

Fine tune identification strategy: perhaps only firms that need to roll over at time of idiosyncratic-lender event are affected

Add tests to rule that lack of growth opportunities (as opposed to bank shock) cause investment to decline