Credit Cycles under Forward-Looking Investment

A Brief Summary

Link to the full paper: https://yeli-macrofinance.com/credit_cycle.pdf

The literature on credit cycles since the Global Financial Crisis has been shaped by the U.S. mortgage crisis. Yet corporate capital expenditure, increasingly financed by banks and non-bank intermediaries, has again become a primary driver of economic growth. We develop a theory of credit cycles organized around a feature that distinguishes corporate borrowing from household mortgages—the forward-looking nature of firms' credit demand. When a firm invests, it does so with future growth in mind, and exploiting those growth opportunities will itself require financing. A firm's current borrowing therefore depends on its expectations about intermediaries' future lending capacity.

Following He and Krishnamurthy (2013) and Brunnermeier and Sannikov (2014), intermediary equity governs lending capacity, and intermediaries are exposed to shocks to the usage value (stochastic depreciation) of firms' capital. Because raising equity is costly, a negative shock has persistent effects—it lowers intermediary equity today and shifts its future path downward. What happens next on the credit demand side is the crux of the theory: anticipating that credit will remain tight, firms see less value in the growth opportunities that today's investment would create, and their credit demand falls. Credit supply and demand contract together, and weak demand depresses intermediaries' profits precisely when they are undercapitalized. Unlike in models where scarce intermediary equity earns high returns that accelerate its recovery, intermediaries' investment opportunities deteriorate when equity is scarce, so the severity and duration of crises reinforce each other.

These dynamics offer a new perspective on credit policy: when credit demand is weak, government lending to firms in crises does little to raise the equilibrium quantity of credit and can backfire. As long as intermediaries supply the marginal unit of credit, firms' incentive to borrow remains tied to the path of intermediary equity. By absorbing part of credit demand, the government leaves intermediaries to earn profits only on the residual, so their equity rebuilds more slowly.

Intermediary leverage, which determines the shock sensitivity of intermediary equity, is hump-shaped. When equity is low, leverage rises after positive shocks that raise equity, because the anticipated expansion of credit supply and future growth strengthens *how much firms want to borrow*; rising leverage along the recovery path lets negative shocks erode equity quickly, so recovery is fragile as well as sluggish. Government lending in crises crowds out intermediaries' lending and pushes it to non-crisis states, effectively making intermediary leverage more procyclical in low-equity states and recovery even more fragile. When equity is high, *how much firms can borrow* becomes the binding force, which weakens the link between positive shocks that raise intermediaries' equity and firms' credit demand: once firms exhaust their borrowing capacity, intermediary leverage turns countercyclical. With leverage low in both crises and booms, the economy passes quickly through the intermediate region, and the stationary distribution is bimodal, with stagnant crises and stable booms.

We take these predictions to the data. Using the Federal Reserve's Senior Loan Officer Opinion Survey, which separates loan demand from banks' own lending terms and reports the reasons behind demand changes, together with analysts' forecasts of bank earnings that map out the expected path of bank equity, we show that in crises (major bank equity drawdowns), investment-driven credit demand moves with the expected trajectory of bank equity. The horizon of the response matches the horizon of firms' financing

needs, and the comovement survives controls for alternative financing costs and growth expectations. Bank leverage is procyclical when firms' debt utilization is low and countercyclical when it is high, switching near the median level, so the acyclicality of commercial banks' leverage documented by Adrian and Shin (2010) is, through the lens of our model, an average over two regimes.

References

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