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An Increase in Credit Supply In SIGMA

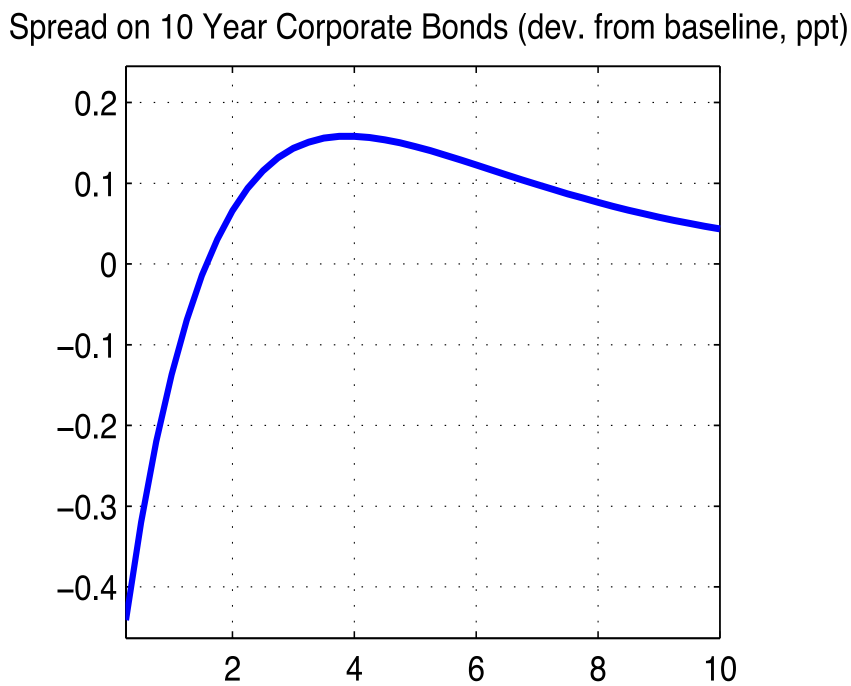
- We traced the effects of an increase in credit supply using SIGMA, a model for policy analysis maintained by the staff of the International Finance Division at the Federal Reserve Board.
- The model is described in Erceg, Guerrieri, and Gust (2006).
- SIGMA is a multi-country model with an array of realistic rigidities:
  - Sticky prices, wages, and import prices
  - Consumption habits, investment adjustment costs
  - Less than full passthrough of exchange rate movements to import prices
- We extended the basic framework to incorporate financial frictions following Bernanke, Gertler, Gilchrist (1999)
- The key parameter governing the financial friction is the leverage ratio.
- We chose a realistic leverage ratio of 2 based on flow of funds data.

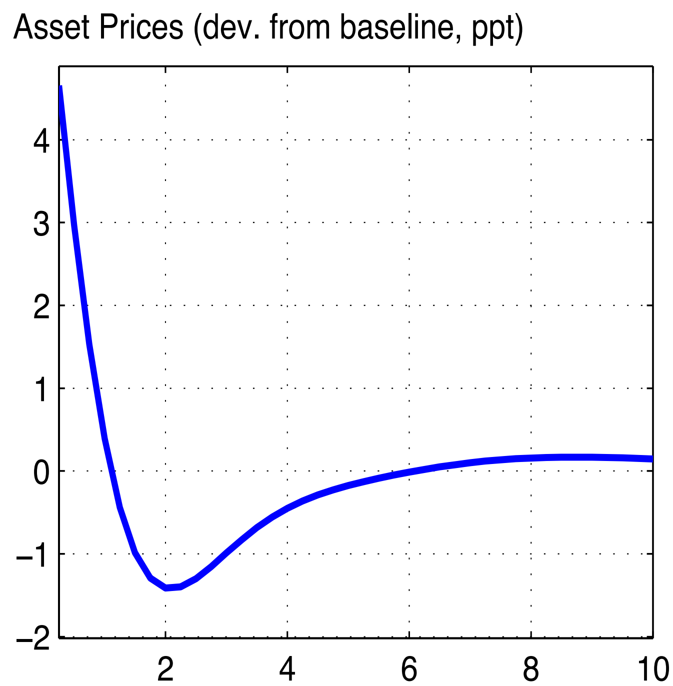
Model with One Policy Instrument

- We will focus first on the simulation of the credit expansion in a setup with only one instrument for policy, the short-term nominal interest rate.
- The rule responds to a lag of the policy interest rate, to inflation, and to a measure of the output gap.
- The rule does not respond directly to credit growth or leverage.

An Increase in Credit Supply

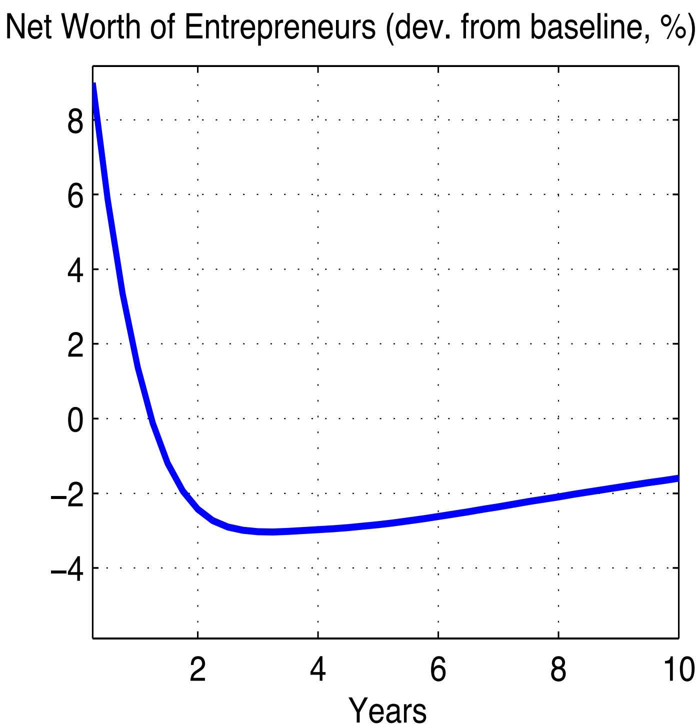
- The expansion in credit supply reduces spreads on corporate borrowing rates.
- The reduction is front-loaded and leads to an immediate expansion in asset prices

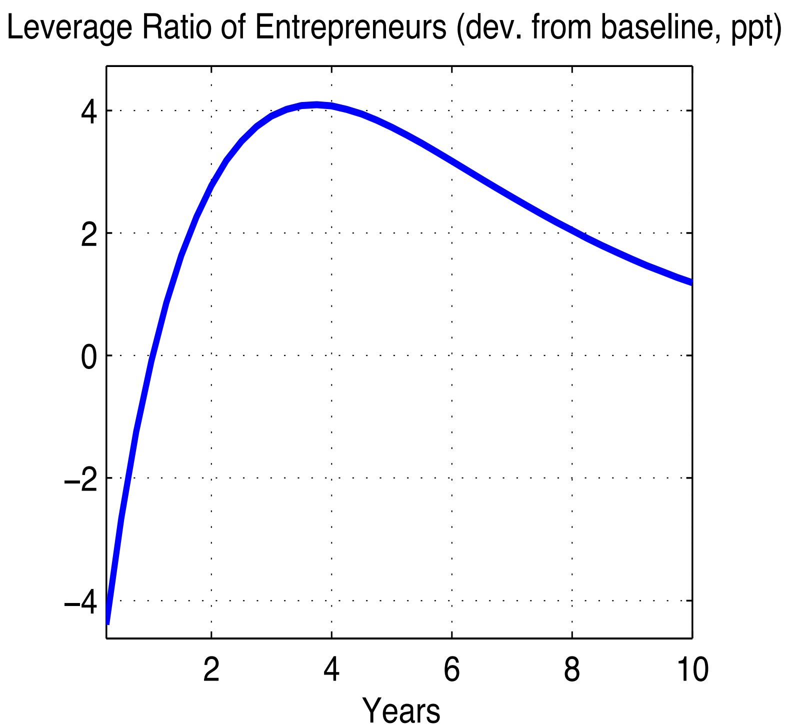




An Increase in Credit Supply

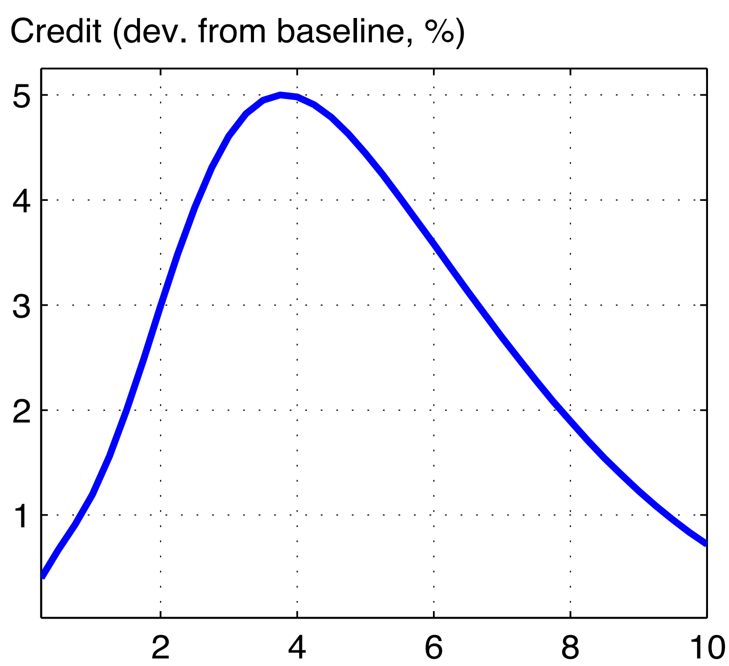
- Given that entrepreneurs are leveraged, the increase in net worth is greater than the increase in asset prices.
- Entrepreneurs borrow to acquire capital, but as the expansion in capital can only occur slowly over time, equilibrium credit also expands sluggishly.
- Consequently, the leverage ratio initially falls and then expands.

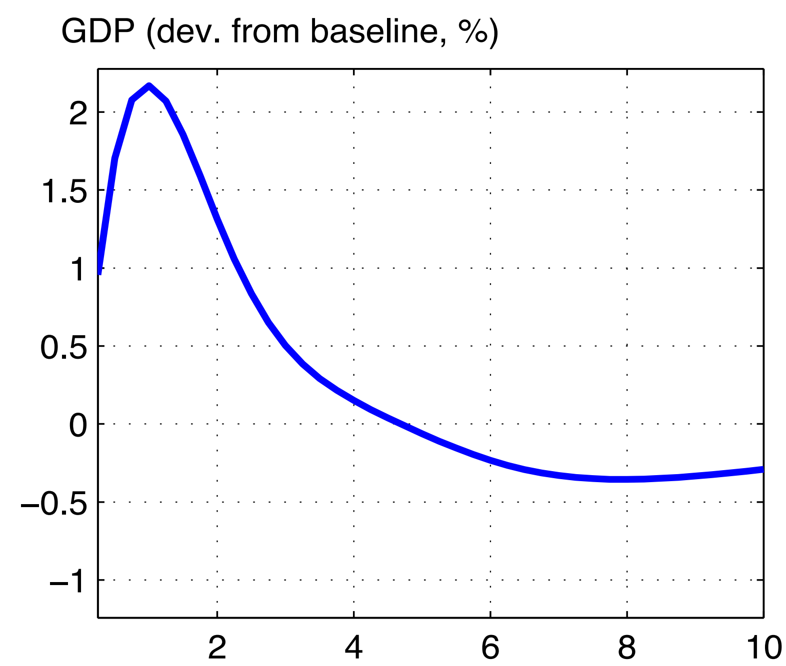




An Increase In Credit Supply

- Equilibrium Credit Expands 5% roughly 4 years into the simulation.
- The initial expansion in GDP is mostly driven by an increase in hours worked associated with the expansion in the demand for investment.





An Increase In Credit Supply with 2 Instruments

- We chose to buffet the credit expansion through an rule that uses a tax on capital as its instrument.
- The rule responds to lagged capital tax rates with a coefficient of 0.5. The rule also responds to deviations of credit from steady state and to corporate spreads in both cases with a long-run coefficient equal to 2.
- These coefficients were devised to curb the credit expansion in the first 6 quarters by 50%.

An Increase in Credit Supply with 2 Instruments

- The tax rule curbs the expansion in credit supply.
- It has the side effect of increasing the oscillations in the response of other variables and GDP, in particular.