

[Innovation, Financial Frictions, and Persistent Effects of Monetary Policy](#)

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Monetary policy is conventionally presumed to affect the economy only temporarily. A growing body of research, however, suggests that monetary policy can also have persistent effects by affecting firms' investment in R&D. This paper studies whether the way firms finance their R&D shapes these persistent effects, and which firms end up bearing the resulting productivity cost.

R&D is difficult to finance externally because it is intangible and cannot easily be pledged as collateral. As a result, many firms rely heavily on internal cash flow to fund it. A subset of firms, however, can also borrow through cash flow-based contracts, under which the amount they can borrow depends on their earnings rather than their physical assets. We ask whether access to cash flow-based borrowing helps firms protect R&D spending when monetary policy tightens.

To answer this question, we construct a new dataset combining U.S. firms' balance sheet information with detailed loan contract data. This allows us to distinguish firms with and without access to cash flow-based borrowing and compare how they respond to unanticipated increases in interest rates. We find that, following a monetary tightening, firms without access to cash flow-based borrowing cut R&D spending much more than firms that can borrow against future earnings. This gap emerges even though both groups experience similar declines in cash flow, indicating that it reflects differences in access to external financing rather than differences in how much internal funds fell. We also show that firms gaining access to cash flow-based lending experience a persistent decline in R&D volatility, while their cash flow volatility remains unchanged, consistent with the idea that this type of financing helps firms smooth innovation spending through downturns.

To trace how this gap in R&D spending affects productivity over time, we build an endogenous growth model, in which productivity growth is driven by firms' R&D investment, and firms differ only in their access to cash flow-based borrowing. In the model, a monetary tightening reduces earnings for all firms. Firms with access to cash flow-based borrowing issue debt against future earnings, allowing them to cut R&D by less, while firms without this access absorb most of the earnings shortfall through larger R&D cuts. Because R&D that firms forgo during the downturn is never made up, the resulting loss in productivity persists even after the shock itself fades.

Quantitatively, a 25-basis-point increase in interest rates reduces output by about 1 percent at its peak and leaves a persistent output loss of about 0.12 percent. If all firms had access to cash flow-based borrowing, this persistent loss would fall by roughly one third.

Finally, firms without access to cash flow-based borrowing tend to be younger and produce more patents, including more high-impact innovations, suggesting that the R&D cuts driven by monetary tightening fall disproportionately on the firms that contribute most to future productivity growth. Improving financing opportunities for innovative firms could reduce the medium-run productivity costs of monetary tightening.