



## Firm balance sheets and monetary policy transmission<sup>☆</sup>

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### Abstract

The functioning of internal capital markets in financial conglomerates facilitates a novel identification strategy of the balance sheet channel of monetary policy. We look at small subsidiary banks that are affiliated with the *same* holding company but operate in *different* geographical areas. These banks face the same marginal cost of funds due to internal capital markets, but face different borrowers as they concentrate their lending with small local businesses. Exploring cross-sectional variation in local economic conditions across these subsidiaries, we investigate whether borrower creditworthiness influences the response of bank lending to monetary policy. Our results are consistent with a demand-driven transmission mechanism that works through firm balance sheets and is independent from the bank lending channel.

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## 1. Introduction

Why do small changes in short-term interest rates drive large responses of the aggregate economy? Recent theories emphasize the role played by financial frictions in amplifying the effects of interest rate changes (see [Bernanke and Gertler, 1995](#)). The *lending channel* view presumes that monetary policy affects the *supply* of bank loans. Draining deposits from the system will reduce lending if banks face frictions when issuing uninsured liabilities. Because firms may find the credit offered by other sources to be an imperfect substitute, monetary contractions have larger effects on the borrowing of bank-dependent firms. The *balance sheet channel* view presumes that monetary policy affects loan *demand*. Higher interest rates increase debt service, erode cash flows, and depress collateral values. The deterioration in firm creditworthiness increases the external finance premium and squeezes firm demand for loans.

The ideal strategy for identifying the lending channel is to look at cross-sectional variation in banks' ability to smooth policy-induced deposit outflows holding constant the characteristics of those banks' loan portfolios. In this vein, recent papers show that the lending of small subsidiaries of large BHCs is less sensitive to monetary contractions than the lending of comparable small, independent banks (see [Ashcraft, 2001](#); [Campello, 2002](#)). Differently from stand-alone banks, members of large BHCs seem to resort to funds available from conglomerates' internal capital markets to sustain their supply of loans during a contraction.

The ideal strategy for identifying the balance sheet channel is to look at cross-sectional variation in firms' financial condition holding constant the policy-sensitivity of their lenders. This paper pursues such a strategy building on the functioning of internal capital markets in large BHCs. When lending is determined by the cost of funds of the BHC, differential responses of lending to monetary policy *across* subsidiaries will be driven by differences in the response of loan demand and not loan supply. If we shut down the supply channel by looking at BHCs that are "immune" to Fed policies, we can then look for evidence that within-BHC shifts in lending activity are influenced by the creditworthiness of firms to which banks lend. We do this by comparing monetary policy responses of similar-size banks that are affiliated with the *same* large financial conglomerate but that face *different* pools of borrowers. The borrowing clienteles are distinguished by looking at the lending of (same-BHC) small affiliates that reside in distinct geographical locations. Since small subsidiary banks concentrate their lending with small businesses (whose fortunes are tied to their local economies), we can exploit cross-sectional variation in local economic indicators at the time of a monetary policy shock to gauge whether borrowers' financial strength drives changes in bank lending.

Our empirical tests relate the sensitivity of bank lending to local economic conditions and the stance of monetary policy by combining cross-sectional and times series regressions. We show that the negative responses of loan growth to monetary contractions are much stronger for subsidiary banks operating during state-recessions than for subsidiaries of the same BHC that operate in state-booms. Put differently, our evidence implies that *borrowers' strength* drives the allocation of loanable funds. We also look at the implied aggregate magnitudes of our estimates. In particular, we estimate that while the balance sheet channel accounts for only 14% of the aggregate response of bank lending to a policy innovation after four quarters, it explains about one-third of the aggregate response after eight quarters.

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