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Credit crunches and credit allocation in a model of entrepreneurship [☆]


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ABSTRACT

We study the effects of credit shocks in a model with heterogeneous entrepreneurs, financing constraints, and a realistic firm-size distribution. As entrepreneurial firms can grow only slowly and rely heavily on retained earnings to expand the size of their business, we show that, by reducing entrepreneurial firm size and earnings, negative shocks have a very persistent effect on real activity. In determining the speed of recovery from an adverse economic shock, the most important factor is the extent to which the shock erodes entrepreneurial wealth.

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1. Introduction

The recent turmoil in financial markets has had deep consequences for the allocation of credit within the economy. Access to credit is particularly important for nascent and growing firms, for which it is much more difficult to rely only on retained earnings as a source of financing.

In this paper, we study the effects of various types of financial shocks in a model with two nonfinancial sectors: a corporate sector, primarily composed of mature firms, and an entrepreneurial sector, whose leverage is limited by its inability

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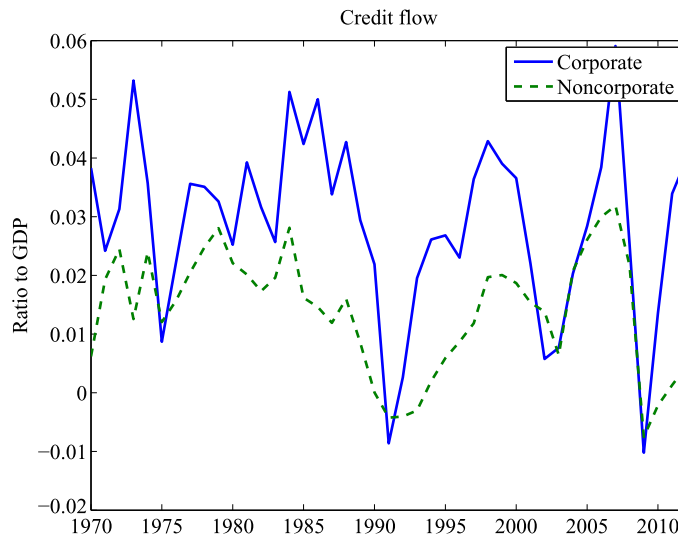


Fig. 1. Credit flows to corporate and noncorporate firms (ratio to GDP).

to fully commit to repay debts. The constraints generate a large, and realistic, dispersion in firm size, and limit the rate at which entrepreneurial firms can grow. We build on the entrepreneurship model of [Quadri \(2000\)](#) and [Cagetti and De Nardi \(2006, 2009\)](#), and introduce a financial intermediation sector that channels resources from savers to users of capital. Both entrepreneurs and corporate firms require access to intermediated funds. The reliance of entrepreneurs on intermediaries is one of the parameters used in our calibration and is most associated with matching the ratio of the wealth of entrepreneurs to that of workers. We calibrate directly the reliance of corporate firms on outside funding to match data from the flow of funds.

Our main experiment considers the effects of an increase in the cost of channeling funds through intermediaries, which increases the cost of borrowing and, in general equilibrium, also depresses the rate of return earned by savers. This shock can be the result of either a negative productivity shock in the financial intermediation sector, or the destruction of capital specific to this sector (e.g., the loss in value of mortgage-backed securities). For the parameters that best match our target moments, we find that entrepreneurial firms are affected to a deeper extent than corporate firms. To the extent that entrepreneurial firms tend to be smaller, this is in line with the empirical findings of [Gertler and Gilchrist \(1994\)](#). When intermediation costs return to their steady-state levels, both entrepreneurs and corporate firms stage an initial rebound, but the path to a full recovery is then slow. The wealth accumulation of the entrepreneurs is affected in a very persistent way. Negative credit shocks reduce firm size, and, because entrepreneurial firms can grow only slowly, limit the speed at which firms return to their previous scale when the shocks subside. This slow transition is characterized by more capital misallocation and, hence, lower output than in steady state.

A key prediction of our model is that the effects of adverse shocks are more persistent on small businesses. There is some evidence showing that this is the case. Credit flows to small and large businesses after the financial crisis have behaved in very different ways. According to the Financial Accounts of the United States, credit flows to both corporate and noncorporate firms (the latter mostly small businesses) dropped sharply during the financial crisis. However, credit flows to corporations resumed relatively early in 2010 and went back to healthy levels by 2011, as corporate firms could access various credit markets (such as the bond market). Credit to noncorporate businesses continued to decline through 2010 and started rising only slowly thereafter. The same pattern emerges markedly for the recession of 1990–91, and, to a lesser extent, for most recessions in the past 50 years, as documented in [Fig. 1](#).

In turn, credit availability and credit flows have an impact on firms' growth. [Chodorow-Reich \(2014\)](#) shows that firms that had banking relations with less healthy banks not only had more difficulty obtaining credit after the crisis, but saw larger declines in employment. Interestingly, this effect is larger for smaller firms. Similarly, according to surveys conducted by the National Federation of Independent Business (NFIB), the crisis had a long-lasting impact on small firms' investment plans. The net percentage of firms that planned capital outlays and that of firms that anticipated business expansions plummeted during the recession and has increased only slightly in recent years, a much smaller recovery than that seen in aggregate data on investment.¹ A similar pattern appears in the previous two recessions. These indexes dropped sharply during the recession, but returned to their pre-recession levels more slowly than aggregate data on investment would suggest.

Our model is also consistent with the differential behavior of employment at firms of different sizes during the latest recession and recovery, documented also by [Siemer \(2013\)](#). Employment at smaller firms fell more sharply than at larger

¹ See [Board of Governors of the Federal Reserve System \(2012\)](#).

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