



# Evidence on the effects of bank competition on firm borrowing and investment ☆

Rebecca Zarutskie\*

*Fuqua School of Business, Duke University, Box 90120, Durham, NC 27708, USA*

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## Abstract

This paper presents evidence on the financial and real effects of bank competition using a large panel of privately held firms. I trace the firm-level impact of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, which increased the competitiveness of U.S. banking markets. Following the deregulation, newly formed firms used significantly less external debt, were smaller, and realized higher returns on assets, consistent with their investing less due to greater financial constraints. These effects diminish as firms age, ultimately reversing sign. The differential impact that banking market reforms may have on newer and more established firms is underscored.

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\*Corresponding author.

*E-mail address:* [rebeccaz@duke.edu](mailto:rebeccaz@duke.edu).

## 1. Introduction

Since at least as early as Schumpeter (1912), the role financial markets play in real economic activity and growth has been a subject of debate. The debate has broadened over time from simply asking whether more developed financial markets increase economic growth (e.g., King and Levine, 1993; Rajan and Zingales, 1998) to examining how the structure of particular financial market segments affect growth. In this paper I contribute to this literature by analyzing empirically how competition among banks, a major component of the financial markets, determines how capital is allocated to firms and entrepreneurs that may be the future engines of growth.

The impact of bank competition on the equilibrium supply of credit is theoretically ambiguous. Traditional models such as Klein (1971) predict that as fewer banks compete in a market, they charge higher interest rates on loans, which leads in turn to a decrease in the equilibrium supply of loans. On the other hand, models that incorporate asymmetric information between lenders and borrowers show that less lending or even credit rationing can occur when credit market competition increases. For instance, Petersen and Rajan (1995) show that when competition among banks increases, banks are less able to subsidize riskier loans to firms of uncertain quality with subsequent lending to firms that prove to be successful because greater bank competition limits the interest rates that banks can charge to older successful firms. This leads to less lending to borrowers characterized by large informational asymmetries in equilibrium. More recently, Marquez (2002) presents a model in which greater bank competition leads to more dispersion of information about borrowers and higher equilibrium lending interest rates.

Empirical research attempts to detect the effects of bank competition on lending to different groups of borrowers, and in particular, to privately held firms. Privately held firms are usually smaller than publicly held firms are, and are characterized by larger informational asymmetries and greater dependence on bank financing for their investments. This suggests that the effects of bank competition should be more pronounced for privately held firms. Moreover, privately held firms represent a significant share of economic activity and are widely regarded to be important contributors to innovation and economic growth. According to statistics published by the U.S. Small Business Administration, small firms generate over half of nonfarm private sector GDP. Over 90% of all employer firms in the U.S. are small firms, most of which are privately held.

A constraint on studying empirically the effects of bank competition on privately held firms is the relative scarcity of firm-level data. While publicly held firms are legally required in most countries to publish their financial statements, privately held firms are not generally required to publicly disclose their financial statements. Thus, studies that examine the firm-level effects of bank competition on privately held firms usually rely on relatively limited cross-sectional survey evidence (e.g., Petersen and Rajan, 1994; Petersen and Rajan, 1995). Other studies have taken more indirect approaches.

For example, one set of studies uses bank-level data to examine the impact of bank deregulation and mergers on small business lending (e.g., Berger et al., 1998; Sapienza, 2002). These studies provide valuable evidence on how banks shift their loan portfolios in response to mergers and deregulation; however, they do not comment on borrowing firms' use of nonbank sources of financing or real outcomes, leaving unanswered the larger question of what is the real impact of bank competition on privately held firms. A second set of studies examines the impact of bank competition on aggregate real outcomes such as

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