



## Competition for small firm banking business: Bank actions versus market structure

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### ABSTRACT

This paper addresses two questions related to the ongoing consolidation of the US banking industry and its effect on small firm financing. First, are conventional measures of market structure (e.g. geographic market size and deposit concentration) related to bank competition for small firm financial business? Second, does an increase in bank competition produce an improvement in bank services irrespective of market structure? To answer these questions we use a survey of small firm owners that asks them to report on changes in bank competition for their business. Our findings show that reports of increased competition by small firm owners are negatively related to the level of and change in deposit concentration. In addition, we find a significant positive association between changes in bank competition reported by small firms and their reports of changes in banking outcomes (e.g. service quality) that is independent of deposit concentration, firm risk, and credit usage.

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### 1. Introduction

A key regulatory and public policy goal is maintenance of competitiveness in markets for financial services – especially for small businesses that have limited access to capital markets but thought to be critical to the health of the economy. Regulators in the United States frequently use concentration ratios as the initial filter for assessing market competitiveness in merger reviews, with further analysis of product pricing changes for cases where a concentration threshold is violated. Implicit in this approach is an assumption that higher concentration leads to reduced competition and worse outcomes (higher prices and/or reduction in credit availability and service) for market participants, a prediction that follows from the structure–conduct–performance (SCP) literature (Bain, 1951; Hannan, 1991).<sup>1</sup>

The problems associated with using the SCP model to analyze competitiveness in local markets are well known, especially for small, information-opaque firms. The impact of competition on small firm credit availability or loan pricing depends on the incentives of lenders to invest in private information acquisition

(Petersen and Rajan, 1995), the lender's portfolio strategy (Boot and Thakor, 2000), and the impact of technology on remote monitoring costs (Dell'Arricia and Marquez, 2004). For example, Petersen and Rajan (1995) show how increased competition could lead to less availability and higher rates, while Dell'Arricia and Marquez (2004) show how it could lead to more lending.

The empirical evidence related to the effect of bank deposit concentration, the most frequently used proxy for degree of competition, on small firm credit availability and loan terms is also mixed. Some cases find deposit concentration associated with improved small firm credit availability (Petersen and Rajan, 1995; Zarutskie, 2006), reduced credit availability (DeYoung et al., 1999), or to have no effect (Jayaratne and Wolken, 1999; Cavalluzzo et al., 2002; Berger et al., 2007b). Berger et al. (2007b) note a further complication in empirical tests for the association between deposit concentration and small firm banking outcomes (e.g. credit availability and loan pricing). Size–structure, i.e. the relative share of deposits scaled by total bank assets (within or outside of a Metropolitan Statistical Area or MSA), appears to be more important than either bank size or concentration alone in determining availability and pricing of small firm lines of credit.

The different theoretical predictions of how competition affects banking outcomes, and the conflicting empirical evidence associated with the use of deposit concentration as a proxy for competition, is problematic for regulators and policy makers. They frequently seek to understand how changes in market structure affect the delivery of banking services to small firms, because of the importance of banks as the primary source of external capital

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<sup>1</sup> Increased concentration could be associated with greater average efficiency and a positive relationship between profits and concentration, i.e. the efficient-structure hypothesis (Demsetz, 1973; Berger and Hannan, 1989). Most of the empirical work in banking markets suggests that SCP better characterizes these markets than efficient-structure (e.g. Berger and Hannan, 1989).

for small firms (Berger and Udell, 1998). Two examples of market structure changes include the determination of the relevant market size, which appears to be expanding for some products, and the role of out-of-market competitors that may have no physical presence in that market (Hannan, 2003; Hannan and Prager, 2004).

This paper employs an alternative measure of competition among banks for small firm financial business using a survey that asks: “Have you noticed any change in competition for your firm’s business among financial institutions now compared to 3 years ago?” The responses fall into one of five categories: “much less,” “less,” “no change,” “more,” and “much more.” These responses should reflect the actions of banks in the firm’s local market. The advantage of this measure compared to deposit concentration as a proxy for competition is its lack of dependence on defining market size or the number (or share) of banks in that market. The responses to this question, described in detail in Section 3.2 below, include any contact (mail, telephone, personal contact, etc) that could be from in- or out-of-market banks.

We first address whether small firm reports of change in bank competition relate to deposit concentration, the traditional proxy for market structure. Our results suggest a complex association between the changes in bank competition, market size, the level and change in deposit concentration, and size–structure within local markets. The primary finding is that changes in bank competition in non-urban markets are negatively related to both the level and change in deposit concentration, e.g. a higher the level of concentration is associated with less frequent bank competition as is an increase in the level of concentration. Offsetting the effect of concentration is a positive association between density and size–structure, where size–structure is the single-market bank deposit share. These effects are strongest in non-Metropolitan Statistical Areas.

Next we address whether changes in bank competition affect small firm banking outcomes regardless of the degree of credit usage. These outcomes are responses to a question about changes (“better,” “no change,” or “worse”) in various attributes of banking products (e.g. service delivery, credit availability, and lending terms). The inclusion of non-credit outcomes is a unique contribution to understanding the effect of bank competition on all small firms, especially for firms that just use banks for transaction purposes. This analysis is motivated by two assumptions: (1) small firms have low switching costs; and (2) there are low barriers to new bank entry. Both assumptions have support in the literature. Under these conditions, banks should increase competition to maintain (or increase) market share through improved pricing and/or service.

Two empirical challenges arise in estimating the association between changes in bank competition and small firm banking outcomes. The first is whether causality runs from changes in bank competition to changes in banking outcomes. For example, small firms could erroneously attribute changes in bank competition as a result of a favorable outcome in their most recent credit experience. We devise a test that provides some assurance that owners “know competition when they see it.” Even with this assurance, a second challenge arises from the possibility that the error term is correlated with the change in bank competition. For example, banks may devise a strategy to contact new customers based on a favorable risk/return profile so that improved outcomes are due to firm characteristics, not increased competition. We address this challenge by identifying instruments for the change in bank competition variable.

Our results show that an increase in bank competition has a positive and significant association with reported changes in banking outcomes. Use (or non-use) of credit, as well as firm characteristics associated with information opacity (e.g. years in business or size), does not affect this result. Small firms located in markets with

higher levels of deposit concentration report higher levels of satisfaction, but this result appears to be driven by their choice of a small bank as their primary financial institution. Additional tests show that the effect of lender competition on banking outcomes is unaffected by length of time with the current lender and the timing of the most recent loan.

The results of the paper provide additional evidence that traditional definitions of local markets, such as MSA, and proxies for competition in those markets, such as deposit concentration, are incomplete measures for describing the competitive environment for small firms and their primary bank. These results add to the growing evidence of wider markets for some bank services such as Radecki (1998) and Hannan and Prager (2004) for deposit rates and Hannan (2003) with respect to out-of-market loans for small firms.

The rest of the paper is organized as follows. Section 2 presents a brief review of the competing theories and empirical evidence related to banking market competition and its effect on the banking outcomes of small firms. Section 3 discusses the survey data and key variable construction. Section 4 empirically examines the relation between changes in bank competition and traditional market structure measures, while Section 5 empirically examines the relation between reports of changes in banking service attributes and changes in bank competition. Section 6 offers conclusions.

## 2. Competition and banking outcomes

Numerous theoretical models address the effects of competition on banking outcomes. The structure–conduct–performance (SCP) model predicts that more market power or concentration will negatively affect credit supply and cost (e.g. Bain, 1951; Hannan, 1991, for a banking application). Cetorelli (1999), however, gives examples of how the use of market structure (e.g. concentration ratios) to infer conduct may be misleading and discusses alternative methodologies based on demand and cost functions. For example, Coccerese (2009), Yildirim and Philippatos (2007) and Goddard and Wilson (2009) use the Panzar–Rosse H-statistic (Panzar and Rosse, 1987), a measure of firm conduct that relies on estimates of revenue elasticities with respect to factor inputs. Shaffer (2004) also notes that other definitions of equilibrium may give a different association between conduct and concentration such as contestable markets (e.g. Matthews et al., 2007).

Another model of the association between competition and market outcomes is the asymmetric information hypothesis (Petersen and Rajan, 1995). In this model, increased market power has a positive association with credit supply because lenders are able to capture a larger share of future loan interest surpluses from the borrower. If banks with market power can charge a higher rate later and a lower rate earlier, the adverse selection situation is mitigated, resulting in more low quality firms receiving credit.

Boot and Thakor (2000) derive a model that predicts a non-linear relationship between competition and credit availability for loans that require an investment in private information acquisition. Loan underwriting that is based largely on private information is generally referred to as relationship lending. In their model, a bank can make transaction (or “arms-length”) loans and relationship loans as part of what they call a sector specialization strategy. An initial increase in inter-bank competition gives the same result as the asymmetric information models: a reduction in the benefits from investing in sector specialization. However, profits from transaction lending in their model are more affected by competition than profits from relationship lending. Thus, inter-bank competition should lead banks to allocate more credit to relationship borrowers that have fewer alternatives. Dell’Arriccia and Marquez (2004) produce a similar prediction in their model,

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