



Competitive bank pricing and adverse selection, with implications for testing the SCP hypothesis

Sherrill Shaffer*

Department of Economics and Finance, University of Wyoming, Laramie, WY 82071-3985, USA

Abstract

Adverse borrower selection implies that competitive interest rates on bank loans will be an increasing function of the number of banks in the market, whenever the marginal cost of lending does not rise too sharply with market concentration (a condition supported by a variety of empirical evidence). Moreover, this linkage is stronger during economic recessions when more loans default. These findings suggest a need to reinterpret many prior empirical studies of loan price versus concentration, as well as raising new considerations in the appropriate construction of future empirical tests.

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1. Introduction

The traditional structure–conduct–performance (SCP) paradigm articulated by [Mason \(1939\)](#) and [Bain \(1951\)](#) and has formed the mainstay of antitrust analysis in banking, as in other industries; see for example [Holder \(1993\)](#) and [Litan \(1994\)](#). According to this hypothesis, price competition tends to be stronger in markets containing more firms. Within banking, many empirical studies have sought to quantify this effect by associating market structure with either profitability or price levels (see reviews by [Gilbert, 1984](#); [Weiss, 1989](#)).

Results in this literature have been mixed. While many of these studies have found the predicted linkages, others have not. Posted interest rates on loans have often shown no significant association with market structure (as in [Flechsig, 1965](#); and the later of two datasets in [Meyer,](#)

* Tel.: +1-307-766-2173; fax: +1-307-766-5090.

E-mail address: shaffer@uwyo.edu (S. Shaffer).

1967). Of the studies reviewed by Weiss (1989), only 21 of 47 datasets on loan interest rates showed a significant positive association with concentration at the 5% level (two-tail test).¹ More recently, Berger (1995) found that bank profitability tends to be either unrelated to structure or even inversely related to concentration when market share and efficiency are controlled for, contrary to the SCP hypothesis.² Petersen and Rajan (1995) similarly found that bank loans are less expensive for new and small businesses in concentrated banking markets than in unconcentrated banking markets. What should we conclude from these results? Is the SCP hypothesis often a poor characterization of banking behavior, or might some other explanation account for the many null or reversed results? This study suggests a partial answer, based on the theory of imperfect information and its implications for credit markets.

Lang and Nakamura (1989) have also provided a theoretical basis for the pattern of pricing found by Petersen and Rajan (1995) over the business cycle in a dynamic model of asymmetric information. The analysis below constitutes a complementary explanation to theirs—one that is simpler because it does not require dynamic interactions, and slightly more general in that borrowers are not required to know their own type.

Specifically, this study formally shows that the phenomenon of adverse borrower selection recognized by Broecker (1990), Riordan (1993), Nakamura (1993), and Shaffer (1998) implies that *competitive* interest rates on loans are theoretically an increasing function of the number of banks in the market, for a given risk profile of the population of potential borrowers and under the assumption of constant marginal costs.³ An immediate corollary (discussed but not formally analyzed) is that market power must exist in more concentrated markets if indeed interest rates on loans are observed not to vary systematically with concentration. If the adverse selection is relatively severe, or if the degree of competitive conduct is relatively uniform across markets with different structures, the pattern documented by Petersen and Rajan (1995) could emerge. Such a pattern cannot be explained by the SCP hypothesis.

1.1. Conceptual background

It has long been recognized that equilibrium interest rates on loans must be an increasing function of the credit risk in the loan portfolio. However, previous studies of SCP in banking have not controlled for each bank's credit risk, believing that this omission would not bias the empirical linkage observed between structure and loan pricing.⁴ By contrast, the main result of this study implies that adverse selection in the banking industry will tend to obscure any conduct-driven linkage between structure and loan pricing when credit risk is not controlled for. Moreover, the linkage between market structure and competitive loan rates is stronger during recessions, when average creditworthiness declines for all borrowers.

The adverse borrower selection arises from the ability of applicants rejected by one bank to apply at additional banks, to the extent that multiple banks operate in the market. When credit screening processes are noisy and imperfectly correlated across banks, applicants with higher risks are thereby given additional chances of being mistaken for low-risk applicants, and a winner's curse develops because the first bank to lend is the one drawing the most optimistic signal about the applicant's creditworthiness. Previous studies have focused on the implications of this problem for credit quality, with Shaffer (1998) providing empirical evidence that loan loss rates are indeed an increasing function of the number of banks in the market.⁵ Where loan

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