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Market power and cost efficiencies in banking[☆]

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ABSTRACT

Existing studies that quantify cost efficiencies in the banking industry do not account for local market power. If market power is ignored and increases with size, it gets counted as additional cost efficiencies which leads to an over-prediction. I address this limitation by developing a model of the demand for consumer deposits at the geographic market level and cost efficiencies at the firm level. Incorporating the network structure of banks in the analysis increases dimensionality of the bank's choice set and also the possibility of multiple equilibria. To address these issues, I use moment inequality methods to estimate the cost parameters. Using a panel data from the U.S. banking industry, I find that the evidence of cost efficiencies is weak, at best, for all the banks. Using the estimated parameters, I simulate six mergers between banks of different sizes. In the short run, all the simulated mergers show dis-economies of scale on average. However, most of them show an increase in consumer welfare as the market power (or oligopoly) effect is dominated by an increase in the local branch density.

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1. Introduction

A common assumption in estimating efficiencies using a cost function approach is that firms are price takers. Although modeling assumptions are best considered by developing an understanding of the industry being studied, the assumption of price taking behavior can be difficult to motivate in certain industries. Firms with high market power can get more favorable prices and if the variation in market power with firms' size is systematic, the estimation of cost efficiencies can be biased. Also, a modeling challenge occurs if multi-market and single-market firms compete locally in a market, as a firm-level model to estimate a cost function needs to be combined with a market-level demand side accounting for the market power. In this paper, I explore this idea using data from the U.S. banking industry.

The removal of legal restrictions on intrastate and interstate banking in the U.S. was a gradual process that culminated with passage of the Riegle-Neal Act in 1994. Since then, the banking industry has undergone substantial restructuring. This gradual deregulation has led to a consolidation of banks over the last 30 years and that is still ongoing. In 1990, there were 12,343 commercial banks and 2815 savings banks insured by the FDIC in the United States. In 2012, these numbers had fallen to 6222 commercial banks and 1024 savings banks.¹ This consolidation has been driven primarily by mergers. As the number of banks has declined, the average size of banks, measured by deposits, has risen from 184 million dollars in 1990 to 557 million dollars (normalized to 1990 dollars) in 2012.

This change in market structure caused by mergers can have many implications for consumers, banks and regulators. Anti-trust regulators evaluate such scenarios by comparing gains generated by cost efficiencies to the market power losses for an economy. From an industrial organization viewpoint, consumer utility, market power and cost efficiencies are the three important elements at the center stage of this industry consolidation. Quantifying geographically local forces such as market power and consumer utility along side firm-level cost efficiencies in the same model causes curse-of-dimensionality and multiple Nash equilibriums to arise due to the implicit network structure. I use moment inequality methods with a demand model for differentiated products to disentangle and separately identify cost efficiencies from market power. The results imply little efficiency gains for banks as they grow in size. I also find that consumers derive a higher utility from larger banks and an increased number of local branches. Although the cost efficiencies are absent, merger simulations show an overall increase in consumer welfare in most cases because consumers' utility from a larger bank size and increased number of local bank branches dominates the oligopoly price effects.

The presence of market power in the banking industry is well documented by [Hannan and Prager \(1998\)](#), [Berger et al. \(1999\)](#) and [Simons and Stavins \(1998\)](#). Recently, there has been an increase in empirical studies of competition and market structure in the US

¹ Almost 98% of the banks in the U.S. were FDIC insured in 2012.

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