

# Profitability of Korean banks: Test of market structure versus efficient structure

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## Abstract

This paper identifies the major determinants of profitability in the Korean banking sector for the period of 1992–2002 by testing the market structure hypothesis against the efficient structure hypothesis. The unique feature of this paper is the estimation of technical inefficiency by the directional distance function and the use of this estimate in explaining bank performance. The results indicate that bank efficiency has a significant effect on bank profitability and support the efficient structure hypothesis. We also find that the major determinants of bank profitability in Korea changed between pre- and post-Asian financial crisis periods.

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## 1. Introduction

Two competing hypotheses seek to explain the relation between structure and performance in the banking sector. The market structure hypothesis postulates that banks in a concentrated market can charge higher loan rates, pay lower deposit rates, and lower collusion costs through their market power, thus generating more profits. In contrast, the efficient structure hypothesis states that efficient banks obtain higher profitability and greater market share because of their efficiency, which will lead to a more concentrated market. Numerous studies have tested these

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two competing hypotheses for U.S. banks and European banks (Berger, 1995; Goldberg & Rai, 1996; Maudos, 1998; Shepherd, 1986; Smirlock, 1985).

In many previous studies, a statistically significant positive relationship has been found between market share and bank profitability, while a positive relationship between market concentration and bank performance has not been established.<sup>2</sup> Two different interpretations have emerged from this finding. Some researchers (Evanoff & Fortier, 1988; Smirlock, 1985) argued that this finding supports the efficient structure hypothesis, interpreting market share as a proxy for efficiency due to a lack of available efficiency measures. Other researchers (e.g. Kurtz & Rhoades, 1991; Shepherd, 1986) questioned the validity of assuming that market share is a proxy for efficiency, and argued that the finding supports the relative market power hypothesis, which is a variant of the market structure hypothesis. In response to this criticism, direct measures of efficiency have been used in more recent studies (Berger, 1995; Goldberg & Rai, 1996; Maudos, 1998), and these findings support the efficient structure hypothesis.

The purpose of this paper is to identify the major determinants of profitability in the Korean banking sector for the period of 1992–2002 by testing the two competing structure/performance hypotheses in an integrated model. In our study, we combine and integrate previous studies on Korean banks which focused on productivity, efficiency, or competition. Gilbert and Wilson (1998) investigated the effects of privatization and deregulation on the productivity of Korean banks for the period 1980–1994. They found that Korean banks dramatically changed their mix of inputs and outputs while they were privatized and deregulated during the 1980s and early 1990s. They also concluded that privatization and deregulation enhanced potential output as well as productivity by measuring technological change from the perspective of the new mix of inputs and outputs.

Hao, Hunter, and Yang (2001) extended the analysis of Gilbert and Wilson (1998) in order to identify the key determinants of the efficiency gains. Using the stochastic cost frontier approach, they computed efficiency scores for a sample of nine nationwide banks and 10 regional banks for the period 1985–1995. Banks with higher rates of asset growth, fewer employees per million won of assets, larger amounts of core deposits, lower expense ratios, or classification as a nationwide bank were found to be more efficient. However, they also found that financial deregulation in 1991 had little or no significant effect on the sample banks' efficiency.

Chun and Kim (2004) studied the degree of competition in the Korean banking industry for the period 1994–2001 and examined whether the monopoly power of banks increased along with the increased market concentration after the 1997–1998 Asian financial crisis. Using the Wald test for *H*-statistics proposed by Panzar and Rosse (1987), they concluded that the banks operated under monopolistic competition both before and after the crisis, although the monopoly power of banks increased after the crisis.

Using the DEA method and defining input and output according to the production approach, Cho and Shin (2004) compared technical efficiency, allocative efficiency, and scale efficiency of five big Korean banks with those of all other Korean banks during 1992–2001. They found a decline in both market concentration and the rates of return of the five big banks during 1992–1997. The five big banks also had lower rates of return, but greater cost efficiency and technical efficiency than other banks. They concluded that the Korean government's anti-merger policy prior to the Asian financial crisis of 1997–1998 contributed to excessive competition and diseconomies of

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<sup>2</sup> The market share is the share of an individual bank in total banking industry assets while market concentration refers to the extent to which the banking industry is dominated by a few big banks. Traditionally the Herfindahl–Hirschman index (HINDEX) has been used in practice.

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