Journal of Banking & Finance 34 (2010) 1450–1460

Contents lists available at ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

Differential impact of Korean banking system reforms on bank productivity

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ARTICLE INFO

Article history:
Received 13 August 2008
Accepted 25 February 2010
Available online 1 March 2010

JEL classification:
G21
G28

Keywords:
Korean commercial banks
Financial crisis
Bank restructuring
Productivity
Data Envelopment Analysis (DEA)
Capital adequacy ratio
Non-performing loans

ABSTRACT

We study the impact of banking system reforms during a crisis following a period of undisciplined lending. Regulatory changes aimed at strengthening the banks' capital structure and risk management practices do not have a uniform impact on bank productivity, but rather favor financially sound or strategically privileged banks. We present evidence documenting the differential impact of regulatory reforms on Korean commercial bank productivity over the period 1995–2005. Average technical efficiency of banks decreased during the financial crisis of 1997–1998. It improved following the subsequent bank restructuring and continued to improve through 2005. The capital adequacy ratio is positively associated with banks' technical efficiency. The non-performing loans ratio is negatively associated with technical efficiency. Both relationships are accentuated during the crisis but attenuated after the reforms.

1. Introduction

Financial crises in the banking system often precipitate intervention from national oversight or regulatory authorities to restore confidence in the system. Such intervention entails additional monitoring to ensure compliance with conservative banking practices and stimuli to promote more profitable operations. In this study, we posit that such intervention impacts bank productivity differentially. Banks that enjoy a superior financial position are more likely to benefit from the regulatory intervention that limits competition from aggressive competitors. However, to the extent that banking system reforms enhance monitoring of banks' compliance with prudent practices, the impact of a conservative capital structure is diminished. We evaluate this proposition in the context of the banking system reforms in Korea amid the unprecedented economic crisis of 1997 (Oh and Park, 1999). The crisis was triggered mainly by reckless expansion of the Korean chaebols that had been backed by an inefficient financial system and supported by governmental intervention (Yoo and Moon, 1999).[1] Specifically, we examine whether the impact of factors such as a bank's capital adequacy and non-performing loans on bank productivity is affected by banking system reforms.

Between the 1960s and the 1990s, South Korea went from being a poor agricultural country to an industrial country. Critical to this transformation was the government-controlled banking system, which channeled consumer savings into a capital base for a small number of business groups called chaebols. These three decades of strong economic growth transformed Korea's financial market into Asia's second largest by the mid-1990s and its financial assets totaled about US$ 1.4 trillion in 1997. Korean banks accounted for more than 60% of the country's total financial assets and the rest was split among investment institutions, savings institutions, and insurance companies (Bank of Korea, 1998). The Korean banking industry consisted of specialized banks focused on particular

[1] More specifically, a major cause of the crisis was the unbalanced nature of the financial reforms carried out since the early 1980s. Limited domestic financial liberalization in the presence of rapid external financial liberalization resulted in the domestic financial system being unable to efficiently allocate the large inflows of foreign capital. Consequently, much of the foreign funds were invested in risky projects, contributing in turn to more non-performing loans and a weaker financial system (Oh and Park, 1999).

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0378-4266/$ - see front matter
doi:10.1016/j.jbankfin.2010.02.023

segments of the economy, development institutions, and nationwide and regional commercial banks.

While the Korean financial system driven by economic growth seemed to work well on the surface, the chaebols relied largely on bank financing with debt-to-equity ratios above 5:1 just before the financial crisis broke in 1997 (Baek et al., 2004). Three chaebol failures in six months shattered foreign and domestic confidence in the Korean economy. The Korea Stock Price Index (KOSPI) plunged more than 50%, and interest rates doubled from 12% to 25% during 1997 as the Korean currency declined in value relative to the dollar. By early 1998, most Korean financial institutions were struggling for survival under the strain of large and growing non-performing loans and collapsed investment portfolios, as Korean corporate bankruptcies averaged 500 a month during the first half of 1998.

Before the financial crisis, in many cases the Korean government simply designated particular investment projects, allocating designated amounts of bank loans and imported foreign capital. Bank managers had no autonomy either in the decision to grant the loan or in determining the interest rate. From the point of view of banks, there was little incentive to review the proposed investment projects or provide advice and other assistance to loan recipients. Banks had only to follow government directions in making loans, and thus many bank loans were for investment projects with high default risks. Consequently, although the banks realized that large borrowers such as the chaebols were on the verge of default, they could not even declare them as failing firms for fear of repercussions throughout the whole economy (Yoo and Moon, 1999).[2] These questionable banking practices had led to losses and weaker balance sheets for several banks. With more stringent monitoring of these practices, capital adequacy and non-performing loans portfolios became more critical during the financial crisis.

The Korean banking reforms[3] (Thompson, 1999; Yoon and Miller, 2005) also required compliance with stringent capital adequacy ratios and supported various means to accomplish it, thus leveling the field for those banks that did not initially have a strong financial structure. As the banking industry emerged from the crisis and all banks complied with the financial requirements, their importance in discriminating between banks become less important.

In accordance with agreements with the IMF (International Monetary Fund) and IBRD (International Bank for Reconstruction and Development), the second stage of bank restructuring[4] was carried out beginning in June 2000 (Park and Weber, 2006a, p. 2374). This also enabled the acquisition of unsound banks by healthy banks and voluntary mergers among other banks, which led to a decrease in the number of banks from 26 in 1997 to 14 at the end of 2002. There were eight dominant nationwide banks (listed in Fig. 1) which were in a position to leverage their extensive networks and generate greater value from their acquisitions.[5]

We analyze a panel of data over the period 1995–2005, using the two-stage approach of Data Envelopment Analysis (DEA). We first estimate the efficiency of each bank in each year followed by a regression of the estimated efficiency on potential contextual factors to obtain consistent estimators of their impact on the efficiency of banks (Banker and Natarajan, 2008). While the efficiency of Korean commercial banks decreased during the financial crisis in 1997–98, there was continued improvement from 1999 through 2005 with substantial cross-sectional differences in accordance with our expectations.

The remainder of this paper is organized as follows. Section 2 describes our research hypotheses. Section 3 describes the data and Section 4 the estimation model used in this study. Section 5 contains the empirical results and Section 6 summarizes and concludes.

2. Hypotheses development

2.1. Korean financial crisis

Korea's economic transformation in the three decades prior to 1997, making Korea's financial market Asia's second largest, was phenomenal by any standards. Critical to this transformation was the government-controlled banking system, which channeled consumer savings into a capital base for a small number of business groups known as chaebols. They received preferential treatment, including access to business licenses, protection from foreign investors and imports, and cheap financing from largely government-controlled banks (Baek et al., 2004). The Korean government not only regulated interest rates, but it also restricted the sectors and companies to which the banks could lend while promoting consumer savings through nationwide campaigns. Korean banks accounted for more than 60% of Korea's total financial assets, or about US$ 862 billion as of 1997 (Bank of Korea, 1998).

Despite its size and scope, the Korean banking industry was characterized by weak management practices prior to the financial crisis of 1997 mainly due to the lack of independence from the chaebols as well as the government, and the weak and poorly planned supervision of banks (Casserley et al., 1999; Yoon and Miller, 2004). The symptoms included a weak profit orientation, inadequate regulation and supervision, excessive industry fragmentation, inadequate credit risk assessment and management, and limited product and service innovation. Controlled by the government's supply-driven economic strategy, most Korean banks were not oriented to serve retail customers' needs or return profits to shareholders. Rather, their primary objective was to channel household savings into cheap funding for strategic industries and companies. To that end, the Korean government directed banks to issue so-called policy loans at discounted interest rates and forced them to buy monetary stabilization bonds at substantially below-market rates. Moreover, it rewarded banks on the basis of their lending volume, not their profitability. This lack of autonomy and profit focus contributed, inevitably, to fundamental financial and managerial weaknesses. Total profits in the banking system (excluding the results of foreign banks) peaked at US$ 1.06 billion in 1996 before plunging to a loss of US$ 2.8 billion in 1997 (Casserley et al., 1999).

[2] Furthermore, since lending decisions by banks were typically highly centralized, their internal risk control structures including their credit analysis procedures did not develop adequately. "As a result, credit decisions tended to rely on collateral and inter-company guarantees, as well as informal government guidance, rather than projected cash flows. Loan review processes and management information systems were rudimentary. In brief, banks did not develop strong credit cultures as has increasingly become the accepted standard in OECD countries" (Thompson, 1999).

[3] The new government elected in December 1997 supported fundamental reforms calling for a transformation of the Korean banking system into one in which "market forces play the leading role in resource allocation and in which bank managers have far greater autonomy in decisions as well as far greater accountability and prudential soundness. The reform strategy aimed to rebuild the banking system around the small number of well-managed and financially sound domestic banks. In addition, an expanded foreign presence was expected to provide capital, managerial skill and increased competition" (Thompson, 1999).

[4] After the financial crisis of 1997–1998, the Korean government began two-stage bank restructuring. In the first stage, two banks were nationalized, five insolvent banks were closed and then merged with healthy banks, foreign capital was provided to seven banks, and the remaining surviving banks were helped with public funds to normalize operations. Korean banks responded by rapidly reducing costs and the disposing off non-performing loans. The second stage of bank restructuring began in June 2000 and focused on restoring bank profitability. Financial holding companies were created to facilitate mergers and acquisitions to realize scale economies. The reform also required loan loss provisioning and infusion of equity capital into banks affected by the recognition of loan losses (Park and Weber, 2006a).

[5] A referee pointed out that some of these banks, such as Woori Bank and Cho Hung Bank, were not very efficient and not in a position to increase productivity through acquisitions.