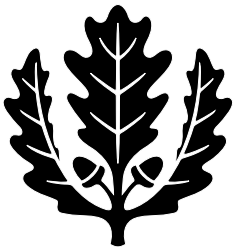

University of Connecticut

Department of Economics Working Paper Series

The Effect of the Asian Financial Crisis on the Performance of Korean Nationwide Banks

Yongil Jeon
Central Michigan University

Stephen M. Miller
University of Nevada and University of Connecticut

Working Paper 2002-32

May 2002

341 Mansfield Road, Unit 1063
Storrs, CT 06269–1063
Phone: (860) 486–3022
Fax: (860) 486–4463
http://www.econ.uconn.edu/

Abstract

The Asian financial crisis spread its effect quickly across a number of countries. Korea faced serious problems in her financial and corporate sectors. This paper considers the performance of Korean nationwide banks before, during, and immediately after the Asian financial crisis. The performance of Korean nationwide banks took a big hit in 1998. Most banks recovered somewhat in 1999 with the notable exception of the further deterioration of Seoul. Several factors possess strong correlations with bank performance. Among other standard findings, equity to assets correlates positively with bank performance, even when the government recapitalized a number of institutions that performed poorly. The Asian crisis did not affect the normal rules of good bank management. The government, however, directly intervened in the banking sector on a large scale to limit the scope of the crisis in the Korean economy.

Journal of Economic Literature Classification: G1, G2

Keywords: Asian financial crisis, Korean commercial banks, profitability

I. Introduction:

The Asian financial crisis began July 2, 1997 with a devaluation of the Thai baht and quickly spread to other Asian countries. Later, Korea abandoned its defense of the Won November 17, 1997. The effects of the crisis on countries differed in its intensity. For example, some Asian economies did not reap the full whirlwind of dramatic consequences. According to some commentators, Hong Kong, Singapore, and Taiwan did not suffer as much as other countries because of trade and current account surpluses, significant holdings of foreign exchange reserves, and the relative absence of "crony capitalism" (Corsetti, Pesenti, and Roubini, 2001).

Analysts suggest that the Asian financial crisis differs from prior crises in the importance of foreign lending. That is, recent capital flows into many Asian countries in response to the Asian miracle quickly exited once the crisis emerged. The loss of lending so quickly plunged financial institutions and corporations into a liquidity crisis. Moreover, some analysts (e.g., Radelet and Sachs 1998) cite the initial IMF rescue programs that required credit tightening as contributing to the severity of the problems.

The Korean situation possesses some important characteristics. Basic macroeconomic fundamentals were not signaling imminent danger (Cho and Hong, 2001; Hahm and Mishkin, 2000; Noland, 2000). Korea experienced an investment boom in the manufacturing sector rather than a real estate boom that characterized other Asian economies. Moreover, the investment boom was financed with significant amounts of short-term capital inflows. The precarious position of the *chaebols* along with the regulation and supervision of Korean banks by the government set the stage for significant problems with the Asian financial crisis emerged.

Our paper considers the performance of Korean nationwide banks prior to, during, and immediately after the Asian financial crisis.[1] We examine how the profitability of these nationwide banks differ and identify factors that explain these differences. Our paper also adds significant value in two areas. First, we assemble probably the best panel data set on Korean nationwide banks during the1990s. Second, we capitalize on that panel data structure and employ the fixed-effect regression technique.

Korean nationwide banks suffered a dramatic decline in performance in 1998. Most banks recovered somewhat in 1999 with the notable exception of the further deterioration of Seoul. Several factors possess strong correlations with bank performance. Equity to assets correlates positively with bank performance. That correlation emerges even though the Korean government injected massive amounts of equity capital into the large, poor-performing banks. Non-interest income to interest income associates positively with bank performance and non-interest expense to interest expense associates negatively. Provisions for loan losses correlates negatively with bank performance. Finally, full-time employees associate positively with bank performance, which probably reflects the effects of poor bank performance on bank employment. That is, nationwide banks downsized in 1998 as bank performance deteriorated.

The next section identifies those factors that characterize the Asian financial crisis, in general, and the Korea crisis, in particular. Section III discusses the data sources and describes the situation in the banking sector just before, during, and immediately after the Asian financial crisis. Section IV investigates the performance of Korean nationwide banks using panel regression techniques. Finally, Section V concludes.

[1] We do not consider the performance of the small-sized Korean regional banks or foreign banks operating in Korea. Jeon and Miller (2002) compare the performance of nationwide, regional, and foreign banks in Korea before, during, and immediately after the Asian financial crisis.

II. Asian Financial Crisis and the Korean Experience

This section discusses prevailing views about the Asian financial crisis, in general, and the Korean experience, in particular. We begin with a depiction of the Asian financial crisis and conclude with the analysis of the Korean situation.

Asian Financial Crisis[2]

The Asian financial crisis is but the latest in a series of similar events that have affected the world's economy in the 1990s – for example, the 1994 Mexican peso collapse and the resulting turmoil in Latin America. Several studies (e.g., Corsetti, Pesenti, and Roubini 2001, Kaminsky and Reinhart 2001, and Tornell 2001) have examined those crises to determine whether they were due to "fundamentals" or "contagion." That is, were the countries that experienced a financial crisis vulnerable to such an event because of weak macroeconomic fundamentals (e.g., weak growth, high inflation, low foreign exchange reserves, troubled banking systems, and so on)? Or were they the "innocent" victims of a financial panic (contagion) that damaged countries' economies regardless of the strength of the underlying macroeconomic fundamentals?

The papers in Ito and Krueger (2001) examine the causes and consequences of the Asian financial crisis with comparisons to similar prior crises. That research reaches a consensus on several issues surrounding financial crises, in general, and the Asian crisis, in particular.

While contagion plays a role in the spread of a financial crisis, the magnitude of the negative effects experienced by countries in a crisis depends crucially on their macroeconomic

[2] This section incorporates material from Ito and Krueger (2001), Corsetti, Pesenti, and Roubini (2001), Kaminsky and Reinhart (2001), Tornell (2001), and Radelet and Sachs (1998).

fundamentals. Thus, Hong Kong, Singapore, and Taiwan escaped the more dramatic costs of the Asian financial crisis because of relatively strong macroeconomic fundamentals.[3]

One factor plays a major role in the Asian financial crisis vis-à-vis other similar events -- the importance of foreign bank lending (Radelet and Sachs 1998, Cho and Hong 2001, Kaminsky and Reinhart 2001, and Tornell 2001). Banks supplied much credit to domestic firms. Domestic banks came to rely more heavily on foreign bank lending. When the crisis reared its head, the supply of foreign lending evaporated quickly, confronting the domestic banks with a liquidity crisis. Further, some analysts argue that the initial International Monetary Fund (IMF) rescue programs by requiring credit tightening worsened the liquidity crisis (Radelet and Sachs 1998).

Many Asian countries also possessed elements of "crony capitalism." Thus, the financial crisis caused some important corporate borrowers to default on their loans to the banks. This negative shock was reinforced and compounded by the loss of foreign lending to domestic banks. Impending bank failures necessitated the intervention by the central bank to assist in finding potential merger partners (possibly foreign) or to take over operations of the failed banks itself.

Korean Situation[4]

When the Asian financial crisis hit, the Korean macroeconomic fundamentals were not overly weak – high growth, low inflation, and low current account deficits – but were also not overly strong – low international reserves and low foreign direct investment relative to gross domestic product (Cho and Hong, 2001). Moreover, poor Korean government regulation and supervision of the banking system generated a structural vulnerability in the banking and financial markets

[3] For example, Corsetti, Pesenti, and Roubini (2001) argue that "Financial and currency crises thus become indissolubly interwoven in an emerging economy characterized by weak cyclical performances, low foreign exchange reserves, and financial deficiencies eventually resulting in high shares of non-performing loans." (p. 7)

that aided and abetted the negative consequences of the Asian crisis. Furthermore, the bankruptcies of several *chaebols* (e.g., Kia, Hanbo, Haitai, Sammi, and Daewoo) along with standstill agreements and syndicated loans to a number of other *chaebols* prompted the flight of foreign lending, especially foreign bank lending. Within the banking system, the government began looking for potential merger partners for two, "too-big-to-fail" major banks (Korea First and Seoul). A foreign buyer did eventually acquire Korea First and the government still seeks a merger partner for Seoul.[5]

Hahm and Mishkin (2000) paint a portrait of the Korean economy consistent with Cho and Hong's (2001) picture. Hahm and Mishkin (2000) separate fundamentals into macroeconomic and balance sheet categories. The macroeconomic fundamentals signaled a well-managed economy where as the balance sheet fundamentals suggested vulnerability to the Asian financial crisis. They discuss balance sheet fundamentals in three categories – the overall economy, the financial sector, and the corporate sector.[6]

Noland (2000) also provides elaboration on many of the points just raised. He differentiates the Korean crisis from other Southeast Asian crises in that the Korean investment boom occurred in the manufacturing sector, especially the *chaebols,* rather than in real estate and that investment growth was funded in large part by short-run capital inflows. That is, short-term capital controls were liberalized while the long-term controls were not. Noland argues that the initial IMF program exacerbated problems by confusing the Asian financial crisis with the earlier Latin American crisis. The Asian crisis differed according to Noland, because the corporate

---

[4] This section employs material from Cho and Hong (2001), Hahm and Mishkin (2000), and Noland (2000).

[5] Currently, the Korean government holds 100 percent of Seoul's shares – Korea Deposit Insurance Corporation 97.7 percent and the Ministry of Finance and Economy the remaining 2.3 percent.

[6] For example, Hahm and Mishkin (2000) state that Korea's "rate of short-term external liabilities to official foreign exchange reserves had risen to nearly 280%" (p. 14) by 1996.

expansion was loan, not equity, based. Thus, the financial crisis raised interest rates, triggering a liquidity crisis. The IMF's prescription to tighten credit worsened the liquidity crisis.

III. History of Korean Bank Structure and Descriptive Analysis

Our balance sheet and income statement data for Korean banks come from *Bank Management Statistics*, published annually by the Financial Supervisory Services. Sixteen nationwide banks enter our database for at least one year in the sample from 1991 through 1999.[7] Several bank entrances, mergers, acquisitions, and conversions occurred over the sample period. The Asian financial crisis threw a roadblock across the path of deregulation and privatization of the financial sector begun by the Korean government and the Bank of Korea in the early 1980s.[8] During the 1960s and 1970s, major components of the Korean financial system were nationalized. Lending was targeted toward favored sectors (and firms), such as exports and heavy industries (Bank of Korea 1994). Plans to deregulate the financial system and place Korean commercial banks in the private sector began in the early 1980s.

Our database includes information on the asset and liability holdings and income and expense information of Korean nationwide banks. Before performing more rigorous analysis of the database, we first provide an overview discussion of a number of key variables related to bank performance over the 1991 to 1999 period.

---

[7] The banks include Cho-Hung, Sang-Up, Korea First, Hanil, Seoul, Korea Exchange, Kook-Min, Housing & Commercial, Shinhan, Hanmi (KORAM), Dong-Wha, Dong-Nam, Dae-Dong, Hana, Boram, and Pyong-Wha (Peace Bank of Korea).

[8] Bank of Korea (1990) and Gilbert and Wilson (1998) provide valuable background information on the issues. Deregulation in the early 1980s expanded the power of commercial banks. Commercial banks could now, for example, offer credit cards, issue negotiable certificates of deposit, provide automated teller machines, and so on. Simultaneously, foreign exchange controls and restrictions on foreign ownership of Korean assets eased. The government's hand was, nonetheless, still a potent force, controlling interest rates on certain types of loans and deposits. Further, the government's informal credit policy continued to favor selected sectors. Gilbert and Wilson (1998) argue that the Korean commercial banking system was in critical condition in the mid-1980s with significant levels of bad loans. No Korean bank failed at this time, however, as charge-off rates for bad loans were slow

While the Asian financial crisis precipitated the dramatic domestic economic crisis in Korea, more fundamental causes were at fault.[9] The corporate sector overextended itself with too much investment and borrowing. Commercial banks relied too heavily on short-term foreign lending as a source of funds. Finally, the lack of transparency of balance sheets, income statements, and management practices all led to a crisis of confidence in Korean institutions. In sum, the Korean economy was an "accident waiting to happen."[10]

Table 1 reports the returns on assets and equity for the nationwide banks in our sample. Several observations emerge. First, the Asian financial crisis dramatically affected the returns on assets and equity with Cho-Hung, Korea First, Hanil, Seoul, Dong-Wha, Dong-Nam, Dae-Dong, and Pyong-Wha each experiencing a more than 10 percent rate of loss on equity in 1997. With the exception of Cho-Hung and Pyong-Wha, these banks either disappeared through merger or were "too big too fail" and received assistance from the Bank of Korea, who began looking for foreign merger partners. Moreover, with few exceptions, the performance of all banks in terms of

---

enough to maintain individual bank viability. No such luck (skill) graced the Korean commercial banking industry during the Asian financial crisis.

[9] The next few paragraphs rely on information from Bank of Korea (1998).

[10] Korea First and Seoul became insolvent during the Asian financial crisis. They were seen as "too-big-to-fail" institutions. Thus, the government nationalized and recapitalized them in January 1998. The Bank of Korea sought private (foreign) buyers for both banks after recapitalization. After protracted negotiations, Newbridge Capital acquired Korea First in December 1999. Seoul still sits on the auction block. Having determined that Korea First and Seoul were too-big-to-fail, the Monetary Board of the Bank of Korea in February 1998 identified 12 of the remaining 24 Korean banks as falling below the Bank of International Settlements (BIS) capital adequacy requirement of 8 percent. Nationwide banks with capital ratios above 8 percent included Kook-Min, Housing & Commercial, Shinhan, Hanmi, Hana, and Boram. Further, those nationwide banks with capital ratios between 6 and 8 percent included Cho-Hung, Hanil, Korea Exchange, and Sang-Up. Finally, nationwide banks with capital ratios below 6 percent included Dong-Wha, Dong-Nam, Dae-Dong, and Pyong-Wha. The Bank of Korea (1998) stated that the "… Monetary Board (renamed the Monetary Policy Committee from April 1, 1998) issued orders or recommendations for management improvement measures to the twelve commercial banks other than Korea First Bank and Seoul Bank that had had BIS capital adequacy ratios of less than 8% at the end of 1997." (p. 9). After examining the financial conditions of those twelve banks, the Financial Supervisory Commission ordered the closure of three Korean nationwide banks, since they were seen as having little chance of recovering. Those banks were closed through purchase and assumptions (P&As) where the acquiring banks assumed the liabilities and

returns on assets or equity deteriorated further in 1998. The exceptions – Hanmi and Hana – both experienced an increase in the rates of return on assets and equity in 1998.[11] The hardest hit banks were Korea First and Seoul. But, Cho-Hung, Sang-Up, Hanil, Boram, and Pyong-Wha also experienced extremely bad performance in 1998 with Pyong-Wha having the largest rate of loss on equity, exceeding that of Korea First and Seoul.[12] For those banks with negative returns on assets in 1998, every bank experienced an improvement in its return on assets in 1999, except Seoul.[13]

Researchers suggest that foreign lending to domestic banks played an important role in the Asian financial crisis (Radelet and Sachs 1998, Cho and Hong 2001, Kaminsky and Reinhart 2001, and Tornell 2001). That is, the Asian crisis precipitated a loss of foreign-source liabilities, exerting strong pressure on those banks with an illiquid asset base. If accurate, then we expect to see retrenchment in bank portfolios – declining assets and/or deposits. We do not observe such movements by in large for the Korean nationwide banks.

Table 2 reports consolidated balance sheet information for Korean nationwide banks. Total assets climbed continually from 1991 through 1998, and fell only slightly in 1999. Deposits also climbed steadily over the entire 1991 to 1999 period. In short, the consolidated balance sheet of the Korean nationwide banks does not provide much ammunition for the hypothesis that the withdrawal of foreign-source liabilities played a significant role in the

---

purchased only the "sound" assets. The actual June 1998 P&As included Kook-Min acquiring Dae-Dong, Housing & Commercial acquiring Dong-Nam, and Shinhan acquiring Dong-Wha.

[11] Shinhan saw its return on equity rise from 2.39 to 2.60 percent, but its return on assets fall from 0.22 to 0.19 percent.

[12] Using the rate of return on assets, Pyong-Wha ranked third from the bottom ahead of Korea First and Seoul.

[13] The return on assets for Seoul fell to –11.45 percent and the return on equity dropped dramatically to –567.64 percent. Seoul's 1999 balance sheet and income statement data provide information seemingly at odds with the rest of the nationwide banks. We revisit this observation when we consider the econometric analysis in the next section.

Korean economic woes after the Asian financial crisis. If foreign-source liabilities were withdrawn from Korean nationwide banks, then such loses were replaced from domestic sources.

To offer a related insight to that last observation, Table 2 also reports information on foreign-currency loans and foreign-currency deposits. Both items, measured in Won, decrease after the Asian financial crisis. Unfortunately, we do not know whether the lost loans and deposits were domestic or foreign residents, since that data are not available.

The holding of foreign-currency loans and foreign-currency deposits do expose banks to foreign exchange risk as long as foreign-currency loans exceed, or fall short of, foreign-currency deposits. For example, if foreign-currency loans exceed foreign-currency deposits, then a weakening Won increases the Won value of foreign-currency loans more than deposits, adding to the equity base. Of course, a strengthening Won squeezes the equity base.[14] We note that foreign-currency loans and deposits rise and fall together with those loans exceeding deposits in every year except 1997.

By in large, Korean nationwide banks did respond to the shocks from the Asian financial crisis to the extent that they could respond. In general, loans did not change by much between 1997 and 1998 while securities nearly doubled (see Table 2) as banks tried to reduce the income risk that they faced. Loans and securities both showed modest increases in 1999, keeping the new post-1997 distribution between the two relatively constant.

The number of domestic branches of nationwide banks and the number of full-time employees (see Table 2) responded to events in 1997. Bank managers modified the decline in bank performance by reducing the number of branches somewhat and dramatically reducing the number of full-time employees in 1998. The number of branches and full-time employees

stabilized between 1998 and 1999 with branches still falling, but by a smaller amount, and full-time employees increasing marginally.

IV. Explaining Korean Nationwide Bank Performance

Our data include all nationwide banks in operation in any year from 1991 to 1999. Since some banks entered and/or exited over the sample period, we have an unbalanced panel data set of 124 observations – 144 observations with 20 missing values. The data include balance sheet and income statement data on these banks. In addition, we collected some macroeconomic information that change over time, but do not differ between banks at a point in time.

Our econometric investigation looks for possible correlations between the balance sheet and income statement information as well as the macroeconomic data, and our measures of bank performance returns on assets and equity. Our results divide into sets of three regressions. In each set, the first regression considers five different types of individual bank explanatory variables: (1) portfolio distribution variables -- loans to assets, securities to assets, deposits to assets, and equity to assets; (2) income distribution variables – non-interest income to interest income and non-interest expense to interest expense; (3) a risk variable – provision for loan losses to loans; (4) factor inputs – number of branches and full-time employees; and (5) a scale variable – total assets. The second regression broadens the portfolio distribution variables and adds two variables to capture the distribution of loans -- won-denominated loans and foreign-currency loans to total loans[15] -- and two variables to capture the distribution of deposits – time deposits to won-denominated deposits and foreign-currency-denominated deposits to total

---

[14] The database does not provide the breakdown of foreign-currency loans and deposits into individual currencies.

[15] Total loans also include domestic import usance loans and advances for customers.

deposits.[16] The third regression broadens the loan distribution variables by adding the fractions of won-denominated loans in real estate (housing), consumer (household), and commercial categories (enterprises).[17]

We perform these three regressions with progressively finer disaggregations both with and without the macroeconomic variables. The macroeconomic variables include the unemployment rate, the rate of growth of real gross domestic product, the rate of depreciation of the Won, the fiscal budget surplus as a fraction of nominal gross domestic product, and the rate of inflation in the consumer price index.[18]

The standard method in empirical bank studies estimates regression equations with pooled ordinary least squares (OLS), which assumes that the omitted variables are independent of the regressors and are independently, identically distributed. Such estimation, however, can create problems of interpretation if bank-specific characteristics, such as bank management, that affect performance are not considered. If those omitted bank-specific variables (both observed and unobserved) correlate with the explanatory variables, then pooled OLS produces biased and inconsistent coefficient estimates (see Hsiao, 1986). Using panel data, however, the fixed-effect model produces unbiased and consistent estimates of the coefficients.[19]

The fixed-effect model assumes that differences across banks reflect parametric shifts in the regression equation. Such an interpretation becomes more appropriate when the problem at

---

[16] The data divide won-denominated deposits into demand and time and savings deposits while total deposits divide into won-denominated and foreign-currency-denominated deposits.

[17] The other categories of loans incorporated under won-denominated loans include loans to the public sector and loans to special savings.

[18] We also repeat all regressions where we add an Asian financial crisis dummy variable (coded one in 1997, 1998, and 1999; zero otherwise) and interact it with each independent variable to see if the effects change significantly between the pre- and post-Asian crisis. Generally, the findings are not altered by the Asian financial crisis. We report where the results differ in the footnotes.

[19] Other methods of excluding unobserved country-specific variables estimates the first-differenced regression and

hand uses the whole population, rather than a sample from it. Since our sample considers all 16 Korean nationwide banks over a particular time period, we adopt the fixed-effect model for our analysis if the omitted country-specific variables correlate with the included regressors.

Before reporting the regression results, some background discussion on the sequence of events in our research will provide useful information. When we originally collected the data and began the econometric analysis (early 2000), the 1999 data were not yet available. Those data became available in June 2000. As a result, we originally performed our fixed effect regressions using 1991 to 1998 data and then updated our analysis with the 1991 to 1999 data set.

Several important general differences emerged in the two sets of results. First, the 1991 to 1998 data provide a much better fit as well as a larger number of significant variables. Second, the 1991 to 1998 data produce significant effects for the macroeconomic variables (available on request); the 1991 to 1999 data do not. Finally, the 1991 to 1999 data generate coefficient estimates that sometimes change signs from their 1991 to 1998 counterparts, leading to counterintuitive effects.

Such large changes in results from adding data from 1999, with hindsight, seems a probable outcome, since the post-Asian-financial-crisis data are much noisier. The government's hand in nationalization of several institutions and in recapitalizing many others likely altered normal relationships. A quick look at Table 1 suggests that amongst the nationwide banks, Seoul appears to have followed a different path in 1999. Seoul's returns on assets and equity deteriorated further in 1999 when other banks experienced some relief from the difficulties in 1998. Moreover, while the government finally found a foreign purchaser for Korea First, Seoul remains at the alter awaiting a proper suitor.

---

the random-effects model (see Hsiao 1986, and Westbrook and Tybout 1993).

We delete the 1999 Seoul observation, converting our data set to an unbalanced panel of 144 with 21 missing values. The sign-reversing coefficients and counterintuitive effects now disappear. The regressions for 1991 to 1999 still do not have as good a fit and the macroeconomic variables still are generally not significant. The lack of significant effects from the macroeconomic variables probably reflects the fact that the macroeconomic fundamentals were important pre-Asian financial crisis, but not so after. The government's role in the financial sector had diminished since the 1980s only to be reversed by the Asian financial crisis. So it may not be surprising that macroeconomic variables provide less explanatory power of bank performance once the years following the Asian financial crisis are added to the data.

Table 3 and 4 report the regression results for returns on assets and equity, respectively, excluding the 1999 Seoul observation. We provide comments to indicate when the 1991 to 1998 results differ from those in Tables 3 and 4. Several observations deserve mention. First, higher capital adequacy (equity to assets) associates positively with both the rates of return (return on assets and equity). That result emerges even as the government recapitalized several banks. That is, banks with significant financial problems receive an injection of new equity that should raise the equity to asset ratio. Such recapitalizations presumably impart a negative correlation. Thus, the highly significant and positive association between capital adequacy and rates of return must offset this government-induced negative association.[20]

Second, non-interest income to interest income possesses a strong positive correlation with the rates of return on assets and equity while non-interest expense to interest expense possesses a strong negative correlation. Banks perform better as they increase their income

[20] Moreover, the positive effect of equity to assets on return on equity strengthens after the Asian financial crisis begins. That is, the interaction of the equity to assets variables with the Asian financial crisis dummy variables is

emanating from non-interest sources and reduce their expenses from non-interest sources. We know that banks reacted to the crisis by economizing initially on full-time employees and branches – two components of non-interest expense. Further, interest income associates with bank lending in large part. The problems of nonperforming loans are lessened in those banks that rely less on interest income.

Third, provisions for loan losses to total loans has a strong negative correlation with the returns on assets and equity, not a surprising result. The provision for loan losses crudely signals the riskiness of banks. Thus, higher loan loss provisions signal higher risk and associates negatively with bank returns.[21]

Fourth, the number of full-time employees has a strong positive correlation with the returns on assets and equity. Significant downsizing in full-time employees has been one response to the poor performance of Korean nationwide banks. Thus, that positive correlation probably reflects the decline in full-time employees necessitated by the fall in the return on assets and equity. In other words, we suspect reverse causality – low performance prompts lower full-time employment. It does not suggest that hiring more full-time employees will boost bank returns, quite the contrary.[22]

---

significantly positive in the return on equity regression.

[21] That negative effect reflects the situation after the Asian financial crisis. That is, the provision for loan losses interacted with the Asian financial crisis dummy variable possesses a significant negative coefficient while the coefficient of provision for loan losses by itself that reflects the pre-crisis period of 1991 to 1996 is no longer significant.

[22] The 1991 to 1998 data produce a strong positive correlation between the number of bank branches and the returns on assets and equity (not shown, available on request). Banks again reduced branches in response to declining bank performance in 1998. That significant positive effect disappears when we add the 1999 data.

Finally, the evidence for other significant variables in the return on assets and equity regressions is spotty and not persistent across the various specifications. Moreover, those variables that are significant tend to be so at a lower level (i.e., 10-percent level).[23]

V. Conclusion

The Asian financial crisis is but one of a series of recent crises that have hit the world's economies. Analysts suggest that it differ from prior crises in the importance of foreign lending. Moreover, others (e.g., Radelet and Sachs 1998) cite the initial IMF rescue programs that required credit tightening as contributing to the severity of the problems. The problems in Korea mirrored many of the problems confronted by other countries. The financial institutions needed recapitalization and restructuring. Furthermore, a number of important *chaebols* faced imminent default on their obligations.

We focus on the performance of Korean nationwide banks before, during, and immediately after the Asian financial crisis. The two largest banks – Korea First and Seoul – were seen as too-big-to-fail. The government sought foreign buyers for those banks. It took nearly two years to reach agreement with Newbridge Capital to acquire Korea First. As of this writing, Seoul was still on the auction block. Government assistance was given to a number of banks to facilitate an acquisition by other Korean banks.

The performance of Korean nationwide banks took a big hit in 1998. Most banks recovered somewhat in 1999 with the notable exception of the further deterioration of Seoul. Several factors possess strong correlations with bank performance. Equity to assets correlates

[23] The macroeconomic variables are generally significant for the 1991 to 1998 sample period (not shown, available on request). An appreciating won has a strong positive correlation with the returns on assets and equity. A higher fiscal surplus to gross domestic product and a higher inflation rate in the consumer price index possess a positive correlation with performance. A higher growth rate of real gross domestic product associates with lower performance. Unemployment, however, does not significantly affect performance, even for the 1991 to 1998 period.

positively with bank performance, even when the government recapitalized a number of institutions that performed poorly. Non-interest income to interest income associates positively with bank performance and non-interest expense to interest expense associates negatively. Provisions for loan losses correlates negatively with bank performance as one expects. Finally, full-time employees associates positively with bank performance, which at first thought seems counterintuitive. As noted in the text, that effect probably reflects the effects of poor bank performance on bank employment. That is, nationwide banks downsized significantly in 1998 as bank performance deteriorated.

Our findings suggest that the normal rules associated with sound bank management were not overturned or repealed by the Asian financial crisis. The government, however, was required to intervene to prevent the crisis from lengthening or from spreading more deeply into the Korean economy. The future health of the banking system requires serious restructuring of the past linkages between banks, *chaebols*, and the government. Banks must freely pursue their own corporate goals and must not have their actions tied by decisions by the other two groups.

In sum, the Korean economy and financial sector has so far weathered a huge financial storm. But the oceans are not yet safe; the storm continues. Much progress has occurred in restructuring the financial sector. Less progress has occurred in the restructuring of the *chaebols*. This story has not yet seen its last chapter.

References:

Bank of Korea, 1990. *Financial System in Korea*. The Bank of Korea, Seoul.

Bank of Korea, 1994. *Financial Liberalization and Internationalization in Korea*. The Bank of Korea, Seoul.

During the Asian financial crisis, securities to assets, real estate loans to assets, and consumer loans to assets each possess a significant positive coefficient.

Bank of Korea, 1998. *Bank Restructuring in Korea*. The Bank of Korea, Seoul.

Cho, D., and K. Hong, 2001. "Currency Crisis of Korea: Internal Weakness or External Interdependence?" In *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, eds. T. Ito and A. O Krueger, East Asia Seminar on Economics, Volume 10.

Corsetti, G., P. Pesenti, and N. Roubini, 2001. "Fundamental Determinants of the Asian Financial Crisis: The Role of Financial Fragility and External Imbalances." In *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, eds. T. Ito and A. O Krueger, East Asia Seminar on Economics, Volume 10.

Financial Supervisory Services, 1999. *Bank Management Statistics*.

Financial Supervisory Services, 2000. *Bank Management Statistics*.

Gilbert, R. A., and P. W. Wilson, 1998. "Effects of Deregulation on the Productivity of Korean Banks." *Journal of Economics and Business* 50, 133-155.

Hahm, J. H., and F. S. Mishkin, 2000. "Causes of the Korean Financial Crisis: Lessons for Policy." National Bureau of Economic Research Working Paper #7483, (January).

Hsiao, C., 1986. *Analysis of Panel Data.* Cambridge, UK: Cambridge University Press.

Ito, T., and A. O. Krueger, 2001. *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, East Asia Seminar on Economics, Volume 10.

Jeon, Y., and S. M. Miller, 2001. "The Effects of the Asian Financial Crisis on the Performance of Domestic and Foreign Banks in Korea." Working Paper, University of Nevada, Las Vegas.

Kaminsky, G. L., and C. M. Reinhart, 2001. "Bank Lending and Contagion: Evidence from the Asian Crisis." In *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, eds. T. Ito and A. O. Krueger, East Asia Seminar on Economics, Volume 10.

Noland, M., 2000. *Avoiding the Apocalypse: The Future of the Two Koreas*. Institute for International Economics, Washington, DC.

Radelet, S., and J. Sachs, 1998. "The Onset of the East Asian Financial Crisis." National Bureau of Economic Research, Working Paper #6680, (August).

Tornell, A, 2001. "Lending Booms and Currency Crises: Empirical Link." In *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, eds. T. Ito and A. O Krueger, East Asia Seminar on Economics, Volume 10.

Westbrook, M. D., and J. R. Tybout, 1993. "Estimating Returns to Scale with Large, Imperfect Panels: An Application to Chilean Manufacturing Industries," *The World Bank Economic Review*, January, 85-112.

Tables:

Table 1: Rates of Return on Assets and Equity (Percentage)

	Year								
Return on Assets	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	0.61	0.62	0.61	0.71	0.47	0.40	-0.82	-5.32	-1.86
Sang-Up (Hanvit)	0.43	0.18	0.05	0.29	0.44	0.42	-0.52	-5.08	-3.15
Korea First	0.71	0.95	0.91	0.64	0.07	0.02	-5.44	-9.05	-3.50
Hanil	0.79	0.88	0.74	0.70	0.38	0.23	-0.84	-4.83	
Seoul	0.58	0.57	0.08	0.36	0.03	-0.88	-4.01	-9.67	-11.45
Korea Exchange	0.23	0.31	0.39	0.45	0.40	0.33	-0.16	-2.02	-1.97
Kook-Min					0.46	0.62	0.33	0.17	0.17
Housing & Commercial							0.36	-0.70	1.06
Shinhan	1.72	1.54	1.37	1.24	0.84	0.75	0.22	0.19	0.32
Hanmi (KORAM)	1.39	1.22	0.53	0.70	0.38	0.54	-0.47	0.37	0.26
Dong-Wha	1.12	1.25	0.61	0.30	-0.61	0.15	-2.14		
Dong-Nam	0.63	0.70	0.55	0.33	0.02	0.27	-0.71		
Dae-Dong	0.37	0.31	0.27	-0.27	0.23	0.21	-2.02		
Hana	5.50	2.62	1.71	1.33	0.91	0.87	0.52	0.82	0.55
Boram	5.38	2.38	1.93	1.34	0.71	0.56	0.16	-4.55	
Pyong-Wha			0.12	0.50	-0.75	0.19	-1.00	-7.18	-1.20
Return on Equity	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	6.22	6.76	6.85	7.60	5.30	5.04	-11.91	-84.77	-24.72
Sang-Up (Hanvit)	5.19	2.33	0.64	3.32	5.23	5.85	-8.57	-74.63	-39.96
Korea First	7.36	10.53	10.14	7.43	0.82	0.29	-79.98	-138.85	-52.88
Hanil	7.22	8.65	7.76	7.55	4.04	2.82	-12.71	-67.45	
Seoul	4.95	5.39	0.81	3.70	0.32	-10.30	-52.06	-120.46	-567.64
Korea Exchange	4.23	4.68	5.14	5.55	5.09	4.58	-2.76	-36.49	-38.84
Kook-Min					7.70	9.33	4.11	2.46	2.80
Housing & Commercial							3.59	-8.62	21.61
Shinhan	9.28	9.15	9.10	9.59	6.85	6.85	2.39	2.60	3.95
Hanmi (KORAM)	10.69	10.55	4.85	6.77	4.25	6.76	-7.26	7.59	4.53
Dong-Wha	4.57	5.68	3.13	1.79	-4.83	1.41	-24.63		
Dong-Nam	2.96	4.25	3.95	2.85	0.25	3.72	-11.88		
Dae-Dong	1.54	1.73	1.85	-2.21	2.69	2.72	-32.98		
Hana	12.98	9.90	10.14	10.01	7.92	8.28	5.85	11.35	8.24
Boram	16.91	9.66	11.50	9.43	5.81	5.47	1.94	-60.72	
Pyong-Wha			0.38	2.85	-6.36	2.15	-13.78	-157.36	-38.41

Note: Data come from Financial Supervisory Services (1999, 2000).

Table 2: Consolidated Nationwide Bank Balance Sheet Information

	Year								
	1991	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Assets	1148148	1285527	1412758	1702915	2223763	2672045	3698936	4163970	4118926
Securities	133385	148009	185054	243425	338019	419440	605390	1069042	1134203
Loans	599125	688480	740400	885155	1126113	1373278	1899103	1895592	1974791
Deposits	653843	718213	821741	1000889	1356638	1573399	2252714	2504439	2755938
Foreign-Currency Loans	184276	204818	221813	271399	341068	429295	634456	483570	308659
Foreign-Currency Deposits	149475	168962	210523	237710	273723	314895	690388	455189	300324
Domestic Branches	1931	2149	2425	2681	3476	3891	4682	4164	4040
Full-Time Employment	67518	68452	68018	67643	83335	83749	94065	64830	65865

Note: See Table 1. Domestic branches and full-time employment equals the number of branches and full-time employees. All other variables are measured in missions of Won.

Table 3: Panel Regressions of Return on Assets: 1991-1999

Variable	ROA					
L/A	0.0066	-0.0001	-0.0092	-0.0290	-0.0343	-0.0262
	(0.28)	(-0.00)	(-0.37)	(-1.09)	(-1.18)	(-0.88)
WL/L		-0.0223	-0.0276		-0.0528	-0.0476
		(-0.54)	(-0.68)		(-1.27)	(-1.14)
REL/WL			0.0444			-0.0113
			(0.69)			(-0.16)
CL/WL			0.1162‡			0.0402
			(1.93)			(0.55)
CIL/WL			0.0747			0.0344
			(1.36)			(0.55)
FCL/L		-0.0388	-0.0636		-0.0553	-0.0588
		(-0.87)	(-1.42)		(-1.25)	(-1.29)
S/A	0.0158	-0.0130	-0.0057	0.0083	0.0003	0.0057
	(0.65)	(-0.45)	(-0.20)	(0.29)	(0.01)	(0.17)
D/A	-0.0186	-0.0242	-0.0510	-0.0556‡	-0.0604*	-0.0595‡
	(-0.78)	(-0.89)	(-1.65)	(-1.81)	(-1.98)	(-1.75)
TD/WD		0.0303	0.0176		0.0018	0.0070
		(1.39)	(0.77)		(0.07)	(0.26)
FCD/D		-0.0136	-0.0113		-0.0329	-0.0340
		(-0.51)	(-0.43)		(-1.13)	(-1.11)
E/A	0.3197*	0.3219*	0.3129*	0.2790*	0.2576*	0.2625*
	(9.44)	(6.67)	(6.65)	(5.97)	(4.88)	(4.94)
NII/II	0.0950*	0.0809*	0.0900*	0.0734*	0.0612*	0.0733*
	(5.21)	(4.08)	(4.39)	(3.69)	(2.93)	(3.25)
NIE/IE	-0.1489*	-0.1433*	-0.1490*	-0.1261*	-0.1180*	-0.1283*
	(-6.26)	(-5.49)	(-5.59)	(-4.56)	(-4.21)	(-4.31)
PLL/L	-0.2214*	-0.2536*	-0.2295*	-0.1979*	-0.2184*	-0.2083*
	(-4.70)	(-5.07)	(-4.61)	(-4.13)	(-4.33)	(-4.06)
BNCH	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.40)	(0.40)	(0.45)	(0.05)	(0.32)	(0.38)
EMPL	0.0075*	0.0075*	0.0073*	0.0067*	0.0062*	0.0063*
	(6.26)	(6.02)	(5.93)	(5.49)	(4.60)	(4.56)
A	0.0003	0.0003	0.0022	0.0002	0.0002	0.0001
	(1.10)	(1.11)	(0.64)	(0.96)	(0.79)	(0.50)
UNEM				0.2424	0.3990	0.2932
				(0.74)	(1.06)	(0.77)
DGDP				0.0251	0.0963	0.1090
				(0.26)	(0.81)	(0.90)
DEXCH				0.0168	-0.0094	-0.0183
				(0.47)	(-0.21)	(-0.39)
SUR				0.3905	0.5901	0.4160
				(1.26)	(1.58)	(1.06)
INF				-0.0383	-0.0507	-0.0559
				(-0.43)	(-0.53)	(-0.59)
Adjusted R^2	0.7561	0.7556	0.7684	0.7718	0.7718	0.7719
SEE	0.0099	0.0099	0.0097	0.0096	0.0096	0.0096

Note: The dependent variable is the return on assets (ROA) as a fraction. Independent individual bank variables include total loans to assets (L/A), won-denominated loans to loans (WL/L), real estate loans to won-denominated loans (REL/WL), consumer loans to won-denominated loans (CL/WL), commercial and industrial loans to won-denominated loans (CIL/WL), foreign-currency loans to total loans (FCL/L),

securities to assets (S/A), total deposits to assets (D/A), time deposits to won-denominated deposits (TD/WD), foreign-currency deposits to total deposits (FCD/D), non-interest income to interest income (NII/II), non-interest expense to interest expense (NIE/IE), provisions for loan losses to total loans (PLL/L), the number of branches (BNCH), employment (EMPL, in thousands), and assets (A, in billions of won). Independent macroeconomic variables include the unemployment rate (UNEM) as a fraction, the rate of growth of real GDP (DGDP) as a fraction, the rate of change in the Won per US dollar exchange rate (DEXCH) as a fraction, the government budget surplus to nominal gross domestic product (SUR), and the rate of inflation in the consumer price index (INF) as a fraction. Summary statistics include the adjusted R^2 and the standard error of the regression (SEE). Numbers in parentheses under coefficient estimates are t-statistics.

* means significantly different from zero at the 1-percent level
** means significantly different from zero at the 5-percent level
‡ means significantly different from zero at the 10-percent level

Table 4: Panel Regressions of Return on Equity: 1991-1999

Variable	ROE					
L/A	0.5887 (1.56)	0.4898 (1.22)	0.3077 (0.80)	-0.0871 (-0.21)	-0.2472 (-0.55)	-0.0865 (-0.19)
WL/L		-0.2872 (-0.43)	-0.3793 (-0.61)		-0.9254 (-1.44)	-0.7777 (-1.24)
REL/WL			0.5331 (0.54)			-0.5250 (-0.48)
CL/WL			2.2922** (2.49)			0.8313 (0.76)
CIL/WL			1.2926 (1.54)			0.3832 (0.40)
FCL/L		-0.3629 (-0.51)	-0.9084 (-1.33)		-0.6958 (-1.02)	-0.8343 (-1.22)
S/A	0.5093 (1.33)	0.2669 (0.58)	0.3982 (0.90)	0.4368 (0.99)	0.4967 (1.00)	0.5337 (1.07)
D/A	-0.1935 (-0.51)	-0.1524 (-0.35)	-0.7737 (-1.65)	-0.8215‡ (-1.81)	-0.9137‡ (-1.94)	-1.0295** (-2.01)
TD/WD		0.3919 (1.12)	0.1109 (0.32)		-0.2357 (-0.60)	-0.1869 (-0.47)
FCD/D		-0.0533 (-0.13)	0.0091 (0.02)		-0.4334 (-0.96)	-0.0611 (-0.17)
E/A	3.5894* (6.70)	3.9108* (5.07)	3.7051* (5.16)	3.0344* (4.22)	2.7064* (3.31)	2.8643* (3.58)
NII/II	0.8795* (3.05)	0.7700** (2.43)	1.0202* (3.26)	0.4933 (1.61)	0.3839 (1.19)	0.7133** (2.10)
NIE/IE	-1.9396* (-5.16)	-1.9748* (-4.72)	-2.1633* (-5.32)	-1.6072* (-3.78)	-1.5084* (-3.48)	-1.8330* (-4.09)
PLL/L	-4.2666* (-5.73)	-4.5539* (-5.69)	-3.9670* (-5.22)	-3.8918* (-5.28)	-3.9660* (-5.09)	-3.6662* (-4.75)
BNCH	0.0004 (0.75)	0.0003 (0.50)	0.0003 (0.51)	0.0002 (0.29)	0.0003 (0.50)	0.0003 (0.45)
EMPL	0.1047* (5.54)	0.1075* (5.41)	0.1054* (5.61)	0.0924* (4.89)	0.0859* (4.12)	0.0906* (4.37)
A	0.0039 (1.03)	0.0046 (1.15)	0.0022 (0.58)	0.0041 (1.04)	0.0030 (0.73)	0.0016 (0.40)
UNEM				7.1659 (1.43)	10.5082‡ (1.80)	8.0680 (1.40)
DGDP				0.7949 (0.53)	1.7987 (0.98)	1.8415 (1.01)
DEXCH				0.1833 (0.33)	-0.1509 (-0.21)	-0.2911 (-0.41)
SUR				10.5324** (2.22)	14.4050** (2.49)	10.4482‡ (1.77)
INF				-0.5783 (-0.42)	-0.9352 (-0.63)	-1.0796 (-0.70)
Adjusted R^2	0.6924	0.6845	0.7284	0.7278	0.7247	0.7389
SEE	0.1570	0.1589	0.1475	0.1476	0.1485	0.1446

Note: See Table 3. The dependent variable is the return on equity (ROE) as a fraction.

Appendix: Tables

Table A1: Domestic and Foreign-currency Deposits (millions of Won)

	Year								
Deposits in Won	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	68338	70143	80211	100574	120017	138249	134991	159100	232900
Sang-Up (Hanvit)	76198	76449	78810	100016	117951	133531	125676	290421	376520
Korea First	65815	73884	79824	92726	104637	103137	98222	124360	145491
Hanil	77410	75538	74222	83647	98742	115923	120956	153333	
Seoul	62138	61059	58433	72296	69888	76464	79845	88948	123102
Korea Exchange	36340	40899	47428	57972	69659	72789	88445	106684	184478
Kook-Min					146324	170612	179035	316289	411311
Housing & Commercial							134728	222436	328396
Shinhan	23167	27516	33118	43423	47694	48963	59023	128257	184508
Hanmi (KORAM)	10329	11512	10567	14955	16649	18219	25007	68026	114518
Dong-Wha	9971	15232	12556	13767	15627	14902	23901		
Dong-Nam	5245	6189	7521	7943	12527	12889	18058		
Dae-Dong	5967	6482	6666	7891	10170	11582	14160		
Hana	2795	4824	6950	10862	13583	15295	35006	75233	206439
Boram	3490	6723	5599	8742	10684	9902	26598	36048	
Pyong-Wha		1943	3996	6727	8184	12086	17115	29476	49193
Deposit in Foreign Currency	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	14318	16457	21785	24859	26591	38994	89831	55286	43183
Sang-Up (Hanvit)	19719	24153	30888	32021	34486	38706	84413	91009	63679
Korea First	17662	17717	23798	25261	27031	25289	80424	49279	35628
Hanil	19369	22278	30382	34490	38148	43708	96204	47672	
Seoul	11783	12256	15720	18766	21413	26086	62343	37566	19985
Korea Exchange	56107	63153	64110	64068	76169	83690	153790	84164	80623
Kook-Min					4311	4190	7256	17985	10024
Housing & Commercial							7507	3166	1868
Shinhan	6268	7811	11709	15181	17737	21416	44009	34577	26257
Hanmi (KORAM)	2750	2643	3378	3974	4957	5931	11575	11736	7659
Dong-Wha	710	877	1906	4981	6015	7566	14421		
Dong-Nam	280	394	746	1656	1900	2182	8065		
Dae-Dong	420	585	1409	1857	2109	2322	4900		
Hana	39	372	1883	2981	3492	3500	7872	10702	9479
Boram	50	266	1773	4258	5312	6905	10300	8277	
Pyong-Wha			1036	3357	4052	4410	7478	3770	1938

Note: See Table 1.

Table A2: Loans and Security Holdings (millions of Won)

	Year								
Loans and Discounts	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	84564	93402	105899	124118	146003	184601	219432	170017	198750
Sang-Up (Hanvit)	94029	101730	102158	108237	115301	143930	177011	298505	345968
Korea First	85793	99891	111297	135353	142921	160800	161287	121602	97996
Hanil	73501	82473	90797	112410	126967	153193	198107	157903	
Seoul	66070	73185	76647	88108	100258	109158	117899	97483	73921
Korea Exchange	112262	121936	119619	127134	147024	171408	232351	185196	186624
Kook-Min					143000	173247	208663	315193	359697
Housing & Commercial							225230	238592	298835
Shinhan	43336	56880	65289	82857	76793	117854	149229	148528	188301
Hanmi (KORAM)	11195	12641	13648	20499	23402	32292	42975	65894	91065
Dong-Wha	10346	14345	14029	22088	24494	26098	32972		
Dong-Nam	6809	8862	10464	13726	15643	19392	23602		
Dae-Dong	5909	7657	9148	12377	14042	19558	23753		
Hana	3261	8750	12515	21311	25871	34941	45927	56704	133632
Boram	2050	6728	8890	16937	24394	26806	40665	39975	
Pyong-Wha		560	5030	12626	15919	17683	22164	22929	36414
Securities	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	18100	17880	22818	34202	41271	49797	58296	61807	117755
Sang-Up (Hanvit)	22682	24146	29972	40069	47073	55233	63749	167314	163387
Korea First	18839	19428	23879	33917	40111	42799	47033	57718	82607
Hanil	18734	21940	28088	34936	40667	47885	58538	77718	
Seoul	10725	12866	18033	24787	30180	35811	48105	57180	80107
Korea Exchange	26321	26257	28777	28754	35521	40814	53094	78492	110278
Kook-Min					37928	50815	65537	199709	166335
Housing & Commercial							45175	93290	97505
Shinhan	8391	10433	12881	19229	26376	38849	54340	92134	121616
Hanmi (KORAM)	1639	2426	3492	4672	5620	9209	16556	74844	70203
Dong-Wha	3488	3096	4408	6912	7844	8723	13803		
Dong-Nam	1609	1906	2567	3270	6167	9828	13807		
Dae-Dong	1579	2030	2377	3759	4417	7284	8772		
Hana	930	1983	4016	3611	7174	11266	36043	65989	97054
Boram	348	1394	1677	2994	4164	5360	15146	21958	
Pyong-Wha		2224	2069	2313	3506	5767	7396	20889	27357

Note: See Table 1.

Table A3: Domestic and Foreign-Currency Loans (millions of Won)

	Year								
Loans in Won	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	58754	66488	74646	85369	94631	112351	124891	110958	154452
Sang-Up (Hanvit)	68474	72983	68599	75038	78032	94181	105964	186908	248757
Korea First	62810	70575	77540	90577	91581	104137	94280	78317	78538
Hanil	51781	57574	58974	72990	74025	84595	94539	93774	
Seoul	46180	50053	53399	58679	66582	71413	70169	62680	54569
Korea Exchange	47161	53237	54281	59995	64447	76129	86979	90082	115858
Kook-Min					139284	166233	196491	281183	332768
Housing & Commercial							212473	228996	289907
Shinhan	32736	43539	50270	63829	71831	83275	96118	108858	154134
Hanmi (KORAM)	9016	9638	10794	16888	18110	23598	27334	53599	81135
Dong-Wha	9898	13827	12969	17619	18973	18523	20495		
Dong-Nam	6386	8167	9719	12222	14129	17701	19900		
Dae-Dong	4954	6255	7752	10649	12313	17334	19383		
Hana	3252	8472	11898	19168	23577	31473	40394	51625	122804
Boram	1979	6548	8102	13153	18684	19581	28975	31428	
Pyong-Wha		560	4209	9420	11879	13534	16937	19576	33219
Loans in Foreign Currency	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	23067	23885	28876	37563	49993	70633	91507	53300	38444
Sang-Up (Hanvit)	23486	25973	27657	28161	31975	44546	65453	106985	85397
Korea First	22034	27853	31136	41721	48271	51590	63976	35546	17311
Hanil	20540	23389	29362	36343	50420	65450	99474	61718	
Seoul	17420	19683	20109	25621	29123	32063	43645	28028	17255
Korea Exchange	63663	66567	63163	65002	80291	92641	141042	92788	66613
Kook-Min					2945	6126	10984	31151	23595
Housing & Commercial							12187	8808	8069
Shinhan	10200	12508	14316	18039	23810	33278	51513	38352	33118
Hanmi (KORAM)	2100	2503	2402	2974	4573	8044	14762	11203	7850
Dong-Wha	409	442	965	4320	5367	7218	11802		
Dong-Nam	380	481	557	1360	1399	1539	3171		
Dae-Dong	897	1152	1143	1440	1497	1890	3541		
Hana	9	259	607	2129	2270	3433	5408	4740	8892
Boram	71	123	723	3717	5644	7143	11297	7901	
Pyong-Wha			797	3009	3490	3701	4694	3050	2114

Note: See Table 1.

Table A4: Foreign-Currency Loans and Deposits (US $)

	Year								
Loans in Foreign Currency	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	31299	30466	35826	46546	64674	87743	96020	37963	32306
Sang-Up (Hanvit)	31867	33129	34314	34896	41365	55337	68681	76200	71763
Korea First	29897	35527	38630	51699	62446	64087	67131	25318	14547
Hanil	27870	29833	36429	45035	65226	81304	104380	43959	
Seoul	23636	25106	24949	31748	37675	39830	45797	19963	14500
Korea Exchange	86381	84907	78366	80548	103869	115082	147998	66088	55977
Kook-Min					3810	7610	11526	22187	19828
Housing & Commercial							12788	6274	6781
Shinhan	13840	15954	17762	22353	30802	41339	54054	27316	27831
Hanmi (KORAM)	2849	3193	2980	3685	5916	9993	15490	7979	6597
Dong-Wha	555	564	1197	5353	6943	8966	12384		
Dong-Nam	516	614	691	1685	1810	1912	3327		
Dae-Dong	1217	1469	1418	1784	1937	2348	3716		
Hana	12	330	753	2638	2937	4265	5675	3376	7472
Boram	96	157	897	4606	7301	8873	11854	5627	
Pyong-Wha			989	3729	4515	4598	4925	2172	1777
Deposits in Foreign Currency	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	19427	20991	27029	30804	34400	48440	94261	39377	36288
Sang-Up (Hanvit)	26756	30807	38323	39679	44613	48082	88576	64821	53512
Korea First	23965	22598	29526	31302	34969	31415	84390	35099	29940
Hanil	26281	28416	37695	42739	49351	54296	100949	33954	
Seoul	15988	15633	19504	23254	27701	32405	65418	26756	16794
Korea Exchange	76129	80552	79541	79390	98537	103963	161375	59946	67751
Kook-Min					5577	5205	7614	12810	8423
Housing & Commercial							7877	2255	1570
Shinhan	8505	9963	14527	18812	22946	26604	46179	24627	22065
Hanmi (KORAM)	3731	3371	4191	4924	6413	7368	12146	8359	6436
Dong-Wha	963	1119	2365	6172	7781	9399	15132		
Dong-Nam	380	503	926	2052	2458	2711	8463		
Dae-Dong	570	746	1748	2301	2728	2884	5142		
Hana	53	474	2336	3694	4517	4348	8260	7623	7966
Boram	68	339	2200	5276	6872	8578	10808	5895	
Pyong-Wha			1285	4160	5242	5478	7847	2685	1629

Note: See Table 1.

Table A5: Domestic Branches and Full-Time Employment

	Year								
Domestic Branches	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	285	309	334	356	398	444	485	421	477
Sang-Up (Hanvit)	262	279	299	321	354	442	513	446	699
Korea First	276	291	316	345	384	403	413	339	336
Hanil	264	283	301	329	360	439	478	421	
Seoul	287	299	306	319	339	355	357	291	291
Korea Exchange	225	239	266	291	326	382	400	326	281
Kook-Min					478	499	511	546	588
Housing & Commercial							499	545	538
Shinhan	108	126	147	165	185	198	223	247	250
Hanmi (KORAM)	57	61	71	81	98	109	122	218	216
Dong-Wha	48	59	75	97	115	125	138		
Dong-Nam	46	58	72	85	92	105	119		
Dae-Dong	46	67	82	94	97	103	107		
Hana	14	34	48	65	86	99	110	173	277
Boram	13	30	49	63	78	90	99	104	
Pyong-Wha		14	59	70	86	98	108	87	87
Full-Time Employment	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Cho-Hung	10006	9874	9497	8969	9020	9259	9026	5820	6,960
Sang-Up (Hanvit)	9522	9445	8911	8445	8230	8204	8350	5785	11,134
Korea First	9276	8949	8817	8738	8748	8341	7990	4870	4,815
Hanil	9617	9503	9069	8654	8593	8707	8676	5781	
Seoul	10279	9969	9562	8957	8676	8311	7524	4817	4,713
Korea Exchange	8431	8406	8155	8360	8464	8840	8705	5910	5,747
Kook-Min					14701	14244	13515	11230	11,453
Housing & Commercial							12195	8538	8,973
Shinhan	3692	3863	4111	4323	4586	4749	4730	4597	4,464
Hanmi (KORAM)	1578	1721	1765	1892	2096	2200	2224	2864	2,973
Dong-Wha	1597	1818	1990	2094	2192	2220	2156		
Dong-Nam	1174	1364	1530	1654	1748	1851	1871		
Dae-Dong	1160	1369	1591	1773	1804	1898	1959		
Hana	522	785	1045	1277	1456	1613	1732	2071	3,333
Boram	664	787	972	1202	1400	1547	1581	1218	
Pyong-Wha		599	1003	1305	1621	1765	1831	1329	1,300

Note: See Table 1.

Table A6: Panel Regressions of Return on Assets: 1991-1998

Variable	ROA					
L/A	-0.0174 (-0.85)	-0.0182 (-0.83)	-0.0248 (-1.18)	-0.0588* (-2.67)	-0.0670* (-2.73)	-0.0571** (-2.36)
WL/L		-0.0228 (-0.77)	-0.0320 (-1.05)		-0.0457 (-1.44)	-0.0450 (-1.46)
REL/WL			-0.1310 (-1.58)			-0.0936 (-1.07)
CL/WL			0.0192 (0.39)			0.0274 (0.47)
CIL/WL			0.0589 (1.30)			0.0647 (1.25)
FCL/L		-0.0575 (-1.63)	-0.0507 (-1.45)		-0.0616‡ (-1.77)	-0.0587‡ (-1.67)
S/A	0.0194 (0.81)	-0.0025 (-0.10)	-0.0151 (-0.58)	-0.0107 (-0.41)	-0.0251 (-0.89)	-0.0306 (-1.08)
D/A	-0.0406‡ (-1.76)	-0.0418‡ (-1.78)	-0.0333 (-1.35)	-0.0747* (-3.14)	-0.0681* (-2.74)	-0.0474‡ (-1.76)
TD/WD		0.0238 (1.28)	0.0223 (1.20)		0.0275 (1.26)	0.0368‡ (1.70)
FCD/D		-0.0133 (-0.63)	-0.0251 (-1.23)		-0.0002 (-0.01)	-0.0087 (-0.38)
E/A	0.2889* (9.00)	0.2757* (7.05)	0.2338* (5.89)	0.2192* (5.70)	0.2261* (5.36)	0.1966* (4.57)
NII/II	0.1046* (6.47)	0.0899* (5.25)	0.1061* (5.98)	0.0843* (5.21)	0.0729* (4.27)	0.0884* (4.73)
NIE/IE	-0.1190* (-5.84)	-0.1068* (-4.93)	-0.1088* (-5.09)	-0.0901* (-4.02)	-0.0831* (-3.67)	-0.0823* (-3.57)
PLL/L	-0.6498* (-6.48)	-0.6915* (-6.95)	-0.6134* (-6.25)	-0.7137* (-7.33)	-0.7370* (-7.56)	-0.6712* (-6.70)
BNCH	0.0001** (2.62)	0.0001** (2.62)	0.0001* (3.41)	0.0001* (3.67)	0.0001* (3.44)	0.0001* (3.91)
EMPL	0.0065* (5.21)	0.0067* (5.39)	0.0071* (5.79)	0.0065* (5.27)	0.0069* (5.22)	0.0071* (5.40)
A	-0.0003 (-1.40)	-0.0003 (-1.17)	-0.0004‡ (-1.82)	-0.0005** (-2.03)	-0.0004 (-1.58)	-0.0004‡ (-1.83)
UNEM				0.0333 (0.10)	-0.0949 (-0.26)	-0.2380 (-0.66)
DGDP				-0.3208** (-2.39)	-0.3404** (-2.19)	-0.2732‡ (-1.78)
DEXCH				0.0734** (2.50)	0.0858** (2.30)	0.0802** (2.21)
SUR				1.1140* (2.89)	0.9885** (2.46)	0.5303 (1.23)
INF				0.4242* (2.81)	0.4576* (2.82)	0.3992** (2.52)
Adjusted R^2	0.8588	0.8643	0.8789	0.8760	0.8784	0.8860
SEE	0.0078	0.0076	0.0072	0.0073	0.0072	0.0070

Note: See Table 3. The dependent variable is the return on assets (ROA) as a fraction.

Table A7: Panel Regressions of Return on Equity: 1991-1998

Variable	ROE					
L/A	0.2216 (0.69)	0.1622 (0.47)	-0.0477 (-0.15)	-0.5478‡ (-1.66)	-0.7766** (-2.07)	-0.6870‡ (-1.88)
WL/L		-0.2808 (-0.54)	-0.4149 (-0.89)		-0.7892 (-1.62)	-0.7344 (-1.58)
REL/WL			-2.6099** (-2.06)			-2.1234 (-1.60)
CL/WL			0.7719 (1.02)			0.4685 (0.54)
CIL/WL			0.8300 (1.20)			0.4757 (0.61)
FCL/L		-0.5261 (-0.44)	-0.6430 (-1.20)		-0.6679 (-1.26)	-0.7478 (-1.41)
S/A	0.9125** (2.45)	0.6890‡ (1.67)	0.3663 (0.93)	0.5208 (1.33)	0.4347 (1.01)	0.1640 (0.38)
D/A	-0.5205 (-1.46)	-0.4570 (-1.31)	-0.6099 (-1.62)	-1.1204* (-3.14)	-1.1279* (-2.98)	-1.0254** (-2.52)
TD/WD		0.3273 (1.10)	0.1445 (0.51)		0.0740 (0.22)	0.1284 (0.39)
FCD/D		-0.0600 (-0.18)	-0.2023 (-0.65)		0.0102 (0.03)	-0.0172 (-0.05)
E/A	2.9162* (5.95)	3.0463* (4.89)	2.1530* (3.55)	2.0198* (3.50)	2.0945* (3.26)	1.5974** (2.46)
NII/II	1.1855* (4.73)	1.0462* (3.84)	1.4140* (5.22)	0.8107* (3.34)	0.7238* (2.78)	1.0822* (3.83)
NIE/IE	-1.5417* (-4.88)	-1.4910* (-4.32)	-1.6397* (-5.03)	-1.1551* (-3.44)	-1.1209* (-3.24)	-1.2715* (-3.65)
PLL/L	-12.8859* (-8.30)	-13.2273* (-8.34)	-11.9266* (-7.61)	-13.6196* (-9.32)	-13.7154* (-9.23)	-12.3684* (-8.18)
BNCH	0.0011** (2.48)	0.0011** (2.13)	0.0013* (2.70)	0.0016* (3.23)	0.0016* (3.06)	0.0017* (3.17)
EMPL	0.0724* (3.77)	0.0765* (3.87)	0.0847* (4.55)	0.0696* (3.74)	0.0746* (3.70)	0.0849* (4.27)
A	-0.0062‡ (-1.77)	-0.0054 (-1.50)	-0.0073** (-2.19)	-0.0077** (-2.27)	-0.0075** (-2.13)	-0.0080** (-2.30)
UNEM				4.1481 (0.87)	4.3979 (0.79)	1.4285 (0.26)
DGDP				-4.0505** (-2.01)	-4.2570‡ (-1.80)	-3.6448 (-1.57)
DEXCH				0.9094** (2.06)	1.0770‡ (1.89)	1.0805‡ (1.97)
SUR				21.1851* (3.66)	21.2930* (3.47)	13.4052** (2.06)
INF				5.8862** (2.59)	6.1392** (2.48)	5.2156** (2.18)
Adjusted R^2	0.8291	0.8262	0.8577	0.8592	0.8571	0.8690
SEE	0.1202	0.1212	0.1097	0.1091	0.1099	0.1052

Note: See Table 3. The dependent variable is the return on equity (ROE) as a fraction.