ECONOMICS OF MERGER IN THE COMMERCIAL BANKING INDUSTRY
- A study on U.S. and Japanese commercial banks -

by

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ABSTRACT

In recent years, mergers seem to be becoming an increasingly important strategic option for commercial banks, both in the U.S. and in Japan. Recently in the U.S., federally approved bank mergers have increased by almost 50% over the average number of acquisitions during the 1970s. In Japan, two mergers between large city banks took place in the past two years.

This thesis examines the motives of bank mergers, the validity of underlying assumptions that are frequently cited for bank mergers and the effectiveness of mergers as a strategy to achieve the goals set by merging banks. This thesis consists of a literature survey of the U.S. banking industry, and data analysis and case studies of the large mergers in Japan's banking industry.

This thesis concludes that U.S. banks have valid reasons to believe that they will be able to improve their profitability by increasing market share, to stabilize their earnings by geographical diversification and, for small banks, to increase their operating efficiencies by enlarging their size. This thesis also concludes that Japanese banks can assume that enlarged size improves their growth rate, profitability and operation efficiencies. This thesis, however, finds that the past mergers have not been effective in achieving the goals set by merging banks.

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Introduction

Mergers and acquisitions have been an important strategy for the banking industry both in the U.S. and in Japan, and its importance seems to be increasing in recent years. In the U.S., "official estimates of approved mergers and acquisitions since World War II indicate that close to 6,000 U.S. banks have been merged, consolidated into existing institutions, or acquired by bank holding company organizations. On an annual basis, recent federally approved bank merger transactions have tripled since the decade of the 1960s and increased almost 50 percent over the average annual number of acquisitions during the 1970s (Rose, 1989)." Anticipating the introduction of an interstate banking system in the near future and facing the depressing condition of the industry, more and more bank managers and regulators are seriously considering mergers and acquisitions.

In Japan, the number of mergers and acquisitions was about 3 to 6 per year from the late 1970s to the mid 1980s, and they were mainly by S&L type small institutions. However, two big mergers between large city banks happened in the past two years. One created the world second largest bank, Mitsui Taiyo Kobe Bank, and the other established the eighth largest bank in Japan, Saitama Kyowa Bank. Other types of mergers and acquisitions - a big banks acquisition of a small mutual bank, a merger between regional banks and consolidations among credit associations - have also happened and are taking place. With the forecast of further financial deregulation and tougher competition, Japan's bank managers have
started to discuss mergers and acquisitions as a realistic strategic option.

One of the most frequently used economic reasons for bank mergers and acquisitions might be economies of scale and scope. Other reasons often cited might be to increase market share and to stabilize earnings. These are based on expectations for improvement in operating efficiencies and synergies at merged banks. For managers, if a merger actually has these effects, it will bring higher profitabilities and high growth. For regulators, whether mergers actually has these effects or not might be one of the important points to consider in forming their policies.

In this paper, I will examine economies of bank mergers, from a view of the above mentioned operational efficiencies. I will try to answer two specific questions. First, whether above mentioned effects - i.e. economies of scale and scope or synergies - really exist in the banking industry. Second, given that these effects exist in the banking industry, are mergers and acquisition an effective way to achieve these effects? After answering these questions by examining past empirical studies, data analysis and case studies of past large mergers in Japan, I will introduce Japan's recent two large mergers and comment on the future.

1. Motives for bank mergers

In their book, Hawawini and Swary summarize motivations for mergers as follows:
(1) Stock market valuation error: The acquiror has privileged information indicating that the target firm is undervalued. If the acquiror can purchase the target for less than its true value, then the shareholder of the acquiring firm will benefit from the merger.

(2) Market power: The acquiror can raise the price of its product after the merger. This would be possible if the acquiror succeeds in reducing price competition in the product market by acquiring some of its competitors.

(3) Synergy: The acquiror can reduce the cost of its product after the merger. This would be possible if the merger generates synergies via economies of scale and scope, reduced distribution and marketing costs, divestiture of redundant assets, etc.

(4) Tax reduction: The acquiror can reduce the tax liability of the combined firms below their aggregate non-merged tax liabilities.

(5) Improve target firm's management: The acquiror can removes inefficient management from the target firm and improve the performance of that firm.

(6) Risk reduction: The merged firm may reduce their combined risk if the merger creates diversification gains. This will be the case if the risk of the combined firm is less than the weighted average of the risks of the two individual firms prior to the merger.

(7) Manager-utility-maximization: If manager utility depends on firm size, risk or managers' compensation rather than the
firm's value, then managers will maximize the firm's growth, reduce its risk or expropriate the firm rather than maximize shareholder wealth. Non-monetary rewards (power, prestige, perquisites) are usually easier to obtain in larger firms. Large firms may provide managers with a greater degree of job security.

(8) Hubris (or the valuation error of the bidding firm's management side): Though target firms are correctly valued, managers of bidding firms believe, with overweening pride and arrogance (hubris), that they are capable of uncovering "bargains." This may also include an incorrect belief in their capabilities in realizing improvements of target banks' performances.

In their study of U.S. banks' mergers and acquisitions, Hawawini and Swary examined these hypotheses mainly by the event study method, examining the movement of stock prices and returns of merging/acquiring banks to those of not merging/acquiring banks before and after events such as announcements of mergers/acquisitions and completions, and testing the existence of abnormal returns through comparison of return on banks' mergers/acquisitions under different sets of conditions. The conclusions of their study on banks' merger motivations are as follows:

(1) The market for bank mergers is efficient. The information hypothesis, that implies that acquiring banks aim and realizes
the merger benefit based on undervaluation of the target bank's stock, can not be validated.

(2) Bank mergers create net aggregate wealth for shareholders. The dollar gains realized by the shareholders of target banks exceed, on average, the dollar losses incurred by the shareholders of bidding banks. If assume market values are rational, then mergers are creating value. This result is inconsistent with the manager-utility-maximization and hubris hypothesis of mergers.

(3) There is tentative evidence that abnormal returns associated with mergers between two banks with low stock-return correlations are higher than those associated with mergers between two banks with high stock-return correlations. That implies that in some cases merging banks may aim and realizes the merger benefit based on a diversification benefit.

(4) Higher abnormal returns are associated with mergers involving a poorly-managed target than with mergers involving a well-managed bank. This finding is consistent with the hypothesis that inefficiently managed target banks provide an opportunity or gains if acquired and transformed into well-managed banks.

(5) There is some evidence showing that stock prices of rivals of merging banks react positively to the announcement of the mergers. The market power hypothesis, that merging banks aim and realize the merger benefit based on increased market power and reduced competition, has weak evidence.

(6) The synergy hypothesis is tested indirectly, based on the result of other types of empirical study that says that there is higher
potential synergistic gains at smaller size banks. If this hypothesis is correct, there should be a higher abnormal return associated with mergers involving smaller banks than with mergers involving larger banks. They found this is true.

In the following chapters, I would first examine the validity of underlying assumptions that often cited as economical reasons for banks mergers. (That is to answer whether i.e. economies of scale and scope are really exists in banking industry or not.) Second, I would examine effectiveness of merger to achieve management goals. (That is to answer, given there are economies of scale and scope in banking industry, whether mergers and acquisition is a effective way to realize these effect.)

I would use accounting ratio measures to examine these points. The reasons are as follows:

(1) In Japanese banking industry, there are very few mergers and acquisitions cases among publicly listed banks. Also, banks' stock prices are said to have been under supervision and control (of groups of banks management, corporate/institutional shareholders, regulators), and to have small/irrelevant moves compared to other industries' stocks, at least until 1984. That makes the event study approach and other stock market approaches inappropriate.

(2) In Japan's banking industry, there have not been mergers that aimed, at least publicly announced, to increase the stock prices
or market valuation of the merging banks. Nor have there been take-over bids or acquisitions through the market. I feel that Japanese banks' management cares more about accounting OPERATIONAL performance itself than about its reflection on stock price. (In this sense, I suspect, a priori, that manager-utility-maximization might be valid for Japanese banks' mergers.)

(3) The interests of Japan's banking regulators, industry experts and academic people are also focused on the quality of service, efficiency and stability of the banking system, not on the maximization of the bank's stock price. There is no study on Japan's banks stock prices or on banks' mergers and acquisitions that is comparable to that of Hawawini and Swary.

(4) Under the above mentioned situation, two questions of this study can be an interesting topic for both U.S. and Japanese banks managers and regulators. Hence, for managers, if a merger actually has these effects, it will bring them higher profitability and high growth. For U.S. managers, it might be a source of higher stock prices and market capitalization. For regulators, whether mergers actually have these effects or not might be one of the important points to consider in forming their policies.

2. U.S. banking industry

2-i. Existing evidence about underlying assumptions
(1) Market power

Studies on whether banks in more concentrated markets are more profitable so that banks might merge to increase their market share are inconclusive. First of all, there are two conflicting hypotheses on results of high market share. One argues that higher market share would result in less competition and higher profitability for banks in that market. The other argues that a more efficient bank would be more profitable and would be able to gain market share at the expense of a less efficient bank, thus a positive relationship between concentration and profit merely implies that a large efficiency gap exists between different banks in the same market.

Although the dispute has not been settled, a majority seems to support the market power hypothesis, although its impact is small. Berger and Hannan (1989), Daskin and Wolken (1989) suggested the positive correlation between a bank's concentration and their less competitive pricing - low interest rate on their deposits and high rate on their loans. Hunter and Wall (1989), in their literary survey, mildly conclude that "banks may be able to boost their profitability by increasing market concentration."(p. 10) Hawawini and Swary, as a result of their examination of past studies, reported that "there exists a significant positive correlation between market share and performance, although the magnitude of market share impact on profitability is quite low."(p. 5)
(2) Diversification (Risk reduction)

The sources of risk reduction in banking may be diversification of funding sources and earnings. "Large acquirors that rely on purchased funds may be especially interested in buying banks that have significant core deposit funding bases. Although the deregulation of deposit interest rates has reduced the cost advantage of relying on core deposit, they are still highly valued because of their greater stability relative to purchased funds. Similarly, diversification of earnings, both geographically and by customer type, can reduce the overall credit riskiness of bank's asset portfolio." (Hunter and Wall, 1989, p. 4) Hunter and Wall continue on the evidence about the relationship between a bank's size and risk as "The notion suggesting that larger, more diversified banks are less likely to fail appears to be supported by evidence dating back as far back as the 1920s and 1930s. Of the many banks that failed in this period, small banks failed at a disproportionately high rate."(p. 5)

More recent evidence on the relationship between risk and diversification is provided in a paper by Nellie Liange and Stephen A. Rhodes (1988). They studied several measures of bank's risk relative to the firm's geographical diversification, ratios of a specific type of asset to total asset and ratios of specific types of funding sources to total deposit, as well as total asset size and average number of branches per market. They conclude:

(a) The size of the bank and the extent of the bank holding company's participation in non-banking activities generally do
not affect the risk. (It is valid under the control of other diversification measures. They did not refer to the relation between the bank size and diversification measures.)

(b) The effect of asset diversification on the risk is mixed and not clear.

(c) Banks with high ratios of large time deposits are relatively risky.

(d) Geographical diversification and the average number of offices in markets reduce risk and have specifically strong effect on reducing the volatility in earnings. However, greater geographic dispersion and number of offices are associated with lower levels of return-on-assets and capital-to-total-assets ratios, implying higher risk. Banks may be able to reduce volatility of their earnings by entering into new markets or by expanding branching networks, but at the expense of increased operating costs and lower profitability. On the whole, one must be careful in claiming the existence of diversification benefits.

(3) Economies of scale and scope

(Economies of scale)

Hunter and Wall (1989) surveyed different studies of on economies of scale and concluded:
(a) Economies of scale appear to exist, especially in the range of banks with total assets size below $5 billion.

(b) Costs have been shown to be relatively constant for banks with assets up to $25 billion.

With these results, Hunter and Wall concluded:

(a) The desire to improve production efficiencies through economies of scale appears to be a valid motivation for merging of small banks.

(b) If a larger bank size, with constant costs, increases consumer convenience and enhances diversification of assets, these may be economical reasons for mergers between extremely large banks.

Some of the original studies' more specific conclusions are:

Clark(1988) - There is evidence of economies of scale for banks with total assets of less than $100 million, but generally no significant economies of scale for banks with assets in excess of $100 million. Samples mostly consist of banks with assets less than $1 billion. Unit productions that costs are measured against are defined as a loan or deposit account.

Hunter and Timme (1988) - There are significant economies of scale for banks with total assets in the $800 million to $5 billion range, with constant or slightly increasing costs for larger banks. Unit productions that costs are measured against are defined in terms of dollars.
Shaffer and David (1986), Shaffer (1988) - Although large banks have statistically small scale economies, they can nevertheless be quite important economically.

(Economies of scope)

Several studies in the literature examine economies of scope for banks most with assets less than $1 billion. Among them, only Gilligan and Smirlock (1984) and Gilligan, Smirlock and Marshall (1984) report significant global economies of scope. Many of these studies report significant product-specific economies of scope, in such pairs as investments and loans, deposits and loans, and time deposits and demand deposits.

Hunter and Timme examined economies of scope for 400 large banks most of which have assets of more than $800 million. They examined economies of scope in terms of cost saving effect gained in multiple production of retail loans, wholesale loans, transactions accounts and non-transaction accounts. They concluded:

(a) No appreciable cost savings accrue from multiple production for banks with up to $5 billion in assets.

(b) For banks with assets between $5 billion and $25 billion, multiple production actually increases production costs.

From these results, It can be assumed:
(a) The desire to improve production efficiencies through merging banks with different product lines and customer bases seems to be inappropriate.

(b) If large banks desire to merge to increase consumer convenience and enhance diversification, they may also have to assume increased cost.

2-2. Outcomes of mergers and acquisitions

Several studies on the outcomes of mergers and acquisitions conclude negatively. Rose (1988), in his study from a nationwide survey of 187 banks acquired in 1984 and 1985, reported that small portions of acquired banks experienced increased net earnings (17% of responding banks), 11% of them reported increased access to the bank by opening banking facilities for longer hours, 15% of them offered a wider range of services to their customers, while 6% reported gains in service quality. He concludes that "the "success ratio" after acquisition was reported as relatively low, at least in the first two years following completion of the acquisition. Fewer than a quarter of all responding banks reported significant progress toward their pre-acquisition objectives."(p.22)

Rhodes (1986) examined the effect of acquisitions, that took place in the 1960s and the 1970s, by comparing operating performance of 413 acquired banks with those of 3,600 non-acquired banks in each three year period of pre- and post-acquisition. He reports that:
(a) Acquired banks generally are neither more nor less profitable than other banks before and after acquisition.

(b) Acquired banks are neither more nor less efficient than other banks, when measured by average operating expense per asset.

(c) There is no indication that acquired banks grow faster than other firms in their market either during the three years preceding acquisition or in the fourth through sixth years after acquisition.

And he concluded that "this finding does not support the hypothesis that mergers tend to purge the system of bad management. Furthermore, these tests provide no indication that the average performance of the acquired firm before acquisition is improved after acquisition." (p. 18)

Rose (1989) supports this conclusion. In his study, he examined the operating performance of 160 national banks that merged over the 1970 - 1980 period. He concludes:

(a) There was no apparent improvement in the profitability of merged banks - measured either by return on assets or return on equity capital - relative to comparably sized non-merged banks after the mergers were completed.

(b) Neither did the operating efficiency - measured by total assets/revenues per employees or total operating revenue per total operating expense - nor the risk exposure of the merging banks - measured by capital-assets ratio or ratio of loan loss to equity capital - appear to improve following their acquisitions.
Summary of evidence on U.S. banking industry

In U.S. banking industry, banks with higher market share seem to have higher profitability than smaller banks. Also, banks with geographically dispersed operations seem to have low volatility in earnings. These are valid reasons for banks undertaking mergers. Small banks, with assets of less than $5 billion, may also have valid reasons for a merger in realizing economies of scale. However, for large banks, the existence of economies of scale is questionable. Economies of scope seems to be a weak reason for bank mergers. As we will see, these conditions in the U.S. banking industry, especially lack of economies of scale for extremely large banks, are a clear contrast to those of Japan's banking industry.

Even if a bank has valid reasons for pursuing mergers, such as those mentioned above, a merger is not necessarily an effective method to achieve these goals. There is little evidence that shows that mergers effectively improved the performance of merged banks, at least in short period following the merger (up to 6 years after mergers).
3. Japan's banking industry

3-1. Evidence about underlying assumptions

In this section I will examine economic reasons that are often cited for banks mergers with data from Japan's city banks. The reasons I limited my analysis within city banks are:

(a) Availability of detailed data

(b) City banks have comparable operational characters in such fields as geographical dispersion of markets (all city banks have branch networks mainly in metropolitan areas throughout Japan, whereas regional banks concentrate their branch networks within their home prefectures) and international business (city banks have office networks in all of the major world financial markets and earn 10 to 20% of their gross income from international business, while regional banks have little, if any, overseas offices).

(c) Sizes of city banks range widely (i.e. from ¥12 trillion to ¥60 trillion in total asset size) so that they seem to provide suitable data for us to examine the size effect on the banks' operating performances.

I took the financial data from Zenkoku Ginko Zaimu-Shyohyo Bunseki (Financial Report Analysis of All Banks in Japan), issued by Zenkoku Ginko Rengo-Kai (Federation of All Banks in Japan), Fiscal year from 1970 to 1977, and from 1981 to 1989, and other
complimentary data from various issues of *Kinyu Zaisei Jijyo* magazine.

(1) Market power / Growth

To examine "market power hypothesis" - banks might want to merge to increase their market power through increased size in a market - I used two measures:

(a) Correlation between interest rate margin on deposit/loans and deposit size: In this analysis, I regard banks as financial intermediaries. The tested hypothesis is that if a bank has the market power in either the deposit or the loan market, the bank may be able to charge low (high) interest rates on its deposits (loans). In either case, the interest rate margin on deposit/loan of the bank with market share may be higher than those without market power. Deposit size is used as an approximation of market share within a bank group competing in the same market. (City banks that operate mainly in metropolitan areas can be regarded as a competing group in this market.)

(b) Correlation between deposit/loan growth rate and deposit size: Banks with market power may use their ability to charge high interests on loans to subsidize high interest on deposits, or high sales costs in order to gain faster growth.
(For each variables, I used the value of five years average in sub-periods of 1981 - 85 and 1986 - 90.)

Results  (Exhibit 1)

As can be seen in Ex.1-1, there are negative correlations (log scale) between deposit size and interest margin on deposit/loan, both in 1981 - 85 period and in 1986 - 90 period. Through simple regression analysis, these negative correlations were confirmed as statistically significant. (In this analysis, dummy variables were used for Daiwa Bank and Bank of Tokyo. Daiwa Bank has a trust business and Bank of Tokyo issues long term debentures, both of which other city banks are prohibited from doing by regulators. These make the interest margins of two banks different from other banks apart from deposit size.) This correlation mainly comes the fact that larger banks pay higher interest rates on their deposit. (Ex.1-2)

Positive correlations were found between deposit size and the banks' growth rate both in 1981 - 85 and 1986 - 90 period, and these relations were statistically significant. (Ex.1-3)

It is clear that Japan's city banks with large assets, which was interpreted as larger market power, do not charge higher prices on their loans, but pay higher rates on deposits and gain faster growth. This result seems to support the notion that a more efficient bank would be able to gain market share at the expense of a less efficient bank. (As we will see later, there is strong positive correlation between a bank's size and its operating efficiency.)
Exhibit 1  Market Power and Performance

Ex.1-1. Deposit Size and Interest Margin

Y : Interest Margin (bp)
X : Deposit Size (¥ billion)
D1: Dummy for Daiwa Bank
D2: Dummy for Bank of Tokyo

(1986 - 90)  \[ y = 497.4 - 40.6\log(x) - 61.7D1 - 62.3D2 \]
(t-value) (-16.03)** (- 5.47) (- 5.57)
Adj. R^2 = 0.956

(1981 - 85)  \[ y = 613.9 - 52.7\log(x) - 34.9D1 - 75.6D2 \]
(t-value) (-14.05)** (-2.25)**(-4.88)**
Adj. R^2 = 0.939


**Ex. 1-2. Deposit Size and Interest Rate on Deposit**

\[ Y = \text{Interest Rate on Deposit (bp)} \]

\[ X = \text{Deposit Size (¥ billion)} \]

\[ D1: \text{Dummy for Daiwa Bank} \]

\[ D2: \text{Dummy for Bank of Tokyo} \]

\[
\begin{align*}
(1986 - 90) & \quad y = 132.8 + 36.5 \times \log(x) + 39.4D1 + 116.6D2 \\
 & \quad (t\text{-value}) \ (10.38)** \quad (2.55)** \quad (7.52) \\
& \quad \text{Adj.R}^2 = 0.920
\end{align*}
\]

![Graph for 1986-90 period]

\[
\begin{align*}
(1981 - 85) & \quad y = 42.7 + 69.2 \times \log(x) + 1.7D1 + 266.2D2 \\
 & \quad (t\text{-value}) \ (9.76)** \quad (0.06) \quad (9.07)** \\
& \quad \text{Adj.R}^2 = 0.925
\end{align*}
\]

![Graph for 1981-85 period]
Ex.1-3. Deposit Size and Deposit Growth Rate

Y : Deposit Growth Rate (annual average)
X : Deposit Size (¥ billion)
D1: Dummy for Daiwa Bank
D2: Dummy for Bank of Tokyo

(1986 - 90) \( y = 0.098 + 1.48e^{-6}x - 0.065D1 + 0.019D2 \)
(t-value) (3.30)** (-3.17)** (0.95)
Adj.R^2 = 0.581

(1981 - 85) \( y = 0.103 + 2.87e^{-6}x + 0.100D1 - 0.030D2 \)
(t-value) (4.19)** (6.19)** (-1.85)
Adj.R^2 = 0.783
This result may also be explained by the fact that in Japan, the interest rates on deposits have been deregulated, starting from the largest deposit size category. The larger banks, which have large size deposits more than the smaller banks, may have been forced to pay higher interest rates on their deposit. Instead, the larger banks could achieve the higher growth by aggressively charging higher rate on their deposits.

In either case, the "market power hypothesis" seems to be inappropriate for Japan's banking industry. Instead, Japanese banks may want to merge to accelerate their growth rate. (Whether faster growth itself can be a management goal or leads to higher profit may be questionable. These might be interesting questions for studies on Japan's banks' management goals but these issues are too big to be examined in this paper.)

(2) Diversification (Risk reduction) / Profitability (Financial Strength)

Here, I will examine "risk reduction hypothesis" - banks might want to merge to reduce their risk by combining assets in different geographical areas and different product lines. In addition, I will test relations between profitability and size or other diversification measures.
Risk measures (Dependent variables):

Volatility (Standard deviation) of ROA (Std.OP/TA) - This is used as a measure of asset risk. The larger the volatility of ROA, the riskier the portfolio of a bank is.

Level of ROA (OP/TA) - This is a profitability measure and at the same time a measure representing financial strength. If a bank achieves higher return than other banks with same volatility of return, we may assume the bank has a superior risk-adjusted return. In addition, as mentioned below, owners' capital is regarded as a cushion for losses on assets, especially for banks under the regulation framework. In Japan's banking industry, most of the profit (i.e. for city banks an average of 75% and 80% of Net Income in fiscal year of 1988 and 1989, respectively) is reserved as owners' capital. Thus, the level of profitability will directly affect the growth of owners' capital and thus the level of cushion for losses on assets.

Owners' capital to total asset ratio (CP/TA) - This is used as a measure of a bank's ability to bear losses on assets. (BIS's risk asset ratio is a better measure but not available before 1987.)

(Note 1)
Nellie and Rhoades (1988) used these risk measures in their analysis (although they used net-income-to-asset as a return measure). Refer to their study for a more detailed/rigid explanation on the theoretical implication of these measures.

(Note 2)
I used ROA (Operating Profit / Total Asset) as a return measure. Current Profit and Net Income seem inappropriate since these items include gain/loss from holding securities (stocks and non-listed government bonds). In Japan's banking industry, management usually uses gain/loss from holding securities to make the bottom line smooth ("window dressing"). Thus, Operating Profit (OP) (unpublished or foot-noted by some banks) that is calculated by subtracting the gain/loss on holding securities from Current Profit, seems to be a measure that better reflects the operating condition of Japanese banks.

**Diversification measures (Independent variables):**

*Asset size (TA)* - This is used to test whether a larger bank is less riskier, which is often vaguely assumed by people. (When this opinion is cited, it seems to be assumed that larger banks are more diversified in terms of geographic area, customer type and products.)

*International Business Share in Gross Income (Operating Profit plus Operating Expense) (IB/GI)* - Through the 1980s, Japanese city banks aggressively expanded their international operations. Some argue that international business is riskier than domestic business, since international business has foreign exchange risk, and Japanese banks lack expertise in international lending/funding and in new financial technology that is often used in international finance. Others argue that international business is the high growth and the highly profitable market that is necessary to compliment the deteriorating domestic market. The latter thus argue that expansion of international business will make banks stable in the long run. To
judge these confronting opinions, I will examine relations between a bank's international business share and its risk measures.

*Share of Income Other Than Interest Income (OB/GI)* - Income Other Than Interest Income includes such items as net fees, net gain/loss from foreign exchange dealing and net gain/loss from government bond dealing. In the mid 1980s, Japan's regulators abolished regulations on commercial banks' foreign exchange dealing and government bond dealing. Since then, city banks have aggressively expanded these activities. In recent years, fee businesses such as M&A, management advisory and option/swap (charges for these new financial products are included in fee revenues), in addition to traditional inland exchange, are gaining attention from banks managers as new potential markets. Disputes on the effect of these businesses on the risk profile of banks, similar to disputes about the risk effect of international business, has arisen and I will examine relations between a bank's Income Other Than Interest Income share and its risk measures.

I examined correlations between (i) total asset and each of three risk measures and (ii) ROA and standard deviation of ROA. For international business share and share of business other than interest income, standard deviation of ROA and level of ROA were measured against. I tested both 1982 - 90 periods and each 1982 - 86 and 1986 - 90 sub-periods for all relations. For the share of business other than interest income, only the 1986 - 90 period was tested due to the limit on data.
Results: (Exhibit 2)

(a) None of the three diversification measures (TA, IB/GI, OB/GI) has significant effect on volatility of ROA. (Ex.2-1) TA in 1982 - 90 and 1982 - 86 periods, and IB/GI in 1982 - 86 period seem to have negative effect on volatility, but none of these is statistically significant or I could not find rational reasons for these correlations.

(Note)
Standard deviation of ROA may not be a good measure of risk for Japan's city banks. When I examined correlation between standard deviation of ROA and level of ROA, there seems to be no significant correlation in any of three periods. Length of the period in which standard deviations were calculated might be too short to measure the fluctuation of ROA (risk of international business and other businesses). (Ex.2-2)

(b) TA and IB/GI have a statistically significant positive effect on the levels of ROA in the 1982 - 90 and 1982 - 86 periods. (Ex.2-3) But these positive correlations became insignificant in the 1986 - 90 period. Possible explanations for this change may be that (i) profitability of international business has eroded in the late 1980s due to competition increases by the new entry of smaller city banks, and (ii) the profitability of larger city banks who had first mover advantage and had
Exhibit 2  Diversification and Risk

Ex.2-1. TA, IB/GI, OP/GI and Volatility of ROA

(TA, 1982-90)

\[ y = 1.09 \times 10^{-1} - 1.06 \times 10^{-6} x \]

(t-value) \(-1.10\)

Adj. R\(^2\) = 0.02

Y: Standard deviation of Operating Profit/Total Asset
X: Total Asset

(IB/GI, 1982-90)

\[ y = 8.51 \times 10^{-2} + 2.92 \times 10^{-5} x - 1.94 \times 10^{-2} D2 \]

(t-value) \(0.01\) \((-0.09)\)

Adj. R\(^2\) = 0.000

Y: Std. of OP/TA
X: Int’l Business share in Gross Income
D2: Dummy for Bank of Tokyo
Ex. 2-1. TA, IB/GI, OB/GI and Volatility of ROA

(TA, 1986-90)

\[ y = 9.10e-2 - 3.14e-7 \times \]
\[ (t\text{-value})\quad (-0.35) \]
\[ \text{Adj. } R^2 = 0.00 \]
\[ Y: \text{Standard deviation of Operating Profit/Total Asset} \]
\[ X: \text{Total Asset} \]

(IB/GI, 1986-90)

\[ y = 4.22e-2 + 2.67e-3 \times - 1.81e-3 \times D2 \]
\[ (t\text{-value})\quad (0.88)\quad (-0.94) \]
\[ \text{Adj. } R^2 = 0.000 \]
\[ Y: \text{Std. of OP/TA} \]
\[ X: \text{Int'l Business share in Gross Income} \]
\[ D2: \text{Dummy for Bank of Tokyo} \]
Ex. 2-1. TA, IB/GI, OB/GI and Volatility of ROA

(OB/GI, 1986-90)

\[ y = 7.11 \times 10^{-2} + 4.75 \times 10^{-4} x \]
(t-value) (0.43)

Adj. R^2 = 0.000

Y: Std. of OP/TA
X: Share of Income Other Than Interest Income in Gross Income
Ex. 2-1. TA, IB/GI, OB/GI and Volatility of ROA

(TA, 1982-86)

\[ y = 7.22e-2 - 7.60e-7 x \]

(t-value) (-1.02)

Y: Standard deviation of Operating Profit/Total Asset

Adj.R^2 = 0.004

X: Total Asset

(IB/GI, 1982-86)

\[ y = 9.45e-2 - 2.48e-3 x + 1.76e-1 \]

(t-value) (-1.35) (1.34)

Y: Std. of OP/TA

X: Int'l Business share in Gross Income

Adj. R^2 = 0.000

D2: Dummy for Bank of Tokyo

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Ex. 2-2. ROA and It's Volatility

(1982-90)

\[ y = 9.73e^-2 - 3.67e^-2 \times x \]
(t-value) \((-0.23)\)
Adj.\( R^2 \) = 0.005

Y: Std. of OP/TA
X: OP/TA

(1986-90)

\[ y = 9.56e^-2 - 3.67e^-2 \times x \]
(t-value) \((-0.22)\)
Adj.\( R^2 \) = 0.000

Y: Std. of OP/TA
X: OP/TA
Ex. 2-2. ROA and Its Volatility

(1982-86)

\[ y = 5.12e^{-2} + 2.18e^{-2} x \]

(t-value) \hspace{1cm} (0.34)

\[ \text{Y: Std. of OP/TA} \]
\[ \text{X: OP/TA} \]

\[ \text{Adj.} R^2 = 0.000 \]
Exhibit 2  Diversification and Risk

Ex. 2-3. TA, IB/GI, OB/GI and Level of ROA (1982-90)

(TA, 1982-90)

\[ y = 2.60e-1 + 4.19e-6 x \]

(t-value) (2.84)**

Adj. R*2 = 0.371

Y: Operating Profit/Total Asset
X: Total Asset

(IB/GI, 1982-90)

\[ y = 1.96e-1 + 1.11e-2 x - 7.67e-1 D_2 \]

(t-value) (2.25)** (-1.63)**

Adj. R*2 = 0.216

Y: OP/TA
X: Int'l Business share in Gross Income
D_2: Dummy for Bank of Tokyo

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Ex. 2-3. TA, IB/GI, OB/GI and Level of ROA (1986-90)

(TA, 1986-90)

\[ y = 3.22e-1 + 1.73e-6x \]

(t-value) (1.16) \[ Y: \text{Operating Profit/Total Asset} \]

Adj. R\(^2\) = 0.028 \[ X: \text{Total Asset} \]

(IB/GI, 1986-90)

\[ y = 2.74e-1 + 6.42e-3x - 4.10e-3D2 \]

(t-value) (1.24) (-1.24) \[ Y: \text{OP/TA} \]

Adj. R\(^2\) = 0.000 \[ X: \text{Int'l Business share in Gross Income} \]

D2: Dummy for Bank of Tokyo

IB/GI (86-90) (%)
Ex. 2-3. TA, IB/GI, OB/GI and Level of ROA (1986-90)

(OF/GI, 1986-90)

\[ y = 3.01e-3 + 3.14e-3 x \]

(t-value) \(1.81\)

\[ R^2 = 0.159 \]

Y: OP/TA
X: Share of Income Other Than Interest Income in Gross Income
Ex. 2-3. TA, IB/GI, OB/GI and Level of ROA (1982-86)

(TA, 1982-86)

\[ y = 1.83e-1 + 8.57e-6x \]

(t-value) \( (3.48)^*\)

\[ \text{Adj.} R^2 = 0.482 \]

Y: Operating Profit/Total Asset
X: Total Asset

(IB/GI, 1982-86)

\[ y = 9.13e-2 + 1.69e-2x - 1.23e-2 D2 \]

(t-value) \( (2.29)^* \) \( (-2.32)^* \)

\[ \text{Adj.} R^2 = 0.220 \]

Y: OP/TA
X: Int'l Business share in Gross Income
D2: Dummy for Bank of Tokyo

\( \text{(%)} \)

\( \text{(%)} \)

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Ex. 2-4. Asset size and Capital/Asset Ratio

(1982-90)
\[ y = 2.01 + 4.96 \times 10^{-6} x \]

- Y: Owner's Capital/Total Asset
- X: Total Asset
- (t-value) (1.02)
- Adj. R^2 = 0.087

(1986-90)
\[ y = 2.15 + 3.78 \times 10^{-6} x \]

- Y: Owner's Capital/Total Asset
- X: Total Asset
- (t-value) (0.96)
- Adj. R^2 = 0.000
Ex. 2-4. Asset size and Capital/Asset Ratio

(1982-86)

\[ y = 1.76 + 5.99e-6 \times x \]
(t-value) \( (0.34) \)  
\[ \text{Y: Owner's Capital/Total Asset} \]
\[ \text{X: Total Asset} \]
\[ \text{Adj.} R^2 = 0.000 \]

![Graph showing the relationship between CP/TA and TA](image-url)
gained more in international business than smaller city banks in early 1980s had reduced more.

(c) OB/GI in 1986 - 90 period seems to have a positive effect on ROA although it has only a 10% statistical significance. (Ex.2-3)

(d) There is no significant correlation between TA and CP/TA. (Ex.2-4)

Through these analyses, it might be said that there is no direct relation between a bank's size and its risk (when measured by volatility of return on assets and by capital-asset-ratio). Correlation between a bank's risk and its degree of commitment to international business or other new businesses is also not clear. But among Japanese city banks, larger assets and a more diversified business line - aggressive entry in international business and business other than interest income - seem to have positive correlations with the profitability. Increased profitability, without risk increase, may also contribute to the banks' financial strength. Having observed these conditions in the 1980s, Japan's city banks' managers may have rational (at least for them) incentive to merge to gain larger size and more diversified business lines for higher profitability and financial strength.

(3) Economies of scale and scope

First, I will introduce several academic studies that are more rigid both in theory and methodology, on economies of scale and
scope in Japan's banking industry. Next, I will confirm these findings by charts and simple regressions.

Past Studies

(Economies of scale)

Yoshioka and Nakajima (1987) studied economies of scale of city banks and regional banks, in the years from 1974 to 1984. First, they examine relationships between various average-profit-per-input ratios (product efficiency indexes) to current profit size (product size) by charting. They measure output elasticity to scale of input by using trans-log type production function: output size is represented by amount of funding, total revenue minus interest expense or current revenue, while inputs are number of employees, amount of non-financial assets (i.e. real estates, machineries and miscellaneous), amount of funding and/or amount of funding expenses. Results are:

(a) The economies of scale are clearly identified in the charts.

(b) In most of the models tested, output elasticity to scale of input are more than 1 and statistically significant. Economies of scale seems to exist for both city banks and regional banks.

(c) When output is measured by profit, the elasticity to scale of input is larger than that of output measured by funding size. Funding size elasticities are 1.06 to 1.16 for city banks and 1.02 to 1.06 for regional banks, whereas profit size elasticities are 1.36 to 2.42 for city banks and 1.12 to 1.40 for regional banks.
(d) Over time, profit size elasticity got larger, implying that
difference in profitability among banks of small sizes and large
sizes widened during the period from 1974 to 1984.

Kasutani (1986), Tachiki, Ikeo and others (joint research
organized by Japan Economic Planning Agency, 1990) also reported
existence of economies of scale, by using different types of
production functions and different periods. Tachiki-Ikeo study
examined data from 1985 to 1987 and reported the existence of
economies of scale (measured by cost reduction effect) with a 5%
level statistically significance, for city banks, regional banks and all
banks. More interestingly, they reported that economies of scale
went up over time and concluded that this might be caused by the
fact that Japan's banking industry has been intensively investing in
computer-telecommunication facilities and strengthening the
character as a "fixed asset intensive" industry.

(Economies of scope)

Kasutani (1986) studied economies of scope of each city banks
and regional banks, in the years from 1974 to 1984. He examined
the existence of economies of scope (cost complementarity) by using
trans-log type cost function. (He measured cost complementarity by
degree of output substitution elasticity at a constant cost. The cost
was a function of two output-levels (loan revenues and other
business revenues) and prices of three inputs (employee, non-
financial assets and funds.).) He concluded that:
(a) For city banks, there appears to be economies of scope (cost complementarity) between loan business and other business, with a statistical significance of 5%. Economies of scope exists for most of the years tested (7/11) and grew in recent years.

(b) For regional banks, economies of scope became statistically significant at the 5% level in the last two years tested.

(c) Economies of scope in the banking industry seem to come from the fact that company/industry information and business know-how, that a bank can get from the lending business, can be utilized in other banking businesses with small additional cost.

(d) The economies of scope seemed to get larger in recent years.

Tachiki, Ikeo and others (1990) reported same results. They examined data of city-bank-and -regional-banks and of all banks from 1985 to 1987. They also tested economies of scope (measured by cost complementarity) between the loan business (measured by loan revenue minus interest cost on funding) and other business (measured by gross income from businesses other than loan business) by using a trans-log type cost function. They could confirm economies of scope at 5% statistical significance level only in 1987. However, they concluded, economies of scope seem to get larger over time.
Data Analysis

I will confirm the above findings by charts and simple regression method. I would examine following relations:

(Economies of scale)

*Total Asset (TA) and Operating Cost per Asset (OC/TA)* - Operating cost includes wages/salaries, expenses of non-durable goods, depreciation of non-financial assets (i.e. buildings, machineries) and others. By dividing by total assets, this ratio measures how effectively a bank transforms a type of financial product (i.e. loans, bonds, credit guarantees) to another (i.e. deposits, inter bank borrowing).

*Gross Income (GI) and Operating Cost per Gross Income (OC/GI)* - Here, banks' output is measured as "financial service." In the process of transforming one financial product to another, a bank is adding value (the spread between deposits and loans can be an example). A bank also earns fee revenues. The total of added value (= Gross Income) may be a better measure for a bank's level of output. Gross Income is defined as "current profit minus gain/loss on holding securities plus operating cost."

(Note)

In regressing these relations, I took the log-values of output size as independent variables. This is primarily to gain better results from regression but also because there seems to be (intuitively, by observing the charts) declining marginal gain on the average cost reduction relative to the output size.
(Economies of scope)

*International Business Share in Gross Income* (IB/GI) *and Operating Cost per Gross Income* (OC/GI) - I will try to examine the cost compliment effect between international business and domestic business.

*Share of Business Other Than Interest Income in Gross Income* (OB/GI) *and Operating Cost per Gross Income* (OC/GI) - I would try to examine the cost compliment effect between interest income business and other business.

**Results:** (Exhibit 3)

**Economies of scale** - From the charts (Ex.3-1), we can clearly see the declining trend of average cost (OC/TA and OC/GI) along the size of the output (TA and GI, respectively). All of these negative relations are statistically significant at the 5% level in all three periods tested.

**Economies of scope** - Increase of BI/GI corresponds to a decrease of average cost (OC/GI). (Ex.3-2) This correlations are statistically significant at the 5% level in each of three periods tested. Increase of OB/GI also seems to have a cost reduction effect. When regressed in linear form, OE/GI has a negative coefficient, but it is not statistically significant. Interestingly, when regressed in second-degree polynomial form, the coefficients become statistically significant at the 5% level. It may imply that there is an optimal level of other business at around 30 - 40% of gross income. (Ex.3-3)
Exhibit 3. Economies of Scale and Scope

Ex.3-1 Economies of Scale (1982-90)

(1). Asset Size and Operating Cost per Asset

\[ y = 3.88 - 6.90e^{-1}\log(x) \]
\[ (t-value) (-4.05)** \]
\[ R^2 = 0.599 \]
Y: Operating Cost/
Total Asset
X: Total Asset

(2). Gross Income Size and Operating Cost per Gross Income

\[ y = 132.39 - 25.67\log(x) \]
\[ (t-value) (-3.24)** \]
\[ R^2 = 0.488 \]
Y: Operating Cost/
Gross Income
X: Gross Income
Ex. 3-1 Economies of Scale (1986-90)

(1). Asset Size and Operating Cost per Asset

\[
y = 3.36 - 5.83e-1 \log(x) \quad Y: \text{Operating Cost/}
\text{Total Asset}
\]
(t-value) (-4.27)**

\[R^2 = 0.624\]

\[X: \text{Total Asset}\]

(2). Gross Income Size and Operating Cost per Gross Income

\[
y = 122.77 - 22.38 \log(x) \quad Y: \text{Operating Cost/}
\text{Gross Income}
\]
(t-value) (-2.62)

\[R^2 = 0.384\]

\[X: \text{Gross Income}\]
Ex. 3-1 Economies of Scale (1982-86)

(1). Asset Size and Operating Cost per Asset

\[ y = 4.47 - 8.23e-1 \cdot \text{LOG}(x) \]
(t-value) (-3.85)**
R² = 0.574

\[ \text{Y: Operating Cost/} \]
\[ \text{Total Asset} \]
\[ \text{X: Total Asset} \]

(2). Gross Income Size and Operating Cost per Gross Income

\[ y = 143.43 - 29.74 \cdot \text{LOG}(x) \]
(t-value) (-3.31)**
R² = 0.498

\[ \text{Y: Operating Cost/} \]
\[ \text{Gross Income} \]
\[ \text{X: Gross Income} \]
Ex. 3-2. Int'l Business Share and Operating Cost/Gross Income

(1982-90)

\[ y = 93.20 - 1.43 x + 86.4 D_2 \]
\[ (t\text{-value}) \quad (-4.02)^*\quad (3.59)^* \]
\[ \text{Adj.R}^2 = 0.589 \]

Y: OC/GI
X: Int'l Business share in GI
D2: Dummy for Bank of Tokyo

(1986-90)

\[ y = 86.76 - 1.16 x + 61.70 D_2 \]
\[ (t\text{-value}) \quad (-3.35)^*\quad (2.80)^* \]
\[ \text{Adj.R}^2 = 0.513 \]
(1982-86)

\[ y = 101.43 - 1.79 x + 1.19 D2 \]
(t-value) \((-3.60)** (3.32)**
\[ \text{Adj.} R^2 = 0.521 \]

**Ex. 3.3. Share of Business Other Than Interest Income and Operating Cost/Gross Income (1986-90)**

\[ y = 107.53 - 2.89 x + 4.10e-2 x^2 \]
(t-value) \((-3.26)** (3.00)**
\[ \text{Y: } \text{OC/GI} \]
\[ \text{X: } \text{Share of Business Other Than Interest Income} \]
\[ \text{in GI} \]

\[ \text{Adj.} R^2 = 0.475 \]
(Note)

There may be a positive relation between GI, IB/GI and OB/GI. If this is true, cost reduction effects of IB/GI and OB/GI may be a reflection of "economies of scale."

Based on past studies and analysis here, I would conclude that there are economies of scale and scope in Japan's banking industry. Economies of scale work even in the largest banks group - city banks. Thus, it can be a valid reason for city banks' managers to merge to reduce average cost of operation by realizing economies of scale. Furthermore, according to the past studies, the effects of economies of scale and scope have been growing in recent years. Thus, economies of scale may be getting more important incentive for banks' mergers.

3-2. Summary of validity of underlying assumptions

In this chapter, I compared the validity of economic reasons that are frequently cited for bank mergers with actual data from Japan's city banks. The results are as follows:

(a) Market power: It is clear that Japan's city banks with larger assets do not charge higher prices on their loans, but pay higher rates on their deposits. This result is inconsistent with the market power hypothesis.

(b) Growth: The larger banks have grown faster than the smaller banks, partly because of the higher rates on their deposits.
(c) Profitability: The larger banks are more profitable than the smaller banks, despite their lower interest margins on the deposits/loans.

(d) Operation efficiency: In Japan's banking industry, economies of scale exists even in its largest size group - city banks.

The effect of economies of scale seems to more than compensate for the lower interest margin of the large banks. The cost advantage gained from economies of scale enables the larger banks to pay higher interest on their deposits and still remain more profitable than the smaller banks. Furthermore, the larger banks have grown faster than the smaller banks, partly because of the higher rates on their deposits. This, together with increasing effect of economies of scale, seems to have a spiral effect on the differences of operating efficiencies and of profitability between the large city banks and the small city banks. As we will see in the next chapter, this is the most important incentive for smaller city banks to merge.

As for the stability of return or diversification effect, there is no clear correlation between the size of a bank or degree of diversification with the stability of ROA. We may have to wait a few more years to examine these relations.
4. Japan's past large mergers: Case studies

In this chapter, I will examine two large merger cases of Japanese city banks in the early 1970s - Dai-Ichi Kangyo and Taiyo Kobe. First, I will introduce the historic background and economical reasons announced by their management. Later, I will examine the merged banks' performance, specifically whether its operation efficiency and profitability was improved by the merger.

4-1. Merger between Dai-Ichi Bank and Nippon Kangyo Bank

On October 1, 1971, Dai-Ichi Bank and Nippon Kangyo Bank merged and then established Dai-Ichi Kangyo Bank. At the time of the merger, Dai-Ichi had deposits of ¥2,160 billion (about $7 billion at the then exchange rate of $1 = ¥308) that was the 7th largest among the 14 city banks of Japan. Nippon Kangyo had ¥1,620 billion of deposits and was ranked as the 8th largest. The newly established Dai-Ichi Kangyo Bank had capital of ¥54 billion, deposits of ¥3,780 billion, loans of ¥3,587 billion and 299 branches. Its deposit size and loan size became the largest, both with the share of 14%, among those of the 14 city banks. Since then, Dai-Ichi Kangyo Bank had been a leading city bank with the largest funds and assets of all the banks in Japan, until the merger between Mitsui Bank and Taiyo Kobe Bank in 1990.

At the time of the merger, the changing macro economic conditions had promoted favoring opinions for the creation of larger
banks through mergers, among Japanese non-financial industries, regulators and the commercial banking industry. First, since the late 1960s, size of the business and of loan needs from non-financial sectors had been growing. City banks in general were then in heavily over-loan position. City banks with weak funding capability, under the regulated interest rate system that meant small deposit size, sometimes had difficulties in making big loans to their customers. As a result, non-financial corporations, especially big companies, had to maintain relations with many banks for smooth funding. It increased their funding costs and their need for fewer but more reliable funding sources - larger banks. Second, there was a need for Japanese banks with strong international operations. Japanese exports were rapidly increasing. The foreign exchange system changed to a floating system in August 1971. Regulations on cross borderer capital transactions started to be relaxed. The business sector was rapidly becoming internationalized. Third, at that time, there was a strong belief among regulators and industry experts that there were economies of scale in the banking industry and that to enlarge size of individual banks through merger was very effective way to improve the efficiency of management. Kinyu Seido Chosa Kai (Financial System Council, which is an advisory group for the Ministry of Finance) concluded in its report in July 1970 that "the majority of the council support the opinion that there is an economies of scale in financial institutions' management." and "it is desirable to promote a merger which enable financial institutions to realize economies of scale." The sources of economies of scale that the report pointed out were: (1) efficient and extensive use of
computer and other machineries, (2) reduction of overlapping branches, (3) reduction of administrative staff, (4) increase of capability in providing larger size credit.

Under these circumstances, Dai-Ichi and Nippon Kangyo announced their merger decision in March 1971. Their historic background and managerial conditions that lead to the merger decision were as follows:

Dai-Ichi Bank:

It was established as Dai-Ichi Kokuritsu Ginko (First National Bank), functioning as the central note issuing bank to handle Government Treasury business, in 1873. With the charter of national bank expired, it was incorporated under the name of Dai-Ichi Bank in 1896. Since then, it expanded its business based mainly on the metropolitan area and on business with big corporate customers. It was regarded as the leading bank of Furukawa-Kawasaki zaibatsu group that had member companies mainly in heavy manufacturing industries like mining, steel, nonferrous metal and chemicals, which were then regarded as fundamental and growing strategic industries. Although it used to have a comparable size with other zaibatsu banks like Mitsubishi, Sumitomo and Fuji, it had lagged behind these banks for the preceding decade in such major managerial measures as asset/profit size and international operations. Its supporting Furukawa-Kawasaki zaibatsu group's management, together with Dai-Ichi's managers, had strong hopes for enlarged size and presence of Dai-Ichi. Dai-Ichi's smaller size, relative to those of the other
zaibatsu banks, had limited the funding capacities and international activities of Furukawa-Kawasaki group. That meant a group companies' disadvantage against competitors in other zaibatsu group. Also for Dai-Ichi Bank, a smaller deposit base resulted in higher cost of funding since it had to increase funding through high cost inter-bank market in order to meet increasing loan demand from its corporate customers. (At this time, the interest rate on deposit was regulated lower than those of inter-bank funding such as call loan and discount bill sales.) Prior to the merger with Nippon Kangyo Bank, it failed to merge with Mitsubishi Bank in 1969. The reason for the failure was said to be that there was big differences in terms of the sizes of the two banks and thus the merger would be effectively an acquisition of Dai-Ichi by Mitsubishi. It was said that there was strong resistance from Dai-Ichi's workers and corporate customers against coming under the rule of Mitsubishi.

**Nippon Kangyo Bank:**

Nippon Kangyo Bank was established to issue long-term and low-interest government bonds for agriculture and industry, in 1897. It widened the scope of loans to others besides agriculture and industry to become a general real estate bank in 1911. After World War II, it was converted from a special bank to a general deposit bank in 1950. With this background, it had been bothered by lack of experience in the commercial banking business. Its branches spread nation-wide and its business customers were mainly mid size companies in consumer goods and the service industry. It lacked strong ties with big corporations in heavy industries that then were
believed to be growing industries. Thus, Nippon Kangyo Bank was said to be worried about its low status among industries and its growth potential.

**Merger Announcement**

Under this context, Dai-Ichi and Nippon Kangyo announced their merger in March 1971. The conditions of the merger were as follows:

1. Legal status: Nippon Kangyo Bank would remain a legal entity and would acquire Dai-Ichi Bank.
2. Name of the merged bank: Dai-Ichi Kangyo Bank
4. New paid in capital: ¥54 billion (before the merger each banks had ¥27 billion of paid-in capital)
5. Date of merger: October 1, 1971.

The announced aim of the merger was to strengthen the stability and growth potential of the bank through the realizing economies of scale. Specific goals were as follows:

1. To strengthen the funding capacity, and to improve the ability to smoothly supply large size credit with low interest rate to industry sector.
2. To supply sufficient financial services to a wider range of customer, from big corporations to house holdings, and to improve the management to be able to meet the further development of the customer needs for financial services.
(3) To reorganize the underutilized human and other managerial resources so that the newly created organization would play a leading role in the international banking business.

Real aim and expected effect of merger

Industry experts and journalists then further analyzed the aim and expected effect of the merger as follows:

(1) Reduce the cost of funding through effective/extensive use of branch network: As mentioned above, Dai-Ichi had limited deposit gathering ability. This resulted in high funding costs since it had to increase funding through the high cost inter-bank market in order to meet increasing loan demand from Frukawa-Kawasaki group. (At this time, interest rates on deposits were regulated lower than those of inter-bank funding such as call loan and discount bill sales.) Having a strong branch network was regarded as the most effective way to improve deposit taking ability and thus reduce the funding cost of a bank. Dai-Ichi had 150 branches mainly in metropolitan areas, especially in the Tokyo area, whereas Nippon Kangyo had 149 branches spread over the nation. Newly created Dai-Ichi Kangyo had combined 300 branches with nice mixture of locations. It was expected that the new bank would have stronger deposit gathering capability than simple "1 + 1 = 2" relation of two banks' branches, by realizing an effective use of the branch network under the unified management.

(2) Strengthen the tie with Furukawa-Kawasaki group with Nippon Kangyo's funding capability: Although not openly announced,
another strong motivation of the merger was to strengthen the
tie with the Frukawa-Kawasaki group by directing Nippon
Kangyo's funds to lend to the Frukawa-Kawasaki group
through Dai-Ichi's long relationship. Dai-Ichi had difficulties in
meeting loan demands from the group's companies due to its
limited deposit gathering capabilities. Nippon Kangyo had
about the same deposit amounts as Dai-Ichi, but did not have
strong ties with big corporate customers. Thus, Kangyo was
said to have to pay higher average costs in making loans,
because it had to pay additional costs in finding borrowers and
its customers average loan size was smaller than those of big
corporations. Also, without a strong tie with groups of
Corporate customers that were actively trading among
themselves, Nippon Kangyo had difficulties in capturing the
deposits that flowed through the corporate transaction
network. By pouring Nippon Kangyo's funds to Dai-Ichi's big
corporate customers group, the newly created bank was
expected to more effectively use its funds.

(3) **Diversify the assets**: Dai-Ichi had business customers mainly in
heavy manufacturing industries, whereas Nippon Kangyo had
them in consumer goods and the service industry. The merged
bank would have a well balanced customer base, thus was
expected to have a well balanced loan portfolio in terms of its
risk and growth potential.

(4) **Strengthen the international operation**: The merged bank was
then ranked at sixth largest among the world banks and was
expected to promote its name recognition among the
international financial community. However, some industry experts doubted the effect of the merger on its improvement in international business operations. They said that both of the merging banks did not have notable track records and lacked sufficient expertise in this business.

The factors that management, together with regulators and industry experts, expected to work for smoothly realizing the effect of the merger were:

1. Similar management policy and culture.
2. Same size: both banks had about the same size of funds, assets, workers, branches, etc. This helped the two banks to realize a mergers of equals.

These two factors were expected to ease the culture crash, tension and suspicion among the workers during the post-merger process.

4.2. Merger between Bank of Kobe and Taiyo Bank

Bank of Kobe and Taiyo Bank merged to establish Taiyo Kobe Bank in October 1973, two years after the merger between Dai-Ichi amid Kangyo. At the time of the merger, Kobe had deposits of ¥2,036 billion (about $7.5 billion at the exchange rate of about $1 = ¥270) that was the 10th largest among the 14 city banks of Japan. Nippon Kangyo had ¥1,521 billion of deposits and was ranked at the 12th largest. The newly established Taiyo Kobe Bank had paid in capital of ¥49 billion, deposits of ¥3,558 billion, loans of ¥2,991
billion and 314 branches. Its deposit size and loan size became the 7th largest, with the share of both 8%, among those of 14 city banks.

Bank of Kobe:

Bank of Kobe was established in 1936 in Kobe City with a merger of seven regional banks. Since then it actively acquired regional banks around the Kobe area. Although it was classified as a city bank, most of its branches were located in the Kobe-Osaka area and had a culture of "a large regional bank."

Taiyo Bank:

Taiyo Bank was established under the name of Japan Mutual Loans & Savings Co. in 1940. It renamed itself as Nippon Sogo (mutual) Bank in 1951 when the Mutual Bank Law was enacted. It became a city bank and renamed itself as Taiyo Bank in 1968. It had branches mainly in and around the Tokyo area (103 out of 145, March 1969) and other branches also located in Kanto, the eastern part of Honshu island.

Merger Announcement

Bank of Kobe and Taiyo Bank announced their merger in February 1973. The conditions of the merger were as follows:

(1) Legal status: Bank of Kobe would remain a legal entity and would acquire Taiyo.
(2) Name of the merged bank: Taiyo Kobe Bank
(3) Way of merger: Share exchange of 1 to 1.
(4) New paid in capital: ¥49 billion (before the merger Bank of Kobe had ¥26 billion of paid in capital and Taiyo Bank had ¥230 billion)


The announced aims of the merger were similar to those of Dai-Ichi Kangyo - to strengthen the stability and growth potential of the bank through achieving economies of scale. Specific goals were also similar to those of Dai-Ichi Kangyo's:

(1) To strengthen the funding capacity.

(2) To more effectively use the managerial resources and reduce costs.

(3) To supply sufficient financial services to a wider customer base ranging from big corporations to house holdings and to improve the management to be able to meet the further development of the customer needs for financial services.

(3) To reorganize the underutilized human and other managerial resources to expand its international banking business.

The factors that were expected to have a synergistic effect in this merger were as follows:

(1) **Complementing branch network:** Bank of Kobe had a branch network mainly in the Kobe-Osaka area and had been willing to expand it to the metropolitan Tokyo area, whereas Taiyo had its branches mainly in the Tokyo area.

(2) **Complementing customer bases:** Bank of Kobe had a lot of big corporate customers mainly in heavy manufacturing industries
and the trading industry, whereas Taiyo had customers that were mostly small-medium size companies and households. Thus, the newly created bank would have a well diversified portfolio. Also, there were only a few overlapping customers so that there would be little reduction of business as a result of the merger.

The factors that were expected to make for a successful merger were the same as for Dai-Ichi Kangyo's:

1. Similar management policies and cultures.
2. Same size: both banks had about the same size of funds, assets, workers, branches and so on. This helped two banks to realize a mergers of equals.

4-3. Outcomes of the mergers

Here, I will examine the outcomes of the two mergers by comparing several financial ratios of the merged bank before and after the merger with those of peer-group banks. "Peer-groups" are defined as follows:

*Top 4* (average of Sumitomo, Fuji, Mitsubishi and Sanwa) - The peer group for Dai-Ichi Kangyo Bank (DKB) in post-merger period.

*Tokai+Mitsui* (average of Tokai and Mitsui) - The peer group for Dai-Ichi and Kangyo in pre-merger period and for Taiyo Kobe Bank (TKB) in post-merger period.
Bottom 3 (average of Kyowa, Saitama and Hokkaido Takushoku) - The peer group for Taiyo and Kobe in pre-merger period.

(1) Market Power (Earning Ability) (Gross Income/Total Asset Ratio, Exhibit 4):

The mergers seems to have improved the merged banks' earning ability, which increased to more than the simple sum of the pre-merged banks. Before the merger, both Kangyo's and Dai-Ichi's earning abilities were around Tokai+Mitsui's level, which was below the Top 4 average. After the merger, DKB's earning ability improved beyond above the Top 4 and surpassed Tokai+Mitsui's. Taiyo Kobe's earning ability also improved after the merger. (Kobe's gross income margin improved greatly, while Taiyo's seems to have remained at the same level.)

(2) Operation Efficiency (Operating Cost/Total Asset Ratio, Exhibit 5):

The mergers had a negative effect on the operation efficiency of merged banks. Before the merger, Dai-Ichi and Kangyo were at the same level of efficiency as Tokai+Mitsui. Inefficiency relative to the Top 4 could be attributed to the difference in size. After the merger, Dai-Ichi Kangyo's cost disadvantage relative to the Top 4 widened, while Tokai+Mitsui remained at the same level or improved. As the result, DKB's operating costs per asset rose above that of Tokai+Mitsui, while DKB's size became larger than Tokai+Mitsui. As with DKB's, Taiyo Kobe's average cost remained higher than that of Tokai+Mitsui and worsened after the merger.
Exhibit 4. Earning Ability Before-After Mergers
(Gross Income/Total Asset, Top 4 average = 100)

**Dai-Ichi Kangyo**

(Top 4 Average = 100)

**Taiyo Kobe**

(Top 4 Average = 100)
Exhibit 5. Operation Efficiency Before-After Mergers  
(Operating Cost/Total Asset, Top 4 average = 100)

Dai-Ichi Kangyo  
(Top 4 Average = 100)

Taiyo Kobe  
(Top 4 Average = 100)
(Note)
In his study in 1987, Kasutani also examined the effect of merger on operation efficiency. He compared the operation efficiencies of the two merged banks (Dai-Ichi Kangyo and Taiyo Kobe) to other city banks and picked up the merger effect by using merger-dummy variable in a regression model under the control of economies of scale. He reported the existence of a strong negative effect of the mergers with 5%-level statistical significance through most of the time period tested (7 out of 11) and concluded that mergers aiming to gain economies of scale may not easily achieve their goals.

From these facts, it may be said that the two merged banks not only could realize economies of scale, but actually increased the average operating cost by adding extra costs. Several industry experts attributed the cost disadvantage of the merged banks to excess workers and several duplicating branches, both of which resulted from the mergers.

(3) Profitability (Operating Profit/Total Asset Ratio, Exhibit 6):
Profitability of the merged banks declined due to the increased costs. Dai-Ichi’s profitability seems to have improved after the merger. But DKB’s profitability remained at the level of Tokai+Mitsui and lagged behind that of the Top 4 in the late 1970s. The profitability of Taiyo and of Kobe was higher than that of Tokai+Mitsui before the merger, but Taiyo Kobe’s profitability declined sharply after the merger to below that of Tokai+Mitsui.
Exhibit 6. Profitability Before-After Mergers
(Operating Profit/Total Asset, Top 4 average = 100)

Dai-Ichi Kangyo
(Top 4 Average = 100)

Taiyo Kobe
(Top 4 Average = 100)
(4) Growth (Table 7):

There seems to be no clear positive effect of the mergers on the growth rates. Dai-Ichi Kangyo's growth rates for deposits and total assets increased immediately after the merger (next three years), but the Top 4's growth rate was greater during this time. In the same period, Tokai+Mitsui that was the peer group of the pre-merger banks - Dai-Ichi and Kangyo - grew faster than Dai-Ichi Kangyo and the Top 4. This relation is also clear in Taiyo Kobe's case. Also in the long run (next 7 years), this relation - Top 4 and Tokai+Mitsui grew faster than Dai-Ichi Kangyo - basically did not change. Thus, we can assume that the mergers had a negative effect on the merged banks' growth for deposits and total assets.

When measured by growth of gross income, the direction of the effect is not clear. In the next 3 years, Dai-Ichi Kangyo's growth rate caught up to that of the Top 4. But in the same period, Tokai+Mitsui grew faster than Dai-Ichi Kangyo and Top 4. During the next 7 years, Dai-Ichi Kangyo grew at the slowest pace of the three. Taiyo Kobe lagged behind Tokai+Mitsui, and the Bottom 3 - the peer group of the pre-merger Kobe and Taiyo - surpassed Taiyo Kobe. In either case, we can not find clear positive effect of the mergers on the merged banks' growth.

(5) International Business (Table 8):

The effect of the mergers on expansion of the merged banks' international business, that was one of the main goals of the both mergers, is not clear. Although Dai-Ichi Kangyo became "the largest
### Table 7  Merger and Growth Rate

#### (7-1. Actual growth rate)

<table>
<thead>
<tr>
<th></th>
<th>Before Merger</th>
<th>After Merger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(3 yrs. Avg.)</td>
<td>(Next 3 yrs. Avg.)</td>
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<tr>
<td><strong>1. Deposit Growth Rate</strong></td>
<td></td>
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</tr>
<tr>
<td>(Actual Yr.)</td>
<td>FY'68-'70</td>
<td>FY'72-'74</td>
</tr>
<tr>
<td>Top 4</td>
<td>13.9%</td>
<td>15.1%</td>
</tr>
<tr>
<td>DBS</td>
<td>13.1%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Dai-Ichi</td>
<td>13.1%</td>
<td></td>
</tr>
<tr>
<td>Kangyo</td>
<td>13.1%</td>
<td></td>
</tr>
<tr>
<td>Tokai+Mitsui</td>
<td>14.1%</td>
<td>15.7%</td>
</tr>
<tr>
<td>(Actual Yr.)</td>
<td>FY'70-'72</td>
<td>FY'74-'76</td>
</tr>
<tr>
<td>Tokai+Mitsui</td>
<td>26.0%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Taiyo Kobe</td>
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<td>Kobe</td>
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<td>Taiyo</td>
<td>23.2%</td>
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<tr>
<td>Bottom 3</td>
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<tr>
<td><strong>2. Total Asset Growth Rate</strong></td>
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<tr>
<td>(Actual Yr.)</td>
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<td>FY'72-'74</td>
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<td>(Actual Yr.)</td>
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<td>FY'74-'76</td>
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<td><strong>3. Gross Income Growth Rate</strong></td>
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<tr>
<td>(Actual Yr.)</td>
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<td>FY'72-'74</td>
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## Table 7 Merger and Growth Rate

(7-2. Index, Peer group = 100)

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<th>FY’68–’70</th>
<th>FY’72–’74</th>
<th>FY’75–’81</th>
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<td>Tokai+Mitsui</td>
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<td>106</td>
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<td><strong>After Merger</strong></td>
<td>(Next 3 yrs. Avg.)</td>
<td>(4th to 10th yrs. Avg.)</td>
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<th>FY’72–’74</th>
<th>FY’75–’81</th>
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<td><strong>Before Merger</strong></td>
<td>(3 yrs. Avg.)</td>
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<tr>
<td><strong>After Merger</strong></td>
<td>(Next 3 yrs. Avg.)</td>
<td>(4th to 10th yrs. Avg.)</td>
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<tr>
<th>3. Gross Income Growth Rate</th>
<th>FY’68–’70</th>
<th>FY’72–’74</th>
<th>FY’75–’81</th>
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<tr>
<td><strong>Before Merger</strong></td>
<td>(3 yrs. Avg.)</td>
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<tr>
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<td><strong>After Merger</strong></td>
<td>(Next 3 yrs. Avg.)</td>
<td>(4th to 10th yrs. Avg.)</td>
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<tr>
<td>Tokai+Mitsui</td>
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<tr>
<td>Bottom 3</td>
<td>87</td>
<td>101</td>
<td>105</td>
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Table 8  International Business and Merger

1. ¥ Million

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<tr>
<th>Before Merger</th>
<th>After Merger (Next 3 yrs. (11th to 13th yrs Avg.)</th>
<th>(FY '69-'71)</th>
<th>(FY '73-'75)</th>
<th>(FY '83-'85)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(3 yrs Avg.)</td>
<td>(FY '69-'71)</td>
<td>(FY '73-'75)</td>
<td>(FY '83-'85)</td>
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<td>Top4</td>
<td>13,625</td>
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<td>DKB</td>
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<td>8,274</td>
<td>5,892</td>
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<td></td>
<td>(Actual Yr) (FY '71-'73)</td>
<td>(FY '75-'77)</td>
<td>(FY '85-'87)</td>
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<tr>
<td>Top4</td>
<td>6,369</td>
<td>7,811</td>
<td>43,333</td>
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<td>Taiyo Kobe</td>
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2. Index (Peer Group = 100)

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<th>(3 yrs Avg.)</th>
<th>(FY '69-'71)</th>
<th>(FY '73-'75)</th>
<th>(FY '83-'85)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(3 yrs Avg.)</td>
<td>(FY '69-'71)</td>
<td>(FY '73-'75)</td>
<td>(FY '83-'85)</td>
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<td>Top4</td>
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<td>100</td>
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</table>
bank in Japan" (recently, in the world), it has not caught up the leading Top 4 banks up until now. Right after the merger, Dai-Ichi Kangyo reached the level of the Top 4. But 10 years later, the difference between the Top 4 and Dai-Ichi Kangyo widened again. During this period, Tokai+Mitsui grew steadily and the comparative size between Dai-Ichi Kangyo and Tokai+Mitsui reached to the pre-merger period levels. In Taiyo Kobe case, the advantage over the Bottom 3 narrowed after the merger.

**Summary of outcomes of the merger:**

Although there are reasonable incentives for Japan's city banks' management to try to become larger - to get lower average cost and higher profitability - mergers may not be the most promising way. In two Japan's largest bank mergers, the size of the merged banks jumped and the earning abilities improved, but the operation efficiencies and the profitability did not improve as much as the peer groups' and, in some cases, deteriorated relative to the pre-merger individual banks' performance.

The mergers do not seems to have been effective for achieving another major goal - to expand international business by leveraging the improved "status" and utilizing the human resources of the merged banks.
5. Japan's recent large mergers

In this chapter, I will introduce two recent mergers - Mitsui Taiyo Kobe in 1990 and Kyowa Saitama in 1991. Based on the analysis in previous chapters, I will comment on the future of these merged banks.

5-1. Merger between Mitsui Bank and Taiyo Kobe Bank

On April 1, 1990, Mitsui Bank and Taiyo Kobe Bank merged and then established Mitsui Taiyo Kobe Bank (in Japanese, the new name is Taiyo Kobe Mitsui Bank). At the time of the merger, Mitsui had deposits of ¥24,943 billion (about $166 billion at then exchange rate of $1 = ¥150) that was the 7th largest among 13 city banks of Japan. Taiyo Kobe Bank had ¥21,711 billion of deposits and was ranked at 8th largest. The newly established Mitsui Taiyo Kobe Bank had capital of ¥421 billion, deposits of ¥46,564 billion, loans of ¥36,426 billion and 628 branches. Ranked by deposits and loan assets, Mitsui Taiyo Kobe became the largest and second largest, with the share of 13% and 15%, respectively, among those of the 12 city banks.

Since the mid 1980s, economic conditions surrounding banks has been rapidly changing and banks have been straggled to adjust themselves to them. Banks' traditional main businesses - deposit taking and commercial lending - have eroded. Interest rates on deposits have been relaxed step by step and it has become more costly than before for banks to attract deposits. Big corporations -
city banks' traditional customers - became more sensitive to the cost of funding and started to raise more funds in the capital markets both in and out of Japan. The commercial lending business with big corporations became less profitable. Faced with these situations, city banks have tried to promote the following three business areas:

(1) Retail banking: business with medium and small sized companies and individuals with large financial assets.

(2) Capital markets activities: government bond underwriting/dealing, private placement bond, bond underwriting through overseas subsidiaries and other investment banking businesses including such new businesses as option, futures and management advisories.

(3) International banking: foreign exchange dealing, overseas loans, and others.

Although these businesses have been contributing a larger percentage of total profit, it has not been able to cover the decreased profits from traditional businesses, and total profitability, in terms of return on assets, kept decreasing. Another factor contributing to lower profits is the need to invest large amounts on computer-telecommunication networks that many believe will become a critical competitive edge in the banking industry.

Given these developments, most of the managements and industry experts have come to believe that there are two major alternatives strategies for future of city banks:

(1) Universal banking (or mega-financial institution) strategy: originally means a financial institution that does both
commercial banking and investment banking. In present-day Japan, it means to promote the above mentioned three business areas at the same time and to try to capture both the retail and institutional customers. (It is similar to the strategy that Citicorp once aimed.)

(2) Niche strategy: to concentrate on one or two of above mentioned businesses, or on narrowly defined customer group or geographic areas.

It is also believed among management and industry experts that large assets, customer base and work force is essential to success in the universal banking strategy. First, relatively stable revenues and profits from commercial banking is necessary for the volatile and risky investment banking business. Second, the commercial banking business that can generate a certain amount of profit is necessary as the source of initial investment for further development of the investment banking business. Third, retail customers would be buyers of new products that are developed in investment banking and the international banking service, and thus, the average cost of investment banking and international business would be reduced by having a large customer base. Further, management agreed that computer-telecommunication network development and investment cost is a fixed cost and its average cost can be lowered by having a big customer base.

Amid these trends, contrasts in performances of the 13 city banks became clearer. The city banks were grouped in three groups; the top 5 (Dai-Ichi Kangyo, Sumitomo, Fuji, Mitsubishi and Sanwa),
the middle 3 (Tokai, Mitsui and Taiyo Kobe) and the bottom 3 (Kyowa, Saitama and Hokkaido Takushoku) (Tokyo and Daiwa are usually excluded from these categories because of their special operational conditions: Tokyo has a special historical background in international banking and Daiwa has a trust business from which other city banks are prohibited). The difference in average sizes of assets and profits among these three group has widened through the late 1980s.

Under the circumstances, Mitsui and Taiyo Kobe announced their merger decision in August 1989. Their historic background and managerial conditions that lead to the merger decision were as follows:

**Mitsui Bank:**

Mitsui Bank has its origin in Mitsui Money Exchange, established in 1683. It was reorganized as Mitsui Bank, Ltd., Japan's first private bank, in 1876. It merged with Dai-Ichi Bank to organize Teikoku Bank in 1943. But it detached Dai-Ichi to make an independent start in 1948 and was reverted to the former name, Mitsui Bank, in 1954. It was one of the influential members of the Mitsui Group, and had announced its plan to pursue a universal banking strategy in the late 1980s. However, it lagged behind the top 5 banks that represent other large corporate groups, such as Mitsubishi and Sumitomo, which are also taking universal banking strategy. This lag had often been attributed to Mitsui's limited number of branches. Its branch number had been 70% to 80% of
those of Mitsubishi, Sumitomo, Fuji and Sanwa. Through the 1960s to the 1970s, smaller size branch network limited Mitsui's deposit gathering capability and thus credit making ability. In the 1980s, it faced difficulties in its effort to promote a retail business. The bank traditionally excelled in the international business and bond operation, due to its historical background and strong tie with the Mitsui Group. However, Mitsui had also lagged in these two businesses behind the top 5 banks through the 1980s. Industry experts attributed this delay to Mitsui's limited number of business customers.

Taiyo Kobe Bank:

After the merger between Kobe and Taiyo in 1973, it ranked in the group of the middle 3, competing with Mitsui and Tokai. Although it came to have assets comparable to those of Mitsui and Tokai, it was less profitable than its competitors due to its higher costs which partly resulted from the merger. Also, the assets and profits of the middle 3 fall far behind those of the top 5 banks and the difference had widened through the late 1980s. With its more than 300 branches and long ties with mid-to-small business customers that Taiyo Kobe inherited from Taiyo Bank, it had strength in the retail market. However, with other major banks' trying to get into this market, the competition became tougher and Taiyo Kobe's distinction in this market gradually lessened. It also announced it would take a universal bank strategy, but its effort to promote international and capital market business had been less successful.
Exhibit 9. Performances of Mitsui and Taiyo Kobe
(Top 4 average = 100)

9-1. Earning Abilities (Gross Income/Total Asset)
(Top 4 Average = 100)

9-2. Operation Efficiencies (Operating Cost/Total Asset)
(Top 4 Average = 100)
9-3. Profitability (Operating Profit/Total Asset)

(Top 4 Average = 100)

(year/month)
than those of the top 5 banks, due to Taiyo Kobe's lack of strong ties with big corporate customers and lack of expertise in these fields.

**Merger Announcement**

Under this context, Mitsui and Taiyo Kobe announced their merger in August 1989. The conditions of the merger were as follows:

1. Legal status: Mitsui Bank would remain a legal entity and would acquire Taiyo Kobe Bank.
3. Way of merger: Share exchange of Mitsui : Taiyo Kobe = 0.8 : 1.
4. New paid in capital: ¥421 billion (before the merger Mitsui had ¥218 billion of paid in capital, whereas Taiyo Kobe had ¥202 billion.)
5. Date of merger: April 1, 1990.

The announced merits of the merger were as follows:

1. It would combine the expertise and strong presence of each bank in the whole-sale and retail business, and realize a synergy effect to better meet the varying customers' needs.
2. The new bank would have the largest and geographically well balanced branch network in the domestic market. It would also have a wide overseas office network. These would improve customer service.
3. The new bank would better utilize and raise expertise in such fields as the international and the capital market business.
Each merging bank had tried to do so by now, but larger organizations would be more effective to allocate and raise scarce expertise in these fields.

(4) The new bank would be able to reduce the cost by eliminating duplicate branches and computer-telecommunication network development investments.

Most of the industry experts and journalists forecast that the announced effects of the merger would be materialized within a shorter time than that of Dai-Ichi Kangyo: thus the new bank would be competing with the top 5 banks not only in terms of asset size but also in profit size/profitability and in presence in international/capital markets.

However, some cast doubts. They claim that the new bank has too many workers and duplicate branches. The operating efficiency of the new bank falls far behind those of the top 5 banks. And it will not be as easy to reduce these costs as was the case for Dai-Ichi Kangyo.

5-2. Merger between Kyowa Bank and Saitama Bank

On April 1, 1991, Kyowa Bank and Saitama Bank merged and then established Saitama Kyowa Bank (in Japanese, the new name is Kyowa Saitama Bank). At the end of September 1990, based on the most recent available financial report, Kyowa had deposits of ¥12,459 billion (about $83 billion at the exchange rate of $1 = ¥150)
which was the 10th largest among the 13 city banks of Japan. Saitama Bank had ¥11,697 billion of deposits and was ranked as the 11th largest. The newly established Saitama Kyowa Bank would have capital of ¥280 billion, deposits of ¥24,156 billion, loans of ¥19,007 billion and 459 branches. Its deposit size and loan size became the 8th largest with the share of 7% among those of the 11 city banks.

**Kyowa Bank:**

Kyowa Bank was established in 1945 under the name of The Savings Bank of Japan, through amalgamation of nine influential savings banks. It changed its status as a city bank with its present name in 1948. Since then, it has tried to improve itself as a more sophisticated city bank, trying to capture big corporate customers and to get into international business, with little success compared to major city banks. In the late 1980s, it had changed its strategy to get out of the unprofitable big corporate customers market and to concentrate on the mid-to-small size companies market.

**Saitama Bank:**

Saitama Bank was established through the mergers of four banks in Saitama-ken (prefecture), north of Tokyo, in 1943. It began operating as a city bank in 1966. It had also tried to line up with other major city banks, but without notable success. In the late 1980s, it turned to concentrate on retail business mainly in Saitama and the surrounding Kanto area, including Tokyo.
Exhibit 10. Performances of Saitama and Kyowa
(Top 4 average = 100)

10-1. Earning Abilities (Gross Income/Total Asset)
(Top 4 Average = 100)

10-2. Operation Efficiencies (Operating Cost/Total Asset)
(Top 4 Average = 100)
10-3. Profitability (Operating Profit/Total Asset)

(Top 4 Average = 100)

Kyowa

Saitama

(year/month)
Cooperation in pre-merger period:

Two banks had experienced a joint project in the pre-merger period. To reduce the cost of computer-telecommunications system development, two banks had been in joint system development project for "the third phase on-line system" since November 1985. (Both banks used IBM machines as main frame computers.) They also started a joint project for the development of new financial products in April 1990.

Merger Announcement

Under this context, Kyowa and Saitama announced their merger in November 1990. The conditions of the merger were as follows:

(1) Legal status: Kyowa Bank would remain a legal entity and would acquire Saitama Bank.

(2) Name of the merged bank: Saitama Kyowa Bank (in Japanese: Kyowa Saitama Bank)

(3) Way of merger: Share exchange of 1 to 1.

(4) New paid in capital: ¥280 billion (before the merger Kyowa had ¥142 billion of paid in capital, whereas Saitama had ¥138 billion.) (based on most recent available financial report)

(5) Date of merger: April 1, 1991.

The announced goal of the new bank is to become the top bank in the retail business. The expected merits of the merger are as follows:
(1) The new bank will have a large (the second largest next to that of Mitsui Taiyo Kobe) branch network in Japan. It would also have an expanded overseas office network.

(2) Both banks have traditions and expertise in business dealings with mid-to-small size companies and with individual customers. The new bank would have an outstanding presence in this field and would better serve these customers.

(3) The new bank would be able to eliminate duplicate efforts in computer investment and others and to direct saved resources to strategic business fields.

5-3. Comment on the recently mergers

There are several similar as well as contrasting incentives for the recent mergers - Mitsui Taiyo Kobe (MTK) and Saitama Kyowa (SKB) - when compared to the past mergers - Dai-Ichi Kangyo (DKB) and Taiyo Kobe (TKB). The similarity is that the explicitly-stated objective of all the four mergers was to realize economies of scale.

The contrasting incentives are as follows:

(a) In the DKB and TKB mergers, the most important incentives were to improve the banks' funding (to get cheap deposits) and to lower the funding costs through the integrated branch networks. In the MTK and SKB mergers, promoting mid-to-small size businesses and consumer loans, in addition to the
deposit gathering, were the most important reason for expanding the branch networks.

(b) In the DKB and TKB mergers, expanding international business by leveraging improved name recognition of the merged banks was one of the important goals of the mergers. In Mitsui Taiyo Kobe's merger, although it is also aiming at expanding the international and capital market business, the underlying assumptions were somewhat different. The new bank is expecting a kind of "complementary" effect. Mitsui had experience and expertise in international and capital market business, but had limited number of customers to whom to sell these products. Taiyo Kobe had a large number of mid-to-small size business customers, but lacked expertise in international and capital market business.

(c) Contrary to the other three mergers, Saitama Kyowa Bank announced that its merger was not aiming at expanding international business. The merger was undertaken to establish a superior position in the retail business. In this sense, Saitama Kyowa's merger was the first merger that was based on a niche strategy.

Although there is some evidence for the existence of economies of scale, whether a merger is an effective strategy to realize it is questionable. The DKB and TKB mergers imply it is not. The future of the international business of Mitsui Taiyo Kobe Bank is not clear either. The DKB and TKB merger have not conclusively shown
evidence of a positive effect of merger on the growth of international business.

Of course, economic/managerial conditions surrounding the recently merged banks are different from those of the previously merged banks, and some aims of the recent mergers are different from those of the past mergers. We may have to wait for several years to evaluate the effect of the recent mergers.
6. Summary

In this paper, I have examined the validity of the underlying assumptions that are frequently cited for bank mergers, and the effectiveness of mergers as a strategy to achieve the goals set by merging banks. I conducted a literature survey of the U.S. banking industry and some data analysis for Japan's banking industry.

In the U.S., increasing profitability by increasing market power and obtaining more stable earnings through geographical dispersion of operations are rational goals for mergers. Small banks, with asset size of less than approximately $5 billion, may also have valid reason for mergers aiming to realize economies of scale. For large banks, existence of economies of scale itself is not clear.

In Japan's banking industry, economies of scale exist even in the largest group - city banks, the smallest bank of which have more than ¥12 trillion (about $85 billion) of total assets. There is also a strong positive correlation between a bank size and profitability/growth rate. Thus, to try to enlarge banks' size seems to have economic reasons. Actually, in the four merger cases examined in this paper, management expected to realize economies of scale and to improve growth potential by enlarging bank size.

However, there is no clear evidence, in the U.S. or Japan, that shows that mergers are effective in achieving the above-mentioned goals. For the U.S. banking industry, there are several studies that conclude that only a small number of merged banks achieved the goals set for the mergers or that report that mergers have little or no effect on the operating improvement of the merged banks. Two
Japanese merged banks - Dai-Ichi Kangyo and Taiyo Kobe - do not seem to have achieved their merger goals even 10 years after the merger.

The number of bank mergers has been increasing recently in the U.S. and two large mergers have occurred in Japan. Banks' managements should have goals for mergers based on valid assumptions like the ones mentioned above. The future courses of the recently merged banks are hard to predict, partly because of the changing environment of the banking industry and of the fact that some goals of the recent mergers differ from those of the past ones. Nevertheless, bank managers, who are evaluating mergers as a strategic option, should pay attention to the fact that few bank mergers have realized their goals or at least mergers may need a long time to show a positive effect.
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