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Consolidation of Banks in Japan
Causes and Consequences

Kaoru Hosono, Koji Sakai, and Kotaro Tsuru

8.1 Introduction

Mergers and acquisitions (M&As) among financial institutions have been accelerating over the last two decades across the world. These waves of mergers and acquisitions in the banking industries raise important questions of whether mergers enhance the efficiency of surviving banks and contribute to the stabilization of the banking sector or just increase their market power in setting prices. A large number of studies attempt to resolve these questions by examining profitability, cost efficiency, and market performance of merger survivors. However, most of the existing studies examine the consolidation among the U.S. or European financial institutions, and little is known about the causes and consequences of financial consolidation outside the United States or Europe.

This chapter investigates the causes and consequences of the consolidation among Japanese banks. In Japan, a variety of banks have been consolidated since the 1990s when most banks suffered from a huge amount of nonperforming loans. The number of city banks, which operate nationwide and internationally, remained at thirteen during the 1980s but decreased almost by half to seven in 2005. While the number of first-tier regional banks, which operate in one or a few prefectures, virtually did not change over the last two decades (sixty-three in 1980 and sixty-four in 2005), the number of second-tier regional banks, which are smaller than first-tier regional banks

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and operate mainly within a prefecture, decreased from seventy-one in 1980 to forty-eight in 2005. The number of cooperative (*shinkin*) banks, which are deposit-taking cooperatives operating within a prefecture and specializing in small- and medium-sized enterprise (SME) loans, also dropped from 462 in 1980 to 301 in 2005.[1]

Using a rich data set of bank M&As in Japan, this chapter comprehensively analyzes the causes and consequences of bank mergers in the following ways. First, we analyze motives of bank mergers as well as their consequences. Using ex-ante bank characteristics, we investigate what type of a bank was more likely to be a target or an acquirer. Looking at the postmerger performance of a consolidated bank, we examine the effects of mergers on cost efficiency, profitability, and healthiness. Though many preceding studies focus on profitability and cost efficiency, it would be important to examine whether bank consolidation improved bank healthiness, if regulatory authorities promote bank consolidation to stabilize the banking system. We measure long-run postmerger performance based on accounting ratios rather than stock market returns. Though market returns are relatively free from measurement errors associated with accounting ratios, analyzing them would severely reduce the sample size, given that a small number of regional banks and no *shinkin* bank are publicly traded. In addition, accounting ratios enable us to analyze important components of performance (e.g., cost efficiency or market power).[2] Finally, our observations are comprehensive. We use data of major banks (i.e., city banks, trust banks, and long-term credit banks, which operate nationwide and internationally) and regional banks (i.e., first-tier regional banks and second-tier regional banks) over the period of fiscal years 1990 to 2004, and data of *shinkin* banks over the period of fiscal years 1990 to 2002. Our sample universe accounts for more than 80 percent share of deposits in all the depository institutions in Japan.[3] During the period of fiscal years 1990 to 2004, there were ten mergers by major banks, nine mergers by regional banks, and

1. City banks and regional banks are both corporations licensed under Bank Law, while *shinkin* banks are cooperatives of small- and medium-sized enterprises (SMEs) licensed under Shinkin Bank Law. Regional banks are classified into first-tier and second-tier regional banks according to the associations they belong to. There are usually one relatively large first-tier regional bank and some relatively small second-tier regional banks in one prefecture.

2. We could analyze the impact of merger announcement on abnormal returns for the mergers of listed major banks (e.g., Okada 2005). However, it would still be difficult to analyze the long-run performance of stock returns even for the mergers of listed major banks because most of the consolidated major banking firms newly established holding companies that owned the share of other financial institutions (e.g., nonbanks, securities companies, and credit card companies). For the pitfalls of using short-run responses of stock market prices to merger announcement when mergers are a relatively new phenomenon, see Delong and Deyoung (2007).

3. As of March 2001, for example, the share of deposits at city banks, first-tier regional banks, second-tier regional banks, and *shinkin* banks are 29.2 percent, 25.5 percent, 8.2 percent, and 15.1 percent, respectively. Data source is the Bank of Japan Web site: http://www.boj.or.jp.

ninety-seven mergers and two transfers of business among *shinkin* banks, besides the mergers and transfer of business from failed banks.[4]

The rest of the chapter is organized as follows. Section 8.2 briefly reviews the existing literature on bank mergers. Section 8.3 discusses the hypotheses on the motivations of bank mergers. Section 8.4 analyzes the M&A waves in Japan using aggregate data at the prefectural level. Section 8.5 describes our bank-level data set. Section 8.6 analyzes the motivation of bank mergers using premerger bank characteristics data. Section 8.7 presents the postmerger performance concerning profitability, market power, cost efficiency, healthiness, and portfolio. Section 8.8 concludes.

8.2 Literature Review

In the United States, a large number of commercial and savings banks were taken over by other depository institutions during the 1980s, especially after restrictions on intrastate and interstate banking were removed by the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994. Recently, financial conglomerates have emerged through a series of M&As after restrictions on securities and insurance businesses by banks were lifted by the Gramm-Leach-Bliley Financial Service Modernization Act. In Europe, the emergence of the European Union in 1999 spurred consolidation of the financial services industry. In the crisis-hit Asian countries, foreign capital entry into the banking industry and government recapitalization promoted bank consolidation. These merger waves generated a vast literature on bank M&As, especially for U.S. and European banks.

Berger, Demsetz, and Strahan (1999) review existing research concerning the causes and consequences of the consolidation of the financial services industry. They point out that the evidence is consistent with increases in market power, especially in the case of consolidation within the same market (in-market M&As); improvements in profit efficiency, and diversification of risks, but little or no cost efficiency improvement on average; and potential costs to the financial system from increases in systemic risk or expansion of the financial safety net.

As for the consolidation of banks in Japan, Okada (2005) studied ten megamergers among city banks during 1989 to 2000 and found that no improvement in *X*-inefficiency was observed but increases in cumulative excess stock returns and decreases in perceived default probability were found. Her results suggest that the motivation of megamergers was not to improve efficiency but to take advantage of the government's too-big-to-fail policy. Yamori, Harimaya, and Kondo (2003) studied financial holding

4. No merger was conducted across different types of banks during the sample period, and there was one sale of business of a failed bank across bank types: the business of the failed city bank, Hokkaido Takushoku Bank, was sold to a regional bank, Hokuyo Bank, and a trust bank, Chuo Trust Bank, in 1997.

companies of regional banks and found that profit efficiency tended to increase when the market share in the region increased. Hosono, Sakai, and Tsuru (2006) analyzed the motives and consequences of credit corporative (*shinkin*) banks during the period of 1984 to 2002.[5] Their major findings are as follows. First, less profitable and cost efficient banks were more likely to be an acquirer and a target. Second, acquiring banks improved cost efficiency but still deteriorated their capital-to-asset ratio after consolidation. Finally, the consolidation of *shinkin* banks tended to improve profitability when the difference in the ex-ante profitability between acquiring banks and target banks were large. This chapter extends Hosono, Sakai, and Tsuru (2006) to cover most Japanese banks, including city banks, first-tier regional banks, second-tier regional banks, and *shinkin* banks. Compared with the preceding studies on the consolidation of Japanese banks, this chapter comprehensively analyzes the causes and consequences of bank mergers, as we mention in the introduction.

8.3 Hypotheses on the Motives of Bank Consolidation

This section reviews four major hypotheses on the motives of bank consolidation.

8.3.1 Improving Efficiency

As Berger, Demsetz, and Strahan (1999) point out, the primary motive for consolidation would be maximizing the value of shares owned by existing shareholders. Banks can maximize value either by increasing their efficiency or by increasing their market power in setting prices. Cost efficiency will be improved if an efficient bank spreads its superior managerial skills to an inefficient bank by acquiring the latter. Profitability will be enhanced by superior risk management.

The efficiency improvement hypothesis suggests that an efficient bank tends to acquire or purchase the business of an inefficient bank.

8.3.2 Strengthening Market Power

Market power can be strengthened if two or more banks operating in the same market are consolidated and, consequently, the market becomes more concentrated. Existing evidences from the U.S. bank M&As suggest that in-market M&As, that is, M&As of banks operating in the same market, may increase market power in setting prices.

According to this hypothesis, banks operating in the same region are more likely to be consolidated. Actually, most of the M&As among regional banks were conducted by banks operating in the same prefecture. Although all of the M&As among corporative (*shinkin*) banks were also conducted by

5. See also Yamori and Harimaya (2004) for the study of the mergers of *shinkin* banks.

banks operating in the same prefecture, this fact does not necessarily imply the market power motive but may simply reflect the regulatory restriction under which *shinkin* banks are allowed to operate only in a region that is usually defined within a prefecture.

8.3.3 Taking Advantage of a Too-Big-to-Fail Policy

The government policy directly or indirectly affects banks' M&A decisions. In particular, if regulatory authorities are expected to pursue a too-big-to-fail policy, weak banks have a strong incentive to be consolidated with each other because bank managers may want to keep their positions. Bank shareholders can also gain from the value of deposit insurance by surviving through mergers.

The government can promote bank consolidations among weak banks in some ways. First, the government can "arrange" consolidations, persuading (or sometimes forcing) relatively healthy banks to acquire unhealthy banks. Second, the government can give weak banks incentives to be consolidated with each other by establishing a scheme for recapitalizing consolidated banks.

In Japan, the government's "arrangements" were sometimes used before the 1980s when the financial markets were heavily regulated, and even in the first half of the 1990s, as is known as the "convoy system" (see the next section for details). The "market-based" consolidation through public money injection has become an alternative tool since 1998 when the banking crisis culminated and the government first recapitalized banks. When Japanese authorities recapitalized banks first in 1998, they did so toward major banks and the two largest regional banks. This fact may have fostered banks' anticipation for bailouts as long as they were large. Not only a large bank that operates nationwide, regional banks and corporative (*shinkin*) banks that are relatively large in a prefecture may also have anticipated bailouts because the Japanese regulatory authorities have often worried about the stability of regional financial systems, though the notion of a regional systemic risk had not been stipulated until the Deposit Insurance Act was revised in 2001 (Article 102).[6]

If the government's anticipated too-big-to-fail policy and local market stabilization policy affect the decision of M&As, unhealthy banks or banks recapitalized by the government tend to be consolidated with each other.

6. For example, when the largest regional bank in Tochigi Prefecture, Ashikaga Bank, was failing, the government temporarily nationalized it to avoid a regional systemic risk. Though the government has not recapitalized *shinkin* banks so far, this does not necessarily mean that the government does not care about the stability of the local financial market. It has not been necessary for the government to recapitalize *shinkin* banks because the central financial institution of *shinkin* banks, called Central Shinkin Bank, recapitalized member *shinkin* banks when necessary.

8.3.4 Managerial Empire Building

When corporate governance structures are weak, managers may be willing to acquire other banks for the purpose of empire building. They may gain personal financial and nonfinancial gains from consolidated institutions. Managerial hubris may also drive bank mergers (Bliss and Rosen 2001).

Weak governance structures allow managers to spend on activities with scope for generating managerial private benefits, such as advertisement or entertainment expenditures (Yafeh and Yosha 2003). Therefore, we may expect that banks that spend more on advertisement or entertainment tend to acquire other banks. In addition, if the managerial empire building motive drives M&As, then a consolidated bank cannot realize efficiency gains and is not willing to downsize or restructure the business. Managers of consolidated banks may increase advertisement expenditures for their private benefits.

8.4 Bank Merger Wave in Japan

8.4.1 Overview

A very small number of mergers occurred in the banking industry until the 1980s after World War II in Japan. The number of city banks, which operate nationwide and internationally, had been thirteen until 1990.[7] Mergers among regional banks, which operate mainly within a prefecture, also had been rare until the 1990s. Only one mutual bank (former second-tier regional bank) was acquired in the 1970s, and two mutual banks were acquired in the 1980s.[8] Mergers among credit corporative banks (*shinkin*) did not occur frequently, either. A small number of mergers until the 1980s reflected the government's so-called convoy system policy.[9] Under this policy, the regulatory authorities tried to stabilize the banking system by restricting competition among banks and bailing out failing banks. The government restricted banks' opening new branches and prohibited banks from engaging in securities business to control competition. When a weak bank fell into financial distress, the government requested a healthy bank to rescue the weak bank by injecting capital and sending directors. Healthy banks responded to the government's request because they could obtain the branch networks of the failing banks. Until the 1980s, M&As in the banking industry occurred only when the government requested healthy banks to acquire failing banks.

7. Mitsui Bank acquired Taiyo Kobe in 1990.

8. Hirosaki Sogo Bank was acquired by Seiwa Bank in 1976. Takachiho Sogo Bank was acquired by Nishinippon Sogo Bank in 1984. Heiwa Sogo Bank was acquired by Sumitomo Bank in 1986.

9. For the details of the convoy system, see Hoshi and Kashyap (2001). For a typical example, the Ministry of Finance asked Sumitomo Bank to acquire the failing Heiwa Sogo Bank, and Sumitomo responded to it so as to obtain the branch network of Heiwa Sogo.

Table 8.1 **Number of banks and number of mergers and acquisitions**

	Major banks			Regional banks			*Shinkin* banks		
	Total	Merger	Sale of business	Total	Merger	Sale of business	Total	Merger	Sale of business
1990	22	1	0	132	0	0	451	3	0
1991	21	1	0	132	1	0	440	3	0
1992	21	0	0	130	1	1 (1)	435	4	0
1993	21	0	0	129	1	0	428	5	0
1994	21	0	0	129	0	0	421	8	0
1995	21	0	0	129	0	1 (1)	416	4	0
1996	20	1	0	128	0	0	410	5	1
1997	19	0	1 (1)	126	0	1 (1)	401	8	0
1998	19	0	0	124	0	3 (3)	396	3	0
1999	19	0	0	123	0	1 (1)	386	5 (1)	1 (1)
2000	18	1	0	119	1	1 (1)	371	7 (2)	9 (8)
2001	15	3	0	117	0	0	349	11 (2)	5 (5)
2002	13	3	0	116	0	0	326	15	6 (6)
2003	13	0	0	110	2	0	306	14	0
2004	13	0	0	107	3	0	298	7	0
Total	276	10	1 (1)	1,851	9	8 (8)	5,834	102 (5)	22 (20)

Notes: Major banks include city banks, long-term credit banks, and trust banks. Regional banks include first-tier regional banks and second-tier regional banks. The numbers in the parentheses denote the numbers of mergers or acquisitions of the business of a failed bank. No merger was implemented across bank type during the sample period, and one sales of business of a failed bank was conducted across bank types (in the case of the failure of a major bank, Hokkaido Takushoku Bank in 1997).

As financial liberalization made progress in the 1980s, the regulatory authorities found it more and more difficult to maintain the convoy system; healthy banks had little incentive or capability to rescue failing banks. In the early 1990s, stock prices and land prices fell sharply, which hit hard banks' asset quality. Risk-based capital requirements based on the Basel capital standards, introduced in fiscal year 1992, spurred consolidation of weak banks. Two mergers among city banks and three mergers among regional banks occurred in the first half of the 1990s (table 8.1).[10] Mergers among *shinkin* banks also occurred more frequently in the 1990s than before. Despite the introduction of the Basel capital standards, which were supposed to be rule-based regulations, financial regulations and supervisions by the Ministry of Finance were still affected by political pressure until a banking crisis occurred in 1997.[11]

A banking crisis occurred in 1997, when three large financial institu-

10. Taiyo Kobe Bank was acquired by Mitsui Bank in 1990, and Saitama Bank was acquired by Kyowa Bank in 1991.

11. The government's resolutions of the failed "Jusen," nonbank finance companies that specialized in housing and real estate loans, were severely criticized by the public to the extent that the government rescued agricultural cooperatives that had invested in Jusen and had a strong political influence (see Hoshi and Kashyap 2001).

tions, including a city bank named Hokkaido Takushoku Bank, failed. In 1998, two long-term credit banks named the Long-Term Credit Bank of Japan and the Nippon Credit Bank failed. In response to the severe banking crisis, the Japanese regulatory authorities introduced prompt corrective actions in 1998, applied stringent accounting standards in implementing the Basel capital standards, and recapitalized banks to promote their restructuring. The Financial Supervision Agency (FSA) was built and took over financial supervisions from the Ministry of Finance in 1998. The FSA refrained from "arranging" mergers, not intervening in bank mergers to rescue weak banks.

Major banks tried to survive through mergers, resulting in the merger wave in the early 2000s. The Financial Rehabilitation Plan, released by Takenaka, Minister of Financial Services Agency, in October 2002, forced major banks to apply strict accounting standards and to reduce their nonperforming loan share to a half, urging weak banks to be consolidated.

Seven mergers among major banks occurred from fiscal year 2000 to fiscal year 2002. Megabanks are now reorganized into three groups (Mizuho, Mitsui-Sumitomo, and Mitsubishi-UFJ). The government also promoted consolidation of regional banks and *shinkin* banks. New legislation has enabled the government to recapitalize a consolidated bank since 2002.[12] Six mergers among regional banks occurred from fiscal year 2000 to fiscal year 2004. Mergers among *shinkin* banks also accelerated in the early 2000s (table 8.1).

8.4.2 Empirical Analysis

We first investigate the reasons for the recent merger wave using the M&A ratios, that is, the numbers of M&As divided by the total number of banks existing in the previous year, sorted by prefectures and bank types. The hypotheses concerning the motives of bank mergers discussed in section 8.3 have some implications concerning the time when and the space where M&A waves occur.

First, if M&As are driven by the motivation for improving efficiency, then merger waves result from shocks to an industry's economic, technological, or regulatory environment (e.g., Mitchell and Mulherin 1996). These shocks lead to industry reorganization. Analyzing the U.S. industrial merger waves in the 1980s and the 1990s, Harford (2005) found that operational performances measured by return on assets (ROA), sales growth, and others, were high prior to merger waves. He also found that higher market valuations relaxed financing constraints and made it easier

12. The Special Measures Law for the Promotion of Financial Institutions Reorganization was enacted in October, 2002. Under this law, the government recapitalized Kanto Tsukuba Bank in September 2003. The Financial Function Reinforcement Law was enacted in April 2004 to enable the government to preemptively capitalize healthy regional and *shinkin* banks. Under this law, Kiyo Holdings and Howa Bank were recapitalized in 2006.

to implement efficiency-driven M&As.[13] Following Harford (2005), we use the average ROA for each bank type to capture the economic shocks to the industry's operating environment and the stock price index for the banking industry to capture the degree of financial constraints.

Second, if M&As are driven by the motivation for strengthening market power, banks operating in a less-concentrated and more competitive market are more willing to merge each other. Given that banks often compete within a region, we use the Herfindahl index for the deposits of regional banks and *shinkin* banks calculated for each prefecture.[14]

Third, if M&As are driven by the motivation for taking advantage of a too-big-to-fail policy or a local market stabilization policy, then merger waves occur when the overall bank health is deteriorated. To capture the bank healthiness, we use the average capital-to-asset ratio for each bank type. The change in the stock price index for the banking industry also serves as a proxy for bank healthiness. Unlike the efficiency-motive hypothesis, the hypothesis concerning a too-big-to-fail policy suggests that a lower stock price triggers a bank merger. A low ROA may also lead to a merger under the too-big-to-fail-policy hypothesis because a low ROA deteriorates bank health.

Finally, if M&As are driven by the managerial motives for private benefits, then M&As are more likely to occur when and where the average expenditures for managerial private benefits such as advertisement expenditures or entertainment expenditures are high. While major banks and regional banks disclose advertisement expenditures, *shinkin* banks do not disclose the components of operational costs such as advertisement expenditures. Therefore, we cannot test the managerial motives hypothesis using the prefecture-level data here.

To control for regional shocks that affect banks' operating environment, financial constraints for M&As, and bank healthiness, we add the growth rate of prefectural gross domestic product (GDP) to the explanatory variables.[15] We also include a time dummy that takes the value of unity in and after fiscal year 1998 and zero before fiscal year 1997 to capture the regulatory changes stated in the previous section. The estimation period is from fiscal year 1990 to fiscal year 2004.

We estimate the following equation.

13. Shleifer and Vishny (2003) argue that stock market overvaluation promotes corporate managers to acquire relatively undervalued firms. This "behavioral" hypothesis also suggests that higher share prices cause merger waves. However, most of bank mergers in Japan have not been carried out through tender offers (take-over-bids) paying with stocks. So we do not discuss the possibility of the behavioral hypothesis in detail in this paper. For the empirical evidences of the "neoclassical" and "behavioral" hypothesis applied to Japanese nonfinancial firms, see Arikawa and Miyajima (2007).

14. For the empirical evidences in Japan, see, for example, Kano and Tsutsui (2003).

15. Major banks had head offices in Tokyo, Nagoya, Sapporo, or Osaka.

$$(1)\quad \text{M\&A Ratio}_{i,j,t} = \beta_1 \text{ Average Performance}_{i,j,t-1} + \beta_3 \text{ Herfindahl Index}_{i,t-1} + \beta_4 \text{ GDPGrowth}_{i,t-1} + \beta_5 \text{ PostCrisisDummy}_t + \beta_6 \text{ PostCrisisDummy}_t * \text{Average Performance}_{i,j,t-1} + \varepsilon_{i,j,t},$$

where indexes *i, j, t*, are a prefecture, a bank type, and a fiscal year, respectively. Average Performance is either the average ROA, the average capital-to-asset ratio calculated for each prefecture, or the change in the stock price index for the banking industry. We do not enter those three variables at a time because they are highly correlated. The Herfindahl Index is calculated based on the shares of deposits of regional and *shinkin* banks in a prefecture. Gross domestic product growth is the growth rate of the GDP of the prefecture where the head office locates. Because GDP growth is highly correlated with the stock price index, we do not enter them at the same time. We allow for the change in the coefficients of the bank performance variables after the crisis using the interaction term of the postcrisis dummy and the performance variables.

Table 8.2 reports the pooled-ordinary least squares (OLS) regression estimates of equation (1). Though we also estimate the model with a fixed or random prefectural effect, we report the pooled-OLS model based on the specification tests. First, when the average ROA is included as a performance measure (column [1]), the coefficients on ROA and its interaction term with the postcrisis dummy are both negative, though neither is significant. This is not consistent with the efficiency-driven hypothesis. Next, looking at the case where the average capital-to-asset ratio is used (column [2]), we see that the coefficients on the capital-to-asset ratio and its interaction term with the postcrisis dummy are both negative, though only the interaction term is significant. Finally, using the stock price index yields the result (column [3]) that its coefficient is negative and significant, while its interaction term is positive but not significant. These results suggest that M&As tended to occur when the overall bank health was deteriorated, consistent with the too-big-to-fail or stabilization policy hypothesis. The coefficients on the Herfindahl index are negative and significant, regardless of the bank performance measures, suggesting that M&As tended to occur where the market was less concentrated, which is consistent with the market-power hypothesis. The coefficients on the GDP growth are significantly negative, which is again consistent with the too-big-to-fail or the financial stabilization policy hypothesis. Finally, the postcrisis dummy is positive and significant, suggesting that the regulatory changes triggered bank consolidations.

We will examine the relevance of the four hypotheses concerning the motives of M&As more closely using bank-level data in the following sections.

Table 8.2 Pooled OLS regression results for merger wave

	1985–2004		
	(1)	(2)	(3)
Return of assets (ROA)	–0.352		
	(0.628)		
Postcrisis Dummy • ROA	–0.586		
	(0.648)		
Capital-to-Asset Ratio		–0.022	
		(0.070)	
Postcrisis Dummy • Capital-to-Asset Ratio		–0.450***	
		(0.122)	
Industrial Stock Price			–0.008**
			(0.004)
Postcrisis Dummy • Industrial Stock Price			0.008
			(0.015)
Herfindahl Index	–1.625**	–1.509**	–2.077***
	(0.736)	(0.740)	(0.735)
GDP Growth	–0.099**	–0.109***	
	(0.040)	(0.040)	
Postcrisis Dummy	0.840***	3.214***	1.377***
	(0.324)	(0.641)	(0.365)
Cons	1.665***	1.668***	1.421***
	(0.362)	(0.453)	(0.313)
No. of observations	1,963	1,963	1,963
Adjusted R^2	0.039	0.034	0.022

Notes: The dependent variable is the numbers of mergers and acquisitions divided by the total number of banks. Pooled OLS regression results are reported. Standard errors are in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

8.5 Bank-Level Data

The data source of financial statements of major banks and regional banks is Nikkei Financial Quest and that of *shinkin* banks is *Financial Statements of Shinkin Banks in Japan,* edited by Financial Book Consultants, Ltd. (*Kinyu tosho konsarutanto sha*). We identify an acquirer if the bank is legally surviving and a target if the bank has legally disappeared. We focus on the M&As of surviving banks by excluding from our data set the transfers of business from a failed bank because the latter is likely to be conducted for different motives and to have different consequences.[16] Our

16. The transfer of business from a failed bank is identified if the deposit insurance made financial assistance (not recapitalization) to the bank that acquired or purchased the business of another bank.

data set covers the period of fiscal year 1990 to 2004 (i.e., from March 1991 to March 2005) for major and regional banks and fiscal year 1990 to 2002 (i.e., from March 1991 to March 2003) for *shinkin* banks. For the details of the variables we use, see the data appendix.

In Japan, financial holding companies were allowed to be built since 1998 when the Antimonopoly Act was revised. Some consolidated banks, especially major banks and large regional banks, took that opportunity to form a financial holding company that held insurance companies and nonbank financial companies as well since 2000. In the case of holding companies, we use the financial statements of the subsidiary banking companies. We do not use the stock prices of the financial holding companies because they reflect the performance of the other subsidiary companies as well. By using the financial statement of the subsidiary banking companies, we focus on the effects of mergers on the banking company. If there is a synergy effect from the security companies to the banking company within the same holding company, it is reflected by the financial statement of the banking company.

In the following analyses, we divide the sample banks into major banks (city banks, long-term credit banks, and trust banks), regional banks (first-tier regional banks and second-tier regional banks), and *shinkin* banks for the following reasons.[17] First, a *shinkin* bank is a cooperative depository institution specialized to small- and medium-sized enterprise (SME) finance. Therefore, the motives and consequences of M&As might be different from corporations like major banks and regional banks. Second, while major banks operate nationwide, regional banks and shinkin banks operate mainly within a prefecture. Most of the M&As among regional banks and *shinkin* banks were conducted by those banks that operated within the same prefecture (in-market merger).[18] The effects of mergers on market power might be different between major banks and regional or *shinkin* banks. Third, regulatory authorities' attitudes toward the nonperforming loan problems were different between major banks, on one hand, and regional and *shinkin* banks, on the other hand, in the late 1990s and the early 2000s. The government aimed at quickly reducing the nonperforming loans of major banks, while the government, afraid from the adverse effect of the write-off of nonperforming loans on SME finance, did not force regional and *shinkin* banks to reduce nonperforming loans quickly. Because the number of mergers by major banks and regional banks are small (ten

17. Long-term credit banks are those banks that were established for the purpose of long-term corporate finance and permitted to issue long-term bonds exclusively under Long-Term Credit Bank Law. Though three long-term credit banks were established after WWII, two of them (i.e., Long-Term Credit Bank of Japan and the Nippon Credit Bank) failed in 1998, and one (i.e., Industrial Bank of Japan) was merged with city banks (Fuji Bank and Daiichi-Kangyo Bank) and reorganized in 2002.

18. Among the M&As by regional banks or *shinkin* banks, only four (two M&As by regional banks and two M&As by *shinkin* banks) were conducted across prefectural borders.

and nine, respectively), separating them may yield relatively weak statistical results. However, we choose not to pool the major banks and regional banks because of the preceding reasons.

Table 8.3 shows the descriptive sample statistics of the bank and market characteristics that we use in the following analyses. We compare the bank characteristics variables among the acquirers, targets, and the average of each bank type: major banks, regional banks, and *shinkin* banks. The variables of the acquirers and the targets are as of one year before the mergers. Though we do not control for macroeconomic shocks across different years in table 8.3, it provides some useful information concerning the ex-ante characteristics of acquires and targets.[19] First, targets and acquirers are less capitalized than the average of each bank type, and the differences in the risk-based capital ratios are significant in the case of the mergers of regional banks and *shinkin* banks. Second, the acquirer tends to be larger and the target tends to be smaller than the bank-type average, with the exception of the major banks' targets, though the differences in the logarithm of total assets are significant only in the case of *shinkin* banks. Finally, in the case of the M&As of *shinkin* banks, the targets' ROA are significantly lower than the average.

Figures 8.1, 8.2, and 8.3 compare some characteristics of acquirers and targets as compared with the average of each bank type. We follow the following three-step process to draw the figures. First, observing the financial statements of the acquirer and the target for the five years preceding the merger, we combine these statements to create pro forma financial ratios for a hypothetical combined bank. To calculate hypothetical premerger financial ratios, we calculate the weighted average of the acquirer and the target, where the total assets of the acquirer and the target are used as a weight.[20] Second, we calculate the postmerger bank's financial ratios for the actual combined bank using its financial statements for five years after the merger. Third, we normalize both the premerger and postmerger financial ratios of the acquirer and the combined bank, respectively, by subtracting off the same-year, bank-type average.

Those banks whose data are available at the merger year and a premerger year are included in the sample here. Similarly, those banks whose data are available at the merger year and a postmerger year are included in the sample here. In figures 8.1, 8.2, and 8.3, simple averages of bank characteristics are depicted. Because we cannot compare accounting variables as of the year of M&As with the premerger or postmerger periods, we just

19. The differences in the interest rates on deposits and loans, in particular, seem to reflect the fact that a large number of M&As occurred in the latter half of the 1990s, when Bank of Japan conducted an extremely low interest rate policy.

20. If three or more banks merged, the series of the targets are a weighted sum of the targets, and the series of the hypothetical combined bank are a weighted sum of the targets and acquirers. In both series, we use total assets as weights.

Table 8.3 Descriptive sample statistics

	Major banks					Regional banks					*Shinkin* banks				
	Acquirer	Target	All	Acquirer – All	Target – All	Acquirer	Target	All	Acquirer – All	Target – All	Acquirer	Target	All	Acquirer – All	Target – All
Return of assets (ROA)	–0.32	–0.36	–0.27	–0.19	0.00	0.13	–0.06	–0.17	0.23	0.06	0.11	–0.27	0.19	–0.01	–0.37***
	(1.08)	(0.79)	(1.13)	(0.85)	(0.65)	(0.37)	(0.49)	(2.16)	(0.31)	(0.17)	(0.47)	(0.96)	(1.03)	(0.44)	(0.89)
Cost Ratio	0.85	0.95	0.86	0.01	0.12	1.43	1.48	1.45	0.03	0.07	1.61	1.69	1.64	–0.01	0.07
	(0.35)	(0.66)	(0.41)	(0.32)	(0.64)	(0.25)	(0.17)	(0.26)	(0.22)	(0.16)	(0.20)	(0.36)	(0.24)	(0.20)	(0.36)
Fees and Commissions	0.26	0.29	0.26	–0.01	0.01	0.25	0.20	0.19	0.03	–0.02	0.16	0.15	0.15	0.00	0.00
	(0.13)	(0.26)	(0.16)	(0.13)	(0.26)	(0.10)	(0.10)	(0.06)	(0.08)	(0.07)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Loan-to-Asset Ratio	56.60	57.83	56.12	1.38	2.29	70.85	71.82	69.33	2.44	3.36	61.29	57.77	58.84	3.17***	–0.19
	(6.50)	(6.62)	(8.81)	(7.53)	(8.57)	(5.28)	(4.43)	(7.03)	(5.15)	(4.93)	(6.95)	(10.26)	(8.53)	(6.55)	(10.27)
Loans to SMEs	28.53	24.22	27.84	2.07	–1.89	47.98	52.13	47.96	2.73	6.34					
	(7.68)	(6.12)	(7.75)	(6.84)	(7.49)	(8.11)	(6.43)	(9.52)	(7.24)	(7.75)					
Loan Growth Rate	5.99	0.08	2.32	0.11	–5.34	9.48	–0.41	2.81	7.57	–2.36	2.12	–2.35	4.09	–0.38	–4.46***
	(10.03)	(9.31)	(18.58)	(12.39)	(8.97)	(23.32)	(5.33)	(8.01)	(23.15)	(3.91)	(5.72)	(5.78)	(8.72)	(3.93)	(4.86)
Deposit Interest Rate	2.29	1.87	3.04	–0.23	–0.13	1.49	1.79	1.75	–0.06	0.07	1.39	1.25	1.91	0.00	0.02
	(2.08)	(2.01)	(2.26)	(0.54)	(0.92)	(2.08)	(2.28)	(1.67)	(0.11)	(0.23)	(1.47)	(1.47)	(1.57)	(0.18)	(0.13)
Loan Interest Rate	3.47	3.14	3.96	–0.06	0.03	3.85	4.51	4.05	–0.04	0.43***	4.24	4.08	4.78	0.01	0.02
	(2.19)	(1.87)	(2.06)	(0.27)	(0.42)	(2.22)	(2.16)	(1.76)	(0.38)	(0.24)	(1.57)	(1.60)	(1.64)	(0.34)	(0.49)
Capital-to-Asset Ratio	3.75	4.02	3.95	–0.46	–0.19	3.27	3.11	3.67	–0.73	–0.81	4.92	4.11	5.34	–0.51***	–1.34***
	(1.37)	(1.57)	(1.47)	(1.02)	(1.19)	(0.68)	(1.36)	(3.19)	(0.96)	(1.09)	(1.44)	(1.99)	(2.16)	(1.45)	(2.03)
Risk-Based Capital Ratio (BIS)	10.31	10.55	11.50	–1.36	–0.89	7.30	6.15	8.77	–1.72***	–2.86**	8.86	7.18	9.65	–1.12**	–2.98***
	(1.70)	(1.55)	(2.58)	(1.37)	(1.54)	(1.31)	(1.70)	(3.80)	(1.27)	(1.76)	(3.15)	(3.44)	(4.11)	(2.87)	(3.45)
Nonperforming Loan Ratio (BL)	8.72	8.99	10.32	–1.46	–1.74	9.40	9.59	7.15	1.56	1.74	9.69	14.15	7.81	0.50	4.67***
	(4.46)	(6.72)	(7.87)	(3.66)	(7.13)	(3.03)	(2.62)	(5.15)	(2.63)	(2.06)	(6.42)	(6.69)	(5.75)	(4.98)	(6.05)
Nonperforming Loan Ratio (FRL)	8.92	9.17	9.77	–1.40	–1.75	9.48	10.33	8.01	1.71	2.40					
	(4.53)	(6.80)	(6.79)	(3.71)	(7.25)	(3.19)	(3.56)	(4.93)	(2.98)	(2.95)					
Advertisement Expenses	1.76	1.47	1.91	0.00	–0.19	1.68	1.99	1.60	0.21	0.50					
	(0.93)	(0.77)	(1.07)	(1.02)	(0.76)	(0.90)	(0.94)	(0.65)	(0.90)	(1.00)					
Stock Price	–17.58	–22.60	–10.77	–4.28	6.83										
	(16.15)	(10.61)	(28.79)	(15.49)	(10.61)										
Ln Asset	17.03	16.87	16.85	0.18	0.00	14.27	13.67	14.19	0.04	–0.54	19.38	18.20	18.82	0.49***	–0.70***
	(0.84)	(1.15)	(0.96)	(0.82)	(1.13)	(0.56)	(0.74)	(0.89)	(0.54)	(0.71)	(0.86)	(0.93)	(0.97)	(0.84)	(0.89)
Asset Growth Rate	9.57	–0.60	1.35	3.02	–5.32	9.17	1.99	2.30	7.71	0.64	2.63	–0.68	4.06	–0.62	–3.84***
	(10.63)	(10.63)	(17.57)	(6.86)	(9.80)	(21.63)	(4.55)	(8.82)	(21.21)	(4.84)	(4.37)	(8.88)	(8.17)	(3.32)	(8.35)
No. of observations	8	11	286			9	8	1,876			64	80	5,928		

Notes: "Acquirer – All" and "Target – All" are calculated for each merger and acquisition (M&A) and only for the years when there are at least one M&A, while "All" is a simple average over the whole sample years. This is the reason why the differences between "Acquirer" (or "Target") and "All" do not coincide with "Acquirer – All" (or "Target – All"). Values are means (standard deviation). Numbers in parentheses are standard errors.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

connect a line for one year before M&As and one year after M&As. We look at the financial ratios that represent bank efficiency, market power, healthiness, and portfolio.

Figure 8.1 depicts the premerger and postmerger financial ratios of major banks, suggesting some interesting facts. First, target banks were less cost efficient than the average, and consolidated banks' ROA recovered slowly from an immediate deterioration after mergers. Second, consolidated banks increased the share of SME loans at least for the first three years after mergers. Third, the loan interest rate did not show a clear increasing tendency. Fourth, poorly capitalized banks tended to be an acquirer or a target, and consolidated banks suffered from decreasing capital ratios and increasing nonperforming loans at least for three to four years after mergers.[21] Finally, both acquirers and targets spent less on advertisement expenses before mergers, and consolidated banks continued to spend less on them after mergers than the average.

Figure 8.2 depicts the premerger and postmerger bank characteristics of regional banks. Like major banks, target banks were inefficient and poorly capitalized and profitability and efficiency once deteriorated and then slowly recovered after consolidation. The recovery of bank health, measured by capital ratios or nonperforming loans, after consolidation was also slow. Unlike major banks, consolidated banks decreased the share of loans to SMEs after mergers. Consolidated banks also decreased the advertisement expenses after mergers from a relatively high level before mergers.

Figure 8.3 shows the premerger and postmerger bank characteristics of *shinkin* banks. Like major banks and regional banks, target banks were inefficient and unhealthy. The recovery of profitability, cost efficiency, or healthiness could not be seen clearly after M&As. Acquirers and targets tended to focus on traditional loan business before M&As, and a consolidated bank tended to focus more on loan business, unlike major banks. A consolidated bank raised the loan interest rate after M&As.

In the following sections, we statistically examine how the premerger bank characteristics affected the M&A decision and how M&As changed bank performance.

8.6 Ex-Ante Characteristics and the Decision of Consolidation

If efficiency improvement motives drive consolidation, relatively profitable and efficient banks would tend to acquire relatively unprofitable and inefficient banks in order to spread superior expertise and management

21. Nonperforming loans (NPLs) defined by Bank Law are the sum of loans to failed borrowers, delinquent loans, loans delinquent for more than three months, and loans with the terms alleviated, all classified by each loan. The NPLs defined by the Financial Rehabilitation Law are all the claimable assets other than the normal ones whose debtors have no financial problems, classified by debtors' financial conditions. Banks are required to disclose both types of NPLs.

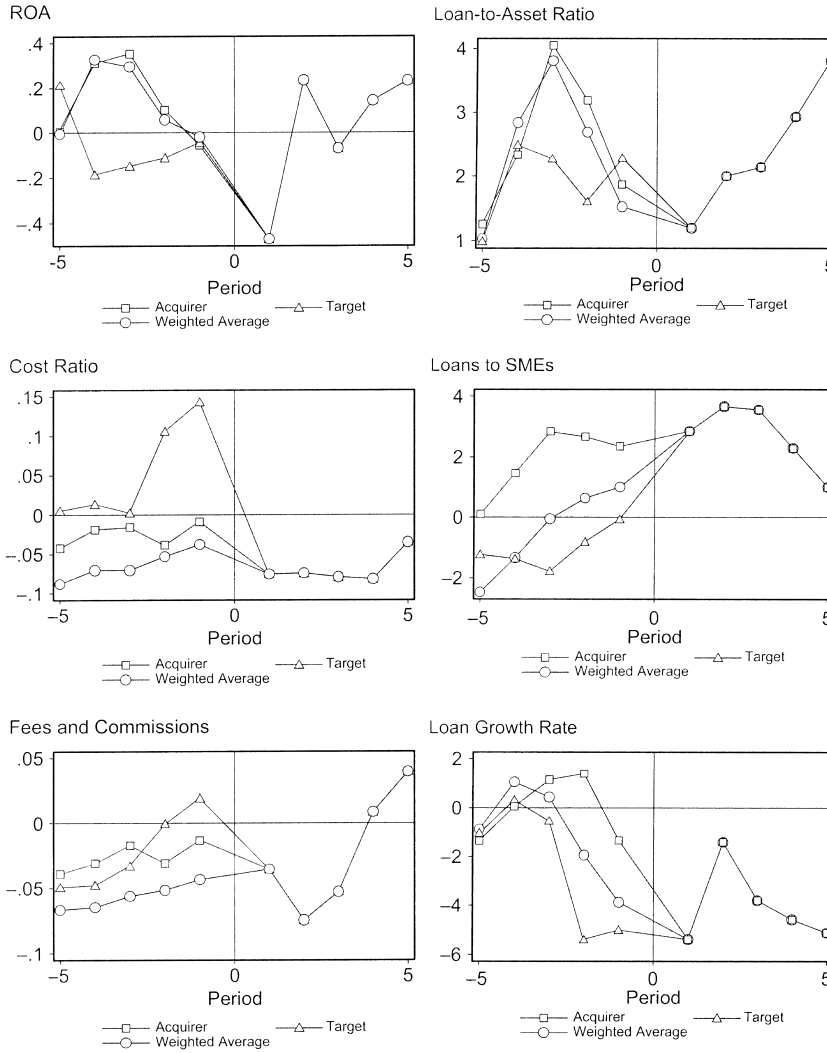

Fig. 8.1 Premerger and postmerger performances of major banks

Notes: Period zero designates the year when the bank merger occurred. Negative periods denote premerger years, and positive periods denote postmerger years. We connect the period (–1) value and period (+1) value with a straight line. *Weighted average* denotes the hypothetical premerger combined bank, calculated as a weighted average of the acquirer and the target with their total assets being used as weights.

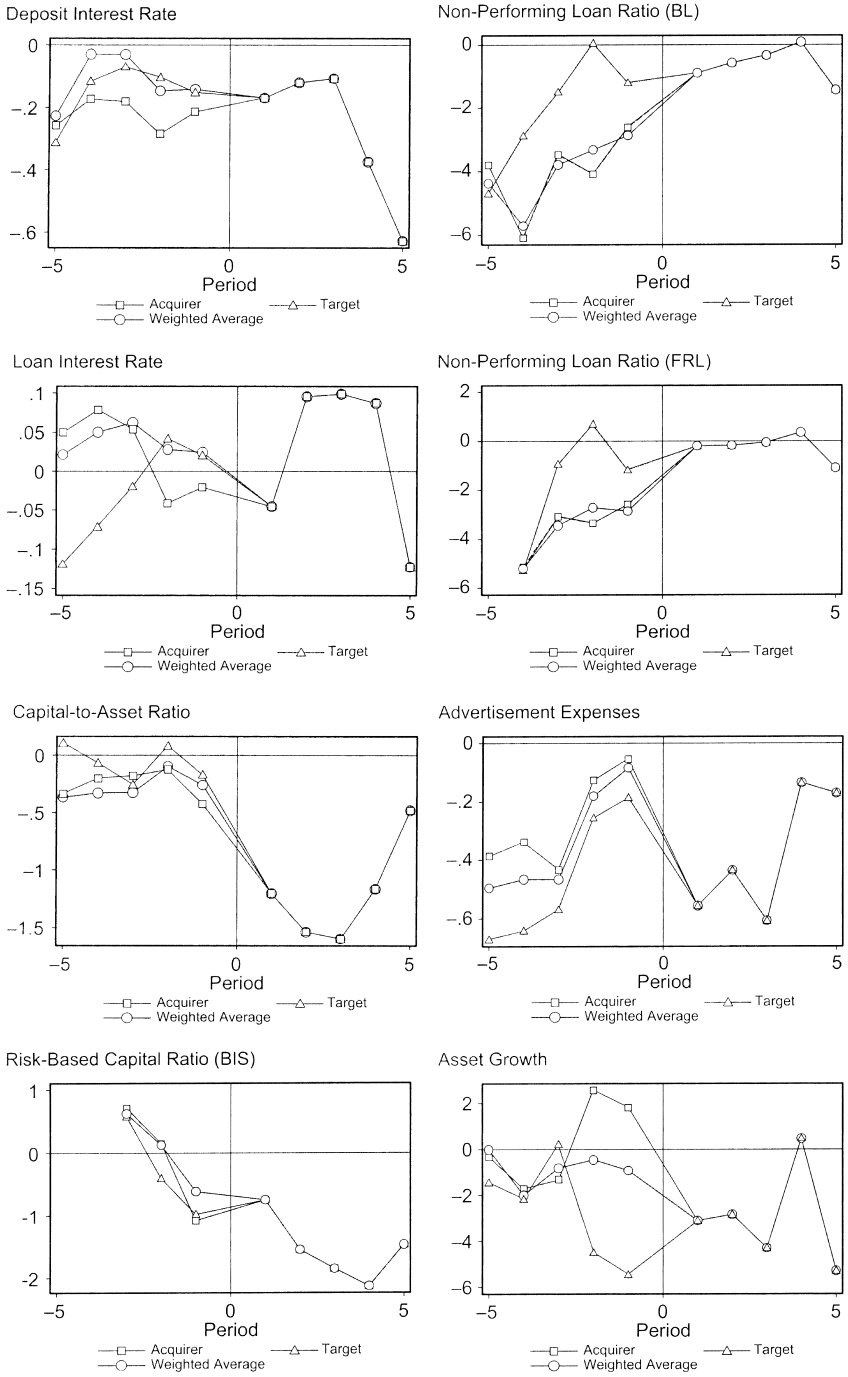
Deposit Interest Rate
0
−.2
−.4
−.6
−5
0
5
Period
Acquirer
Target
Weighted Average
Non-Performing Loan Ratio (BL)
0
−2
−4
−6
−5
0
5
Period
Acquirer
Target
Weighted Average
Loan Interest Rate
.1
.05
0
−.05
−.1
−.15
−5
0
5
Period
Acquirer
Target
Weighted Average
Non-Performing Loan Ratio (FRL)
2
0
−2
−4
−6
−5
0
5
Period
Acquirer
Target
Weighted Average
Capital-to-Asset Ratio
0
−.5
−1
−1.5
−5
0
5
Period
Acquirer
Target
Weighted Average
Advertisement Expenses
0
−.2
−.4
−.6
−5
0
5
Period
Acquirer
Target
Weighted Average
Risk-Based Capital Ratio (BIS)
1
0
-1
-2
−5
0
5
Period
Acquirer
Target
Weighted Average
Asset Growth
2
0
−2
−4
−6
−5
0
5
Period
Acquirer
Target
Weighted Average

Fig. 8.1 (cont.)

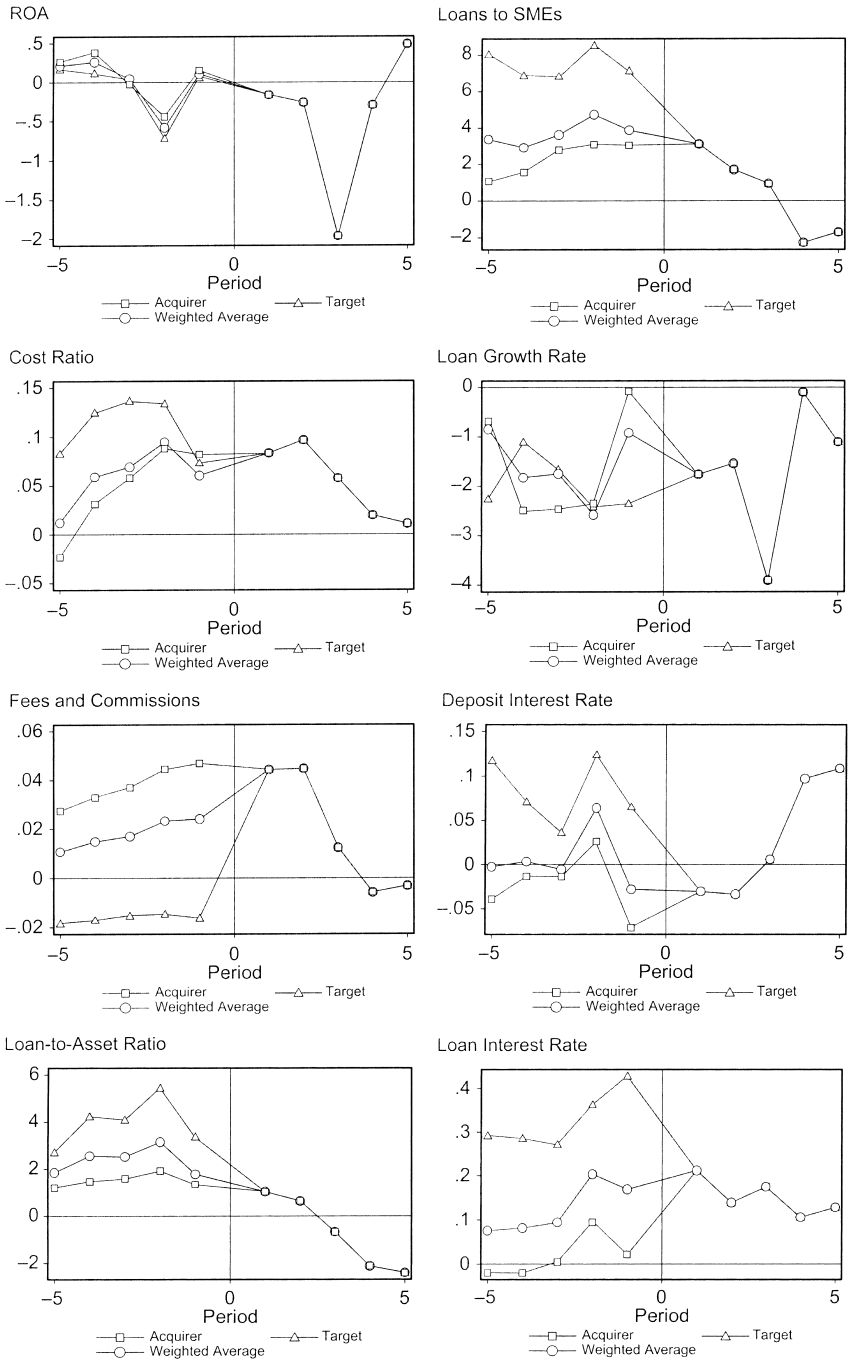

Fig. 8.2 Premerger and postmerger performances of regional banks

Notes: See notes to figure 8.1.

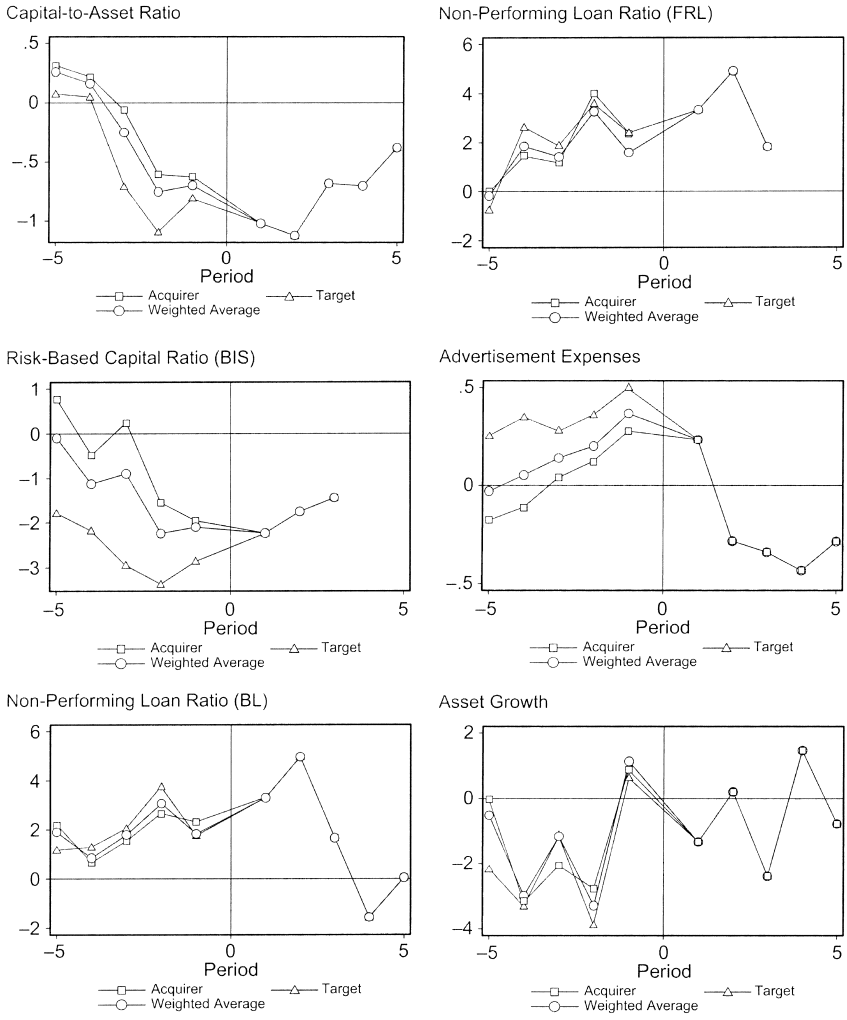

Fig. 8.2 (cont.)

skills over the target bank. On the other hand, if the government's too-big-to-fail policy or its motives of stabilizing the nationwide or local banking system drive consolidation, relatively unhealthy banks tend to be consolidated with each other. The government may also promote consolidations through recapitalization. If managerial private incentive for empire building is a major motive for mergers, banks that spend more on private benefits like advertisement expenditures are more likely to acquire other banks.

To analyze the motives for consolidation, we estimate the multinomial logit model:

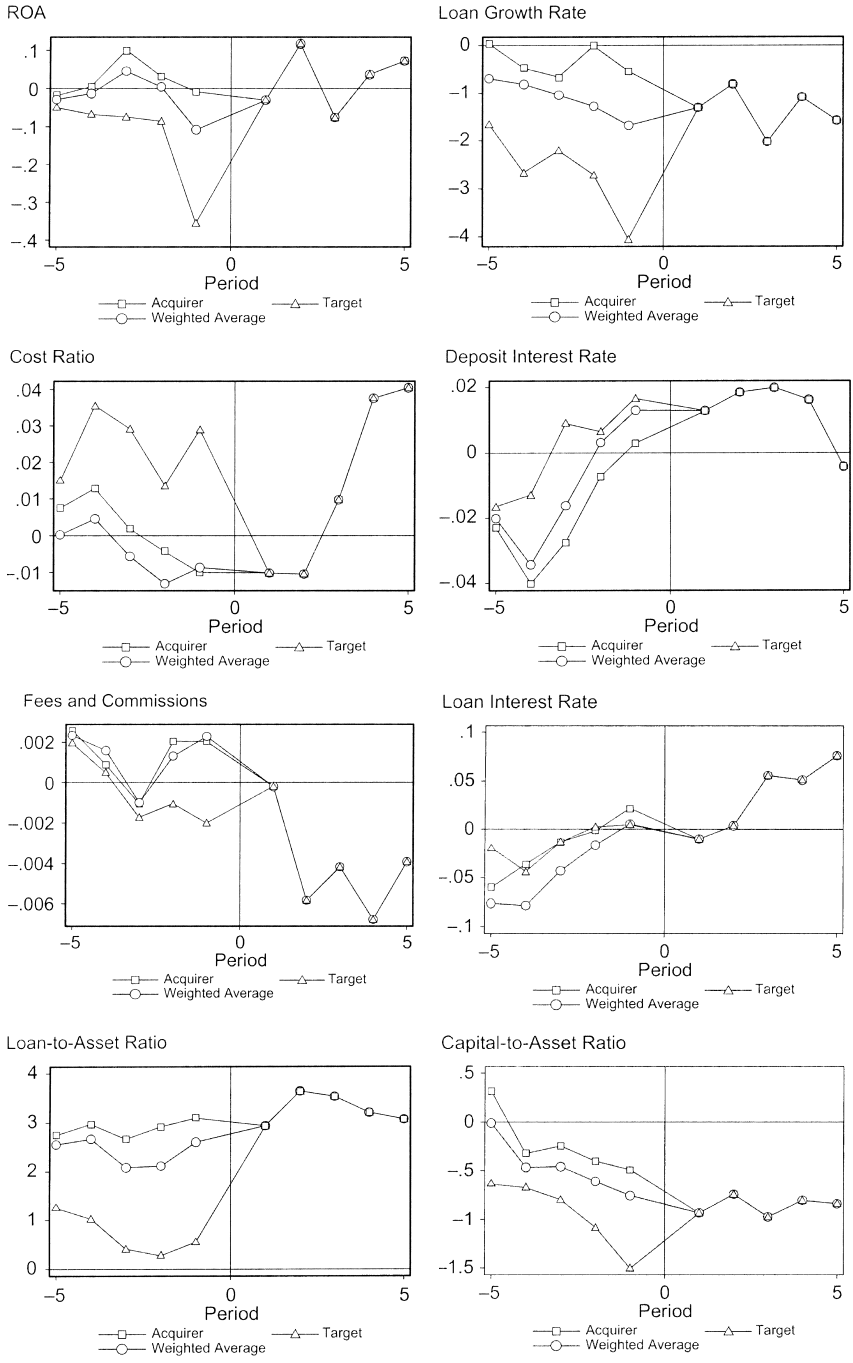

Fig. 8.3 Premerger and postmerger performances of *shinkin* banks

Notes: See notes to figure 8.1.

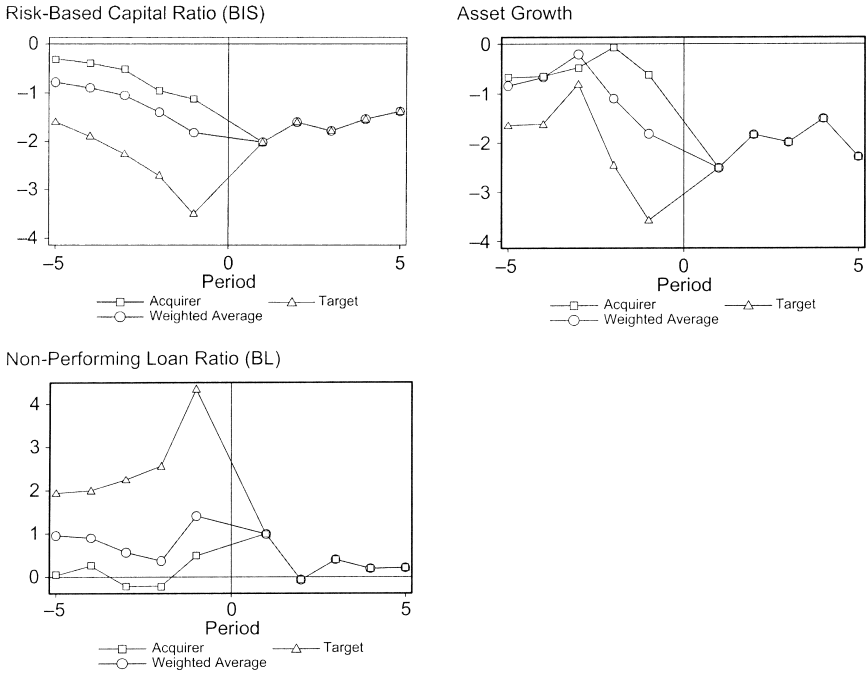

Fig. 8.3 (cont.)

$$(2) \qquad P_{t,j} = \frac{\exp(\beta' \mathbf{X}_{t-1,j})}{\sum_{j=1}^{3} \exp(\beta' \mathbf{X}_{t-1,j})} \quad for\ j = 1,2,3,$$

where $P_{t,j}$ is the probability of the bank's choosing the variable j at time t, with j being an acquirer, a target, or neither. The explanatory variable vector $\mathbf{X}_{t-1,j}$ consists of bank profitability, efficiency, healthiness, governmental recapitalization, managerial private benefits, and size, as well as other control variables including market concentration and macroeconomic variables. We choose the ROA and the cost ratio for the efficiency variables and the capital-to-asset ratio and the nonperforming loans as a proportion of total loans as bank health measures. Nonperforming loans are available only after 1998. We also use the yearly change in the stock prices as bank health measures in the case of major banks, though the stock price data of individual banks are available only up to 2001 because since then major banks established holding companies whose subsidiaries include security companies and nonbanks as well. The governmental recapitalization is captured by a dummy variable that takes the value of one if the bank has been recapitalized that year or before and zero otherwise. As a measure of private benefits, we use advertisement expenses as a proportion of total cost. For the size variables, we use the logarithm of total assets and the

growth rate of total assets. As a degree of market concentration, we use the Herfindahl index for regional banks and *shinkin* banks. Though major banks had head offices in Tokyo, Osaka, Nagoya, or Sapporo and had some operational advantages over the areas where the head offices were located, they had branches and operated nationwide. This is why we do not use the prefectural Herfindahl index in the case of major banks. We control for the experience of M&As using a dummy variable that takes the value of one if the bank has experienced an M&A before and zero otherwise. A bank that has experienced a M&A before may not want to carry out another M&A if it takes a long time to consolidate information systems and other business cultures. On the other hand, a bank that has experienced M&As may have knowledge and skills how to efficiently integrate different business practices. In that case, the M&A experience dummy has a positive effect on the probability of being an acquirer. Finally, to control for industrial or macroeconomic shocks, we add the change in the stock price index for the banking industry and the growth rate of GDP in the case of major banks and the growth rate of prefectural GDP in the case of regional and *shinkin* banks. All the explanatory variables are lagged by one year.

We checked the correlation among the explanatory variables and found that ROA and the capital-to-asset ratio are strongly correlated for regional banks and *shinkin* banks (The correlation coefficients are 0.045, 0.853, and 0.615 for major banks, regional banks, and *shinkin* banks, respectively). To check the robustness, we also estimate equation (2) by entering ROA and the capital-to-asset ratio one by one into the explanatory variables. In addition, to take into consideration the possibility that it took more than one year to prepare for mergers, we also present the estimation results in the case of two-year lagged explanatory variables.[22]

We estimate equation (2) for each bank type: major banks, regional banks, and *shinkin* banks. In addition to the full sample period (fiscal year 1990 to 2004), we divide the sample period into the precrisis period (fiscal year 1990 to 1997) and the postcrisis (fiscal year 1998 to 2004). The regulatory authorities did not intervene in bank mergers to rescue weak banks in the postcrisis period. Furthermore, their attitudes toward major banks' nonperforming loan problems became much more severe in the postcrisis period than in the precrisis period. It would be useful to see whether there would be a difference in the motives of bank mergers between the pre- and postcrisis periods.

8.6.1 Major Banks

Table 8.4 shows the estimation results for major banks. Column (1) shows the estimated coefficients and column (2) shows the estimated

22. Two-year lagged dependent variables may be appropriate in case a bank that is to be acquired by a relatively healthy bank in two years gambles on high-risk, high-return investment and finally deteriorates its balance sheet one year before mergers. This potential moral hazard problem was pointed out by Hiro Ito.

Table 8.4 **Multinomial logistic regression results for merger and acquisition (M&A) choices among major banks**

	1990–2004						1990–2001		1990–2004		1990–1997		1998–2004	
	Coefficient (1)	Marginal effect (2)	Coefficient (3)	Marginal effect (4)	Coefficient (5)	Marginal effect (6)	Coefficien (7)	Marginal effect (8)	Coefficient (9)	Marginal effect (10)	Coefficient (11)	Marginal effect (12)	Coefficient (13)	Marginal effect (14)
Acquirer														
Return of assets (ROA)	–0.200	–0.0000	–0.267	–0.0000					0.284	0.0000	17.817	0.0000	0.079	0.0001
	(0.470)		(0.342)						(0.843)		(19.158)		(0.900)	
Cost Ratio	3.157	0.0028	2.451	0.0000	3.138	0.0000	0.433	–0.0046	1.734	0.0020	1.907	0.0000	5.054	0.0155
	(2.207)		(2.073)		(2.201)		(2.475)		(2.065)		(4.665)		(2.820)	
Capital-to-Asset Ratio	–0.421	–0.0003			–0.478	–0.0000			0.313	0.0004	–4.355	–0.0727	–0.954	–0.0323
	(0.426)				(0.416)				(0.369)		(3.079)		(0.716)	
Advertisement Expenses	0.218	0.0000	0.129	0.0000	0.195	0.0000	0.092	0.0052	–0.275	–0.0000	–0.505	–0.0000	2.062	0.0030
	(0.497)		(0.500)		(0.499)		(0.524)		(0.539)		(0.880)		(1.179)	
Ln Asset	1.255	0.0437	1.284	0.0437	1.178	0.0072	0.766	0.0043	0.937	0.0026	–0.200	0.0024	2.015	0.0641
	(0.936)		(0.918)		(0.916)		(1.025)		(0.909)		(1.561)		(1.607)	
Asset Growth	0.017	0.0000	0.018	0.0000	0.017	0.0000	0.024	0.0000	0.019	0.0000	–0.001	–0.0000	0.011	0.0000
	(0.018)		(0.017)		(0.018)		(0.017)		(0.017)		(0.044)		(0.021)	
Industrial Stock Price	–0.031	–0.0000	–0.038	–0.0000	–0.028	–0.0000			0.019	0.0000	0.747	0.0000	–0.150	–0.0018
	(0.033)		(0.033)		(0.032)				(0.031)		(0.595)		(0.096)	
GDP Growth	0.527	0.0000	0.455	0.0000	0.508	0.0000			0.578	0.0000	5.310	–0.0011	0.189	0.0002
	(0.279)		(0.266)		(0.274)				(0.324)		(4.326)		(0.793)	
M&A Experience	–2.783	–0.0506	–2.402	–0.0435	–2.729	–0.0499	–1.768	–0.0311	–1.941	–0.0345			–3.447	–0.1163
	(1.600)		(1.479)		(1.589)		(1.537)		(1.390)				(1.977)	
Governmental Capital	2.987**	0.1209	2.247**	0.0745	3.076**	0.1271	1.685	0.0650	2.617	0.1054				
	(1.338)		(1.024)		(1.349)		(0.894)		(1.353)					
Stock Price							–0.005	–0.0000						
							(0.016)							
Nonperforming Loan Ratio													–0.019	0.0024
													(0.269)	
Cons	–28.848		–29.828		–27.195		–17.567		–23.765		–5.595		–42.340	
	(18.148)		(17.845)		(17.645)		(19.683)		(17.740)		(30.763)		(31.100)	

(*continued*)

Table 8.4 (continued)

	1990–2004						1990–2001		1990–2004		1990–1997		1998–2004	
	Coefficient (1)	Marginal effect (2)	Coefficient (3)	Marginal effect (4)	Coefficient (5)	Marginal effect (6)	Coefficien (7)	Marginal effect (8)	Coefficient (9)	Marginal effect (10)	Coefficient (11)	Marginal effect (12)	Coefficient (13)	Marginal effect (14)
Target														
Return of assets (ROA)	–0.082	–0.0000	–0.092	–0.0000					0.001	0.0000	7.495	0.0000	0.323	–0.0001
	(0.401)		(0.366)						(0.284)		(9.127)		(0.915)	
Cost Ratio	2.134	0.0010	2.110	0.0000	2.119	0.0000	6.011	0.0574	1.821	0.0039	–1.494	–0.0000	7.484**	0.3149
	(1.637)		(1.626)		(1.629)		(4.998)		(1.640)		(3.793)		(3.292)	
Capital-to-Asset Ratio	–0.051	0.0001			–0.075	0.0000			0.613**	0.0090	–2.184	–0.0272	0.209	0.0153
	(0.355)				(0.334)				(0.305)		(1.778)		(0.702)	
Advertisement Expenses	–0.286	–0.0000	–0.294	–0.0000	–0.297	–0.0000	–11.020	–0.0692	–0.645	–0.0000	–0.545	–0.0000	0.344	–0.0024
	(0.519)		(0.516)		(0.515)		(6.692)		(0.527)		(0.641)		(0.970)	
Ln Asset	0.868	0.0082	0.895	0.0103	0.832	0.0116	3.524	0.0282	1.195	0.0596	–1.689	–0.0288	1.513	0.0518
	(0.792)		(0.762)		(0.769)		(3.155)		(0.789)		(1.586)		(1.718)	
Asset Growth	–0.028	–0.0000	–0.028	–0.0000	–0.029	–0.0000	0.094	0.0000	0.001	0.0000	0.018	0.0000	–0.055	–0.0000
	(0.032)		(0.031)		(0.032)		(0.071)		(0.022)		(0.054)		(0.064)	
Industrial Stock Price	–0.083**	0.0000	–0.084**	–0.0000	–0.083	–0.0000			–0.021	–0.0000	0.458	0.0000	–0.427	–0.0203
	(0.042)		(0.042)		(0.042)				(0.027)		(0.383)		(0.315)	
GDP Growth	0.499	0.0000	0.493	0.0000	0.495	0.0000			0.351	0.0000	3.305	0.0064	1.204	0.0039
	(0.282)		(0.277)		(0.284)				(0.242)		(2.837)		(1.870)	
M&A Experience	–1.164	–0.0290	–1.146	–0.0292	–1.142	–0.0287	–2.962	–0.0275	–1.283	–0.0337			–1.744	–0.0495
	(0.972)		(0.965)		(0.967)		(3.029)		(0.978)				(1.359)	
Governmental Capital	1.792	0.0576	1.721**	0.0610	1.838	0.0586	2.525	0.0178	1.011	0.0281				
	(1.010)		(0.844)		(0.986)		(3.004)		(0.930)					
Stock Price							–0.035	–0.0000						
							(0.055)							
Nonperforming Loan Ratio													–0.399	–0.0090
													(0.281)	
Cons	–21.920		–22.526		–21.181		–60.254		–27.602		23.337		–42.943	
	(15.593)		(14.882)		(15.110)		(54.140)		(15.501)		(29.490)		(34.366)	
No. of observations	279		280		279		225		279		170		90	
Pseudo R^2	0.168		0.162		0.167		0.272		0.166		0.277		0.446	
Log-likelihood	–68.457		–69.027		–68.547		–34.234		–68.641		–21.780		–25.370	

Notes: The probability of being an acquirer or a target as compared with being neither of them is estimated using the maximum-likelihood estimator. Standard errors are in parentheses. Independent variables are lagged one year for columns (1)–(8) and (11)–(14), while they are lagged two years for columns (9) and (10).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

marginal effects for the full sample period.[23] Looking at the results of the acquirer equation, we see that the coefficient on the governmental capital injection dummy is positive and significant, suggesting that those major banks that had been recapitalized by the government were more likely to be consolidated. This result is consistent with the too-big-to-fail policy or stabilization policy hypothesis. It should be noted, however, that because all the major banks were recapitalized by the government in 1998, the coefficient on the governmental capital injection dummy may reflect any structural changes after 1998. The other bank characteristics variables and macroeconomic variables are not significant. Turning to the target equation, we see that the coefficient on the industrial stock price index is negative and significant, suggesting that a bank was more likely to be acquired when the equity values of the banking industry were deteriorated. These results are consistent with the too-big-to-fail policy or the stabilization policy hypothesis.

Entering ROA and the capital-to-asset ratio one by one into the explanatory variables, we obtain similar results (shown in columns [3] to [6]), though the coefficient on the governmental capital injection dummy is positive and significant in the target equation when only ROA is entered.

Columns (7) and (8) show the results when the changes in individual banks' stock prices are used as a bank health measure. We see that its coefficient is not significant in the acquirer or target equation. In the case of major banks, the overall worsening of bank health and the government's response to a systemic risk may have driven the merger waves rather than the individual bank health.

Using two-year lagged explanatory variables, we see (in columns [9] and [10]) that no explanatory variable is significant in the acquirer or the target equation, except for the capital-to-asset ratio in the target equation that is positive and significant. Though this result is not consistent with the too-big-to-fail policy hypothesis, the two-year lagged explanatory variable may not be suitable in the case of the mergers of major banks because every major bank seemed to hasten to choose the bank to consolidate or to be consolidated by, especially in the postcrisis period.

The subperiod estimation results are presented in columns (11) to (14). While no premerger variable is significant in the precrisis period, the coefficient on the cost ratio is positive and significant in the target equation in the postcrisis period. The fact that a less cost-efficient major bank tended to be acquired by other banks in the postcrisis period is consistent with the efficiency-improving hypothesis.

8.6.2 Regional Banks

Table 8.5 shows the estimation results for regional banks. Looking at the full sample period estimation result, we see that the coefficients on the

23. The average marginal effects are reported here (Wooldridge 2001, 467).

Table 8.5 **Multinomial logistic regression results for merger and acquisition choices among regional banks**

	1990–2004								1990–1997		1998–2004	
	Coefficient (1)	Marginal effect (2)	Coefficient (3)	Marginal effect (4)	Coefficient (5)	Marginal effect (6)	Coefficien (7)	Marginal effect (8)	Coefficient (9)	Marginal effect (10)	Coefficient (11)	Marginal effect (12)
Acquirer												
Return of assets (ROA)	0.321	0.0000	0.258	0.0000			–0.086	–0.0000	1.231	0.0000	5.329***	0.0000
	(0.171)		(0.227)				(0.394)		(4.907)		(1.724)	
Cost Ratio	–0.643	–0.0000	–0.308	–0.0000	–0.567	–0.0000	0.276	0.0000	0.258	0.0000	3.284	0.0063
	(2.184)		(2.218)		(2.116)		(2.346)		(4.026)		(3.314)	
Capital-to-Asset Ratio	–0.173	–0.0000			–0.043	–0.0000	0.063	0.0000	–0.663	–0.0000	–1.622***	–0.0000
	(0.103)				(0.077)		(0.300)		(1.065)		(0.575)	
Advertisement Expenses	0.219	0.0000	0.212	0.0000	0.224	0.0000	–0.018	–0.0000	0.042	0.0000	–0.028	–0.0000
	(0.459)		(0.441)		(0.446)		(0.577)		(1.091)		(0.421)	
Ln Asset	–0.145	0.0001	–0.110	0.0001	–0.143	0.0001	–0.045	0.0001	0.161	0.0000	1.190	0.0037
	(0.631)		(0.639)		(0.615)		(0.680)		(1.259)		(1.083)	
Asset Growth	0.017	0.0000	0.018	0.0000	0.018	0.0000	–0.048	–0.0000	0.033	0.0000	0.001	0.0000
	(0.012)		(0.012)		(0.012)		(0.072)		(0.050)		(0.016)	
Herfindahl Index	0.480	0.0000	0.170	0.0000	0.216	0.0000	–0.066	–0.0000	5.948	0.0000	–1.046	–0.0000
	(2.195)		(2.175)		(2.161)		(2.165)		(4.042)		(3.063)	
GDP Growth	0.016	0.0000	0.022	0.0000	0.022	0.0000	0.085	0.0000	–0.007	–0.0000	–0.052	–0.0000
	(0.096)		(0.097)		(0.097)		(0.115)		(0.157)		(0.235)	
Governmental Capital	2.125**	0.0257	2.106**	0.0258	1.983**	0.0227	1.965**	0.0221			1.080	0.0112
	(0.894)		(0.891)		(0.878)		(0.874)				(1.082)	
Nonperforming Loan Ratio											0.201	0.0000
											(0.180)	
Cons	–2.570		–4.073		–3.089		–5.609		–9.029		–21.882	
	(11.904)		(11.983)		(11.524)		(13.038)		(23.551)		(18.934)	

Target												
Return of assets (ROA)	0.279	0.0000	0.095	0.0000			–0.145	–0.0000	1.892	0.0000	2.221	0.0000
	(0.226)		(0.385)				(0.376)		(2.142)		(1.491)	
Cost Ratio	–3.315	–0.0000	–3.083	–0.0000	–3.227	0.0000	–1.951	–0.0000	–2.785	–0.0000	–4.467	–0.0053
	(2.242)		(2.256)		(2.167)		(2.006)		(3.671)		(4.473)	
Capital-to-Asset Ratio	–0.177	–0.0000			–0.057	–0.0000	0.123	0.0000	–1.708	–0.0021	–0.543	–0.0000
	(0.117)				(0.084)		(0.300)		(0.969)		(0.517)	
Advertisement Expenses	0.441	0.0000	0.457	0.0000	0.459	0.0000	0.454	0.0000	–0.440	–0.0000	0.674	0.0000
	(0.396)		(0.379)		(0.388)		(0.439)		(1.241)		(0.480)	
Ln Asset	–1.497**	–0.0028	–1.482**	–0.0029	–1.484**	–0.0028	–1.317**	–0.0032	–1.732	–0.0021	–1.435	–0.0069
	(0.625)		(0.621)		(0.613)		(0.622)		(1.347)		(0.991)	
Asset Growth	–0.017	–0.0000	–0.022	–0.0000	–0.014	–0.0000	–0.093	–0.0000	0.013	0.0000	–0.073	–0.0000
	(0.060)		(0.072)		(0.061)		(0.060)		(0.099)		(0.125)	
Herfindahl Index	–1.399	–0.0000	–1.725	–0.0000	–1.547	–0.0000	–1.725	–0.0000	–0.435	–0.0000	1.334	0.0000
	(2.227)		(2.195)		(2.203)		(2.288)		(3.479)		(4.129)	
GDP Growth	0.006	0.0000	0.019	0.0000	0.014	0.0000	0.114	0.0000	–0.051	–0.0000	0.083	0.0000
	(0.115)		(0.119)		(0.115)		(0.109)		(0.167)		(0.306)	
Governmental Capital	2.511***	0.0324	2.418***	0.0300	2.405***	0.0297	2.442***	0.0297			1.643	0.0133
	(0.929)		(0.920)		(0.906)		(0.914)				(1.311)	
Nonperforming Loan Ratio											0.245	0.0001
											(0.209)	
Cons	20.334		19.234		19.589		14.645		28.199		19.328	
	(11.402)		(11.261)		(11.057)		(11.030)		(23.502)		(18.866)	
No. of observations	1,869		1,869		1,869		1,866		1,039		628	
Pseudo R^2	0.100		0.089		0.088		0.092		0.130		0.308	
Log-likelihood	–97.683		–98.878		–99.034		–98.603		–35.724		–40.175	

Notes: The probability of being an acquirer or a target as compared with being neither of them is estimated using the maximum-likelihood estimator. Standard errors are in parentheses. Independent variables are lagged one year for columns (1)–(6) and (9)–(12), while they are lagged two years for columns (7) and (8).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

governmental capital injection dummy are positive and significant in both the acquirer and target equations, which supports the too-big-to-fail policy or stabilization policy hypothesis. In the target equation, the coefficient on the (logarithm of) asset is negative and significant, suggesting that a smaller regional bank was more likely to be a target. These results hold even if we enter ROA and capital-to-asset ratio one by one and if we use two-lagged explanatory variables (columns [3] to [8]). Looking at the subsample period estimation results (columns [9] to [12]), we see that no premerger variable is significant in the precrisis period. On the other hand, in the postmerger period, the coefficient on ROA is positive and significant, and the coefficient on capital-to-asset ratio is negative and significant in the acquirer equation, while none is significant in the target equation. The result for the acquirer equation in the postcrisis period is consistent both with the efficiency-improving hypothesis and the too-big-to-fail policy or stabilization policy hypothesis.

8.6.3 Shinkin Banks

Table 8.6 displays the estimation results for *shinkin* banks. We exclude advertisement expenses from the explanatory variables because *shinkin* banks do not disclose them. Looking at the full sample period estimation result of the acquirer equation (columns [1] and [2]), we see that the coefficients on the (logarithm of) asset and the M&A experience dummy are positive and significant. A larger *shinkin* bank is more likely to acquire another *shinkin* bank. In the target equation, the coefficient on ROA is positive and significant, and the coefficient on the cost ratio is negative and significant. Efficient *shinkin* banks tended to be a target, though the efficiency-improving hypothesis posits that efficient banks tend to be an acquirer. The coefficient on the capital-to-asset ratio is negative and significant, which is consistent with the too-big-to-fail or stabilization policy. The coefficient on the Herfindahl index is negative and significant, suggesting that a *shinkin* bank tends to be consolidated if it operates in a less-concentrated market, which is consistent with the market power hypothesis. The coefficients on the (logarithm of) asset and the asset growth are both negative and significant, suggesting that a small or slowly growing *shinkin* bank tended to be a target.

Most of these results still hold even if we enter ROA and the capital-to-asset ratio separately (columns [3] to [6]) or if we use two-year lagged explanatory variables (columns [7] and [8]), though the coefficients on ROA and the capital-to-asset ratio become insignificant in the target equation when we enter them separately.

Though the subsample period estimation results yield similar results both in the premerger and postmerger periods, it is notable that the coefficient on the capital-to-asset ratio is negative and significant in the target equation only in the postcrisis period, suggesting that the too-big-to-fail or

Table 8.6 **Multinomial logistic regression results for merger and acquisition (M&A) choices among *Shinkin* banks**

	1990–2002								1990–1997		1998–2002	
	Coefficient (1)	Marginal effect (2)	Coefficient (3)	Marginal effect (4)	Coefficient (5)	Marginal effect (6)	Coefficien (7)	Marginal effect (8)	Coefficient (9)	Marginal effect (10)	Coefficient (11)	Marginal effect (12)
Acquirer												
Return of assets (ROA)	0.113	0.0000	0.050	0.0000			0.089	0.0000	–0.447	0.0000	0.072	0.0000
	(0.151)		(0.115)				(0.159)		(1.528)		(0.238)	
Cost Ratio	0.397	0.0000	0.504	0.0000	0.443	0.0000	0.571	0.0000	0.859	0.0000	0.036	0.0000
	(0.655)		(0.631)		(0.648)		(0.640)		(0.856)		(1.076)	
Capital-to-Asset Ratio	–0.055	–0.0000			–0.014	–0.0000	–0.039	–0.0000	–0.143	–0.0000	0.051	0.0000
	(0.083)				(0.055)		(0.085)		(0.168)		(0.110)	
Ln Asset	0.521***	0.0000	0.546***	0.0000	0.534***	0.0000	0.573**	0.0000	0.541**	0.0000	0.536**	0.0071
	(0.168)		(0.165)		(0.167)		(0.166)		(0.215)		(0.274)	
Asset Growth	–0.029	–0.0000	–0.029	–0.0000	–0.025	–0.0000	–0.016	–0.0000	–0.021	–0.0000	–0.033	–0.0000
	(0.022)		(0.022)		(0.020)		(0.019)		(0.034)		(0.028)	
Herfindahl Index	0.495	0.0000	0.441	0.0000	0.439	0.0000	0.451	0.0000	0.746	0.0000	–0.138	–0.0000
	(0.789)		(0.785)		(0.786)		(0.784)		(1.082)		(1.209)	
GDP Growth	–0.021	–0.0000	–0.018	–0.0000	–0.019	–0.0000	0.007	0.0000	0.006	0.0000	–0.149	–0.0000
	(0.039)		(0.039)		(0.039)		(0.031)		(0.038)		(0.093)	
M&A Experience	0.989***	0.0161	1.030***	0.0171	0.998***	0.0164	1.009***	0.0163			1.280***	0.0268
	(0.334)		(0.328)		(0.334)		(0.332)				(0.422)	
Nonperforming Loan Ratio											0.061	0.0000
											(0.035)	
Cons	–14.915***		–15.837***		–15.422***		–16.361***		–15.626***		–15.662**	
	(4.074)		(3.858)		(4.000)		(4.045)		(5.276)		(6.735)	
Target												
Return of assets (ROA)	0.445***	0.0000	0.079	0.0000			0.505***	0.0000	–3.783***	–0.0000	0.549***	0.0000
	(0.110)		(0.055)				(0.122)		(1.336)		(0.132)	

(*continued*)

Table 8.6 continued

	1990–2002								1990–1997		1998–2002	
	Coefficient (1)	Marginal effect (2)	Coefficient (3)	Marginal effect (4)	Coefficient (5)	Marginal effect (6)	Coefficien (7)	Marginal effect (8)	Coefficient (9)	Marginal effect (10)	Coefficient (11)	Marginal effect (12)
Cost Ratio	–1.167***	–0.0002	–1.265***	–0.0001	–1.356***	–0.0001	–1.111***	0.0000	–1.398**	–0.0000	–0.943	–0.0008
	(0.416)		(0.437)		(0.437)		(0.403)		(0.590)		(0.694)	
Capital-to-Asset Ratio	–0.284***	–0.0000			–0.043	–0.0000	–0.304***	–0.0000	–0.087	–0.0000	–0.236**	–0.0000
	(0.072)				(0.040)		(0.073)		(0.136)		(0.093)	
Ln Asset	–0.955***	–0.0014	–0.876***	–0.0012	–0.944***	–0.0013	–0.868***	–0.0010	–1.157***	–0.0011	–0.911***	–0.0170
	(0.141)		(0.137)		(0.138)		(0.136)		(0.216)		(0.212)	
Asset Growth	–0.129***	–0.0000	–0.141***	–0.0000	–0.098***	–0.0000	–0.121***	–0.0000	–0.037	–0.0000	–0.158***	–0.0000
	(0.026)		(0.027)		(0.025)		(0.025)		(0.031)		(0.046)	
Herfindahl Index	–2.588***	–0.0003	–2.701***	–0.0000	–2.890***	–0.0000	–2.450***	–0.0000	–2.426**	–0.0000	–3.663***	–0.0000
	(0.753)		(0.756)		(0.753)		(0.736)		(1.180)		(1.105)	
GDP Growth	–0.066	–0.0000	–0.048	–0.0000	–0.065	–0.0000	–0.004	–0.0000	–0.054	–0.0000	–0.052	–0.0000
	(0.040)		(0.041)		(0.039)		(0.036)		(0.057)		(0.088)	
M&A Experience	–0.369	–0.0042	–0.166	–0.0022	–0.398	–0.0045	–0.369	–0.0043			–0.282	–0.0051
	(0.663)		(0.641)		(0.721)		(0.622)				(0.666)	
Nonperforming Loan Ratio											0.112***	0.0000
											(0.028)	
Cons	17.821***		15.151***		16.835***		16.125***		21.240***		15.637***	
	(2.971)		(2.926)		(2.972)		(2.865)		(4.288)		(4.763)	
No. of observations	5,626		5,626		5,626		5,758		3,432		2,167	
Pseudo R^2	0.098		0.087		0.086		0.085		0.098		0.158	
Log-likelihood	–681.741		–690.583		–691.122		–706.882		–327.212		–320.765	

Note: See notes to table 8.5.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

stabilization policy hypothesis is valid in the postcrisis period. The coefficient on the nonperforming loan ratio is also positive and significant in the target equation in the postcrisis period. The evidences on the effects of the premerger bank efficiency on the likelihood of being a target are mixed; the signs of the coefficients on ROA change from negative in the precrisis period to positive in the postcrisis period, and the coefficient on the cost ratio is negative and significant in the precrisis period.

In sum, the efficiency-improving hypothesis seems to be valid in the case of the postcrisis period's consolidations among major banks and among regional banks. The market power hypothesis seems to be valid in the case of the consolidations among *shinkin* banks. The government's too-big-to-fail or financial stabilization policy hypothesis also seems to be valid, especially in the case of the postcrisis period's consolidations. We find no evidence that supports the managerial empire-building hypothesis, though we cannot test that hypothesis in the case of the consolidations among *shinkin* banks due to the lack of suitable data.

8.7 Postmerger Performance

8.7.1 Background

Consolidation may have various effects on the consolidated bank's efficiency, market power, services provided, healthiness, and expenses for managerial private benefits.

First, consolidation may increase or decrease efficiency in various ways. A consolidated bank may be able to achieve a scale or scope economy. It may also improve *X*-efficiency by spreading superior acquirers' managerial skills over targets. On the other hand, it may take considerable time and costs to integrate different accounting and information systems, ways of doing business, and corporate cultures.

Second, consolidation may change the availability of loans and other financial services to small- and medium-sized enterprises (SMEs), though such changes may not be intended either by acquirers or targets. If consolidation improves efficiency, a more efficient consolidated bank may be able to serve more customers, including SMEs. On the other hand, if a large bank finds it costly to process relationship-based information due to its organizational complexity, a consolidated bank may reduce loans to the SMEs that are informationally opaque (Berger, Demsetz, and Strahan 1999). Consolidated banks may also increase or reduce other services, including fee businesses, according to their comparative advantages.

Third, consolidation may strengthen market power, enabling the consolidated bank to raise loan interest rates or lower deposit interest rates. This is likely to occur when acquirers and targets operate within the same local market (e.g., Berger, Demsetz, and Strahan 1999).

Fourth, consolidation may improve or deteriorate healthiness. Although regulators may promote consolidations by weak banks, it is not clear whether weak banks can restore healthiness just through consolidation. On one hand, a consolidated bank may gain from risk diversification through investing various areas and industries (Berger, Demsetz, and Strahan 1999). In addition, an acquirer may apply its superior risk management skills to a target. However, if poorly-capitalized banks are consolidated, a consolidated bank must be highly profitable to fill in the initial shortage of capital and then to recover its capital to a normal level, unless it raises capital from outside. In addition, a consolidated bank may be exposed to the risk of an unproportionally large amount of loans to some specific large borrowers as compared with other banks as a result of the consolidation.[24]

Finally, consolidation may increase or decrease expenses for the purpose of managerial private benefits, like advertisement expenses. If a bank acquires another bank for the purpose of increasing private benefits, a consolidated bank may increase expenses for private benefits. On the other hand, if a bank becomes a target due to its weak governance structures that allow large amounts of spending for private benefits, a consolidated bank may decrease such spending.

8.7.2 Methodology

We investigate the consequences of M&As by comparing the bank financial variables of premerger and postmerger periods.[25] From the viewpoint of existing shareholders (or members of *shinkin* banks) of acquirers, it is natural to compare premerger acquiring banks and postmerger consolidated banks. On the other hand, from the viewpoint of regulators that care about the banking system, it is useful to compare hypothetical premerger combined banks (that is, a weighted average of an acquirer and a target) and postmerger consolidated banks. We perform both comparisons.

Specifically, we first construct the financial ratios of the premerger hypothetical combined bank and the postmerger consolidated bank in the same way as we depicted in figures 8.1 through 8.3. Note that we normalize all the premerger and postmerger financial ratios by subtracting off the same-year, bank-type average. Next, we take the premerger average of the hypothetical combined bank over the five years before mergers. If the pre-

24. The following example may be useful. Tokai Bank, Sanwa Bank, Fuji Bank, and Sumitomo Bank each had almost equal amounts (more than 500 billion yen) of loans outstanding to a large retail company, Daiei, which was in financial distress. It is said that UFJ Bank, formed from the consolidation of Tokai Bank and Sanwa Bank, was saddled with a distinguished amount (more than one trillion yen) of loans to Daiei for a long time after the consolidation.

25. The approach here is similar to Delong and Deyoung (2007).

merger data are available for less than five years, we take the premerger average over the maximum years for which we can observe the data. Finally, we take the difference between the normalized premerger bank financial ratios and the normalized postmerger bank financial ratios. We look at the changes of the bank financial ratios for one to five years after mergers, respectively, though we report in tables 8.7, 8.8, and 8.9 only three and five years after mergers to save space. Focarelli and Panetta (2003), Focarelli and Pozzolo (2005), and Rhoades (1998) show that a two- to three-year postmerger period is needed to determine if there are any postmerger gains. We also take the average of the postmerger financial ratios of the consolidated bank over the (at most) five years after mergers and take the difference between the premerger five-year average and the postmerger five-year average.

We perform the *t*-test for the null hypothesis so that the difference between a normalized premerger financial ratio and a normalized postmerger financial ratio has mean zero. We also performed the Wilcoxon signed-rank test (*z*-statistic) for the null hypothesis so that the difference between them has median zero and obtained qualitatively similar results for most financial ratios. So we mainly report the *t*-test results in the following.

In this section, we select a sample where data on bank financial ratios are available for the merger year, one or more premerger years, and one or more postmerger years. The data set here is slightly different from that used in figures 8.1 through 8.3, where we choose sample banks whose data were available for the merger year and one or more premerger years but not necessarily available for postmerger years and sample banks whose data were available for the merger year and one or more postmerger years but not necessarily available for premerger years.

8.7.3 Results

Major Banks

Table 8.7 shows the changes in the financial ratios of the consolidated major banks. The first column shows the changes from the hypothetical premerger combined bank for the full sample period.

Looking at the efficiency variables, we see that the changes in ROA are negative three years after mergers and then turn to positive five years after mergers, though none of the changes is significant. The changes in the cost ratio are not significant, either, though consolidated banks seem to have decreased the cost ratio. It seems to take considerable time for a consolidated bank to realize cost savings or gain economies of scale or scope.

Market power variables show that the changes in the average deposit interest rate and the changes in the loan interest rate are not significant. A consolidated major bank did not seem to be able to exert market power in

Table 8.7 Postmerger performance of major banks

	Premerger combined bank			Premerger acquirer
Change from:	1990–2004	1990–1997	1998–2004	1990–2004
Return of assets (ROA)				
ΔROA (3-year postmerger)	–0.200			–0.212
ΔROA (5-year postmerger)	0.149			0.125
ΔROA (postmerger average)	–0.219	0.150	–0.377	–0.230
Cost Ratio				
ΔCost Ratio (3-year postmerger)	–0.015			–0.054
ΔCost Ratio (5-year postmerger)	–0.058			–0.124
ΔCost Ratio (postmerger average)	–0.018	0.015	–0.033	–0.058
Fees and Commissions				
ΔFees and Commissions (3-year postmerger)	0.079			–0.032
ΔFees and Commissions (5-year postmerger)	0.110			0.048
ΔFees and Commissions (postmerger average)	0.006	0.065	–0.024	–0.029
Loan-to-Asset Ratio				
ΔLoan-to-Asset Ratio (3-year postmerger)	–0.235			–0.398
ΔLoan-to-Asset Ratio (5-year postmerger)	2.498			1.817
ΔLoan-to-Asset Ratio (postmerger average)	–1.037	0.580	–1.730	–1.200
Loans to SMEs				
ΔLoans to SMEs (3-year postmerger)	1.700[b]			–1.850
ΔLoans to SMEs (5-year postmerger)	–0.384			–4.909
ΔLoans to SMEs (postmerger average)	1.727[b]**	1.064[b]	2.390	–2.047
Loan Growth Rate				
ΔLoan Growth Rate (3-year postmerger)	–2.760			–3.784
ΔLoan Growth Rate (5-year postmerger)	–4.478			–6.387
ΔLoan Growth Rate (postmerger average)	–3.058[b]**	0.014	–4.375[a]**	–4.082[b]**
Deposit Interest Rate				
ΔDeposit Interest Rate (3-year postmerger)	0.008			0.114
ΔDeposit Interest Rate (5-year postmerger)	–0.354			–0.249
ΔDeposit Interest Rate (postmerger average)	–0.058	0.023	–0.093	0.048
Loan Interest Rate				
ΔLoan Interest Rate (3-year postmerger)	0.062			0.075
ΔLoan Interest Rate (5-year postmerger)	–0.057			–0.010
ΔLoan Interest Rate (postmerger average)	–0.001	0.167	–0.073	0.012
Capital-to-Asset Ratio				
ΔCapital-to-Asset Ratio (3-year postmerger)	–1.319[a]**			–1.342[a]**
ΔCapital-to-Asset Ratio (5-year postmerger)	–0.509			–0.498
ΔCapital-to-Asset Ratio (postmerger average)	–1.158[a]***	–0.432	–1.470[a]**	–1.181[a]***
Risk-Based Capital Ratio (BIS)				
ΔRisk-Based Capital Ratio (BIS) (3-year postmerger)	–2.108[b]			–1.788[b]
ΔRisk-Based Capital Ratio (BIS) (5-year postmerger)				
ΔRisk-Based Capital Ratio (BIS) (postmerger average)	–1.376		–1.376	–1.104
Nonperforming Loan Ratio (BL)				
ΔNonperforming Loan Ratio (BL) (3-year postmerger)	4.118[b]			4.301[a]**

Table 8.7 (continued)

	Premerger combined bank			Premerger acquirer
Change from:	1990–2004	1990–1997	1998–2004	1990–2004
ΔNonperforming Loan Ratio (BL) (5-year postmerger)				
ΔNonperforming Loan Ratio (BL) (postmerger average)	3.697[b]		3.697[b]	3.880[b]**
Nonperforming Loan Ratio (FRL)				
ΔNonperforming Loan Ratio (FRL) (3-year postmerger)	3.589[b]			3.835[b]**
ΔNonperforming Loan Ratio (FRL) (5-year postmerger)				
ΔNonperforming Loan Ratio (FRL) (postmerger average)	3.202		3.202	3.448[b]**
Advertisement Expenses				
ΔAdvertisement Expenses (3-year postmerger)	–0.268			–0.339
ΔAdvertisement Expenses (5-year postmerger)	0.243			0.038
ΔAdvertisement Expenses (postmerger average)	–0.164	0.240	–0.337	–0.234
Asset Growth				
ΔAsset Growth (3-year postmerger)	–3.450			–4.497
ΔAsset Growth (5-year postmerger)	–3.891			–5.557
ΔAsset Growth (postmerger average)	–2.617	1.973	–4.585[a]**	–3.665

Notes: The columns under the heading of "Premerger combined bank" denote the average change from the premerger hypothetical combined bank that is a weighted average of an acquirer and a target. The column under the heading of "Premerger acquirer" denotes the average changes from the premerger acquirer. ΔX (t-year postmerger) is the difference of the variable X between t-year postmerger and the premerger average over five years (or less if data is not available). ΔX (postmerger average) is the difference between X(postmerger average) and X(premerger average), where X(postmerger average) is the postmerger average of the variable X over five years (or less if data is not available) and X(premerger average) is the premerger average of the variable X over five years (or less if data not available).

[a]Significant at the 1 percent level for the null hypothesis that ΔX (or X) has zero mean.

[b]Significant at the 5 percent level for the null hypothesis that ΔX (or X) has zero mean.

***Significant at the 1 percent level for the Wilcoxon signed-rank test for the null hypothesis that ΔX (or X) has median zero.

**Significant at the 5 percent level for the Wilcoxon signed-rank test for the null hypothesis that ΔX (or X) has median zero.

the deposit or loan market. This is not surprising, given that both acquiring major banks and target major banks operated nationwide.

Business scope variables suggest that the share of SME loans significantly increases three years after mergers. One possible reason is that acquirers may have spread the skills necessary to make SME loans to targets. However, more a plausible reason is that when the government recapitalized banks, it required banks to increase SME loans. Because banks tended to be consolidated after the government recapitalization, consolidated banks increased SME loans. This result is different from U.S. bank merger

evidences, especially for the mergers of large banks (Berger, Demsetz, and Strahan 1999, 170). The changes in fees and commissions and in the loan-to-asset ratio are not significant.

Bank health measures suggest that the changes in the capital-to-asset ratios are negative and significant three years after mergers and the changes in the risk-based Bank for International Settlements (BIS) capital ratios are also negative and significant (for *t*-statistics) for three years after mergers. The improvement of ROA after the merger was not quick or sufficient enough to offset the initial gap of the capital ratios between consolidated banks (i.e., acquirers and targets) and their peers. In addition, the changes in the nonperforming loan ratios, based either on Bank Law or the Financial Rehabilitation Act, are positive and significant three years after mergers. Consolidated banks may have applied a stricter standard to recognize nonperforming loans than before, resulting in the increase in disclosed nonperforming loans. It is well known that Japanese banks often manipulated the amounts of disclosed nonperforming loans so that they could satisfy the Basel capital standards before the Financial Rehabilitation Plan (i.e., Takenaka Plan) in 2002. In addition, a consolidated bank may have been exposed to the risk of an unproportionally large amount of loans to some specific large borrowers as a result of the consolidation. When those borrowers fell in financial distress, the consolidated bank may have continued to lend to them in order to avoid their failures, which would cause a sharp decrease in the bank's own capital.[26]

Finally, private benefit variables suggest that the change in the advertisement expenses as a proportion of total assets is not significant. The consolidated bank did not significantly increase advertisement expenses. In addition, the change in the average loan growth rate over the postmerger five years is significantly negative. The change in the average asset growth rate is also negative, though not significant. These results suggest that mergers triggered asset restructuring. Considering these results together, we may say that no evidence is found that supports the managerial empire building hypothesis.

The second and third columns of table 8.7 report the changes in the postmerger performance from the hypothesized premerger combined bank for the subperiods of the precrisis period (fiscal year 1990 to 1997) and the postcrisis period (fiscal year 1998 to 2004), respectively. In the premerger period, the change in the share of SME loans is significantly positive. On the other hand, in the postmerger period, the changes in the loan growth rate, the asset growth rate, and the capital ratio are significantly negative, and the change in the nonperforming loan ratio based on the Bank Law is significantly positive. The mergers in the postmerger crisis period seem to

26. Such a behavior is called "ever-greening" (Peek and Rosengren 2005) or "zombie lending" (Caballero, Hoshi, and Kashyap 2006).

have been more directed to asset restructuring and yet to have resulted in a worse bank health, though the long-run effects of the mergers in the early 2000s may not have been realized yet.

The last column of table 8.7 shows the changes of the performance of consolidated banks from the premerger acquirer's level for the full sample period. Most of the changes from the premerger acquirer's level are qualitatively the same as the changes from the premerger hypothetical combined bank, except that the changes in the share of SME loans is not significant, reflecting the fact that the premerger acquirer's share of SME loans was higher than the average of major banks.

Regional Banks

Table 8.8 shows the changes in the financial ratios of the consolidated regional banks. The first column shows the changes from the premerger hypothetical combined bank for the full sample period. Like major banks, the changes in ROA are negative, though not significant, three years after mergers and then turn to be positive and significant (for *t*-statistics) five years after mergers. This increase in ROA is caused partly by a strengthened market power of a consolidated bank in the loan market, which can be seen by the positive and significant change in the loan interest rate three and five years after mergers. Though the increase in the loan interest rate may reflect the change in the riskiness of the portfolio, the share of SME loans, which can be considered to be relatively risky, tended to decrease, if anything, rather than to increase after mergers. Furthermore, examining the correlations of the change in the loan interest rate with the Herfindahl Index and with the SME loan share, we find that the former is 0.571, while the latter is 0.243. A relatively high correlation between the change in the loan interest rate and the Herfindahl Index is consistent with the market power hypothesis. Though there is a possibility that consolidated banks implemented more stringent risk management, it would be difficult to charge higher loan rates without a strengthened market power. The changes in the capital-to-asset ratio are negative up to five years after mergers, though significant only in the five-year average after mergers. The improvement of ROA after the merger was too slow and small to offset the initial gap of the capital ratios between consolidated banks and their peers. The advertisement expenses as a proportion of total costs decrease significantly three and five years after mergers, which is not consistent with the managerial empire-building hypothesis.

Dividing the sample period into the precrisis period and the postcrisis period (the second and third columns, respectively), we see that the changes in the capital-to-asset ratio are negative for both periods but significant only for the postcrisis period, while the change in the fees and commissions is positive and significant in the postcrisis period (for the *z*-statistics).

Table 8.8 Postmerger performance of regional banks

	Weighted average			Acquirer
	1990–2004	1990–1997	1998–2004	1990–2004
Return of assets (ROA)				
ΔROA (3-year postmerger)	–1.869			–1.934
ΔROA (5-year postmerger)	0.504[b]			0.481[b]
ΔROA (postmerger average)	–0.471	0.067	–0.793	–0.530
Cost Ratio				
ΔCost Ratio (3-year postmerger)	–0.003			0.021
ΔCost Ratio (5-year postmerger)	–0.084			–0.045
ΔCost Ratio (postmerger average)	0.009	–0.064	0.053	0.021
Fees and Commissions				
ΔFees and Commissions (3-year postmerger)	0.013			–0.001
ΔFees and Commissions (5-year postmerger)	–0.003			–0.010
ΔFees and Commissions (postmerger average)	0.034	–0.005	0.057**	0.014
Loan-to-Asset Ratio				
ΔLoan-to-Asset Ratio (3-year postmerger)	–2.131			–0.623
ΔLoan-to-Asset Ratio (5-year postmerger)	–3.387			–2.100
ΔLoan-to-Asset Ratio (postmerger average)	–2.163	–2.299	–2.082	–1.303
Loans to SMEs				
ΔLoans to SMEs (3-year postmerger)	–1.556			–1.079
ΔLoans to SMEs (5-year postmerger)	–1.320			–0.721
ΔLoans to SMEs (postmerger average)	–0.335	–1.310	0.249	0.415
Loan Growth Rate				
ΔLoan Growth Rate (3-year postmerger)	–3.471			–3.587
ΔLoan Growth Rate (5-year postmerger)	–1.928			–2.549
ΔLoan Growth Rate (postmerger average)	–0.846	–0.974	–0.768	–0.818
Deposit Interest Rate				
ΔDeposit Interest Rate (3-year postmerger)	–0.010			0.015
ΔDeposit Interest Rate (5-year postmerger)	0.125			0.143
ΔDeposit Interest Rate (postmerger average)	–0.006	0.025	–0.024	0.023
Loan Interest Rate				
ΔLoan Interest Rate (3-year postmerger)	0.187[b]			0.269
ΔLoan Interest Rate (5-year postmerger)	0.177[b]			0.221
ΔLoan Interest Rate (postmerger average)	0.069	0.174	0.007	0.178[b]**
Capital-to-Asset Ratio				
ΔCapital-to-Asset Ratio (3-year postmerger)	–0.371			–0.416
ΔCapital-to-Asset Ratio (5-year postmerger)	–0.202			–0.283
ΔCapital-to-Asset Ratio (postmerger average)	–0.892[b]**	–0.135	–1.347[a]**	–0.995[b]**
Risk-Based Capital Ratio (BIS)				
ΔRisk-Based Capital Ratio (BIS) (3-year postmerger)				
ΔRisk-Based Capital Ratio (BIS) (5-year postmerger)				
ΔRisk-Based Capital Ratio (BIS) (postmerger average)	–0.543		–0.543	–0.718
Nonperforming Loan Ratio (BL)				
ΔNonperforming Loan Ratio (BL) (3-year postmerger)				

Table 8.8 (continued)

	Weighted average			Acquirer
	1990–2004	1990–1997	1998–2004	1990–2004
ΔNonperforming Loan Ratio (BL) (5-year postmerger)				
ΔNonperforming Loan Ratio (BL) (postmerger average)	0.813		0.813	0.870
Nonperforming Loan Ratio (FRL)				
ΔNonperforming Loan Ratio (FRL) (3-year postmerger)				
ΔNonperforming Loan Ratio (FRL) (5-year postmerger)				
ΔNonperforming Loan Ratio (FRL) (postmerger average)	1.478		1.478	0.560
Advertisement Expenses				
ΔAdvertisement Expenses (3-year postmerger)	–0.353[a]			–0.300
ΔAdvertisement Expenses (5-year postmerger)	–0.251[b]			–0.154
ΔAdvertisement Expenses (postmerger average)	–0.052	–0.203	0.038	0.064
Asset Growth				
ΔAsset Growth (3-year postmerger)	–2.223			–2.018
ΔAsset Growth (5-year postmerger)	–1.652			–2.126
ΔAsset Growth (postmerger average)	0.242	–0.158	0.482	0.298

Note: See notes to table 8.7.

[a]Significant at the 1 percent level for the null hypothesis that ΔX (or X) has zero mean.

[b]Significant at the 1 percent level for the null hypothesis that ΔX (or X) has zero mean.

**Significant at the 5 percent level for the Wilcoxon signed-rank test for the null hypothesis the ΔX (or X) has median zero.

The last column shows the changes of the performance of a consolidated bank from the premerger acquirer for the full sample period. The changes from the premerger acquirer are qualitatively the same as the changes from the premerger hypothetical combined bank except for the change in the advertisement expenses from the premerger acquirer, which is negative but not significant.

Shinkin Banks

Table 8.9 shows the changes in the financial ratios of the consolidated *shinkin* banks for the full sample period. The first column shows the changes from the hypothetical premerger combined bank. Some financial ratios change in similar ways to those of major and regional banks. First, the changes in ROA are negative three years after mergers and then turn to positive, though not significant. Second, the changes in the loan interest rate are positive, though not significant. The correlation of the change in the loan interest with the change in the Herfindahl Index is positive (0.356) and significant, suggesting that the increase in the loan interest rate, if any,

Table 8.9 Postmerger performance of *Shinkin* banks

	Weighted average			Acquirer
	1990–2002	1990–1997	1998–2002	1990–2002
Return of assets (ROA)				
ΔROA (3-year postmerger)	–0.032			–0.047
ΔROA (5-year postmerger)	0.107			0.093
ΔROA (postmerger average)	0.003	0.064	–0.098	–0.019
Cost Ratio				
ΔCost Ratio (3-year postmerger)	–0.002			–0.011
ΔCost Ratio (5-year postmerger)	0.011			–0.014
ΔCost Ratio (postmerger average)	0.000	0.018	–0.029	0.000
Fees and Commissions				
ΔFees and Commissions (3-year postmerger)	0.004			0.003
ΔFees and Commissions (5-year postmerger)	0.007			0.005
ΔFees and Commissions (postmerger average)	0.003	0.003	0.003	0.003
Loan-to-Asset Ratio				
ΔLoan-to-Asset Ratio (3-year postmerger)	0.718			–0.120
ΔLoan-to-Asset Ratio (5-year postmerger)	1.127			0.186
ΔLoan-to-Asset Ratio (postmerger average)	0.765	0.328	1.492	0.178
Loan Growth Rate				
ΔLoan Growth Rate (3-year postmerger)	–0.916			–1.833[a]***
ΔLoan Growth Rate (5-year postmerger)	–0.971			–2.029[b]**
ΔLoan Growth Rate (postmerger average)	–0.823	–0.744	–0.956	–1.940[a]***
Deposit Interest Rate				
ΔDeposit Interest Rate (3-year postmerger)	0.037			0.052
ΔDeposit Interest Rate (5-year postmerger)	0.039			0.064
ΔDeposit Interest Rate (postmerger average)	0.022	0.049	–0.021	0.029
Loan Interest Rate				
ΔLoan Interest Rate (3-year postmerger)	0.084			0.052
ΔLoan Interest Rate (5-year postmerger)	0.088			0.045
ΔLoan Interest Rate (postmerger average)	0.062	0.079	0.033	0.040
Capital-to-Asset Ratio				
ΔCapital-to-Asset Ratio (3-year postmerger)	–0.547[b]**			–0.659[a]***
ΔCapital-to-Asset Ratio (5-year postmerger)	–0.476			–0.551
ΔCapital-to-Asset Ratio (postmerger average)	–0.510[a]***	–0.487[b]**	–0.548[a]***	–0.625[a]***
Risk-Based Capital Ratio (BIS)				
ΔRisk-Based Capital Ratio (BIS) (3-year postmerger)	–1.508			–1.801[b]**
ΔRisk-Based Capital Ratio (BIS) (5-year postmerger)	–3.331[b]			–3.354[b]
ΔRisk-Based Capital Ratio (BIS) (postmerger average)	–0.969[a]***	–1.820	–0.733[a]***	–1.311[a]***
Nonperforming Loan Ratio (BL)				
ΔNonperforming Loan Ratio (BL) (3-year postmerger)	0.697			1.565
ΔNonperforming Loan Ratio (BL) (5-year postmerger)	0.842			1.338
ΔNonperforming Loan Ratio (BL) (postmerger average)	0.625	0.094	0.782	1.426[b]**

Table 8.9 (continued)

	Weighted average			Acquirer
	1990–2002	1990–1997	1998–2002	1990–2002
Asset Growth				
ΔAsset Growth (3-year postmerger)	–1.070			–1.358[b]**
ΔAsset Growth (5-year postmerger)	–1.844[b]**			–2.011[a]**
ΔAsset Growth (postmerger average)	–1.904[a]***	–1.462[b]**	–2.640[a]***	–2.543[a]***

Note: See notes to table 8.7.

[a]Significant at the 1 percent level for the null hypothesis that ΔX (or X) has zero mean.

[b]Significant at the 1 percent level for the null hypothesis that ΔX (or X) has zero mean.

***Significant at the 1 percent level for the Wilcoxon signed-rank test for the null hypothesis the ΔX (or X) has median zero.

**Significant at the 5 percent level for the Wilcoxon signed-rank test for the null hypothesis the ΔX (or X) has median zero.

may be caused by a strengthened market power. Third, the capital-to-asset ratio and the risk-based capital ratio (BIS) are both negative and significant for most of the postmerger years. Fourth, the changes in the asset growth rate are negative and significant five years after mergers.

The second and third columns show the results for the precrisis and postcrisis periods, respectively. The changes in the capital-to-asset ratios and the asset growth rate are negative and significant in both periods, while the change in the risk-based capital ratio is negative in both periods but significant only in the postcrisis period.

The last column shows the changes in the financial ratios of a consolidated bank from the premerger acquirer. The changes in the capital-to-asset ratio, the risk-based capital ratio, and the asset growth rate are similar to the changes from the hypothetical combined bank, while the changes in the loan growth rates are negative and significant up to five years after M&As, and the change in the nonperforming loan ratio is positive and significant for the five-year postmerger average.

We may summarize the postmerger performance of consolidated banks as follows. First, consolidated banks tended to go through a decline in ROA at first and then to increase ROA about five years after mergers, though this recovery was significant only for the mergers of regional banks. It seems to take considerable time and cost to integrate different information systems and other business methods. Second, in the case of the M&As by regional banks or *shinkin* banks, consolidated banks tended to raise interest rates on loans, though this is significant only for the mergers by regional banks, suggesting that their market power was strengthened within the prefecture they operated in. This is consistent with the U.S. evidence, showing that in-market consolidation strengthens market power. Third,

the changes in services provided are different by bank type and by period. Consolidated major banks tended to expand SME loans in the precrisis period, while consolidated regional banks tended to expand fees and commissions business in the postcrisis period. Fourth, consolidated banks did not recover bank health after mergers. The capital-to-asset ratio tended to decrease rather than to increase regardless of bank type. The recovery of ROA was too slow and small to fill in the initial gap of the capital-asset-ratio between consolidated banks and their peers. In addition, consolidated banks did not decrease nonperforming loans. Finally, consolidated banks tended to decelerate the loan growth rate and the asset growth rate, suggesting that consolidated banks tried to restructure assets and to downsize. Consolidated banks did not increase the advertisement expenses. The managerial empire-building hypothesis does not seem to be valid in Japan.

8.8 Conclusion

The recent waves of M&As in the banking industries across the world raise important questions of whether mergers enhance the efficiency of consolidated banks and contribute to the stabilization of the banking sector. We investigate the motives and consequences of the consolidation of banks in Japan during the period of fiscal year 1990 to fiscal year 2004. In particular, we test the four hypotheses concerning the motives for bank mergers: efficiency improving, strengthening market power, taking advantage of a too-big-to-fail policy, and managerial empire building.

We first investigated the reasons for the recent merger wave using the aggregate data at the prefecture level. Our results suggest that M&As tended to occur when the overall bank health was deteriorated and where the market was less concentrated. These results are consistent with the too-big-to-fail or stabilization policy hypothesis and the market power hypothesis, respectively.

Our analysis concerning the relationship between ex-ante bank characteristics and the decision of M&As suggests the following. First, in the postcrisis period (1998 to 2004), efficient banks tended to acquire an inefficient bank except for the M&As of corporative (*shinkin*) banks. This finding is consistent with the efficiency-improving hypothesis. Second, unhealthy banks tended to be consolidated with each other, especially in the postcrisis period, which is consistent with the too-big-to-fail policy or stabilization policy hypothesis.

Our investigation of postmerger performance suggests the following. First, consolidated banks tended to go through a decline in ROA at first and then to increase ROA about five years after mergers, though these changes are not necessarily significant. Second, in-market consolidation enabled consolidated banks to raise the loan interest rate. Third, consolidated banks tended to decrease the capital-to-asset ratio and not to de-

crease nonperforming loans. Finally, consolidated banks tended to restrain loan and asset growths and not to increase advertisement expenses.

In sum, our analysis suggests that the government's too-big-to-fail policy or its attempt at stabilizing the local financial market through consolidations played an important role in the M&As, though its attempt does not seem to have been successful. The efficiency-improving motive also seems to have driven the M&As conducted by major banks and regional banks in the postcrisis period, while the market-power motive seems to have driven the M&As conducted by regional banks and corporative (*shinkin*) banks. We obtain no evidence that supports managerial motives for empire building.

Japanese banking industries are still in the midst of an ongoing merger wave. Future research incorporating new data that will be available in coming years would help us fully understand its eventual consequences.

Data Appendix

- ROA = Current Profit/Total Asset × 100
- Cost Ratio = (Personnel Expenditure + Nonpersonnel Expenditure + Taxes)/Total Asset × 100
- Fees and Commisions = Fees and Commisions/Total Asset × 100
- Loan-to-Asset Ratio = Loans Outstanding/Total Asset × 100
- Loans to SMEs = Loans to SMEs/Total Asset × 100
- Loan Growth Rate = Growth Rate of Loans Outstanding × 100
- Deposit Interest Rate = Interest on Deposits/Deposits Outstanding × 100
- Loan Interest Rate = Interest on Loans/Loans Outstanding × 100
- Capital-to-Asset Ratio = Equity Capital/Total Asset × 100
- Risk-Based Capital Ratio (BIS) = Regulatory Capital/Risk Asset × 100 (Based on BIS)
- Nonperforming Loan Ratio (BL) = Nonperforming Loan Based on Banking Law/Total Asset × 100
- Nonperforming Loan Ratio (FRL) = Nonperforming Loan Based on Financial Revitalization Law/Total Asset × 100
- Ln Asset = ln(Total Asset)
- Asset Growth = Growth Rate of Total Asset × 100
- Herfindahl Index = Prefectural Herfindahl Index (calculated by deposits outstanding of regional and shinkin banks)
- GDP Growth = Growth Rate of GDP × 100
- Stock Price = Growth Rate of the Stock Price × 100
- Industrial Stock Price = Growth Rate of the Stock Price Index of banking industry × 100

- Advertisement Expenses = Advertisement Expenses/Operating Cost $\times$ 100

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Comment Hiro Ito

Before the 1990s, bank mergers were hardly seen in Japan except for a very few cases of rescue mergers. Even those rare mergers were initiated by the Ministry of Finance (MOF) with help of keiretsu-related companies and banks of the rescued bank. At present, bank merger is no longer uncommon in Japan. In retrospect, two events led to a significant increase in bank mergers in Japan. One is a series of deregulation/liberalization policies in the financial sector that started in the early 1980s, and the other is the 1990s recession.

Deregulation/liberalization policies contributed to thinning profit margins, which used to be guaranteed by the government through financially repressive policies, and thereby intensifying market competitions for the financial institutions. The recession that started in 1991 hurt financial institutions' balance sheets through severe asset deflation and weakened loan demand. Inevitably, in the early 1990s, merging with other institutions started to be viewed as one of the means to survive the severe conditions in the Japanese financial industry. In the aftermath of the banking crisis of 1998, which broke out with several major bank failures, as the Japanese banking industry became fluid, so did the number of bank mergers drastically increase.

With this background, this chapter investigates a fundamental question pertaining to banking consolidations in Japan: "What motivates banks to decide to merge?" More specifically, the authors investigate whether banks decide to merge so as (1) to increase market power; (2) to improve cost efficiency; (3) to merely follow government's financial stabilization policy; or (4) to build a managerial empire. The authors categorize the first two views as the "value maximization view" because these two consequences can lead to increasing the value of shares and the last two as the financial stabilization view and the managerial empire building view.[1]

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1. As Andy Rose pointed out at the presentation, I also agree that points one and two should not be considered to be one view. Although both of the two points may lead to in-