

Some Causes and Consequences of the Changes in Accounting Rules: the Case of Japanese Banks

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June 2009

Abstract

This paper focuses on the effects of the regulatory changes in accounting rule by the government during Japanese financial crisis in the late 1990s. While these policy changes seemed to have helped the weakest banks and we do observe that it is the banks with seriously deteriorated capital that eagerly accepted the new accounting standards, there is also strong evidence showing that the profit-improving effects are much larger in the long run for these banks. Our findings cast reconsideration about the roles and limitations of the government regulation during crisis.

Keywords: Japanese financial crisis, accounting rule, mark-to-market, profit improvements

JEL classification: G21, G28, G33, G38

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1 Introduction

In the last few years of the 1990s, the Japanese banking industry experienced the hardest time since the World War II. While no clear bank run happened and there was no currency depreciation in that time, it is common to call it a period of Japanese financial crisis. Until then, there was in fact even no formal bankruptcy in the banking sector.

The government had tried various attempts to save the economy from the crisis, although there have been very few positive valuation to these attempts. Recently, after many countries see the stability problems in the financial sector, some economists began to rethink what the government should and should not do during periods of financial crises.

This paper focuses on one treatment by Japanese government during the crisis. That is, the changes of the regulatory accounting rules for bank security holdings.

At the end of fiscal year 1997, the government changed the rules and allowed the banks to report the security holdings based on historical costs. Before that time, only the lower level of the historical costs and the mark-to-market values was allowed. It seems to be obvious that there was no other reasons of this regulatory change rather than to help the ailing banks to pass the hurdle of capital restrictions. Such kind of behaviors has been criticized on the grounds that the government may act with agency motivations. For example, Kane (2000, p.286) argues,

Around the world, the efficacy of banking regulation is impaired by bank and regulatory disinformation about the value of bank loans and other kinds of banking risk exposure.

However, recently some studies began to focus on the possibilities that mark-to-market accounting may be suboptimal. As analyzed by Allen and Carletti (2008), in a situation where the asset prices are largely affected by market liquidities rather than solely determined by the fundamentals, mark-to-market accounting may unnecessarily worsen the banks' balance sheets, and may trigger the bankruptcy of a healthy bank. Here, we have just an opposite assertion to Kane's.

If mark-to-market is adopted and the prices are not adjusted appropriately for illiquidity, a way of mitigating the potential for contagion is for banking regulators not to strictly apply this accounting methodology in times of crisis. (Allen and Carletti (2008, p.378)

The goal of this paper is to find some evidence of the causes and consequences of the discretionary accounting behavior by Japanese bankers and government regulators. Because it seems too obvious to require any other explanations other than passing the examination of capital restrictions for the adoption of lower price method,

here, we try to focus on the effects from the changes of regulatory accounting rules to the later-on management performance improvements, especially in the long run.

Two issues are considered. The first issue is to check what kind of banks was eager to accept the government's help. While the details will be discussed in the next section, it seems obvious that the banks that faced the most serious problems would mostly willingly to accept the helping hand from the government. We firstly show some evidence with data support to this conjecture. The second issue is to examine the changes of the bank management behavior accompanied with the adoption of the new accounting rules. We especially pay attention to the influence of the performance changes in the long run. If Japanese banks were in a situation like that is described in Allen and Carletti (2008), then there should be a greater improvement in their management performance for the banks rescued by the new rules than for others. Our estimation results show that for the survived banks, we do observe a profit-improving effect by the new accounting rule adoption. Our findings cast reconsideration about the roles and limitations of the government during financial crises.

The rest of the paper is organized into four sections. In the next section, we describe the policy treatment by the government in the late 1990s. We especially pay attention to the changes in the accounting rule. In the third section we will discuss some theoretical issues and some related empirical works. We also discuss the empirical hypotheses in this section. In the fourth section we will explain the data set, the empirical methods and the estimation results. The implications and some of the remaining problems will be discussed in the last section.

2 The Policy Treatment in the late 1990s

Until 1997, Japanese banks were forced to evaluate their security holdings based on conservative methods. It was only allowed to use one of the lower levels of the historical price and the current market price. Hereafter, we call this method of valuation as lower-price-method (LPM). It was believed that only by this way could bank managers be able to honor their responsibilities to their capital suppliers and customers. In February 1998, the Ministry of Finance announced new accounting rules. The compulsory clauses of LPM for security holdings were removed. Under the new rules, bank managers could choose the historical costs or the market prices by their discretionary decision to evaluate their security holdings. We call the method of valuation using historical costs as historical-price-method (HPM). From the end of fiscal year 1997 to the end of fiscal year 1998, bank managers could choose any one of, not the lower one of, LPM or HPM to report their security holdings.

The year 1997 is the worst year in the history of Japanese banking industry. In the first few months, after the government coped the failures of some relatively small financial institutions, it was expected that the storm was over and that the economy would return to its ordinary orbit. However in November 1997, there occurred bankruptcy of financial institutions more seriously than before. One of the big-four security company, Yamaichi Securities declared their business closing.¹ The first case of failure in city banks was also observed in the same month. On 17th November 1997, Hokkaido Takushoku Bank announced its failure. There were also strong signs of collapse for some other major banks. Among them, two long-term credit banks eventually went bankrupt one year later. It is not difficult to imagine that in a period like the end of 1997, the government would try all kinds of possible policies to prevent an overall economic meltdown.²

It should be noticed that the government's policy is affected by the public opinion. After seeing the fact that the Japanese banks had to pay the interest premium when they raise funds in the international markets and that the unthinkable failures of major financial institutions continuously happened, the public feelings against government rescue action to financial institutions were largely weakened comparing to the period when the government announced a rescue plan to *jusen* just a few years before.

It should also be pointed out that even the survived banks seriously deteriorated their balance sheets. One of the Japanese banks' characteristics is the cross-holding of equity between banks and their customer firms. Many banks held large amount of equity in their asset portfolio. As long as the current stock price is higher than the historical price, a typical Japanese bank is able to account a certain amount of capital gains as their own capital. However, after the continued decreasing of the stock prices,³ many banks lost their capital gains and the prices of securities for some banks were even lower than the level of historical costs, making them hard to

¹For some regulatory reasons, the failure of Yamaichi was not officially defined as bankruptcy, but rather a voluntary business closing. However we believe that Yamaichi's failure was not basically different from other cases of bankruptcy.

²See Hoshi and Kashyap(2001).

³The Nikkei-225 dropped from 19,446 Yen on 6 January 1997 to 15,259 Yen on 30 December 1997.

pass the regulatory capital restrictions.

In the case of changing accounting valuation from LPM to HPM, there are two direct effects on the bank's accounting statements. One is the changes of the reported values of security holdings on the asset side of balance sheets. Considering that only banks that exhausted their capital gains of security holdings or had negative capital gains would have strong incentive to adopt HPM, the changes from LPM to HPM would usually inflate the reported amount of assets. The other effect is that the banks could get a once-for-all windfall of income due to the inflated assets. The inflated parts of security holdings were counted as bank's income. This windfall could enlarge the numerator of capital ratio under Basle Accord. Needless to say, the inflated assts and the income windfall were not supported by the management performance or the fundamentals. The adoption of HPM could even increase the tax obligations and incur an outflow of cash that would not have to pay under the old accounting standards. from the bank to the government. Interestingly, even the government did not believe that the valuation of security holdings based on HPM truly stands for the value of assets. For the two bankrupt cases in fiscal year 1999, Tokyo Sowa bank and Kokumin Bank, the Financial Reconstruction Commission did not allow them to use HPM and returned the accounting rules back to LPM.

At the same time, the government required the banks to report which method was used to value their security holdings and how much was the amount of income windfall. It seemed to be meaningless to claim their financial soundness by using historical prices to inflate the asset holdings, because a careful investor could get the truth of what had happened in the bank from the published financial statements. However, by the income windfall accompanying the accounting changes, a bank could increase his reported capital ratio. No matter whether it was supported by the fundamentals or not, by adopting HPM, a bank could pass more easily the capital restrictions, which were the main criteria of prompt correction action.

The changes from LPM to HPM were only observed in fiscal year 1997 and 1998. By adopting the recommendation of the Japanese Business Accounting Council, the Financial Services Agency required all of the banks to use market price accounting from 1999. Finally, by the end of fiscal year 2001, all of the banks changed their evaluation method to market price accounting.

The changes of accounting rule in the fiscal year 1998 called political and academic controversy. While the policy makers and the banks managers insisted the opinion that such kind of accounting changes would contribute to the stability of financial system, it was also criticized, mainly from the academic community, that the action taken by the government would have nothing to do with the financial stability, but only bring new troubles in the future. ⁴

We see the changes of accounting rules in the late 1990s as an important natural experiment. In the case of regional and second-tier regional banks, nearly half of them did not adopt HPM, so we can do some comparisons and detect the causes and consequences of the regulatory changes in accounting rules.

The main issue of this paper is to empirically estimate the causes and consequences of the changes of the above-mentioned accounting rules. Before showing the

⁴See Ueda(1998).

empirical results, we will firstly discuss some theoretical problems and some related studies in the next section.

3 The Related Issues

3.1 Theoretical Background

The issue of how should the government regulate the economy has almost accompanied with the whole human history. However, we can see that there are still many conflicts about this point in the policy decision processes even in the well developed countries. Although there is conventional practical wisdom to tackle with the problems in financial transactions, the problem of how the market mechanism is different between financial market and goods market is still quite controversial.⁵ Especially, the issue of how should the government behave when there is a serious concern with financial crises is more unclear.

In practice, there are cases in which the effectiveness of stock prices is artificially restricted, especially in some Asian countries. For example, in Japan, when the daily fluctuation of the stock price exceeds a certain level, the transaction will be stopped. However, for the accounting rules on security holdings, there was a tacit agreement that the prices decided by the capital supplies and capital demands in the markets and not dominated by oligopolistic players, should be the most reliable. Theoretically, the effectiveness or the limitations of evaluation accounting methods based on market price have been unclear. That is, under what conditions will the market price measurements lead to inefficient consequences, why the signals from the capital market may sometimes be less reliable than other kind of signals, say the historical costs?

One of the theoretical issues related to our study is the problem on financial reporting and disclosure of information, because the regulatory changes of accounting rules affect both the potential alternatives to bank managers and the quality of the reported information. As pointed by Healy and Palepu (2001, p.406).

... fundamental questions about the demand for and effectiveness of, financial reporting and disclosure regulation in the economy remain unanswered.

Recently, in an interesting paper, Allen and Carletti (2008) examined a model and answered some of the above questions. The theoretical foundation of our paper is based on this model. The logic of Allen and Carletti (2008) goes as follows.

- (i) There are situations in which the market prices may not be determined by the fundamental factors of assets. Especially when the financial crisis becomes a concern of market participants, the prices of asset would be largely determined by the amount of available cash, no matter the level of the underlying asset's payoff in the future. Such kind of prices is called *liquidity price*. As there is no way to deny the effectiveness of reporting based on truly fair value, the possibility of liquidity price is the crucial point in Allen and Carletti's model.

⁵See Bhagwati(1998).

Needless to say, the possibility of liquidity price means that the mark to market valuations of security holdings may not be at the fair value.

- (ii) The possibility of liquidity price may hurt the soundness of a healthy bank holding a certain amount of securities. (*contagion*) Here, the word healthy means that the bank would be able to honor its liabilities or to raise fund without problems should the security prices be determined by fundamentals.
- (iii) The deteriorating conditions of banks will further worsen the availability of cash, because more assets need to be liquidated, and more immediately available cash need to be raised in such cases.

On the one hand, one should not put the argument of Allen and Carletti (2008) too far. After all, one of the basic functions of market mechanism is the signaling function of prices in resource or capital allocation. As pointed out by Sapra (2008), Allen and Carletti's model can be view as redressing the balance against the arguments for marking-to-market, because so many benefits of mark-to-market accounting have already been documented. On the other hand, there are more general cases of liquidity price or contagion than that is described in Allen and Carletti model. For example, besides the availability of cash, some kind of psychological aberration may also detach the price level from fundamentals. Further more, the symptoms of contagion should include not only the bankruptcy of some healthy banks but also of credit crunch or credit contraction by the survived banks.

We have discussed in the last section that the situations of Japanese banking industry may fit the condition of Allen and Carletti's analysis. Before we give our empirical results, in the remainder of this section we briefly review some of the related studies.

3.2 Some Related Empirical Studies

As the banking industry in Japan was heavily protected, it has been believed that the government often viewed earnings management by banks as both legal and prudent.⁶

After the bursting of the bubble, many Japanese banks had been suffering from the problems of non-performing loan. Some studies concerned how the banks passed the restrictions of capital standards. Ito and Sasaki (2002) find that there is a tendency for banks with lower capital ratio to issue more amounts of subordinated debts. While the finding of Ito and Sasaki potentially suggests the extent of manipulation by bank managers to circumvent capital restrictions, it is not clear whether or not the issuances of subordinated debts are an effective way to truly strengthen banks' balance sheets.

Shrieves and Dahl (2003) give a more clear answer. They successfully find that Japanese banks with lower level of capital realized more capital gains on securities sales and set less loan-loss provisions in such a way as to smooth reported income and replenish regulatory capital. Such behavior can be referred as "cosmetic capital adjustments",⁷ because it does not truly enhance the level of underlying safety and

⁶Duangploy and Gray (2007, p.181).

⁷Jones (2000, p.36).

soundness and does not increase the capacity to absorb unexpected losses of banks.

It is important to know that Japanese bankers practiced certain manipulation in order to raise their reported capital ratio. Our paper differs from the ones discussed above in that we are not trying to find some evidence of accounting manipulation of banks, but trying to know whether and in what sense the changes of regulatory accounting rules improve the stability of banking industry.

Spiegel and Yamori (2007) use the data of Japanese banks in fiscal year 2000 and investigate some causes and consequences of the adoption of market price accounting. However as we discussed in the last section, it is the regulator changes of accounting rules in fiscal year 1997 triggered the adoption of HPM and the fiscal year 2000 is the last year allowing HPM. In fact, from fiscal year 1999 to 2000 no additionally adoption of HPM was allowed. Focusing solely on fiscal year 2000 without taking the regulatory changes in fiscal year 1997 into account is misleading.

3.3 The Empirical Hypothesis

In the next section, we will empirically investigate the factors influencing the adoption of HPM triggered by the regulatory changes of accounting rule and some consequences of it. We will pay particularly attention to the changes of bank management performances in the long run.

Although we will investigate the causes and some short run consequences of the accounting rule changes, the primary concern is on the long run effects. The hypothesis is simple. That is, if the shifts from mark to market accounting to historical costs accounting have some welfare-enhancing effects in the time of crisis, as suggested by Allen and Carletti, we could find the corresponding effects on the banks managerial performance for those that eagerly changed accounting. Our empirical results in the next section showing some of the evidence of whether this is the case.

4 The Empirical Results

In this section we describe our empirical results. Our data set contains banks that disclosed their accounting statements by the end of fiscal year 1997. The last few years of the 1990s were a period that many banks, especially the major banks changed their institutional identities. We will pay attention to these institutional changes. As discussed above, changes from LPM to HPM only happened in two years from fiscal year 1997 to fiscal year 1998. We will call the banks that shift their accounting standards from LPM to HPM the “HPM banks”, and the banks that remained LPM accounting the “LPM banks”.

We concentrate our concerns to the next three issues. The first one is to find the factors influencing the adoption of HPM. In the second and third issues, we empirically discuss the effects of the changes in accounting to the banks’ management performances right after and in the long run. Our main concern is to confirm whether there is evidence showing that the changes in accounting contributed to the stability of financial system.

4.1 Descriptive Statistics Analyses

Table 1 shows the total number of banks of each sector and the number of banks that changed the accounting to HPM, and the number of banks that remained LPM. In fiscal year 1997, about half of banks, 74 of 143, adopted HPM. Surprisingly, the ratio of major banks (city banks, trust banks, long-term credit banks) adopted HPM is much higher than that of regional and second-tier regional banks. At the end of fiscal year 1998 (March 1999), only one major bank (Tokyo Mitsubishi bank) continuously kept LPM, whereas more than two thirds of regional banks did not change accounting.

Table 2 compares the capital ratios of the LPM and HPM banks. Contrary to our prediction, in the case of major banks, the capital ratio of HPM banks was higher than LPM banks. This was true for all of the two years in which the shifts from LPM to HPM occurred. However, there were only three banks that did not change the accounting standards in fiscal year 1997 and only one bank in fiscal year 1998. One should notice that it was quite usual for a troubled major bank to overly report their capital ratio. For example, the reported capital ratio of the Long-term Credit Bank that went bankrupt in November 1998, was the highest among all city and long-term credit banks in the same year.

The capital ratio of HPM banks were generally lower than that of LPM banks in the case of regional and second-tier regional banks. This is true for both fiscal year 1997 and fiscal year 1998. For example, the capital ratio of the regional banks that shift account method from LPM to HPM was 40% lower than other regional banks that remained LPM.

Table 3 shows the capital gains of security holdings of LPM and HPM banks in the year of accounting method changing. We normalized the capital gains by total assets. Not surprisingly, in the whole cases, the capital gains of LPM banks were much higher than that of HPM banks. The capital gains of the HPM banks in the fiscal year 1997 even became negative in the case of trust, long-term and regional

banks.

Table 4 reports the amount and the relative size of the income windfalls due to the accounting changes. This measure is normalized by the amount of BIS capital. BIS capital is the amount of numerator of capital ratio reported in the financial statement.⁸ The average size of the income windfalls to BIS capital are 1.05% and 0.36% for fiscal year 1997 and 1998 respectively. Needless to say, how much this windfall of income finally is accounted as part of capital depends on tax payment, dividend and other payout policies. However, other things being equal, the adoption of HPM and the inclusion of this value difference of security holdings as part of banks' income definitely increase the reported capital ratio.

As most major banks adopted HPM in fiscal year 1997 or 1998, we next concentrate the sample banks only to regional and second-tier regional banks to do some comparison between LPM and HPM banks. We further exclude some banks that went bankrupt before the end of fiscal year 2000, because the figures often unnaturally changed right before bankruptcy. We will discuss later the bias problems due to the exclusion of these bankrupt banks from the sample.

Table 5 and Table 6 compare some of the financial characteristics between LPM banks and HPM banks for fiscal year 1997 and 1998 respectively. All of the data shown in the tables are measured at the end of the last fiscal year right before the accounting shift.

Although the fact that almost all major banks adopted historical accounting seems to indicate that there were some kinds of scale effects, we do not observe such kinds of scale effects within regional banks. For regional banks, there is no clear difference in the scale of assts between LPM and HPM banks both for fiscal year 1997 and for 1998. For the second-tier regional banks the HPM banks were even slightly larger than LPM banks.

Among regional banks, the banks that changed accounting in fiscal year 1997 (1) kept higher level of bad loan ratio, higher level of SME (small- and medium-size enterprises) loan ratio and higher level of real estate loan ratio, (2) had lower level of net income and ordinary business profit ratio, but (3) managed with no differences in other kinds of profits or costs, such as net business profits or personnel expenses. However, for the same regional bank group, the differences between banks that changed accounting in fiscal year 1998 and banks that still kept LPM were no so clear. Only real estate loan ratio was significantly lower for LPM banks, the differences in other items were not significant.

The picture is even more unclear for the case of second-tier regional banks. Although there was a tendency that banks changed accounting to HPM had kept lower level of profits and higher level of bad loan ratio and real estate or SME loan ratio, no differences in any compared items were continuously occurred for the whole two years.

⁸Some banks reported both the domestic and international version of capital ratio. In these cases we use the one that is adopted in *Financial Statements of All Banks* published by Japanese Bankers Association.

4.2 The Influencing Factors to HPM Adoption

From the above descriptive discussion, it seems that only capital ratio-related factors influenced the adoption of HPM. To adjust for correlations among factors, we estimate a probit regression where the dependent variable equals one if the bank changed accounting standards and zero otherwise. We pool regional and second-tier regional banks and estimate the sample of fiscal year 1997 and 1998 separately. The dependent variables are total asset, net business profit ratio which normalized by total assets, bad loan ratio and real estate loan ratio and capital ratio. As banks in this category published capital ratio information under international or domestic standards, we treat the capital ratio of international banks and domestic banks as different variables. All dependent variables are defined at the end of one fiscal year before the accounting shifts to avoid the simultaneously determination problems.

The results for fiscal year 1997 are shown in Table 7, and Table 8 shows that of 1998. Consistent with the descriptive analyses, the capital ratio, both under the international and the domestic standard, shown the strongest effects in all estimation models in Table 7 and Table 8. For other variables, total assets are weakly and positively affected the adoption of HPM. Bad loan ratio and real estate loan ratio both positively, and significantly with a few exceptions, affected the adoption of HPM. The profit measure seems not be effectively influential in a systematic way.

These results suggest that it is the capital ratio consideration that appears to be driving the adoption of HPM.

4.3 Some Short Run and Long Run Effects of the HPM Adoption

Finally, we investigate the effects of accounting changes on banks' management. As analyzed by Allen and Carletti (2008), if the changes to historical accounting should have some welfare-enhancing effects, than there must be some corresponding profit-improving effects for those that mostly eagerly changed accounting.

We again focus on regional and second-tier regional banks. The dependent variable is defined as changes in the level of profit ratio after the accounting shift. The profit ratio is defined as the ratio of net business profit (*gyomu junrieki*) to total assets. As we are interested in not only the changes in the profit changes right after the accounting shift, but also in the profit changes in some long run, we compare two performance measures. One is the changes of profit ratio between fiscal year 1998 and 1999, the other is the changes of profit ratio between fiscal year 1998 and 2003. As no banks additionally changed their accounting to HPM after fiscal year 1998, we call the changes between fiscal year 1998 and 1999 as short run effects and changes between fiscal year 1998 and 2003 as long run effect.

The independent variables are defined as variables that describe banks financial conditions at the end of fiscal year 1998 and that may influence the banks later performances. These variables include total assets, bad loan ratio, capital ratio, and SME loan ratio. Again here we treat capital ratio under different standards as different variables. To see how the accounting changes affect these short run and long run management improvement, we add a dummy variable which equals one if

the bank changed accounting and zero if not. Our main concern is to see how this dummy affects short run and long run profit improvements.

The results are shown in Table 9. Panel A shows the results on short run effects and Panel B shows that of long run. There are no systematic effects of scale, capital ratio on the profit improvements right after the accounting shifts. And also the accounting dummy is not significantly correlated with the profit improvements. That means there is no efficiency-enhancing effect right after the accounting shifts.

However, the results are quite different in Panel B which shows the effects for long run. The asset scale has a positive effect on profit improvements and the significant level is high. The bad loan ratio no longer affects the long run profits and the real estate loan ratio only has a weak negative effect. We also surprisingly see that the capital ratio strongly and negatively correlated with the profit changes. The effects of the accounting dummy, which are our main concern, is positive and the significant level is very high. Our results show that although the accounting changes seem not to be correlated with the short run profit improvements, they do have a positive effect on the long run managerial performance.

We should take our estimation results with caution in drawing far-reaching conclusions from the above results. One problem of our estimation is that we exclude banks that went bankrupt before March 2004. There were one regional bank and 8 second-tier regional banks went bankrupt from April 1999 to March 2004. All these banks changed accounting to HPM, with 8 banks changed at the end of fiscal year 1997 and 1 bank changed at the end of fiscal year 1998.

5 Concluding Remarks

In this paper, we focused on the causes and consequences of the regulatory changes of accounting rule at the height of financial crisis in Japan. We paid particularly attention to the issue of whether there were any efficiency-enhancing effects of such policy and in what way we can observe them.

Among all potentially influencing factors, the ratio of capital is the strongest. Although almost all major banks adopted historical accounting, for the regional and second-tier regional banks, the scale effects were very weak. The most weakened banks adopted historical accounting most actively. In this sense, it seems hard to escape the critiques on the government regulatory forbearance. However, for the survived banks we observe that banks adopted historical accounting improved their profits more than banks that did not change accounting.

While there still remained some unsolved econometric issues, such as the potential bias due to the exclusion of the bankrupt banks out of our sample. Our results do shed some light on the problem of how should and should not a government do in a period of serious financial crisis.

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Table 1: Number of Banks That Adopted LPM

	fiscal year 1997			fiscal year 1998		
	sum	LPM	HPM	sum	LPM	HPM
city	9	1	8	9	1	8
trust	7	1	6	7	0	7
long-term	3	1	2	1	0	1
regional	64	50	14	64	45	19
regional II	60	16	44	55	10	45
total	143	69	74	136	56	80

Source: Financial statements of banks.

Note: The data of each fiscal year contain all banks that were not bankrupt and disclosed their financial statements. The sample of fiscal year 1998 excludes two cases that couldn't make their decisions independently right before their bankruptcy.

Table 2: Comparison of Capital Ratio between LPM and HPM banks

	fiscal year 1997				fiscal year 1998			
	LPM		HPM		LPM		HPM	
	capital ratio %	obs	capital ratio %	obs	capital ratio %	obs	capital ratio %	obs
	major banks							
city	8.53	1	9.55	8	11.87	1	12.16	8
trust	10.35	1	11.79	6	–	–	12.55	7
long-term	10.26	1	9.29	2	–	–	11.53	1
	regional banks							
regional	9.64	50	7.51	14	9.68	45	6.92	19
regional II	7.78	16	6.42	44	8.28	10	6.08	45

Source: Financial statements of banks.

Note: The column *capital ratio* stands for the average level of capital ratio and *obs* is the number of banks.

Table 3: Capital Gains of Security holdings of LPM and HPM banks

	fiscal year 1997				fiscal year 1998			
	LPM		HPM		LPM		HPM	
	capital gains %	obs	capital gains %	obs	capital gains %	obs	capital gains %	obs
	major banks							
city	1.28	1	0.10	8	1.21	1	0.17	8
trust	2.34	1	-0.29	6	–	–	0.23	7
long-term	1.05	1	-0.97	2	–	–	0.03	1
	regional banks							
regional	1.45	50	-0.10	14	1.19	45	0.16	19
regional II	0.83	16	0.12	44	0.78	10	0.07	45

Source: Financial statements of banks.

Note: *Capital gains* are the capital gains of security holdings normalized by total assets and *obs* is the number of banks.

Table 4: The Size of Income Windfall for the Changing Banks

	changed in fiscal year 1997			changed in fiscal year 1998		
	windfall mil. Yen	relative to capital %	obs	windfall mil. Yen	relative to capital %	obs
	major banks					
city	272,969	0.97	8	–	–	–
trust	109,149	1.83	6	59,955	0.52	1
long-term	208,535	1.45	2	190,464	0.66	1
	regional banks					
regional	18,018	0.63	14	4,374	0.13	5
regional II	3,103	0.38	44	1,407	0.12	6
average	122,355	1.05	–	64.050	0.36	–

Source: Financial statements of banks.

Note: *Windfall* is the income increasing due to the accounting changes published in the footnote of the balance sheet in the financial statements. Windfalls are normalized in *relative to capital* by the amount of BIS capital. *obs* is the number of banks.

Table 5: Comparison of LPM and HPM Banks: Regional

	fiscal year 1997			fiscal year 1998		
	LPM	HPM		LPM	HPM	
log(assets)	14.77	14.60		14.74	15.08	
	0.63	0.98		0.61	0.72	
loan to SME (%)	74.55	80.52	***	74.21	78.39	
	8.29	6.36		7.46	12.90	
bad loan ratio(%)	2.85	5.87	***	3.79	4.66	
	1.44	2.86		1.62	2.82	
loan to real estate (%)	8.43	11.02	***	7.82	13.98	***
	3.23	2.89		2.65	3.39	
net income (%)	-0.05	-0.53	***	-0.07	-0.23	
	0.41	0.60		0.36	0.48	
ordinary profit (%)	0.11	-0.46	***	-0.04	-0.36	
	0.46	0.71		0.53	0.82	
net business profit (%)	0.74	0.72		0.50	0.54	
	0.19	0.22		0.19	0.13	
personnel expenses(%)	0.78	0.78		0.76	0.75	
	0.13	0.18		0.12	0.20	
number of banks	50	14		45	5	

Source: Financial statements of banks.

Note: Each loan ratio related variables are normalized by total loans. Bad loan is defined as the amount of risk management loans. Profits and expenses related variables are normalized by total assets. For each item, the data in the first line are the average value and the data in the second line are the standard deviations. ***, **, and *, denote significance at the 0.01, 0.05 and 0.10 levels respectively for the differences between HPM and LPM groups.

Table 6: Comparison of LPM and HPM Banks: Second-tier Regional

	fiscal year 1997		fiscal year 1998		
	LPM	HPM	LPM	HPM	
assets(log, mil. Yen)	13.82	13.60	13.59	14.32	*
	0.67	0.69	0.63	0.46	
loan to SME (%)	86.54	88.33	86.64	86.01	*
	4.69	4.00	5.15	4.63	
bad loan ratio (%)	3.28	5.31	3.63	4.83	**
	1.80	1.83	1.25	2.46	
loan to real estate (%)	9.28	10.22	8.33	10.90	*
	3.43	4.24	2.25	4.62	
net income (%)	-0.23	-0.27	0.07	-0.38	*
	0.82	0.59	0.10	0.56	
ordinary profit (%)	-0.12	-0.14	0.18	-0.67	**
	0.89	0.62	0.19	0.97	
net business profit (%)	0.74	0.72	0.70	0.54	
	0.15	0.28	0.23	0.25	
personnel expenses(%)	0.94	0.97	0.97	0.76	*
	0.17	0.15	0.14	0.11	
number of banks	15	39	10	5	

Source: Financial statements of banks.

Note: Each loan ratio related variables are normalized by total loans. Bad loan is defined as the amount of risk management loans. Profits and expenses related variables are normalized by total assets. For each item, the data in the first line are the average value and the data in the second line are the standard deviations. ***, **, and *, denote significance at the 0.01, 0.05 and 0.10 levels respectively for the differences between HPM and LPM groups.

Table 7: Factors for Fiscal Year 1997 HPM Changing Banks

	model 1	model 2	model 3	model 4
log(asst)	0.56 **	0.13	0.55 *	0.14 *
	2.02	0.38	1.73	0.40
net business profit ratio	1.62 *	-0.62	1.28	-0.58
	1.91	-0.58	1.41	-0.53
capital ratio(int)	-0.82 ***	-0.78 ***	-0.88 ***	-0.79 ***
	-4.92	-3.94	-4.79	-3.92
capital ratio(dom)	-1.15 ***	-1.17 ***	-1.24 ***	-1.18 ***
	-3.68	-3.16	-3.75	-3.17
bad loan ratio		0.75 ***		0.72 **
		3.45		2.54
loan to estate ratio			0.17 **	0.01
			2.55	0.15
number of banks	108	107	108	107

Source: Financial statements of banks.

Note: The independent variable is accounting changing dummy which equals one if the bank changed accounting and zero if not. Every dependent variable is defined by the data right before the fiscal year of accounting changes. The information on the constant terms is omitted. ***, **, and *, denote significance of the parameter estimates at the 0.01, 0.05 and 0.10 levels, respectively.

Table 8: Factors for Fiscal Year 1998 HPM Changing Banks

	model 1	model 2	model 3	model 4
log(asst)	1.36 **	1.34 **	1.05	1.02
	2.08	2.02	1.35	1.33
net business profit ratio	0.97	0.76	-0.32	-0.26
	0.71	0.55	-0.19	-0.15
capital ratio(int)	-0.60 ***	-0.60 ***	-0.63 **	-0.61 **
	-2.76	-2.73	-2.14	-2.10
capital ratio(dom)	-0.54 ***	-0.54 ***	-0.55 **	-0.54 **
	-2.74	-2.70	-2.10	-2.06
bad loan ratio		0.23		-0.14 **
		0.90		-0.46
loan to estate ratio			0.26 ***	0.28 ***
			2.97	2.96
number of banks	65	65	65	65

Source: Financial statements of banks.

Note: The independent variable is accounting changing dummy which equals one if the bank changed accounting and zero if not. Every dependent variable is defined by the data right before the fiscal year of accounting changes. The information on the constant terms is omitted. ***, **, and *, denote significance of the parameter estimates at the 0.01, 0.05 and 0.10 levels, respectively.

Table 9: Some Short Run and Long Run Effects of Accounting Changes

	model 1		model 2		model 3				
Panel A: short run effects									
	coeff.	t-value	coeff.	t-value	coeff.	t-value			
log(asset)	-0.03	-0.97	-0.01	-0.48	-0.03	-0.76			
bad loan	-0.04	-2.55	**	–	-0.02	-1.55			
real estate loan			-0.02	-3.05	***	-0.18	-2.30	**	
capital ratio(int)					0.01	0.298			
capital ratio(dom)					0.00	0.102			
accounting dummy	0.01	0.18	0.01	0.14	0.49	0.71			
observations	102		102		102				
Panel B: long run effects									
	coeff.	t-value	coeff.	t-value	coeff.	t-value			
log(asset)	0.12	3.75	***	0.12	3.74	***	0.17	4.89	***
bad loan	0.01	1.37		–	–	0.00	0.15		
real estate loan			-0.00	-0.31		-0.01	-1.71	*	
capital ratio(int)						-0.07	-3.14	***	
capital ratio(dom)						-0.06	2.72	***	
accounting dummy	0.23	3.89	***	0.27	4.44	***	0.19	2.94	***
observations	102		102		101				

Source: Financial statements of banks.

Note: The independent variables in Panel A and Panel B are the differences of profit ratio in period 1998-1999(fiscal year) and in period 1998-2003(fiscal year), respectively. *Bad loan* is defined as the ratio of risk management loans to total loans. *Capital ratio(int)* is defined as the capital ratio under the international standard. *Capital ratio(dom)* is defined as the capital ratio under the domestic standard. *Accounting dummy* equals one if the bank changed accounting and zero if not. Every dependent variable is defined by the data of fiscal year 1998. The information on the constant terms is omitted. ***, **, and *, denote significance of the parameter estimates at the 0.01, 0.05 and 0.10 levels, respectively.