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Earnings Management During Distinct Periods of Capital Demand: Evidence from Japanese Banks

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Abstract

This paper investigates Japanese banks' lending and earnings management behavior during three distinct periods of capital demand: (1) high-growth era (1985-1989); (2) financial distress period (1990-1994); and (3) banking crisis period (1995-1999). Using bank balance sheet information of 78 Japanese banks, we find evidence of banks using security gains as a means to manage earnings throughout all three periods. However, due to escalating non-performing loans recently, banks on average may have been restrained from using loan loss provisions to smooth income during the latter period of acute banking crisis. Moreover, we do not find that Japanese banks actually used gains and provisions to replenish regulatory capital during the financial distress period. Instead, we detect that Japanese banks lowered their lending in order to improve their BIS capital position during this period of financial constraint, which concurs with observations made by Hall (1993), and Horiuchi and Shimizu (1995).

Earnings Management During Distinct Phases of Capital Demand:
Evidence from Japanese Banks

1.   Introduction

Earnings management occurs when managers use their discretionary power in the

financial reporting process and in structuring transactions. By smoothing earnings over time,

managers convey private information to stakeholders about the underlying economic

performance of the company or attempt to influence contractual outcomes that depend on the

reported accounting numbers.[1] Most empirical studies on bank earnings management practices

focus on U.S. banks.[2] Genay (1998) examines the relationship between the performance of

Japanese banks and their financial characteristics during the 1991-1997 period. The author

reports that Japanese banks increase their loan loss provisions when their core earnings as well

as the returns on the stock market are high, and concludes that this puzzling finding may be

attributed to income smoothing by these banks.

Recently, Shrieves and Dahl (2002) study the discretionary accounting practices of

Japanese banks operating under the financial constraints imposed by the Basle Accord

guidelines. The authors find that, during the 1989-1996 period, surplus regulatory capital plays a

significantly positive role in the lending decisions of Japanese banks. They also find that

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[1] Many motivations for earnings management have been examined in the literature including: (i)
realization of earnings thresholds [Burgstahler and Dichev (1997) and Degeorge, Patel, and Zeckhauser
(1999)]; (ii) initial public offerings and seasoned equity offerings [Rangan (1998) and Teoh, et al. (1998a,
1998b)]; (iii) income smoothing [Greenwalt and Sinkey (1988) and Beaver and Engel (1996)]; (iv)
regulatory capital planning [Scholes, Wilson, and Wolfson (1990), Kim and Kross (1998), and Shrieves
and Dahl (2002)]; (v) book-tax reporting differences [Mills and Newberry (2001) and Phillips, Pincus, and
Rego (2002)]; (vi) debt covenant restraints [DeFond and Jiambalvo (1994)]; (vii) bonus plans and
compensation [DeAngelo (1986) and Pourciau (1993), Gaver, et al. (1995), and Holthausen et al. (1995)];
(viii) alteration of risk perceptions and earnings information to investors [Bhattacharya, et al. (2002),
Barth, et al. (1999)]; (ix) government investigation [Bonner, et al. (1998)]; (x) management of bad debts
[McNichols and Wilson (1988)].

[2] Bank managers have discretionary actions to adjust the timing and size of transactions and accruals in
their financial reports. They have three main incentives in recognizing and recording certain financial
transactions to: (i) achieve regulatory capital requirements; (ii) defer tax payment on earned income; and
(iii) disseminate enhanced earnings information to investors.

Japanese banks' non-discretionary income is significantly and positively (negatively) related to loan loss provisions (realized securities gains), with loan loss provisions and realized securities gains being complementary to one another. In turn, the authors conclude that Japanese banks used realized securities gains and loan loss provisions for income smoothing, and capital-constrained banks, in particular, used earnings management to replenish regulatory capital during this period of financial duress. Thus, their findings support the regulatory-capital arbitrage hypothesis.

Shrieves and Dahl focus on the 1989-1996 time period in which Japanese banks experienced deteriorating macroeconomic conditions, dramatic declines in the market values of their assets, and regulatory capital constraints brought about by the Basle Accord. The more recent history of the Japanese banking system can be divided into three distinct phases: (1) high-growth, (2) financial distress, a period studied by Shrieves and Dahl (2002), and (3) banking crisis, a period marked by further deterioration of bank balance sheets corresponding with a deepening crisis. It is well established that bank managers generally "save for a rainy day" since banks' vulnerability to changes in economic environment, as well as structural changes in the financial system, can lead to changes in banks' investment and financial decisions. Accordingly, we consider what factors may have determined the Japanese banks' lending and earnings management decisions before 1990. This was a period marked by the absence of the BIS regulatory capital requirement, but with rapid economic growth and an escalating stock market that raised both the banks' assets and profits. We also consider what factors may have determined banks' lending and earnings management decisions after 1995. A period marked by a more severe banking crisis as the accumulation of non-performing loans further deteriorated the balance sheets of Japanese banks. We examine whether Japanese banks behaved differently during the period of high-growth, the latter part of the 1980s, and the

more recent period of banking crisis, a period of extremely high levels of capital demand that occurred in the second half of the 1990s.

Specifically, we analyze the role of loan loss provisions and realized gains from securities portfolios on the earnings management practices of 78 Japanese banks over a 15-year period (1985-1999). To sharpen the contrast of earning management practices, we break down our study period into three subperiods: (1) high-growth era (1985-1989); (2) financial distress period (1990-1994); and (3) banking crisis period (1995-1999). To the best of our knowledge, this is the first such study to contrast cross-sectional data that focuses on earnings management in the Japanese banking system over three distinct periods. For a broad sample of Japanese banks, we estimate a simultaneous equation model of investment and financial decisions, which explicitly incorporates the endogeneity of accounting discretion with respect to security gains and loan loss provisions.

Our findings reveal similar as well as diverging patterns of earnings management behavior across the three periods. Japanese banks on average realized gains from securities in order to offset the negative impact of loan loss provisions and thereby engage in income smoothing throughout all three periods. However, the propensity of using gains to smooth income was smaller for banks with negative nondiscretionary income during the latter periods of financial distress and banking crisis. We also detect that only during the high-growth period did Japanese banks use loan loss provisions as a means of managing earnings. During the period of financial distress, only banks with negative nondiscretionary earnings were motivated to increase their provisions-to-assets relationship when their return on investment increased. During the banking crisis period, when Japanese banks faced more intensive capital constraints, banks on average did not engage in income smoothing behavior as they increased their provisions-to-assets relationship in the face of declining return on investment. Only banks with negative nondiscretionary income used provisions as a means to smooth income. This behavior is consistent with the notion that during the crisis period, Japanese banks needed to

increase their ratio of provisions-to-assets, and thereby were restrained from using provisions as a means of smoothing income. One surprise finding is that despite the accumulation of bad loans, banks with negative nondiscretionary earnings on average continued to use provisions to smooth income. This indicates that despite rising non-performing loans, these banks understated their provisions relative to assets.

Moreover, we find that the lending activities of Japanese banks differed significantly across the three periods. In particular, our empirical results do not support the view that during the financial distress period Japanese banks used loan loss provisions and security gains to replenish regulatory capital in order to increase or maintain their lending portfolios as hypothesized under the regulatory capital-arbitrage hypothesis. Overall, our findings indicate that Japanese banks lowered their lending in order to improve their regulatory capital requirement during the later period of financial constraint, which concurs with observations made by Hall (1993), and Horiuchi and Shimizu (1995).

The rest of the paper is organized as follows. The next section describes the evolution of the Japanese banks from 1985 to the present. Section 3 presents the data and the simultaneous-equation methodology that is used to model the determinants of lending, securities gains, loan loss provisions and dividends. Section 4 presents descriptive statistics and the empirical results. Section 5 provides some concluding remarks.

2.   The Evolution of the Japanese Banking System

In this section, we provide brief discussions of the three distinct periods under which the Japanese banks operated. Following these discussions, we present descriptive statistics in Table 1 to confirm that the Japanese economy and financial markets have gone through three distinct phases of capital demand. Hence, an examination of the differing behaviors of Japanese banks in the three phases is warranted.

High-Growth Era (1985-1989): Japanese banks expanded vigorously during the 1980's. The main reasons for this growth included the strong macroeconomic performance of the Japanese economy, a rapidly rising stock market, low domestic interest rates, a relatively strong yen, and a vibrant real estate market. In July 1988, *The Banker* had the following quote, "In a year which was the worst-ever for many US and European banks, Japan's banks turned in higher profits, increased their capital and took in a larger share of world lending and capital-market business" (p. 109).

Moreover, it was not difficult for firms to obtain equity financing during this period as Japanese firms relied heavily on bank financing a result of the well-established, relationship-based lending system, known as *Keiretsu* financing. This relationship helped both the banks and the firms in several ways. For the firms, this special relationship helped reduce adverse selection and mitigate moral hazard problems. For the banks, Keiretsu financing helped diminish conflicts between equity and debt holders, and reduced the inefficient duplication of monitoring efforts by different lenders.[3]

As a result of very strong economic growth and corresponding high demand for credit, the banking sector grew vibrantly with respect to assets, lending, and profits during the 1980's. There are numerous reasons why, even during a period of rapid expansion, Japanese banks may have wanted to smooth their earnings. Banks may desire to reduce their income tax burden by smoothing profits over time. In the absence of the Basle Accord, regulatory capital did not constrain overall bank capital, thus banks could finance their lending activities without having to reduce their provisions, to increase realized gains, or to reduce their dividend earnings. Banks could easily maintain growth in lending activities as well as stable dividend policy for investors. In addition, banks may also have wanted to display a constant income stream in order to gain confidence from the public and/or investors. Thus, it can be conjectured that bank managers

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[3] For further discussion on this issue, refer to Hoshi and Kashyap (2001, pp. 191-195).

may have reduced the realization of gains from sales of securities by increasing their loan loss provisions as well as dividends in order to smooth their earnings during this period of prosperity, financial growth, and high profits.

Alternatively given the effects of macroeconomic developments and stock market performance affect risk provisions and earnings, banks may respond in either of two ways. First, banks may behave procyclically, e.g., banks would reduce provisions during economic growth and upswings. This is rational if banks, generally faced with very few problems with non-performing loans during the good times, are willing to reduce the level of provisioning, particularly if they are faced with a significant amount of market pressure to achieve high profits. Hence, there may exist an inverse relationship between economic growth and the loan loss provisions for Japanese banks during high growth periods. However, banks may behave countercyclically, e.g., they may not reduce and/or may even increase risk provisioning during high-growth periods. The reason is that banks may anticipate that if the economy is cyclical, then the expansionary period would be followed by an economic downturn and should position themselves for the possibility that their debtors may have difficulties repaying their loans.

Financial Distress Era (1990-1994): The Japanese banking system was losing ground as a source of finance for large corporations. In the early 1990's, financial deregulation opened a way for large Japanese corporations to obtain financing outside of traditional bank borrowing.[4] As a result of bank deregulation, the customer base of Japanese banks shifted from large established firms that belonged to *Keiretsu*s to small- and medium-size firms. Hoshi (2001) points out that because banks lacked intrinsic information about these new client firms, they began to demand collateral in order to provide loans. Real estate was a desirable choice for collateral primarily because the value of real estate had not declined throughout the entire

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[4] As discussed by Ito and Sasaki (1998), Ueda (2000), Cargill (1999), and Hoshi and Kashyap (1999), between 1983 and 1989 the Japanese bond market blossomed, permitting many internationally known companies to tap the public debt market for the first time.

postwar period. In fact, both Ueda (2000) and Hoshi (2001) maintain that Japanese banks shifted towards portfolios that contained higher shares of loans collateralized by real estate. But when real estate prices began falling in 1992, the collateral used to support these loans declined in value as well. During the Japanese economic downturn, many of these small to medium-sized firms were unable to make their loan payments. The banks now faced a situation where these non-performing loans were supported by real estate that had significantly declined in value. The fall in real estate values eroded the capital base of the banks' balance sheet, and thus significantly contributed to the problems faced by Japanese banks.

Between 1990 and 1994, the Nikkei 225 Index declined by 50 percent, compounding the banking industry's balance sheet problem. Because Japanese banks held large positions in common stock, they suffered a significant decline in their capital.[5] Overall, the downturn in the Japanese economy and the decline in real estate prices increased the banks non-performing loans, while at the same time, banks suffered large losses in the value of their own securities holdings.[6] The Japanese banks' weaker capital reserve position may have adversely impacted its lending ability.

Moreover, the BIS regulatory capital requirements became effective in 1993, further reducing the banks' ability to lend. If capital constrains bank lending, then it is expected that lending will vary positively with capital ratios. This created a new incentive for Japanese banks to manage their earnings. Through the use of discretionary accounting practices, banks could maintain or increase their lending and still meet capital reserve requirements. Specifically, banks that were near the BIS capital-constraint limit had an incentive to alter the appearance of

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[5] According to Fukao (2001), a 10 percent drop in stock price index reduces 20 percent of the net capital since the market value of stocks held by banks is about twice as much as their net capital.

[6] Moreover, this was in tandem with the overall decline in the Japanese economy. Between 1990 and 1994 the average growth rate was 1.5 percent compared to 5.5 percent for the previous four years. Moreover, monetary policy tools were also ineffective even though the Bank of Japan reduced the discount rate seven times in a period of three years from 6% to 1.75%. All these macroeconomic events further led to the bank loan problems.

their capital position by increasing equity and net income. According to the capital-arbitrage hypothesis in Shrieves and Dahl (2002), banks could increase their equity position and thereby increase or at least maintain their lending activities by reducing dividends and increasing the discretionary components of income (e.g., increase realized security gains and reduce loan loss provisions).

Banking Crisis Era (1995-1999): The Japanese banking industry has traditionally been one of the most heavily regulated industries.[7] Before banking deregulation, the Ministry of Finance, the internal regulator, traditionally favored more confidentiality and only required limited disclosure of the true financial conditions and accounting practices of a bank's operations. This indirectly allowed banks to conceal financial difficulties. However, with increasing bank deregulation and the adoption of the Basle Accord in 1993, banks with publicly traded equity shares have been forced to comply with sometimes-conflicting regulations. These changes to the banking system have either required or encouraged banks to disclose their equity positions in their financial statements, enabling investors to make more informed decisions. Additionally, since the deregulation of the Japanese banking industry, regulators have also required greater disclosure. These disclosures have made it easier to determine the true value of a bank's ' loan portfolio. Deregulation has also led to a loss of much of the banks' protection from competition, both domestic and international. Consequently, banks faced competition across their traditional business lines, leading banks to diversify their loan portfolio. All of these factors have contributed to the difficulties faced by banks.

Deregulation brought about a frenzy of activities among banks (both large and small), depositors, and firms. A number of Japanese banks lost both their largest borrowers and their depositors to the equity markets. This was partly a result of bad loan problems and enhanced the attractiveness of the bank's ability to smooth (postpone) the appearance of these losses

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[7] The Japanese banking system has been going through a very gradual deregulation process that started in the early 1980's and has taken around 25 years for its completion [Hoshi and Kashyap (2001)].

with earnings management tools. Further, the government had to bail out a number of banks using public funds including the government's use of as much as ¥30 trillion of public funds to help failed or severely undercapitalized banks. This, coupled with the implementation of the Basle Accord, has forced the banks to adopt better accounting practices and limited earning management activities. However, as pointed out in Hoshi and Kashyap (2001), in spite of the long tradition of holding company shares, the banks started to sell some of their stock positions to realize gains and support their weakened balance sheets.[8]

Japanese banks endured a continuing deterioration of their balance sheets and an intensifying banking crisis.[9] In particular, banks faced extended economic stagnation, mounting bad loans, and relatively weak capital reserve positions that continued to adversely impact their lending positions. Equally important, because a significant portion of their loans used real estate as collateral, Japanese banks should have engaged in prudent risk management practices by increasing their loan loss provisions to reflect mounting bad loans as well as a decline in the collateral value of their loans.

As for their incentives to managing earnings, we expect a more intensive pattern of income smoothing during periods in which the banks face a drastic increases in loan losses and operating losses that are expected to be more severe than the previous two periods. For example, the ratio of bad loans to total loans increased to 6 or 6.5 percent in the later period from 3 percent or less during the earlier period of financial distress. In 1998 and 1997, net operating losses (defined as the difference between gross profits and loan losses) peaked at –¥8.3 trillion and –¥7.9 trillion, respectively. This contrasts sharply from positive profits of ¥2.5 trillion in both 1991 and 1992.[10] Therefore, an interesting empirical question is whether

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[8] Since most of these share holding were decades old and thus had a very low base price compared even to their post-peak current market price.

[9] For example, in March 1999, 15 large banks applied for a capital injection and received 7.45 trillion Yens of public funds.

[10] Refer to Fukao (2001).

Shrieves and Dahl's capital-arbitrage hypothesis can be supported in the rapidly deteriorating economic environment as evidenced by a banking crisis in Japan in the later period.

Summary Statistics Across Three Subperiods: Table 1 gives summary statistics of macroeconomic and financial characteristics endured by Japanese banks across three unique time periods. As can be seen in Panel 1, domestic production, as measured by industrial production (INDPROD), increased on average at an annualrate of 4.5 percent during the 1985-1989 period, as compared to growth rates of –0.62 percent and 0.54 percent in the respective 1990-1994 and 1995-1999 periods. The stock market index (STOCKS) increased on average 26.9 percent during the 1985-1989 period, while on average the index returned -7.9 percent during the 1990-1994 period and -6.3 percent during 1995-1999 period. The land price index (LAND) declined from a 5.7 percent annual growth rate in the high-growth period to a -2.4 and -3.9 percent annual growth rate during the last two periods, respectively. Meanwhile, average growth in stock prices of Japanese banks (STOCKS_BANK) rose at the rate of 20.4 percent during the economic and stock market upswings, but then declined on average 10.4 percent and 7.1 percent during the two latter periods, respectively.

Panels 2 and 3 of Table 1 present the financial characteristics of large city banks and smaller regional banks. City banks' income on average fell sharply, exhibiting negative net income during the most recent period. Average return on investment (ROI) deteriorated from 0.341 percent during the 1985-1989 period to 0.00 percent and 0.04 percent during the latter two periods, respectively. Similar trends are observed for regional banks.

Over these same periods, the growth in lending activities as a percent of total assets (dLOANS) for the city banks on average decelerated from a 6.97 percent growth rate during the 1985-1989 period to only 1.73 percent and 0.51 percent during the periods 1990-1994 and 1995-1999, respectively. Furthermore, loan loss provisions as a percent of total assets increased from an average of 0.04 percent in the first period to about 0.09 and 0.72 percent in

the second and third periods, respectively. Equally important, average gains from sales of securities as a share of total assets decreased from 0.27 percent of total assets during the high-growth period to 0.25 percent during the financial distress period, but then sharply increased to 0.45 percent during the period of more intense capital constraint and operating losses.[11] Finally, net dividends declined slightly from 0.054 percent in the first period to 0.048 percent and 0.040 percent during the two periods of financial distress. Similar trends are again observed for the regional banks.

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[11] Gains from sales of securities on average were higher in the latter two periods despite the decline in the market value of overall equities of the banks, as measured by decline in the stock market index. This inconsistent observation is due to the fact that equity investments were held at cost,which ws still below market value. And when they were sold and repurchased back at market value, Japanese banks realized their latent gains, increased the book value of their equity investments, and thereby increased their Tier 1 Capital.

Table 1: Summary Statistics

(Percent of assets, unless noted otherwise)

	1985-1989				1990-1994				1995-1999			
	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max
Panel 1: Macroeconomy												
STOCKS (% change)	0.2690	0.0453	0.1979	0.3193	-0.0786	0.0974	-0.2047	0.0922	-0.0632	0.0777	-0.1378	0.0475
STOCKS_BANK (% change)	0.2044	0.3138	-0.8635	1.9512	-0.1036	0.1639	-0.8927	0.5773	-0.0712	0.1911	-0.5729	0.4458
LAND (% change)	0.0570	0.0280	0.0271	0.0999	-0.0239	0.0230	-0.0554	0.0000	-0.0391	0.0035	-0.0436	-0.0348
PRIME (Difference)	-0.3667	0.7544	-1.3750	0.6667	-0.2833	1.4566	-1.9375	2.2292	-0.3125	0.3216	-0.7292	0.0000
INDPROD (% change)	0.0451	0.0327	-0.0024	0.0972	-0.0062	0.0373	-0.0613	0.0405	0.0054	0.0453	-0.0719	0.0408
Panel 2: City Banks												
dLOANS	0.06970	0.03328	-0.01021	0.20707	0.01725	0.05126	-0.07621	0.57721	0.00510	0.03478	-0.15080	0.24560
GAINS	0.00271	0.00183	0.00001	0.01076	0.00251	0.00266	-0.00065	0.01398	0.00449	0.00398	-0.00297	0.02328
PROV	0.00039	0.00038	0.00000	0.00299	0.00092	0.00126	0.00001	0.01328	0.00715	0.00651	0.00040	0.03494
NETDIV	0.000544	0.000191	0.000000	0.000932	0.000487	0.000108	0.000000	0.000891	0.000401	0.000000	0.000000	0.000867
ASSETS (Yen, mills.)	8,947,715	13,380,316	1,114,668	66,590,841	11,642,080	16,563,218	1,626,591	62,573,290	11,553,512	16,722,010	1,765,391	81,946,229
CASH (Yen, mills.)	1,565,823	3,033,244	29,313	16,659,051	1,451,275	2,566,001	41,257	13,211,206	798,290	1,617,127	28,535	12,247,709
INVSTMT (Yen, mills.)	1,268,918	1,482,329	170,499	7,066,349	1,698,712	1,927,945	231,978	7,115,320	1,864,066	2,299,413	215,689	10,880,048
LNASS	0.63117	0.08303	0.37442	0.77283	0.65828	0.07480	0.40527	0.79438	0.68894	0.06649	0.47983	0.80407
LLRESERVE (Yen, mills.)	34,711	53,726	3,660	300,786	65,470	109,774	4,324	691,420	200,161	298,055	6,114	1,599,066
RSRVRAT	0.00407	0.00143	0.00184	0.01033	0.00467	0.00236	0.00197	0.02025	0.01571	0.01049	0.00301	0.05799
TLIAB	8,708,941	13,056,497	1,080,497	64,841,050	11,223,165	16,022,632	1,567,273	60,749,304	11,154,672	16,198,273	1,729,937	80,081,537
CAP	0.03120	0.00700	0.01699	0.04934	0.03891	0.00625	0.02538	0.05744	0.03852	0.01043	0.01392	0.07942
NET_INCOME (Yen, mills.)	23,612	36,659	1,905	198,314	13,233	29,630	-335,498	135,531	-47,582	124,197	-900,575	53,995
NONDISC_INCOME (Yen, mills.)	22,219	33,386	-105,659	162,707	-1,133	60,211	-568,720	201,222	-30,531	111,295	-576,000	178,302
ROI	0.00341	0.00198	-0.00497	0.01092	0.00000	0.00313	-0.01199	0.00734	0.00038	0.00620	-0.05039	0.00977
Panel 3: Regional Banks												
dLOANS	0.07290	0.03897	-0.03089	0.20305	0.02438	0.03690	-0.15546	0.11447	0.02531	0.11826	-0.05767	1.00678
GAINS	0.00239	0.00134	-0.00009	0.00823	0.00243	0.00327	-0.00041	0.02020	0.00273	0.00251	-0.00056	0.00940
PROV	0.00053	0.00050	0.00000	0.00258	0.00088	0.00087	0.00002	0.00457	0.00860	0.01017	0.00026	0.05568
NETDIV	0.000391	0.000260	0.000000	0.000801	0.000467	0.000104	0.000000	0.000811	0.000357	0.000170	0.000000	0.000634
ASSETS (Yen, mills.)	1,190,974	312,554	582,651	2,030,612	1,591,327	375,787	926,037	2,526,541	1,756,805	605,226	936,704	5,398,154
CASH (Yen, mills.)	62,480	23,762	16,331	117,863	76,433	61,185	15,118	442,167	77,453	78,909	17,728	461,783
INVSTMT (Yen, mills.)	233,850	106,967	69,665	688,663	284,728	113,253	104,864	729,167	288,654	153,804	92,086	1,146,789
LNASS	0.68250	0.05632	0.48178	0.79609	0.71053	0.08754	0.38235	0.80132	0.74215	0.07437	0.47331	0.85484
LLRESERVE (Yen, mills.)	5,982	3,325	2,010	20,429	7,720	4,515	2,359	37,736	29,733	21,409	5,933	105,168
RSRVRAT	0.00506	0.00220	0.00186	0.01294	0.00493	0.00275	0.00191	0.02229	0.01801	0.01374	0.00378	0.06730
TLIAB	1,153,157	297,203	569,815	1,901,181	1,526,708	353,631	898,186	2,361,892	1,688,030	581,153	904,594	5,237,825
CAP	0.03069	0.00832	0.02045	0.07240	0.03972	0.01010	0.02820	0.07611	0.03833	0.01205	0.01187	0.08556
NET_INCOME (Yen, mills.)	2,842	1,336	870	7,493	817	17,140	-163,959	7,367	-5,953	18,341	-100,415	40,219
NONDISC_INCOME (Yen, mills.)	4,102	2,994	-3,777	13,622	1,373	18,627	-168,216	13,733	4,544	9,561	-30,026	43,438
ROI	0.00343	0.00199	0.00775	0.00079	0.00079	0.01105	-0.09937	0.00646	0.00000	0.00552	-0.02006	0.02881

3. Data and Methodology

3.1. Data

We compile a large data set, with annual income statements and balance sheet data for 78 Japanese banks over a 15-year study period, 1985-1999. Our source of the bank-level variables is the Pacific-Basin Capital Market Research Center (PACAP) Database-Japan, which is jointly created and maintained by the University of Hawaii and University of Rhode Island in collaboration with the Daiwa Institute of Research and the Tokyo Keizai Inc.

3.2. Methodology

We estimate a simultaneous equation model to analyze the discretionary accounting practices of Japanese banks on four decision variables: lending, securities gains, loan loss provision, and dividends. This model assumes that Japanese banks periodically and simultaneously adjust their decisions to achieve their objective of income smoothing and/or capital arbitrage. Specifically, the equations for securities gains and loan loss provision offer empirical evidence of the extent to which Japanese banks use discretionary accounting to smooth reported earnings, while the equations for lending and dividends reflect decision making about investment and financial activities, respectively.[12] These four financing decisions are functions of financial bank attributes as well as other exogenous variable. Please refer to the appendix for definitions of each variable.

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[12] Several other studies have used a similar model specification, like Greenawalt and Sinkey (1988) and Moyer (1990). However, our specification is based on the work by Shrieves and Dahl (2002), where they also model a simultaneous model with four equations.

$$dLOANS_{it} = \alpha_0 + \alpha_1 REG_{it} + \alpha_2 ASSETS_{it-1} + \alpha_3 LNASS_{it-1} + \alpha_4 INDPROD_{it}$$
$$+ \alpha_5 CAPLO_{it-1} + \alpha_6 CAPMID_{it-1} + \alpha_7 CAPHI_{it-1} + \alpha_8 ROI_{it} + \alpha_9 (ROI * NEG)_{it}$$
$$+ \alpha_{10} GAINSs_{it} + \alpha_{11} PROV_{it} + \alpha_{12} NETDIV_{it} + \varepsilon_{it} \qquad (1)$$

$$GAINS_{it} = \beta_0 + \beta_1 REG_{it} + \beta_2 ASSETS_{it-1} + \beta_3 LNASS_{it-1} + \beta_3 STOCK_{it} + \beta_5 PRIME_{it}$$
$$+ \beta_6 CAPLO_{it-1} + \beta_7 CAPMID_{it-1} + \beta_8 CAPHI_{it-1} + \beta_9 ROI_{it} + \beta_{10} (ROI * NEG)_{it}$$
$$+ \beta_{11} dLOANS_{it} + \beta_{12} PROV_{it} + \beta_{13} NETDIV_{it} + \xi_{it} \qquad (2)$$

$$PROV_{it} = \delta_0 + \delta_1 REG_{it} + \delta_2 ASSETS_{it-1} + \delta_3 RSRVRAT_{it-1} + \delta_4 LAND_{it}$$
$$+ \delta_5 CAPLO_{it-1} + \delta_6 CAPMID_{it-1} + \delta_7 CAPHI_{it-1} + \delta_8 ROI_{it} + \delta_9 (ROI * NEG)_{it}$$
$$+ \delta_{10} dLOANSs_{it} + \delta_{11} GAINS_{it} + \delta_{12} NETDIV_{it} + \psi_{it} \qquad (3)$$

$$NETDIV_{it} = \gamma_0 + \gamma_1 REG_{it} + \gamma_2 ASSETS_{it-1} + \gamma_3 NETDIV_{it-1} + \gamma_4 CAPLO_{it-1} + \gamma_5 CAPMID_{it-1}$$
$$+ \gamma_6 CAPHI_{it-1} + \gamma_7 ROI_{it} + \gamma_8 (ROI * NEG)_{it} + \gamma_9 dLOANSs_{it} + \gamma_{10} GAINS_{it}$$
$$+ \gamma_{10} NETDIV_{it} + \omega_{it} \qquad (4)$$

Since our focus is on income smoothing and capital arbitrage behavior, we summarize in Table 2 below the expected signs of key coefficients in each equation. In the lending equation (dLOANS), if regulatory capital constrains bank lending, then we expect (i) the three capital-to-assets ratios (CAPLO, CAPMID, CAPHI), return on investment (ROI), and gains/losses on sale of securities (GAINS) to be positively related to dLOANS; and (ii) loan loss provisions (PROV) and net dividend payouts (NETDIV) to be negatively related to dLOANS. In the equation for gains/losses on sale of securities (GAINS) equation, if income smoothing and capital arbitrage behavior exists, we expect: (i) lending (dLOANS), loan loss provisions (PROV), as well as net dividend payouts (NETDIV) to be directly related to GAINS; and (ii) the three capital-to-assets (CAPLO, CAPMID, CAPHI) and the return on investment (ROI) to be negatively related to GAINS. Likewise, if income smoothing and capital arbitrage behaviors exist, then: (i) the three capital-to-assets ratios (CAPLO, CAPMID, CAPHI), the return on investment (ROI) and gains/losses from sale of securities (GAINS) should positively impact loan loss provisions (PROV); (ii) lending (dLOANS) as well as net dividend payouts (NETDIV) should be inversely

related to PROV. And finally, CAPLO, CAPMID, CAPHI, ROI, and GAINS (dLOANS and PROV) should positively (negatively) affect net dividend payouts (NETDIV).

Table 2: **Expected Signs of Key Variables Under Income Smoothing and Capital Arbitrage**

	dLOANS	GAINS	PROV	NETDIV	ROI	CAPLO	CAPMID	CAPHI
dLOANS	NA	+	–	–	+	+	+	+
GAINS	+	NA	+	+	–	–	–	–
PROV	–	+	NA	–	+	+	+	+
NETDIV	–	+	–	NA	+	+	+	+

4.   Empirical Results

4.1.   Table 3 presents the empirical results of each financial decision variable for each of the three periods: high-growth period (1985-1989); financial distress period (1990-1994); and banking crisis period (1995-1999). This break-down facilitate the comparison and contrast of Japanese banks' decisions in lending, gains from sales of securities, loan loss provisions, and net dividend across the three subperiods.

Equations		Period: 1985-1989 (No. of Obs. = 376)			Period: 1990-1994 (No. of Obs. = 376)			Period: 1995-1999 (No. of Obs. = 352)		
		Coeff. Est.	t-stat	Adj. R^2	Coeff. Est.	t-stat	Adj. R^2	Coeff. Est.	t-stat	Adj. R^2
dLOANS =	Interceqt	-0.1088	-1.46	0.1090	0.1990	2.19 **	0.0629	0.0253	0.17	0.0439
	REG	0.0158	2.97 ***		0.0007	0.09		0.0189	1.38	
	ASSETS_t-1	0.0080	2.47 **		-0.0041	-1.04		-0.0028	-0.4	
	LNASS_t-1	0.0987	2.23 **		-0.0915	-1.59		0.0106	0.12	
	INDPROD	0.1751	3.12 ***		0.1921	2.51 ***		0.0174	0.11	
	CAPLO_t-1	-1.1126	-1.37		-2.1824	-1.89 *		1.9881	1.02	
	CAPMID_t-1	-0.6773	-1.17		-1.9892	-2.44 **		0.7982	0.57	
	CAPHI_t-1	-0.3293	-0.74		-1.6819	-2.67 ***		0.5339	0.49	
	ROI	0.7245	0.39		2.8774	1.38		4.7834	2.34 **	
	ROI*NEG	-4.3884	-0.81		-3.9231	-2.08 **		-2.6729	-1.16	
	GAINS	3.9971	1.47		-3.8802	-1.07		5.7442	1.08	
	PROV	-23.6446	-2.79 ***		-7.0649	-1.34		-3.0528	-1.51	
	NETDIV	4.7783	0.35		36.9272	0.85		-63.4373	-0.97	
GAINS =	Interceqt	0.00767	2.51 ***	0.5143	0.01492	4.29 ***	0.5763	0.00861	1.11	0.3387
	REG	-0.00026	-1.12		0.00029	0.91		-0.00123	-1.78 *	
	ASSETS_t-1	0.00004	0.28		-0.00051	-3.13 ***		-0.00005	-0.16	
	LNASS_t-1	-0.00857	-5.45 ***		-0.00957	-5.29 ***		-0.00916	-2.42 **	
	STOCKS	-0.00757	-2.43 **		-0.00080	-0.47		0.00031	0.01	
	PRIME	-0.00061	-3.36 ***		0.00030	2.67 ***		-0.00150	-0.25	
	CAPLO_t-1	0.09260	2.94 ***		0.00532	0.11		-0.08504	-0.91	
	CAPMID_t-1	0.06781	3.05 ***		-0.01290	-0.39		-0.07451	-1.13	
	CAPHI_t-1	0.07448	4.35 ***		-0.00492	-0.19		-0.06048	-1.17	
	ROI	-0.57197	-11.74 ***		-0.80979	-12.18 ***		-0.47023	-5.36 ***	
	ROI*NEG	-0.70265	-3.39 ***		0.72455	9.8 ***		0.44909	3.98 **	
	dLOANS	0.02180	3.26 ***		-0.01923	-1.38		0.00651	0.56	
	PROV	1.36755	4.03 ***		1.01420	4.29 ***		0.34389	4.37 ***	
	NETDIV	-1.56276	-2.93 ***		6.27138	3.95 ***		8.83698	4.43 ***	
PROV =	Interceqt	-0.00093	-1.99 **	0.3323	-0.00089	-0.57	0.2074	0.01268	1.09	0.3552
	REG	0.00006	1.07		-0.00002	-0.09		0.00326	2.54 ***	
	ASSETS_t-1	0.00003	0.86		0.00006	0.7		-0.00010	-0.18	
	RSRVRAT_t-1	0.12735	8.92 ***		0.21843	3.96 ***		0.19178	2.09 **	
	LAND	-0.00182	-2.11 **		-0.00688	-3.16 ***		0.34129	2.33 **	
	CAPLO_t-1	-0.01763	-2.18 **		-0.00613	-0.21		0.33271	1.96 **	
	CAPMID_t-1	-0.00732	-1.27		-0.00323	-0.16		0.27719	2.34 **	
	CAPHI_t-1	-0.01014	-2.29 **		0.00366	0.24		0.27371	3.07 ***	
	ROI	0.13021	8.29 ***		-0.00695	-0.15		-0.43392	-2.15 **	
	ROI*NEG	-0.03209	-0.59		0.07623	1.66 *		0.70286	3.4 ***	
	dLOANS	0.00139	1.04		0.01494	1.16		-0.00118	-0.05	
	GAINS	0.14590	6.84 ***		0.16241	1.83 *		1.09800	3.11 ***	
	NETDIV	-0.21954	-1.64 *		-0.90151	-0.88		-14.85640	-2.36 **	
NETDIV =	Interceqt	0.00003	0.2	0.7429	0.00005	0.51	0.5683	0.00001	0.05	0.3323
	REG	0.00000	0.12		0.00002	1.84 *		0.00009	2.45 ***	
	ASSETS_t-1	0.00001	1.02		0.00000	0.49		0.00000	-0.22	
	NETDIV_t-1	0.69175	21.91 ***		0.57240	14.39 ***		0.37347	3.44 ***	
	CAPLO_t-1	-0.00411	-1.57		0.00500	2.79 ***		0.00860	1.65 *	
	CAPMID_t-1	-0.00104	-0.56		0.00378	3.03 ***		0.00649	1.78 *	
	CAPHI_t-1	-0.00057	-0.4		0.00366	3.87 ***		0.00590	2.12 **	
	ROI	0.01135	2.05 **		-0.00507	-1.74 *		0.00844	1.61	
	ROI*NEG	-0.00367	-0.21		0.01254	4.37 ***		-0.00098	-0.16	
	dLOANS	-0.00051	-1.62		-0.00083	-2.09 **		-0.00050	-0.8	
	GAINS	0.01513	1.92 *		0.00631	1.7 *		0.04620	5.89 ***	
	PROV	-0.03952	-1.39		-0.00479	-0.59		-0.02290	-6.92 ***	

*** / ** / * Significant at the 99% / 95% / 90% Confidence Level, respectively.

Bank Lending

The first equation in Table 3 shows the empirical results for various factors that determine bank-lending decisions (dLOANS). First, non-discretionary income as a percent of assets (ROI) is significant and positively related to lending only during the most recent period. This implies that lending activities on average were severely hindered by the decline of the return on investment during the period in which Japanese banks are experiencing further deterioration of balance sheets and severe capital constraint. During the financial duress period, however, the decline in ROI on average stimulates the lending activities of banks with negative nondiscretionary income. Second, loan loss provisions as a percent of assets have an inverse relationship with banks' loan growth only during the high-growth period but not during the periods of financial duress and the acute banking crisis.

All three ranges of capital ratios for (CAPLO, CAPMID, CAPHI) are significant, but surprisingly, negative in determining bank-lending activities during financial duress period. Our results for this second period reinforce and at the same time contradict the findings of Shrieves and Dahl's as follows. Our negative and significant coefficients for CAPMID and CAPHI concur with Shrieves and Dahl's negative (although their findings are statistically insignificant) estimates, suggesting that lending by banks with capital ratios in middle and high quartiles were not constrained by the lack of regulatory capital. Our negative and significant estimate of CAPLO contradicts their positive but insignificant estimate. Hence, our findings indicate that bank lending – even by those with lower capital ratios - was not constrained by the lack of regulatory capital. The implication of this finding is that with the introduction of the Basle Accord, any increase in banks' capital-to-assets ratios could have been aimed to improve their capital position rather than to expand loan portfolio. Similarly, Horiuchi and Shimizu (1995) find that Japanese banks that increased their equity capital had a reduction in lending. Likewise, Hall (1993) argues that in order to maintain adequate levels of capital, Japanese banks reduced

their loan portfolios during the 1990-93 period as a way to reduce the percent of risky assets in their portfolios.

Also interesting is that only during the high-growth period do we find that lending growth is significantly stimulated by the demand for loans (measured by the growth of industrial production) only in the first two periods, and by increasing beginning-of-the-period assets. This suggests that accumulation of assets did not significantly increase the lending portfolio of Japanese banks during the periods of financial distress and banking crisis. Also worthy of note is the finding that the average lending activities for the smaller regional banks were higher than those of the larger city banks only during the high-growth period and were not significantly different during the other two subperiods.

4.2. Security Gains

The second equation in Table 3 illustrates the important determinants of bank decisions to realize gains from sales of securities during the high-growth, financial distress, and banking crisis periods. First note that equity-to-assets ratios (CAPLO, CAPMID, and CAPHI) are positively significant only in the first period, suggesting that banks were not constrained by regulatory capital requirements during the high-growth period. While net dividends have a significantly negative impact on realized gains during the high-growth period, any increase in dividend payouts raises the propensity of banks to realize gains on the sale of securities during the financial distress and banking crisis periods. More importantly, the empirical evidence of banks using realized gains as a means to smooth income prevails throughout all three periods, which is consistent with the findings of Shrieves and Dahl (2002) for the financial distress period they examined. While the degree of using realized gains to smooth income is stronger for banks with negative nondiscretionary income earnings during the high-growth period, it is weaker during the latter two subperiods. Moreover, the coefficient for loan loss provisions is significantly positive throughout all three periods, suggesting that any increase in provisions, which results in reducing income, prompted banks to increase gains from sale of securities.

Other interesting findings include: (i) the average gains from sales of securities are smaller for regional banks as compared to city banks during the most recent period in which banks face more severe balance sheet problems; (ii) the stock market index significantly and negatively affects security gains during the high-growth period, suggesting that the Japanese banks did not sell their equities to realize gains when the stock market was performing relatively well during the high-growth period; and (iii) the prime-lending rate is significantly negative during the high-growth period but is significantly positive during the two periods of financial distress and banking crisis.

Loan Loss Provision

The third equation in Table 3 shows the factors influencing bank decisions to provision for loan losses (PROV) for each of the three periods. We find that security gains are positively related to provisions throughout the three periods, suggesting banks on average used the gains from the sale of securities to offset the negative impact of provisions on income. In general, income-smoothing behavior with respect to loan loss provisions is found only during the high-growth period as the nondiscretionary income is positively and significantly related to provisions only during this period. Thus, unlike the findings of Shrieves and Dahl (2002), we find that during the period of financial distress, Japanese banks on average did not use loan loss provisions to smooth income. However, banks with negative nondiscretionary income display some degree of income-smoothing behavior by decreasing the provisions-to-assets ratio in response to a decrease in ROI during the latter two subperiods.

More interestingly, during the latter periods of financial distress and banking crisis, banks increased loan loss provisions (instead of decreasing them as implied by the income smoothing and capital-arbitrage hypothesis) in the face of declining nondiscretionary income. This finding suggests that mounting non-performing loans as well as rigorous regulatory capital requirements during this most recent period may have restricted banks from using loan loss provisions to engage in income-smoothing and capital-arbitrage behavior. Though some degree

of income smoothing and capital-arbitrage behavior by means of loan loss provisions does persist for banks with negative nondiscretionary income during these two periods of capital constraint.

In addition, we find that across the three periods, banks with declining loan loss reserves at the beginning of the period tend to set lower levels of loss provisions as well. This finding is not consistent with prudent risk management since we expect banks to increase their provisions for losses in the face of a decline in loan loss reserves, particularly in the latter two periods of rising non-performing loans.[13] Moreover, since the real estate price index is a measure of the risk characteristics of the banks' loan portfolio, a significantly negative relationship between real estate price index (LAND) and provision-to-assets (PROV) exists during both the high-growth as well as the two periods of financial distress and banking crisis. However, despite the fact that banks increased their loan loss provisions enormously during the banking crisis period, banks may have also understated these provisions relative to loan portfolio risks as measured by the declining real estate price index.

Furthermore, the finding that higher dividend payouts on average reduces banks' propensity to provision for loan losses suggests that while banks continued to put emphasis on conveying positive earnings information to investors, prudent risk management may have been compromised. The slight reduction of average net dividend payouts during the later period in which banks faced capital constraints and severe bad loans allowed banks to slightly increase their loan loss provisions in the face of accumulating bad loans. Furthermore, equity-to-assets ratios (CAPLO, CAPMID, and CAOPHI) are significantly and negatively related to provisions only during the high-growth period, suggesting that since investments were not constrained by the BIS regulatory capital requirement during the high-growth period, banks may have understated their loan loss provisions. The relationship between equity-to-assets ratio and loan

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[13] For example, Hanazaki and Horiuchi (2003) document that the portion of non-performing loans not covered by loan loss reserves increased from ¥13.8 trillion in March 1998 to ¥18.4 trillion in March 1999.

loss provisions is significantly positive during the banking crisis period with an increasing non-performing loans, suggesting that any increase in capital relative to assets was used to increase their loan loss provisions. Finally, regional banks had on average higher loan loss provisions as compared to city banks only during the 1995-1999 period. This suggests that regional banks may have had higher shares of non-performing loans relative to regional banks during the latter two subperiods, and/or banks were relatively more prudent in managing their risk exposure.

4.3. Net Dividends

The final equation in Table 3 examines the factors that explain banks' decisions on dividend payouts (NETDIV) during three subperiods. First, note that the coefficients on capital-to-assets ratios (CAPLO, CAPMID, and CAPHI) indicate a significant and positive impact on net dividend decisions of Japanese banks during the periods of financial distress and banking crisis, suggesting that build up of equity capital as a share of assets enabled firms to maintain stable dividend payouts. Moreover, any increase in bank lending is partially financed by lowering dividend payments to investors since the growth in bank loans inversely impacts net dividends, although this was statistically significant during the latter two subperiods.

Another notable finding is that banks' decision on dividend payments are positively and significantly related to the previous period's cash dividend (NETDIV_t-1), implying that banks aimed to achieve a stable growth of dividend earnings for their investors during all three periods. Furthermore, any increase in gains from sale of securities prompts banks to increase dividend payouts throughout all three periods, while any increase in loan loss provisions induces banks to reduce dividend payouts only during the banking crisis period. Net dividends are significantly and positively determined by non-discretionary income during the high-growth period. These results suggest that Japanese banks on average were less likely to pay dividends in the face of declining nondiscretionary earnings and increasing loan loss provisions during the periods of financial distress and banking crisis, unless of course they can realize gains from sale of securities. The relationship between ROI and NETDIV is significantly negative during the

financial distress period, with those banks that endured negative non-discretionary income (ROI*NEG) significantly increasing their net dividend payouts in the face of higher ROI during this same period. Thus, while banks on average maintained growth in net dividend payouts in the face of declining ROI during the financial distress period, banks with negative nondiscretionary income may have been required to reduce dividend payouts. Finally, the regional bank dummy (REG) is positive and significant during both of the periods of financial distress, indicating that dividend payments during these two periods were on average higher for the smaller regional banks relative to the larger city banks that maintain their main banking relationship with *Keiretsu* firms.

4.4. Specification Tests

We have conducted two formal tests for the Two-Stage Least Square (2SLS) model. The first test examines whether the parameters from OLS and 2SLS methods are equal, as they would be in the absence of simultaneity or model misspecification. Hausman's (1978) specification test rejects the hypothesis of equivalence of the parameters in each of the four equations. These results support the assumption of endogeneity in lending, security gains, loan loss provision, and net dividends. Furthermore the results also indicate that OLS estimation may entail simultaneous equation bias.

The second test for model misspecification consists of a regression of the residuals from each equation in the 2SLS model on all the instruments and computing tests of the hypothesis that the coefficients in each equation are jointly zero. The results show that none of the tests were significant at even the 10% level.

5. Conclusion

This paper analyzes the use of loan loss provisions and realized gains from securities portfolios as means to manage earnings by 78 Japanese banks over a 15 year-period (1985-1999). Specifically, we break down our analysis into three distinct periods that characterize the

evolution of the Japanese banking system: (1) high-growth era (1985-1989); (2) financial distress period (1990-1994); and (3) banking crisis period (1995-1999).

With regard to the income smoothing behavior, we find that Japanese banks used gains from sale of securities used as a means to smooth income throughout all three periods. This finding suggests that Japanese banks realized gains from sale of securities in order to offset the adverse impact of loan loss provisions on income in order to smooth income. However, the propensity to use realized gains to smooth income is larger [smaller] for banks with negative nondiscretionary income during the high-growth period [the latter two subperiods]. Our findings encompass the period studied by Shrieves and Dahl (2002) and are consistent with their findings over the same period.

On the other hand, we also find that Japanese banks used loan loss provisions to manage earnings only during the high-growth period. During the period of financial distress, we find that only banks with negative nondiscretionary earnings increased provisions-to-assets relationships relative to increases of ROI. During the most recent period of banking crisis, however, our empirical results suggest that while banks with negative nondiscretionary income used loan loss provisions as a means to smooth income, Japanese banks on average increased their provisions-to-assets in the face of declining returns on investment. This finding implies that during this period of rising non-performing loans and a more intense banking crisis, banks needed to increase their share of provisions-to-asset. In turn, this limited their ability to use provisions as a means of smoothing income. On the other hand, banks with negative nondiscretionary earnings continued to use provisions to smooth income despite mounting bad loans, indicating that these banks engaged in income smoothing by understating their provisions-to-assets.

We also observe that the lending activities by Japanese banks were significantly impacted by different factors during all three subperiods. During the high-growth period (1985-1989), the three factors contributing significantly to the growth of Japanese banks' loan portfolio

were the rapid economic growth (hence high demand for loans), the banks 'objective to maintain a steady loan-to-assets ratio, and the banks' rising assets. On the other hand, while contracting macro-economic conditions significantly depressed the overall lending activities of Japanese banks during the financial distress period (1990-1994), the decline in the return on investment of banks that endured negative nondiscretionary earnings significantly helped improve their loan portfolio.

Furthermore, during the banking crisis period (1995-1999), overall bank lending was significantly hindered by the decline of the return on investment. More importantly, the empirical results do not support the notion that during the early financial distress period, Japanese banks actually used loan loss provisions and security gains to replenish regulatory capital as suggested by the regulatory capital-arbitrage hypothesis. Our findings of significant and negative coefficients for the capital-to-assets ratios imply that the increased capital-to-assets ratios of Japanese banks, aimed to improve the capital position following the introduction of the Basle Accord, resulted in a decline in loan growth. Hence, it seems that Japanese banks decreased their lending position as their capital position improved during the early period of financial distress. Horiuchi and Shimizu (1995) also observed that Japanese banks with increased equity capital reduced their loan portfolios. Furthermore, Hall (1993) contends that in order to maintain adequate levels of capital, Japanese banks reduced their loan portfolios during the 1990-1993 period as a way to reduce the amount of risky assets in their portfolios.

Moreover, we find that Japanese banks did not significantly account for additional risk-taking activities, e.g., increasing their provisions when their loan portfolio increased during the high growth period. We also find that the banks were not entirely prudent when managing risk. Our results indicate that banks reduced their provisions-to-assets when loan loss reserves declined during all three periods. Furthermore, banks understated their loan loss provisions when the collateral value of their loans significantly declined during the banking crisis period.

Finally, we also find that current dividend policy is significantly guided by the previous period's dividend payouts in all three subperiods, indicating that Japanese banks give great importance to stable growth dividend earnings for investors. Higher capital equity prompts banks to increase dividend payouts during the periods of financial distress and banking crisis. Furthermore, to achieve higher dividend payouts, banks increased realized gains from the sale of securities during the 1995-1999 period in which the stock market deteriorated significantly. However, dividend payouts were significantly deterred by any increases in banks' lending activities during the period of financial distress, while it was necessary for banks to understate their loss provisions in order to maintain stable dividend payout growth during the period of severe banking crisis that followed.

References

Barth, M. E., J. A. Elliot, and W. W. Finn, 1999, Market rewards associated with patterns of increasing earnings, *Journal of Accounting Research* 37, 387-413.

Beaver, W.H. and E.E. Engel, 1996 Discretionary behavior with respect to allowances for loan losses and the behavior of security prices, *Journal of Accounting and Economics* 22, 177-206.

Beatty, A., S. Chamberlain, and J. Magliolo, 1995, Managing financial reports of commercial banks: The influence of taxes, regulatory capital and earnings, *Journal of Accounting Research* 33, 231-262.

Bhattacharya, U., H. Daouk, and M. Welker, 2002, The world price of earnings opacity, Indiana University Working Paper.

Bonner, S.E., Z. V. Palmrose, and S. M. Young, 1998, Fraud type and auditor litigation: An analysis of SEC accounting and auditing enforcement releases, *Accounting Review* 73, 503-532.

Burgstahler, D. and I. Dichev, 1997, Earnings management to avoid earnings decreases and losses, *Journal of Accounting and Economics* 24, 99-126.

Cargill, T., 1999, what caused the current banking crisis, manuscript, University of Nevada, Reno.

Collins, J. H., D. A. Shackelford, and J. M. Wahlen, 1995, Bank Differences in The Regulator Capital, Earnings, and Taxes, *Journal of Accounting Research* 33, No. 2, 263-291.

De Angelo, L. E, 1986, Accounting Numbers as Market Valuation Substitutes: A study of management buyouts of public stockholders, *Accounting Review* 61, 400-420.

DeFond, M. L. and J. Jiambalvo, 1994, Debt covenant violation and manipulation of accruals, *Journal of Accounting and Economics* 17, 145-176.

Degeorge, F., J. Patel, and R. Zeckhauser, 1999, Earnings management to exceed thresholds, *Journal of Business* 72, 1-33.

Fukao, M., 2001, Financial deregulations, weakness of market discipline, and market development: Japan's experience and lessons for developing countries, Keio University Working Paper.

Gaver, J. J., K. M. Gaver, and J. R. Austin, 1995, Additional evidence on bonus plans and income management, *Journal of Accounting and Economics* 19, 3-28.

Genay, H., 1998, Assessing the condition of Japanese banks: How informative are accounting earnings? *Federal Reserve Bank of Chicago Economic Perspectives* (Fourth Quarter), 12-34.

Greenwalt, M. B., and J. F. Sinkey, 1988, Bank loan-loss provision and the income-smoothing hypothesis: An empirical analysis, 1976-1984, *Journal of Financial Services Research* 1, 301-318.

Hall, B.J., 1993, how has the Basle Accord affected bank portfolios? *Journal of the Japanese and International Economies* 7, 408-440.

Hanazaki, Masaharu, and Akiyoshi Horiuchi, 2003, A Review of Japan's Bank Crisis from the Governance Perspective, forthcoming in *Pacific-Basin Finance Journal*.

Hausman, J. A., 1978, Specification tests in econometrics, *Econometrica* 46, 1251- 1271.

Healy, P.M., and J.M. Wahlen, 1998, A review of the earnings management literature and its implications for standard setting, Working Paper Series, Kelley School of Business, Indiana University.

Holthausen, R. W., D. F. Larcker, and R. G. Sloan, 1995, Annual bonus schemes and the manipulation of earnings, *Journal of Accounting and Economics* 19, 29-74.

Horiuchi, A. and K. Shimizu, 1995, The deterioration of banks' balance sheets in Japan: Risk-taking and recapitalization, University of Tokyo working paper.

Hoshi, T., and A. Kashyap, 1999, The Japanese banking crisis: Where did it come from and how will it end, NBER Macroeconomic Annual 1999.

Hoshi, T., and A. Kashyap, 2001, Corporate financing and governance in Japan: The road to the future, MIT Press.

Hoshi, T., 2001, What Happened to Japanese Banks, Institute for Monetary and Economics Studies, Bank of Japan.

Ito, T., and Y. N. Sasaki, 1998, Impact of the Basle capital standard on Japanese banks' behavior, NBER Working Paper Series, Working Paper #6730.

Kim, M., and W. Kross, 1998, The impact of the 1989 change in bank capital standards on loan loss provisions and loan write-offs, *Journal of Accounting and Economics* 25, 69-99.

McNichols, M., and G. P. Wilson, 1988, Evidence of earnings management from the provision of bad debt, *Journal of Accounting Research* 26, 1-31.

Mills, L. and K. Newberry, 2002, The influence of tax and non-tax costs on book-tax reporting differences: Public and private firms, forthcoming in *Journal of the American Taxation Association.*

Moyer, S., 1990, Capital Adequacy ratio regulations and accounting choice in commercial banks, *Journal of Accounting and Economics* 13, 123-154.

Phillips, J., M. Pincus, and S. O. Rego, 2002, Earnings management: New evidence based on firms' tax footnote disclosures, University of Iowa Working Paper.

Pourciau, S., 1993, Earnings management and nonroutine executive changes, *Journal of Accounting and Economics* 16, 317-336.

Rangan, S., 1998, Earnings management and the performance of seasoned equity offerings, *Journal of Financial Economics* 50, 101-122.

Scholes, M. S., G. P. Wilson, and M. Wolfson, 1990, Tax planning, regulatory capital planning, and financial reporting strategy for commercial banks, *Review of Financial Studies*, 3, 625-650.

Shrieves, R. E., and D. Dahl, 2002, Staying afloat in Japan: Discretionary accounting and the behavior of banks under financial duress, forthcoming, *Journal of Banking and Finance*.

Shrieves, R. E., 1999, Who's in charge? The evolution of bank ownership and control of keiretsu firms, 1984-1996, University of Tennessee Working Paper.

Teoh, S., I. Welch, and T. J. Wong, 1998a, Earnings management and the underperformance of seasoned equity offerings, *Journal of Financial Economics* 50, 63-99.

Teoh, S., T. J. Wong, and G. Rao, 1998b, Are accruals during initial public offerings opportunistic? *Review of Accounting Studies* 3, 175-208.

Ueda, K., 2000, Causes of the Japanese banking instability in the 1990's, in Taheo Hoshi and Hugh Patrick, eds. Crisis and Change in the Japanese Financial System, Boston, Massachusetts: Kluwer Academic Publishers, pp. 59-81.

Wahlen, J. M., 1994, The nature of information in commercial bank loan disclosure, *The Accounting Review* 69, 455-478.

Appendix

We follow Shrieves and Dahl (2002) for the definitions of all variables in the simultaneous equation system. The only deviation from their variables is our measure of capital ratios. Instead of using surplus regulatory capital ratios (BIS) as in Shrieves and Dahl's study, we use the overall equity capital ratios (CAP) because of the difficulty in measuring risk-weighted capital during the transition period, during which the banking regulator did not fully enforce the reported BIS ratios in Japan. We are comforted by Shrieves and Dahl's acknowledgement that the use of CAP measures leads to similar conclusions. The endogenous and exogenous variables as well as bank characteristics are defined as follows.

Endogenous Variables:

dLOANS = one year change in total loans / beginning of year total assets

GAINS = gains/losses on sale of securities / beginning of year total assets

PROV = provision for loan loss / beginning of year total assets

NETDIV = cash dividends (net of stock issuance) / beginning of year total assets

Banks Financial Characteristics:

REG = 1 for regional banks, and 0 for city banks

$ASSETS\_t-1$ = log of total assets (lag)

$LNASS\_t-1$ = total loans / total assets (lag)

$RSRVRAT\_t-1$ = loan loss reserves / total assets (lag)

$CAPi\_t-1$ = equity capital / total assets (lag), where i = LO, MID, and HI for capital-to-assets
    in the lowest quartile, two middle quartiles, and highest quartile

ROI = non-discretionary earnings / total assets

NEG = 1 for banks with negative non-discretionary income, and 0 otherwise

Exogenous Variables:

STOCKS = two-year average percent change of the Tokyo Stock Exchange price index

PRIME = two-year average change in long-term prime lending rate

LAND = two-year average percent change the land price index

INDPROD = two-year percent change of the industrial production index