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## 6. Implications of the Health of the Japanese Banking Sector for the Effectiveness of Monetary Policy

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### Executive Summary

Japanese banks were very weak and, perhaps not coincidentally, bank lending declined during much of the time Japan's zero interest rate (ZIRP) and quantitative easing (QEP) policies were in place. This note examines whether banking sector weakness lessened the effectiveness of monetary policy during the ZIRP and QEP. To address this question, we survey the economic literature on bank lending in Japan during this period. Although the results from the literature are somewhat mixed, in our view, the evidence suggests that weak bank health did reduce the effects of monetary policy loosening during the ZIRP and the early years of the QEP. In addition, the literature suggests that the weakening of borrower balance sheets—i.e., borrowers became less creditworthy—also reduced the impact of monetary policy. Finally, we examine what effect the ZIRP and QEP may have had on bank health and conclude that bank profits were affected little by these policies.

### Background on the Japanese Banking Crisis

The Japanese banking crisis began in the 1990s, as Japanese banks struggled with a large amount of nonperforming loans (NPLs, the top left panel of the exhibit), significant loan losses, and negative profits (the middle left panel). Bank capital ratios fell as banks absorbed these losses (the bottom left panel). A blanket guarantee of 100 percent deposit insurance was put in place in 1996, after the failure of a few small depository institutions. However, financial stability was most tenuous from late 1997, beginning with the unprecedented failures of a large bank and a large securities firm, until March 1999, when the government injected tier 1 capital into the major banks by purchasing convertible preferred shares. During this period, Japanese banks experienced funding problems and paid a “Japan premium” in the London interbank market that persisted intermittently until the tier 1 capital injections in 1999.<sup>2</sup>

As can be seen from the left-hand panels in the exhibit, Japanese banks continued to struggle with NPLs and loan losses well into this decade. NPLs peaked in March 2002, and aggregate profits were negative for fiscal years 2000 through 2003. Beginning in March 2000, capital ratios declined steadily until 2003 for the major banks and 2004 for the regional banks. Thus, capital was declining during the end of the ZIRP period (which ran from February 1999 to August 2000) and the first several years of the QEP

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<sup>2</sup> The Japan premium went away temporarily after government injections of tier 2 capital (subordinated debt) into the major banks in March 1998, but it reappeared as concerns about bank soundness reemerged.

(which ran from March 2001 to March 2006). In addition, during the years that the ZIRP and the QEP were in place, Japanese banks absorbed considerable loan losses. Cumulative loan losses from fiscal years 1999 through 2005 totaled ¥38 trillion, which was almost 8 percent of average bank credit outstanding over the same period.

Japanese bank supervisors were slow to pressure banks to recognize and resolve their asset quality problems and took few steps during the first half of the 1990s. During this time of weak supervision (when banking supervision was undertaken by a division within the Ministry of Finance), many banks rolled over (“evergreened”) loans to troubled borrowers. The intensity of banking supervision in Japan increased steadily for quite a few years, especially after the establishment of the Financial Supervisory Agency (FSA, which later became the Financial Services Agency) in June 1998, and reached its peak with a series of special inspections of banks by the FSA to assess the adequacy of banks’ loan loss reserves in 2002 and 2003.

### **The Effect of Bank Health on Monetary Policy**

Bank lending declined for many years beginning in late 1996 and only began to rise toward the end of the QEP period (the upper right panel of the exhibit), notwithstanding the very accommodative monetary policy during the ZIRP and QEP. This decline might have resulted from very weak demand for lending. For example, if firms saw meager prospects for economic growth, they might have chosen to reduce the debt on their balance sheets rather than to borrow and invest. Additionally, many firms were left with an overhang of debt after the bursting of the bubble economy and sought to reduce that leverage.

However, the fact that corporate bonds outstanding maintained positive growth over much of the same period (the middle right panel) could suggest unmet demand for bank loans, which in turn could suggest a credit crunch.<sup>3</sup> If there were a credit crunch—i.e., if weak banks cut back on lending to creditworthy borrowers in order to conserve capital—then this could have diminished the effectiveness of expansionary monetary policy. Indeed, lending by banks that were severely capital constrained might have been virtually insensitive to accommodative monetary policy. Deteriorating firm balance sheets could also have disrupted the supply of loans and reduced monetary policy effectiveness. When land prices decline, as they did in Japan, firms may have less collateral to borrow against—i.e., firms become less creditworthy. This avenue might have a greater effect in banking systems for which lending is heavily dependent on real estate collateral, as was the case in Japan at the time.

Results from the economic literature are somewhat mixed, but overall, they suggest that bank lending and the effectiveness of monetary policy were depressed by bank and borrower weakness during the ZIRP and the early years of the QEP. The paper

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<sup>3</sup> The coincidence of growing corporate bonds outstanding and shrinking bank lending does not prove that there was unmet loan demand. For instance, Baba et al. (2005) state that the large firms capable of issuing corporate bonds in Japan did not typically borrow from banks. If so, then the graphs of bank lending and corporate bonds show credit growth for two different sets of firms, and the growth of corporate bonds would not necessarily indicate unmet loan demand.

that most directly addresses the question of how bank weakness affected monetary policy is Hosono (2006). Hosono uses bank-level data from 1975 through 1999 and regresses loan growth on bank characteristics and their interaction with the call rate, following Kashyap and Stein (2000).<sup>4</sup> The study finds that during periods of monetary expansion, the effect of monetary policy on lending is attenuated for banks with lower capital.<sup>5</sup> In other words, during periods of monetary easing, lending by banks with low capital is less sensitive to the policy rate than is lending by well capitalized banks. Assuming that this relationship continued to hold beyond the estimation period, the implication of this finding is that during periods when bank capital declined, such as from March 2000 through March 2003, monetary policy was less effective.

A number of papers find evidence that bank health in Japan is positively and significantly correlated with bank lending and firm investment. Gan (2007) uses loan-level and firm-level data and finds that bank weakness (measured by a bank's exposure to real estate in 1989, at the peak of the real estate bubble) is associated with lower lending and lower firm investment. Woo (2003) uses bank-level data and finds that bank health (measured by actual and estimated capital ratios) is associated with higher loan growth, and that this effect was stronger in 1997, when bank regulation began to be strengthened, than in earlier years. Nagahata and Sekine (2005) use firm-level data for publicly listed firms and find that capital of firms' main banks was positively and significantly related to firm investment, especially for firms that did not have access to the corporate bond market. All these results are consistent with firms facing a credit crunch that weakens the bank lending channel when bank health is declining, such as when bank capital or land prices declined.

Several papers find that the health of a Japanese firm's balance sheet is positively and significantly correlated with its access to credit or its investment. Fuchi, Muto, and Ugai (2005) find that the deterioration of firms' balance sheets due to the fall in asset prices increased firms' external finance premium and reduced their access to credit. Nagahata and Sekine find that firms invested less if they had higher debt-to-assets ratio (with assets, including real estate, adjusted to reflect their market value). These firm balance sheet effects could counteract the effects of accommodative monetary policy, weakening the lending channel when land values are declining. Alternatively, however, these observed firm balance sheet effects could reflect weakened loan demand by overleveraged borrowers.

The literature is not in complete agreement that poor health of banks and firms inhibited lending. In contrast to the articles cited above, Peek and Rosengren (2005) use loan-level data and find that weaker Japanese firms were more likely to receive bank loans, especially if the lending banks had capital ratios that were within 2 percentage points of the required minimum. In other words, Peek and Rosengren find evidence that banks—especially weaker banks—were evergreening loans to weak borrowers. However, our judgment is that this result is less likely to have persisted beyond the time

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<sup>4</sup> We refer to Japanese fiscal years, which go from April 1 through March 31. Data for the ends of fiscal years 1975 through 1999 are as of March 1976 through March 2000.

<sup>5</sup> During periods of monetary tightening, bank capital did not significantly affect the relationship between monetary policy and bank lending.

used for the estimations (which ended with 1999), because banking supervision became more stringent in Japan in the early part of this decade.

In sum, the results in the economic literature imply that during periods of increasing bank weakness in Japan, such as when bank capital or land prices were declining, bank lending and firm investment declined, inhibiting the transmission of accommodative monetary policy through the lending channel. In addition, some of these papers also find evidence consistent with a firm balance sheet effect—i.e., that weakness in firm balance sheets is also associated with reduced bank lending to these firms, which implies that bank lending and firm investment declined during periods when land values fell, and which could also have reduced the effectiveness of the lending channel of monetary policy transmission.

### **The Effect of Monetary Policy on Banks**

In this section, we briefly examine the other side of this coin—what effect did the ZIRP or QEP have on bank condition? Lower short-term interest rates, which were delivered by the ZIRP and QEP, are generally expected to boost bank profitability, other things equal, as banks transform short-term deposits into longer-term loans. However, in Japan, very low short-term rates were accompanied by very low long-term rates. Indeed, some of the actions taken under the QEP were aimed at lowering long-term rates, flattening the yield curve.

The evidence suggests that neither the ZIRP nor the QEP had much of a direct effect on bank profits. During the ZIRP and the QEP, banks' interest expenses as a fraction of total assets fell, but so did their interest income, with the end result that net interest income fell very little during these policies (the bottom right panel of the exhibit). In the four fiscal years prior to the ZIRP (FY95-FY98), net interest income of Japanese banks averaged 1.27 percent of banks' total assets. Banks' net interest income averaged 1.24 percent of total assets during the ZIRP (FY99-FY00) and 1.22 percent during the QEP (FY01-FY05).

### **References**

Baba, Naohiko, Shinichi Nishioka, Nobuyuki Oda, Masaaki Shirakawa, Kazuo Ueda, and Hiroshi Ugai (2005). "Japan's Deflation, Problems in the Financial System, and Monetary Policy," *Monetary and Economic Studies*, pp. 47-112.

Fuchi, Hitoshi, Ichiro Muto, and Hiroshi Ugai (2005). "A Historical Evaluation of Financial Accelerator Effects in Japan's Economy," Bank of Japan Working Paper Series, No. 05-E-8.

Gan, Jie (2007). "The Real Effects of Asset Market Bubbles: Loan- and Firm-Level Evidence of a Lending Channel," *The Review of Financial Studies* 20, pp. 1941-1973.

Hosono, Kaoru (2006). "The Transmission Mechanism of Monetary Policy in Japan: Evidence from Banks' Balance Sheets," *Journal of the Japanese and International Economies* 20, pp. 380-405.

Kayshap, Anil K. and Jeremy Stein (2000). "What Do a Million Observations on Banks Say About the Transmission of Monetary Policy?" *American Economic Review* 90, pp. 407-428.

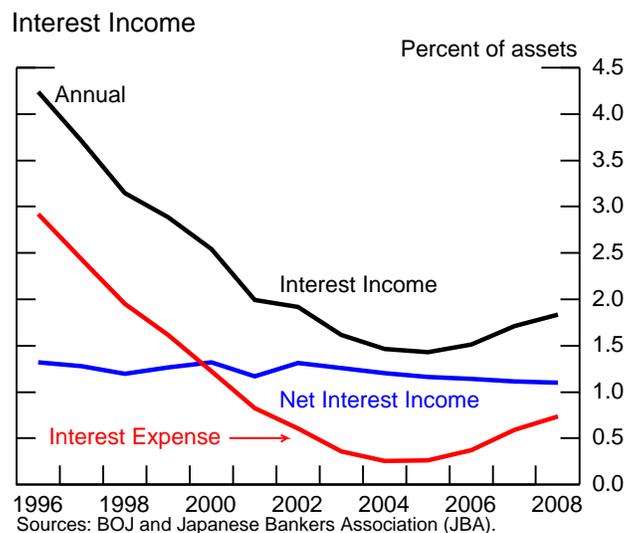
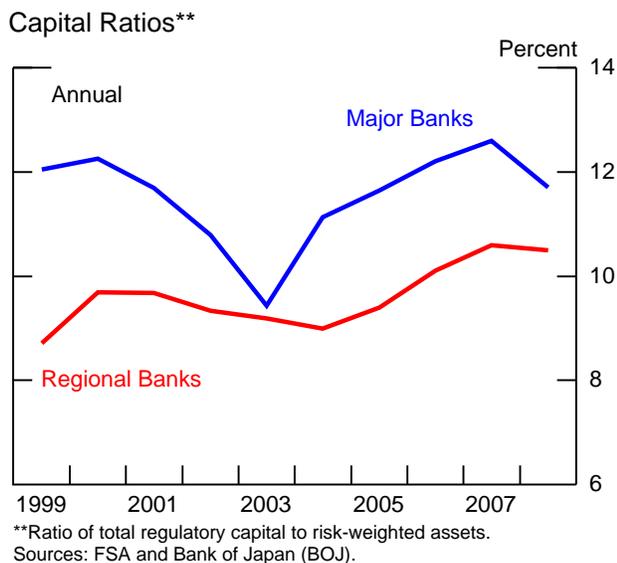
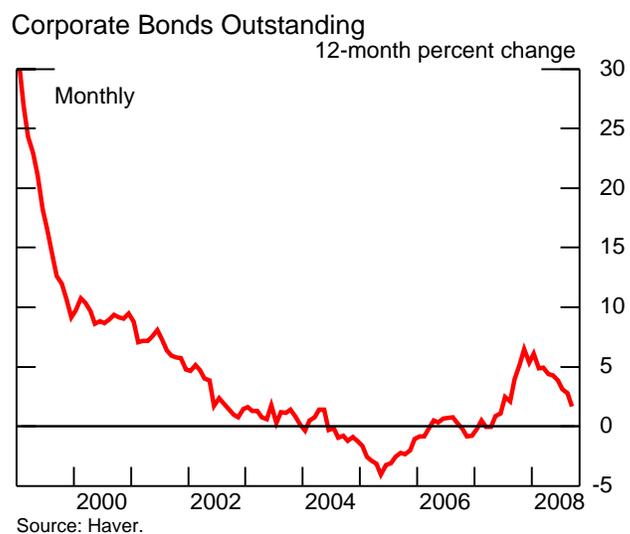
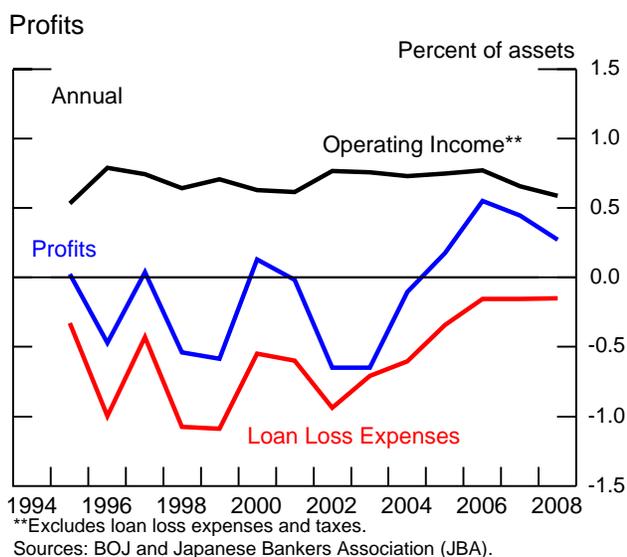
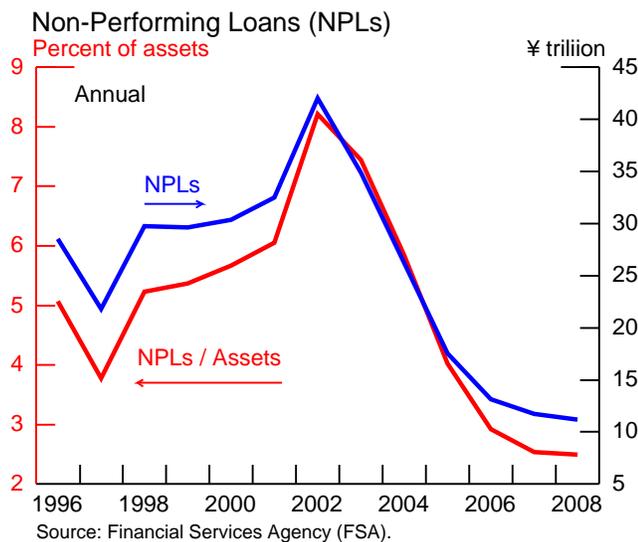
Nagahata, Takashi and Toshitaka Sekine (2005). "Firm Investment, Monetary Transmission and Balance-Sheet Problems in Japan: An Investigation Using Micro Data," *Japan and the World Economy* 17, pp. 345-369.

Peek, Joe and Eric S. Rosengren (2005). "Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan," *American Economic Review* 95, pp. 1144-1166.

Woo, David (2003). "In Search of "Capital Crunch: Supply Factors Behind the Credit Slowdown in Japan," *Journal of Money, Credit, and Banking* 35, pp. 1019-1038.

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### Condition of Japanese Banks\*



\* Annual data are as of March 31.