



Why do Japanese regional banks issue subordinated debts?

Naohiko Baba^{a,*}, Masakazu Inada^b

^a *Monetary and Economic Department, Bank for International Settlements and Bank of Japan, Centralbahnplatz 2 CH-4002, Basel, Switzerland*

^b *Financial Systems and Bank Examination Department, Bank of Japan, 2-1-1 Nihonbashi-Hongokucho, Chuo-ku, 103-8660, Tokyo, Japan*

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ABSTRACT

This paper empirically investigates the determinants of subordinated debt issuance by Japanese regional banks during the period of 2000–2007 using a probit model. The empirical results suggest the following. (i) Throughout the period, Japanese regional banks with a lower capital ratio tended to have a higher incentive to issue subordinated debts due possibly to their counting as Tier 2 capital under the Basel Accord. (ii) During the period of banking instability (2000–2003), subordinated debt investors tended to use financial variables such as the non-performing loan ratio, ROA, and ROE to screen good banks. (iii) During the period after the banking system regained stability (2004–2007), investors tended to pay less attention to the above variables due chiefly to the mitigated default risk of these banks.

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1. Introduction

Why do Japanese regional banks issue subordinated debts? What kind of characteristics do the banks that issue such debts have? What is the role of market discipline in the issuance decision of those debts? These are the main questions this paper attempts to empirically address using data in the period of 2000–2007.

In Japan, a restructuring of the banking industry has been in progress. Mainly due to mergers, the number of city and regional banks decreased to 115 in March 2008 from 140 in March 1994.¹ Through this process, subordinated debt attracted public attention as a potential tool for disciplining banks. Since the mid-1980s, a number of proposals that would require large banks to issue subordinated debts on a mandatory basis have been made in the United States.² Subordinated debt is a fixed-income instrument that is unsecured and senior only to common equity when a failed bank is liquidated. Thus, yields on subordinated debts should be the most sensitive to the banks' default risk among debts because

those bank creditors are likely to lose part of their principal and interest in the case of a failure.

There is long literature on this issue for US banks. Some studies including *Birchler and Hancock (2004)* and *Covitz et al. (2004a,b)* analyze the issuance decision of subordinated debts by US banks using a binary choice model. Instead, most of other studies explore the determinants of spreads of subordinated debts issued by US banks over Treasury bonds to investigate whether subordinated debt investors are sensitive enough to the credit risks. Relatively early studies, including *Avery et al. (1988)* and *Gorton and Santomero (1990)*, show that (excessive) risk-taking by bank managers was not significantly priced into subordinated debt spreads in the 1980s. Evidence from 1991 onward, which corresponds to the post FDICIA period, however, shows the opposite result: credit risk premiums can be extracted from US subordinated debt spreads. In particular, *Flannery and Sorescu (1996)* argue that the no-pricing of credit risk until the 1980s was a rational response of investors to a “too-big-to-fail” policy along with well-established perceptions of forbearance from bank closure, and once such an institutional framework was eliminated, subordinated debt investors began to price credit risk.

Following the studies on US banks, an increasing number of researchers have tackled this issue using data of Japanese banks. For example, using weekly data of subordinated bond spreads for 13 Japanese banks in the secondary market in the 2000–2002 period, *Kobayashi (2003)* finds that the spreads are not significantly sensitive to both bank-specific risk measured by the market-

* Corresponding author. Tel.: +41 61 280 8819; fax: +41 61 280 9100.

E-mail addresses: naohiko.baba@bis.org (N. Baba), masakazu.inada@boj.or.jp (M. Inada).

¹ Because the number of category 1 regional banks did not change, the decrease in bank numbers comes from city banks and category 2 regional banks.

² Board of Governors of the Federal Reserve System and US Treasury Department (2000) summarizes more than 10 subordinated debt proposals.

based leverage ratio and market conditions reflected in the 10-year Japanese government bond yield and excess stock returns. She concludes that her results are consistent with the previous studies on US banks, suggesting a non-negligible influence of the implicit too-big-to-fail guarantee by the Japanese government.

On the other hand, Imai (2007) uses subordinated bond spreads in the primary market in the 1993–2004 period, and finds that spreads are significantly higher for banks with weaker financial standing reflected in credit ratings and accounting variables including the non-performing loan (NPL) ratio and the loans to asset ratio.

To the best of our knowledge, however, only Ito and Sasaki (2002) examine the issuance decision itself rather than the determinants of subordinated spreads for Japanese banks. They investigate how the risk-based capital standards imposed by the Basle Accord affected major Japanese banks' issuance of subordinated debts in the early 1990s, and find a significant effect of the risk-based capital ratio on the change in the subordinated debt ratio.

This paper investigates the determinants of subordinated debt issuance by Japanese regional banks during the period of 2000–2007, putting particular emphasis on the role of the primary market for subordinated debts in disciplining banks. If subordinated debt investors in the primary market properly discipline banks, then the banks that are expected to take on excessive risk or manage their assets poorly would have difficulty issuing subordinated debts.³

The analysis of the issuance decision on subordinated debts is complementary to the analysis of subordinated spreads. The former analysis steps in the banks' incentive to issue those debts and its interaction with subordinated debt investors' discipline in terms of whether they allow those issuances. The latter analysis tackles the same issue from a pricing viewpoint in that investors should demand higher risk premiums on the banks that are likely to take on more than necessary risk.

In analyzing the determinants of the issuance decision by Japanese regional banks, we pay due attention to the following aspects. First, those banks face the capital adequacy ratio regulation under the Basel Accord where the banks with (without) overseas operations are required to keep capital ratios of at least 8% (4%). Under the regulation, capital consists of (i) Tier 1 (shareholder equity and other forms of core capital), Tier 2 (supplementary capital), and Tier 3 (quasi-supplementary capital). Tier 2 is counted as capital up to the amount of the core capital and can be raised by issuing subordinated debts. Thus, the banks with a lower capital ratio are expected to have a higher incentive to issue subordinated debts. Because Japanese banks generally have had a lower capital ratio than other advanced nations' banks, this tendency is more likely expected to be observed in Japanese banks' behavior.

Also, during the period under study, sharp contrast in investment sentiment existed between fixed income and equity markets. Under the zero interest rate policy adopted by the Bank of Japan in February 1999, investors became increasingly keen in pursuing the so-called reach-for-yields investment activities (Baba et al., 2005). On the other hand, equity market in general suffered from a deep slump in this period, and new equity issuances were taken as a potential drag on this trend due chiefly to concerns over dilution of equity value. Under such circumstances, subordinated debts could be more easily absorbed by the market than equities.

³ Theoretically, if expected costs from issuing subordinated debts are sufficiently sensitive to banks' default risk, then riskier banks may be less likely to issue subordinated debts. Moreover, as suggested by Birchler and Hancock (2004), the informed investor hypothesis tells us that a bank would issue subordinated debt upon the receipt of "good" news, while the bank would issue senior debt upon the receipt of "bad" news. Using this strategy, the bank attempts to separate investors using different, yet unobservable, beliefs on the default probability.

Improvement in credit rating from 2004 is likely to support this tendency.

Second, during our sample period, the Japanese banking system experienced large ups and downs. Specifically, the Japanese banking system had been unstable until around 2003 after the bursting of the asset bubbles in the early 1990s. In particular, around 2000–2002, Japanese financial authorities required banks to dispose of their NPLs under low capital buffer and thus default risk was heightened in financial markets such as the equity market. Since around 2004, however, the NPL ratio has declined significantly for a number of Japanese banks because of their intensive disposal, and equity prices began to rise with recovery of the Japanese economy.⁴ Recovery of banks' soundness made it possible for many small regional banks with a serious NPL problem in the past to access debt and equity markets to enhance their still weak capital bases. In fact, the number of subordinated debt issuances has increased substantially since 2004.

Third, we attempt to control for other sources of potential market discipline; depositors' and stockholders' discipline. Regarding the depositors' discipline, Imai (2006) argues that the deposit insurance reforms in April 2002, when the Japanese government lifted a blanket guarantee of all deposits and began limiting the coverage of time deposits, enhanced depositors' discipline toward Japanese banks. On the other hand, focusing on stockholders' discipline, Spiegel and Yamori (2004) report an interesting response pattern of equity prices reflecting the update of equity investors' beliefs regarding the evolving Japanese regulatory policy in the late 1990s.

The rest of the paper is organized as follows. Section 2 describes the empirical methodology and data. Section 3 reports the empirical results of the determinants of subordinated debt issuance by Japanese regional banks. Section 4 concludes the paper.

2. Empirical methodology and data

2.1. Empirical methodology

We use a pooled probit model in which the dependent variable $Issue_{it}$ is a binary indicator variable that equals one if bank i issued subordinated debt in period t and zero otherwise. Specifically, the model can be written as:

$$\text{Prob}(\text{Issue}_{it} = 1) = \Phi[\mathbf{X}'_{it}\boldsymbol{\beta}]$$

where Φ is the standard normal cumulative distribution function, \mathbf{X}_{it} is the vector of explanatory variables, and $\boldsymbol{\beta}$ is the vector of parameters to be estimated.

2.2. Data

We use (fiscal) year data from 2000 through 2007. We exclude city, trust, and long-term credit banks from our sample since most of them experienced mergers during this period, and focus on regional banks in the analysis below.⁵ In addition, we exclude the issuance of subordinated debts with provisions of conversion into equity, focusing on straight subordinated debts.⁶ As a result, the

⁴ According to the Bank of Japan (2005), during the period from the early 1990s to 2003, losses from the disposal of NPLs exceeded or were almost equal to the net operating profits from core business on an aggregate basis for both major and regional banks. In 2004, however, the losses decreased to almost half the level of the latter, mainly due to the disposal of NPLs.

⁵ The regional banks that were merged or went bankrupt in the period of 2000–2007 are also excluded from the sample.

⁶ The debts with provisions of conversion to equity tend to soften banks' constraint to issue subordinated debts with potential benefits for investors, a so-called sweetener, as well as higher yields of straight subordinated debts.

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