The Impact of Japanese Deregulation on the Euro-yen Bond Market

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Abstract: The purpose of this paper is to examine the impact of three events on spreads on yen denominated bonds issued in the Euromarket by Japanese firms. The three events are: the entry of banks as underwriters in the Japanese corporate bond market; the actual entry of Japanese banks into the underwriting of corporate bonds in the Euromarket; and the relaxation of the three bureaus agreement. There is strong evidence that there is a significant reduction in spreads on Euro-yen bonds around the time of the relaxation of the three bureaus agreement. There is some evidence that the entry of banks as underwriters in the Japanese corporate bond market also coincides with a reduction in spreads in the Euro-yen market. In contrast, the actual entry of Japanese banks into the underwriting of corporate bonds in the Euro-yen market does not appear to have significantly affected spreads.

Keywords: *Deregulation; Spreads; Euromarket; Bank entry.*

1. INTRODUCTION

The Eurobond market is often viewed as a market for raising funds through bond issues that is relatively free from regulation and taxes. Despite this, in the past, the Japanese government has limited the extent to which Japanese financial institutions can act as intermediaries in this market, and the extent to which Japanese firms can make use of the market for raising funds. One of the reasons for this was to prevent an undermining of regulations in the Japanese domestic financial markets.

The purpose of this paper is to examine the impact of three events on spreads on yen denominated bonds issued in the Euromarket by Japanese firms and underwritten by Japanese financial institutions. The three events are: the actual entry of Japanese banks into the underwriting of corporate bonds in the Euro-yen market in 1991; the relaxation of the three bureaus agreement in April 1993; and the entry of banks as underwriters in the domestic Japanese corporate bond market in 1993-1994.

Much of the recent literature examining spread determination on corporate bonds in the United States and Japan has focused on domestic bond markets, and either the existence of conflicts of interest occurring when banks are allowed to act as underwriters in the bond market, or reductions in spreads/commissions when banks enter the underwriting market (see Puri (1996, 1999), Hamao and Hoshi (2000), Konishi (2002) and Takaoka and McKenzie (2002, 2003)). In both the United States and Japan, the direct participation of banks in securities business was prohibited, but rather they had to enter the market through a subsidiary. There is only one recent paper examining spreads in the Euromarket (Takaoka and McKenzie (2003), and it examines only a very short period of data for spreads on Euro-dollar corporate bonds in 1989-1990.

This paper investigates the factors influencing spreads on corporate Euro-yen bond issues by Japanese firms over the period February 1987 to December 1997. The starting point of February 1987 is chosen to correspond with the deregulation of qualification standards (*Tekisai kijun*) for bond issuing in the Japanese domestic market.

In this paper, strong evidence is found that there is a significant reduction in spreads on Euro-yen corporate bonds around the time of the relaxation of the three bureaus agreement. There is some evidence that the entry of banks as underwriters in the Japanese corporate bond market also coincides with a reduction in spreads in the Euro-yen market. In contrast, the actual entry of Japanese banks into the underwriting of corporate bonds in the Euro-yen market does not appear to have significantly affected spreads.

This paper differs from the existing literature in the following points; first, it examines spread determination on Euro-yen bonds; second, this paper investigates the impact of deregulation of the three bureaus agreement; and, third, it examines the impact of domestic deregulation

(the entry of Japanese banks into the domestic underwriting market) on Euro-yen spreads.

The plan of this paper is as follows. Section 2 briefly describes changes in the Japanese underwriting market, and the likely impact of these changes on spreads in the Euro-yen market. Details of the models to be estimated are contained in section 3. The data used are explained in section 4, and section 5 presents the empirical results. Section 6 concludes the paper.

2. UNDERWRITING IN THE JAPANESE SECURITIES MARKET

Underwriting is one of the four principal 'securities' businesses; the other three being: 'dealer' business; 'broker' business; and 'selling' business: Securities and Exchange Law (*Shoken torihiki ho*) Article 28(2). Articles 2 and 65 of the Securities and Exchange Law require firms wishing to engage in securities business to obtain the permission of the Financial Services Agency (formerly the Ministry of Finance), and prior to 1993 this permission was denied to banks wanting to engage in underwriting business within Japan.

Different rules applied when Japanese financial institutions were operating in offshore or overseas markets. When Japanese banks were underwriting bonds abroad, they were subject to the "three bureaus agreement" (*Sankyoku goui*). The three bureaus agreement is an agreement made in August 1975 between three bureaus of the former Ministry of Finance, the Securities Bureau, the Banking Bureau and the International Finance Bureau, regarding the underwriting of foreign bonds (*gaisai*) issued by Japanese firms. The agreement was implemented through administrative guidance called the "three bureaus administrative guidance" (*Sankyoku shido*). Although the agreement acknowledges that foreign subsidiaries of both Japanese securities companies and banks are able to act as underwriters in the issues of foreign bonds by Japanese firms, it is an administrative measure that acknowledges the priority of securities companies' related firms as the principal underwriter in the cases of bonds issued by Japanese firms overseas.

An examination of the data on Euro-yen corporate bond issues by Japanese firms between 1980 and 2001 indicates that prior to 1991, Japanese banks (or their subsidiaries) only acted as underwriters for Euro-yen bonds issued by related financial institutions. In 1991, however, Japanese banks (or their subsidiaries) began to underwrite Euro-yen corporate bond issues by Japanese firms. For example, of the 170 bond issues by Japanese firms in our data set in 1991, 158 are underwritten by Japanese securities companies, nine are underwritten by Japanese banks, and three are underwritten by foreign financial institutions. In the Japanese market, Takaoka and McKenzie (2002) find a statistically significant fall in spreads on domestic corporate yen bonds after banks are permitted to engage in underwriting within Japan. As a result of a greater competition with more underwriters in the market from 1991, a similar effect could be expected for spreads in the Euro-yen market.

Starting in fiscal year 1993, the three bureaus agreement was gradually liberalized, and the agreement was completely abolished in 1998 (see Tachi (1994, p. 730-731) and Kaizuka (2000, p. 244)). First, the agreement was not applied to all private issues or public issues less than 10 billion yen in size. Then, it was lifted for public issues of straight bonds greater than 10 billion yen in value, provided the issuing firm had net assets of at least 500 billion yen (later reduced to 300 billion yen). Finally, at the end of the 1997 fiscal year (March 1998), the agreement was abolished. Again by allowing more competition in the underwriting market, it is expected that this deregulation may have led to lower spreads on Euro-yen bonds.

The Financial System Reform Act, which became effective on 1 April 1993, allowed banks to engage in securities business through bank-owned subsidiaries in the domestic corporate bond market. The first bank entrants in the form of security firm subsidiaries were IBJ Securities, Norinchukin Securities and LTCB Securities established in July 1993. Sumitomo Trust Securities and Mitsubishi Trust Securities entered in November 1993. After that, trust banks and city banks followed by establishing their subsidiary companies. Although some of the bank owned subsidiaries were established before February 1994, the first bank subsidiary underwriting of a domestic corporate bond issue occurred in February 1994 (Hamao and Hoshi (2000)). As stated earlier, Takaoka and McKenzie (2002) find a statistically significant fall in spreads on domestic corporate yen bonds after banks begin underwriting these bonds. One of the reasons for the enactment of the Financial System Reform Act was that a hollowing out of the Japanese domestic corporate bond market had been observed as some Japanese firms raised funds by issuing bonds in foreign markets such as the Euromarket in order to avoid the high costs of issuing bonds in the domestic market. The fall in spreads on domestic corporate yen bonds after banks are permitted to engage in domestic underwriting may have created pressure for a fall in spreads on Euro-yen bonds as well.

3. MODEL

Following Puri (1996), Gande et al. (1997) and Hamao and Hoshi (2000), the following model for spreads on yen denominated bonds issued in the Euromarket by Japanese firms is assumed:

$$SPREAD_i = \alpha_0 + \alpha_1 \log(AMOUNT_i) + \alpha_2 DAA_i + \alpha_3 DA_i + \alpha_4 DBBB_i + \alpha_5 NEW_i + \alpha_6 SMAT_i + \alpha_7 DIFF_i + \alpha_8 BANKENTRY_i + \alpha_9 BANK_i + \alpha_{10} PUBLIC_i + \alpha_{11} DEURO_i + \alpha_{12} REPAY_i + \alpha_{13} DSAN_i + \Sigma_k \beta_k INDUSTRY_{ik} + u_i \quad (1)$$

where SPREAD is the difference between the rate of return on bond issue i and the return on long-term yen denominated government bonds at the time the bond was issued; *AMOUNT* is the size of the bond issue; *DAA* is a 0-1 dummy variable taking the value unity if the issuing firm's rating is AA+, AA or AA-, and zero otherwise; *DA* is a 0-1 dummy variable taking the value unity if the issuing firm's rating is A+, A or A-, and zero otherwise; *DBBB* is a 0-1 dummy variable taking the value unity if the issuing firm's rating is BBB+, BBB or BBB-, and zero otherwise; *NEW* is a 0-1 dummy variable taking the value unity if this is the first Euro-yen bond issue by the firm, and zero otherwise; *SMAT* is a 0-1 dummy variable taking the value unity if the issue is a short-term issue (less than five years in maturity), and zero otherwise; DIFF is the value of the diffusion index (leading index) in the month the bond was issued; *BANKENTRY* is a 0-1 dummy variable taking the value unity if the bond is issued on or after February 1994, and zero otherwise; *BANK* is a 0-1 dummy variable taking the value unity if the lead underwriter is a bank-owned subsidiary, and zero otherwise; PUBLIC is a 0-1 dummy variable taking the value unity if the issue is a public issue, and zero otherwise; DEURO is a 0-1 dummy variable taking the value unity if the bond issue was in the year 1991 or later, and zero otherwise; DSAN is a 0-1 dummy variable to take account of the gradual abolition of the three -bureau agreement, and takes the value unity if the issue is made on or after April 1993, and zero otherwise; REPAY is a 0-1 dummy variable taking the value unity if one of the explicit purposes of the bond issue is the repayment of a loan; INDUSTRY are a set of 0-1 industry dummies, and zero otherwise; and u is a disturbance.

Although some of the bank owned subsidiaries were established before February 1994, the first bank subsidiary underwriting of a domestic bond issue occurred in February 1994 (Hamao and Hoshi (2000)). *BANKENTRY* is defined to correspond with this first issue.

The definitions of the ratings variables (*DAA, DA, DBBB*) indicate that the base ratings group is AAA. As it is hypothesized that spreads rise with the riskiness of the bond issue, it is expected that $\alpha_4 > \alpha_3 > \alpha_2 > 0$. The definition of SMAT indicates that the base maturity group is bonds with maturities between equal to five or more years. Since there are no bonds with a maturity of fifteen years or more in the sample analyzed, this maturity split follows Gande et al.'s (1999) analysis. DIFF is included to take account of variations in the size of spreads over the economic cycle, and the expectation is that $\alpha_7 < 0$. That is, if economic conditions worsen raising the average risk of corporate bonds compared to government bonds, the spread is expected to increase. As suggested in section 2, if deregulation of the domestic bond market by allowing the entry of banks as underwriters has any impact on spreads in the Euro-yen market, the impact is expected to be negative, that is, $\alpha_8 < 0$. The sign of α_9 depends on whether certification effects dominate conflict of interest effects. Bonds issued by public subscription are expected to have lower spreads than those issued by private subscription so that $\alpha_{10} < 0$. DEURO corresponds to the period when banks underwrite non-bank Euro-yen bonds, and this can be viewed as increasing competition among underwriters. As argued in section 2, it is expected that $\alpha_{11} < 0$. Following the discussion in section 2, since DSAN is to take account of deregulation in the Euro-yen market, it is expected that $\alpha_{13} < 0$. The REPAY variable is included to account of the possibility of conflicts of interest arising only in the case when the purpose of the bond issue is to repay a debt.

4. DATA

The sample period analyzed in this paper runs from February 1987 to December 2000. The starting point is chosen to correspond with the deregulation of qualification standards for corporate bond issues (*Tekisai kijun*) in the domestic Japanese market. Before 1987, firms that did not achieve certain financial standards could not raise funds through bond issues due to the qualification standards for bond issuing. To avoid the impact of the abolition of these standards on the Euromarket, the sample is limited to February 1987 and after.

Data on bond issues by Japanese firms in the Euromarket that includes ratings information, issue rates, issue amounts, underwriter names, the year the issuing firm was established, details of any mortgages associated with the issue, and issue amounts are taken from the IN Information System's (INIS) IN Firm Finance Data Base. Although there are 1006 bond issues in the data base by firms listed between February 1987 and 2001, complete information for all the variables appearing in equation (1) is only available for 362 bond issues. (Issues underwritten by foreign financial institutions are excluded because of the difficulty of ascertaining whether the foreign financial institution is a bank or a securities company.) Of these 362 issues, there are three issues in July 1991 that have what appear to be excessively large rates of return, and these are excluded from the analysis to give a sample size of 359 issues. It should be noted that due to missing information on one or more of the items, particularly ratings information, needed to define the variables in equation (1), no bonds issued in 1998 or later (the large majority of these are privately issued bonds) are used in the empirical analysis. Rates of return on bond issues are adjusted when issue prices differ from par prices.

It is worth stressing that this data set does not contain information on issues made by the overseas subsidiaries of Japanese firms. In order to maximize the sample size, the maximum of the available ratings provided by four ratings institutions, Rating and Investment Information, Inc., Japan Credit Rating Agency, Japan Bond Rating Institute, and Standard and Poors, was used. Monthly data on the diffusion index (leading index) are taken from the Cabinet Office's Economic and Social Research Institute's home page (http://www.esri.cao.go.jp/jp/stat/di/0816dl.xks). Spreads were computed using the yield on ten year government bonds taken from the Bank of Japan's home page (http://www.boj.or.jp/siryo/siryo_f.htm).

5. EMPIRICAL RESULTS

First, equation (1) for spreads is estimated using data from February 1987 to December 1997. Table 1 presents three sets of estimates of equation (1). Equation (2.1) uses all the available issues, whereas equations (2.2) and (2.3) use issues for low rated bonds and high rated bonds, respectively. All equations are estimated by ordinary least squares, and due to the presence of significant heteroscedasticity, all standard errors are adjusted using White's (1980) method.

In (2.1), the control variables generally have the expected signs: smaller issues, riskier issues (where risk is measured by the firm's rating), longer maturity issues, and private issues all have statistically higher spreads. There also is a significant relationship between the general state of the economy (DIFF) and the spread.

The estimated coefficient on DSAN is negative (-0.50) and statistically significant, that is, the beginning of the deregulation of the three bureaus' agreement seems to be associated with significantly lower spreads in the Euro-yen market. Furthermore, the estimated coefficient on BANKENTRY is also negative (-0.336) and statistically significant, that is, bank entry into the domestic underwriting market greatly lowered spreads in the Euro-yen market. In contrast, the underwriting of bonds by banks in the Euro-yen bond market does not appear to have had a significant impact on spreads.

A side product of this analysis is the insignificance of the BANK variable which suggests that conflicts of interest caused by bank underwriting of corporate bonds do not appear to important in this market (or have been offset by certification effects). This is consistent with the earlier findings were Japanese markets in Hamao and Hoshi (2000) and Takaoka and McKenzie (2002). It should be noted that the other variable that is sometimes used as a conflict of interest measure, REPAY, is also insignificant. However, in this data set, REPAY is probably a very poor measure of conflicts of interest since in every case where the purpose of the issue is loan repayment the underwriter is a securities company rather than a bank!

In earlier work on the impact of bank entry into the underwriting market, various authors have noted that the benefits of this deregulation are unevenly distributed across firms with different ratings and firms issuing bonds of different sizes (see Gande, Puri and Saunders (1999), Roten and Mullineaux (2002), and Takaoka and McKenzie (2002)). To verify whether the gains of deregulation are unevenly distributed in the Euro-yen market, issuing firms are divided into two groups: those with low ratings (A+ or lower), and those with high ratings (AA- or higher). For these two groups, the estimated models for spreads (equation (1) excluding some of the ratings variables) are presented as equations (2.2) and (2.3) in Table 1. The estimated results in (2.2) and (2.3) suggest that deregulation of the three bureau agreement is associated with a significant decline in spreads for both high rated and low rated firms. Although the impact is slightly larger for high rated firms, the difference in impacts across the two groups of firms is not statistically significant.

In contrast to the results for the full sample where bank entry in the domestic underwriting market causes a significant decrease in spreads, in the two ratings sub-samples there are tendencies for spreads to fall, but the impacts are not statistically significant. Consistent with the results for the full sample, the beginning of banks underwriting corporate bonds in the Euro-yen market is associated with a tendency for spreads to fall for both low and high rated bonds, but the impact is not statistically significant.

Table 1: Spread Determination

Explanatory variables	All issues (2.1)	Low rated firms (2.2)	High rated firms (2.3)
LN(AMOUNT)	-0.08(2.06)*	-0.09(1.32)	-0.12(2.54)*
DAA	0.22(3.50)*		0.13(1.78)
DA	0.24(3.91)*		
DBBB	0.33(2.37)*	0.09(0.67)	
NEW	-0.009(0.19)	0.04(0.65)	-0.06(0.89)
SMAT	-0.37(7.47)*	-0.38(6.74)*	-0.32(4.15)*
DIFF	-0.003(2.15)*	-0.002(0.71)	-0.005(2.44)*
BANKENTRY	-0.33(2.56)*	-0.28(1.54)	-0.32(1.93)
BANK	-0.07(0.86)	-0.06(0.45)	-0.14(1.23)
PUBLIC	-0.23(2.02)*	-0.20(1.10)	-0.10(0.78)
DEURO	-0.10(0.65)	-0.22(0.85)	-0.06((0.32)
DSAN	-0.50(8.45)*	-0.44(4.04)*	-0.51(6.80)*
REPAY	-0.05(1.07)	0.007(0.09)	-0.04(0.52)
R^2	0.55	0.60	0.59
Sample size	359	161	198
HETERO	276*	150*	187*

Notes:
(1) Figures in parentheses are the absolute values of t-statistics computed using estimates of standard errors adjusted by White's (1980) method.
(2) A '*' indicates the coefficient is statistically significantly different from zero at the five per cent significance level, or the test statistic is statistically significant.
(3) All equations include a constant and industry dummies.
(4) HETERO is a Breusch-Pagan test for heteroscedasticity.

The analysis of spreads in Table 2 is undertaken by the size of the issue. Issues were divided into small issues (less than 19 billion yen) and large issues (19 billion yen or more). As with the results in Table 1, the estimated results in (3.1) and (3.2) suggest that deregulation of the three bureau agreement is associated with a significant decline in spreads for both large and small bond issues. Although the impact is slightly larger for large issues, the difference in impacts is not statistically significant. Bank entry in the domestic underwriting market causes a significant decrease in spreads for small issues. Although there is a similar tendency for large issues, the impact is not significant. As in Table 1, the bank underwriting of non-financial firms' bonds in the Euromarket does not lead to significant changes in spreads for either small or large issues. What is interesting is that the signs of the estimated coefficients of DEURO in (3.1) and (3.2) are different. As with Table 1, in Table 2, there is no evidence of significant conflict of interest effects or certification effects when a bank acts as the bond underwriter.

Table 2: Spreads Analyzed by Size

Explanatory variables	Small issues (3.1)	Large issues (3.2)
LN(AMOUNT)	-0.06(0.53)*	-0.0056(0.09)
DAA	0.68(2.69)*	0.08(1.34)
DA	0.74(2.92)*	0.21(3.41)*
DBBB	0.83(2.92)*	0.25(1.68)
NEW	-0.07(0.92)	0.09(2.10)*
SMAT	-0.42(5.97)*	-0.29(4.76)*
DIFF	-0.004(1.73)	-0.001(0.49)
BANKENTRY	-0.31(2.27)*	-0.06(0.27)
BANK	-0.05(0.48)	-0.08(0.53)
PUBLIC	-0.22(1.73)	-0.35(1.55)
DEURO	-0.45(1.59)	0.22(1.93)
DSAN	-0.45(4.19)*	-0.52(8.27)*
REPAY	-0.09(1.01)*	-0.58(1.01)
R^2	0.63	0.59
Sample size	170	189
HETERO	150*	74*

Notes: As for Table 1.

6. CONCLUSION

The results presented in this paper suggest that the Japanese government has been able to influence spreads in the Euroyen market by deregulation. In particular, the beginning of the deregulation of the three bureaus' agreement in 1993 led to a significant reduction in spreads on Euro-yen bonds issued by Japanese firms. The benefits of this spread reduction do not appear to have been concentrated in any particular group of issuers. In contrast, there is no significant change in spreads associated with banks

beginning to underwrite Euro-yen bond issues by Japanese non-financial firms in 1991. The evidence of the impact of bank entry in the domestic underwriting market on spreads in the Euro-yen market is a little weaker. There is some evidence to suggest that spreads declined, particularly for firms making small issues.

7. REFERENCES

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8. ACKNOWLEDGEMENTS

Both authors wish to thank two anonymous reviewers for their critical comments on an earlier version of the paper, and also would like to acknowledge the financial assistance of a research grant provided by the Japan Securities Scholarship Foundation.