

The Growing Recognition of Credit Risk in the Corporate and Financial Bond Markets

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1. Introduction

Corporate failures reached a high of 17,439 in fiscal 1997, surpassing the post-bubble peak of 15,006 in fiscal 1995, and appear to be accelerating in fiscal 1998.¹ Amid the stream of news reports on failing financial institutions, securities companies, and business companies, one in particular stands out: the application for bankruptcy protection under the Company Reorganization Law by Japan Land Development late last year, because it represents the first default on a domestic straight bond offering that resulted in an actual loss.

The 57.1 billion yen default consisted of four straight bond offerings totaling 50 billion yen and one convertible bond offering of 7.1 billion yen. This surpasses by far Yaohan Japan's 34.4 billion yen convertible bond offering a year earlier. And while Yamaichi Securities declared bankruptcy a year ago with an even larger total of convertible bonds, the entire amount was covered by special loans from the Bank of Japan. Thus the size of the Japan Land Development default and its treatment are of particular concern to the bond market.

This paper gives a brief account of the present status of the secondary bond market, with special attention to the relationship between domestic straight bond and financial bond prices, bond ratings, and the issuing company's stock prices.

2. Ratings and Spreads

Specifically, we look not at bond prices per se but at the yield spread compared to Japanese Government Bond yields. Bonds normally incur risks such as price risk due to future market interest rate changes (market risk), credit risk stemming from the possible failure of the issuer, and liquidity risk, wherein a bond's liquidity decreases. The bond price (yield) is determined by an overall assessment of these risks. The yield spread, which reflects how market participants assess the risk level of corporate bonds relative to government bonds, is the defining dif-

ference between the two types of bonds and hence an appropriate subject for credit risk analysis.

Figure 1 plots the term structure of yield spread against bond rating as of late November 1998.² A general pattern appears in which the lower the bond rating, the higher the yield spread. The logic here is that since corporate bonds with low ratings are more likely to default in the future, investors demand that the large credit risk be offset by a higher return. In addition, the flat to slightly upward sloping term structures conform with the theory.³ It indicates that investors are finally starting to evaluating credit risk properly.⁴

Figure 1 Yield Spreads and Bond Ratings (November 1998)

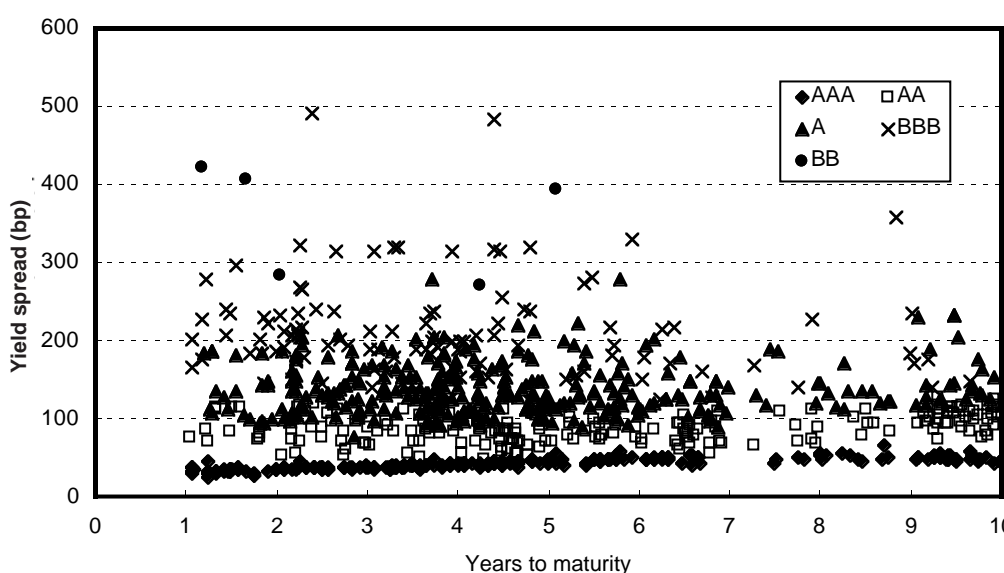
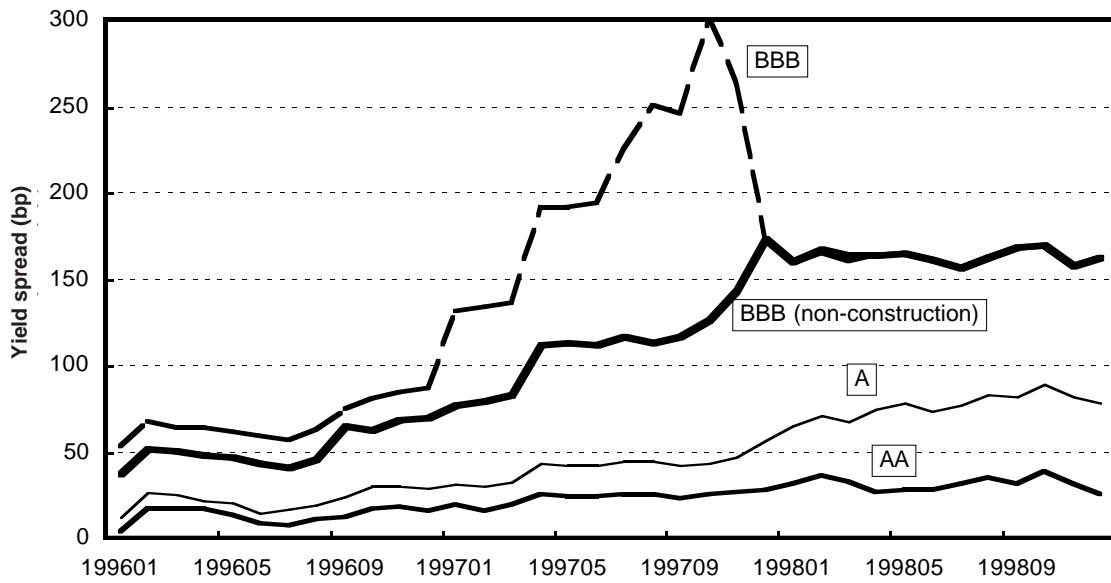


Figure 2 shows how the recent decline in credit confidence is affecting average spreads between AAA and lower ratings.⁵ (It also shows the spread for BBB bonds excluding construction companies.⁶) In the past three years, we can see the formation and growing differentiation of spreads corresponding to rating. Moreover, the growing spread for A and BBB ratings since the fall of 1997 corresponds with the failures of major financial institutions (Sanyo Securities, Hokkaido Takushoku Bank, and Yamaichi Securities). These events apparently prompted investors to become more prudent regarding credit risk.

Figure 2 Yield Spreads and Rating Differentials (versus AAA)



What seems clear from the spread trends is that the domestic straight bond market has become considerably more sensitive to credit risk in recent years.

3. Spread, Stock Price, and Rating of Failed Companies

We now turn to the yield spread and stock price trends of Towa Steel and Japan Land Development, both of which failed last year (Figure 3).⁷ As expected, the stock price movements sensitively reflect credit risk.

Figure 3 (a) Towa Steel

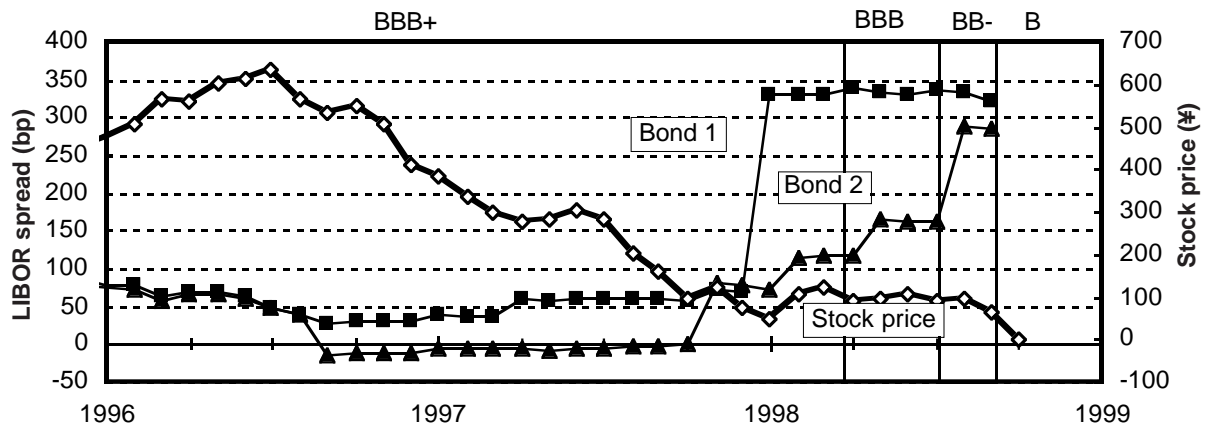
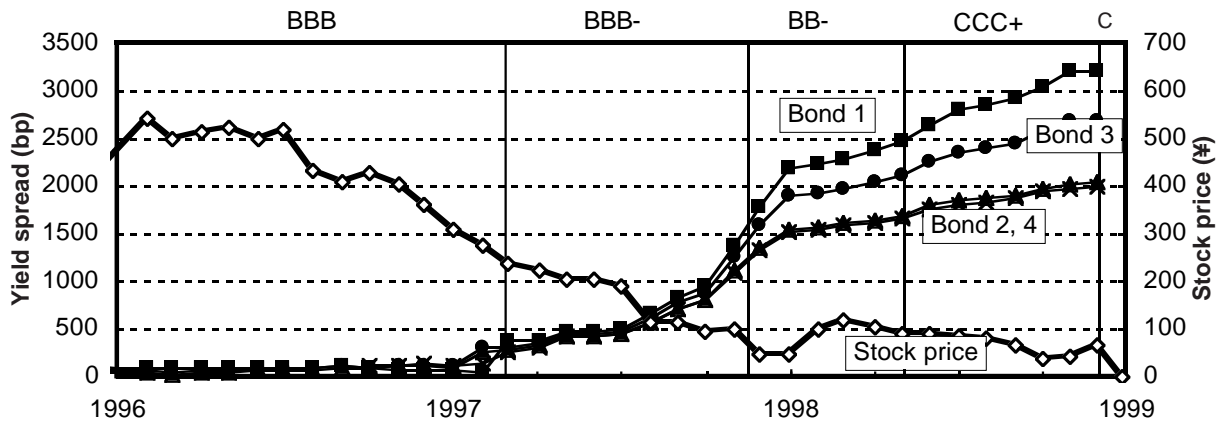


Figure 3 (b) Japan Land Development

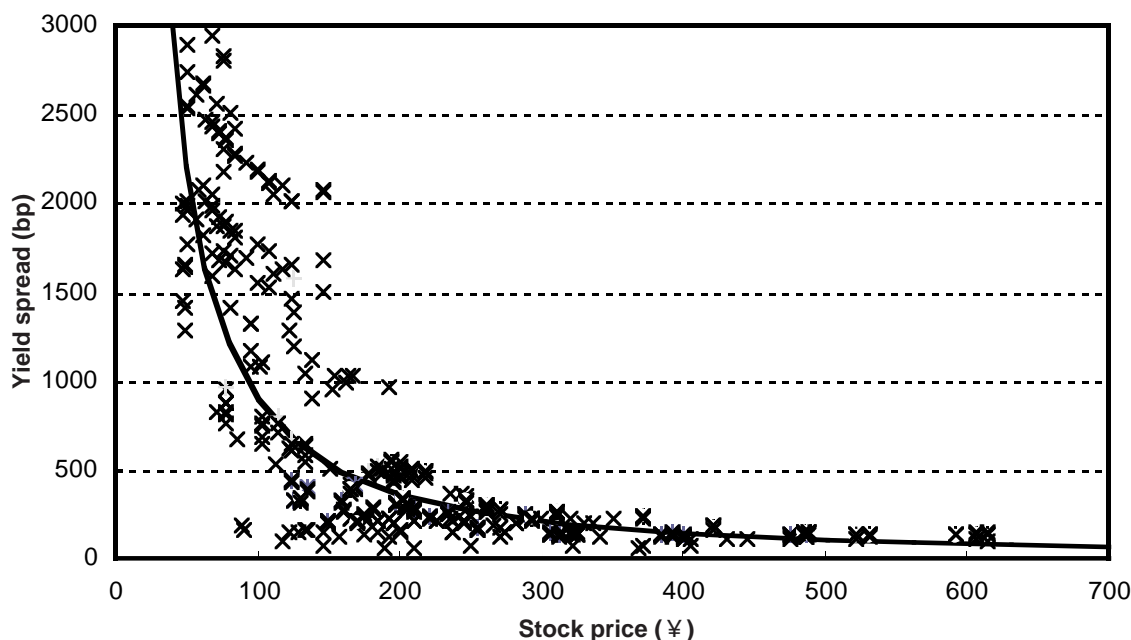


The yield spread for Japan Land Development, as with other construction companies, began rising in early 1997, surging to 30 percent (3,000 basis points) just before the company filed for bankruptcy under the Company Reorganization Law in the fall. Meanwhile, the stock price steadily declined to 300 yen in early 1997 and 100 yen later that year. Towa Steel's stock price also experienced a prolonged decline, but the yield spread did not surge until the stock price fell below 100 yen in late 1997.

When the stock price is above a certain level, it can fall without affecting the yield spread; but once that level is reached, the spread increases rapidly. This trigger price was around 100 yen for Towa Steel, and 300 yen for Japan Land Development.

The same analysis was performed on speculatively rated bonds (BB+ and below) as of the end of November 1998 (Figure 4).⁸ The yield spread expanded markedly when stock prices reached the 300-yen level, and surged to over 10 percent (1,000 basis points) as stock prices continued to fall to 200 yen and 100 yen. The solid curve shows the average relationship between stock prices and yield spreads.⁹

**Figure 4 Stock Price and Yield Spread of Companies
with Speculative Rating (April 1997 - Nov. 1998)**

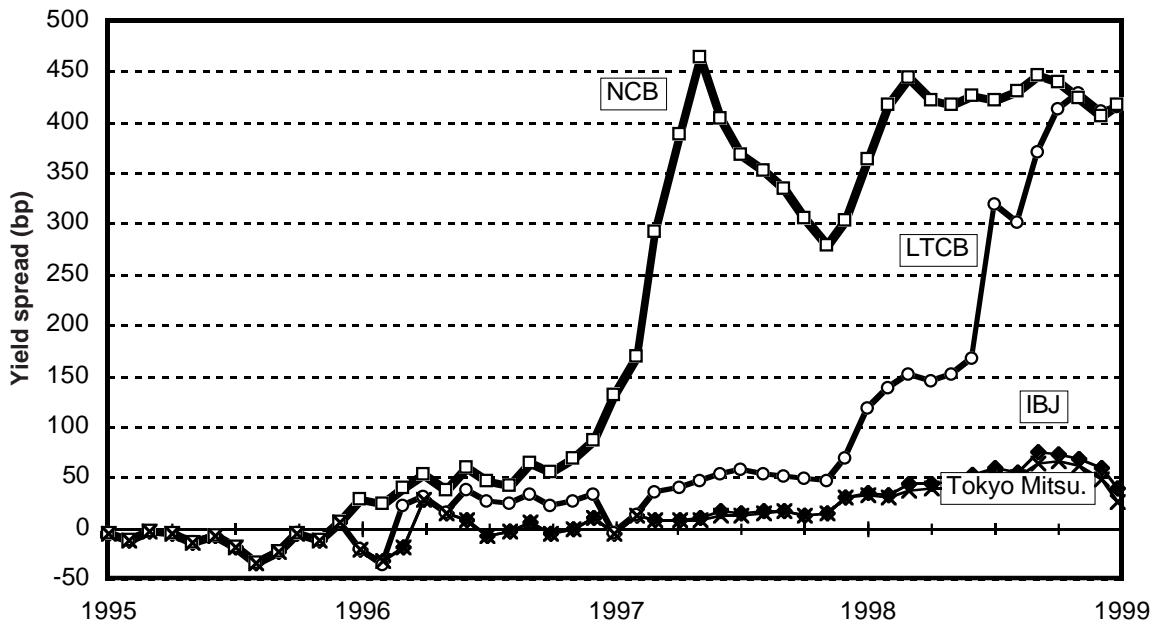


Furthermore, as shown in Figure 3, in correlation with the increasing spreads, ratings were downgraded from BBB+ to B for Towa Steel, and from BBB to C for Japan Land. However, the timing of the downgrades tended to lag behind the spread increases.

4. Recent Financial Bond Market Conditions

Figure 5 shows the yield spread between newly issued, interest-bearing 5-year financial bonds and Japanese Government Bonds. Financial bonds issued by the temporarily nationalized Japan Long-term Credit Bank (LTCB) and the Nippon Credit Bank (NCB) have spreads that are dramatically larger than the others. Nippon Credit Bank, after receiving the first spread differential among financial bonds in late 1995, the spread increased in early 1997 similar to the construction companies mentioned earlier. It then decreased for a while, but increased and remained high at the end of the year. Meanwhile, the LTCB began showing a spread differential somewhat later than NCB in 1996, and remained stable, but increased sharply in late 1997, and caught up with NCB in mid 1998 with the merger to Sumitomo Trust Bank.

Figure 5 Yield Spread of Newly Issued Interest-Bearing Financial Bonds



The spread on these two new bond issues appears to be correlated with stock price trends (Figure 6): the sharp yield spread increases in early 1997 for NCB and late 1997 for LTCB occurred when their stock prices fell below 300 yen.

Figure 6 Yield Spread and Stock Price of LTCB and NCB

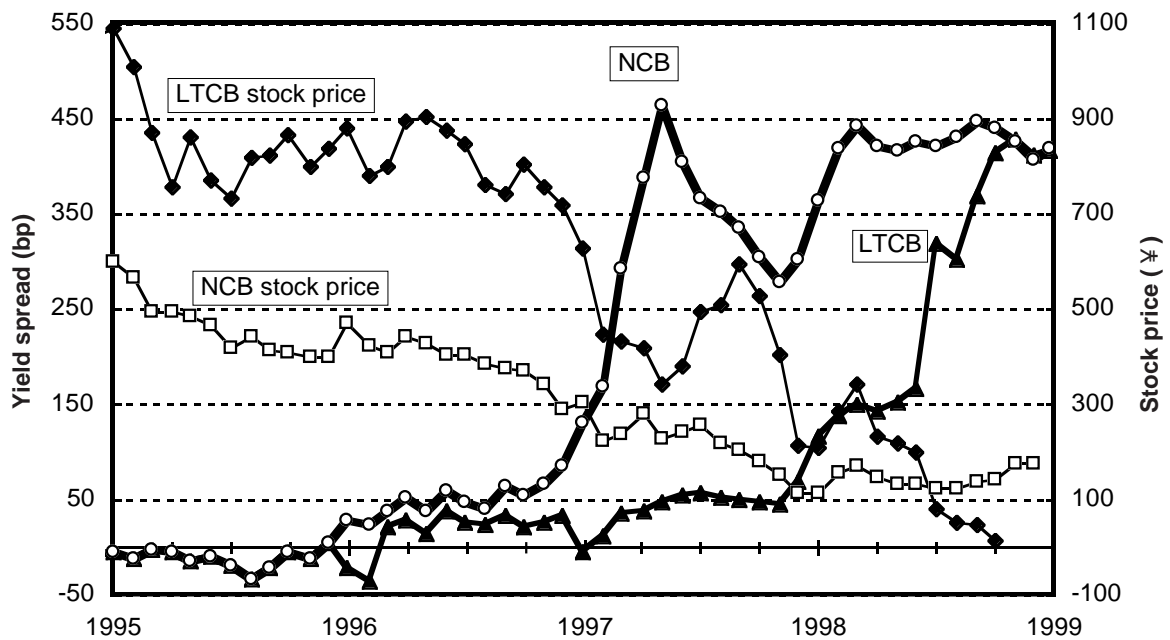
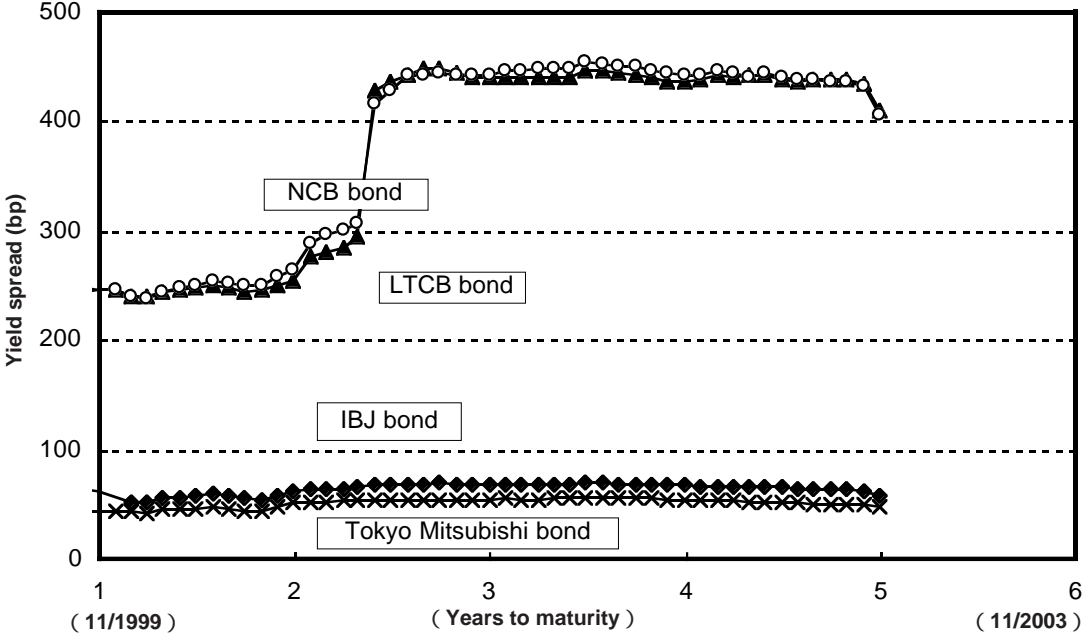


Figure 7 shows the term structure of the spreads for each bank as of the end of November 1998. The spreads for NCB and LTCB are quite high compared to other banks not only for new issues but for all time periods. Spreads for other banks, which used to be roughly equal, have differentiated by 20 basis points in the past one to two years.¹⁰ This appears to be due to the increasing selectivity of investors.

Figure 7 Term Structure of Yield Spread of Financial Bonds (Nov. 1998)



Moreover, the two banks a large spread disparity between bonds that mature in two years and three years (March 2001 and April 2001). This difference first appeared in April 1998, and has gradually expanded to over 1 percent (100 basis points). The jump is attributed to reflect the change in stance of monetary authorities regarding financial bond protection in March 2001.¹¹ In addition, the spread for newly issued financial bonds, which a few years ago was several dozen basis points below that of already issued bonds, recently has declined to several basis points.¹²

5. Conclusion

Reflecting the prevailing financial system instability, corporate straight bond and financial bond markets have become increasingly sensitized to credit risk.

Japan Land Development's bond default is expected to make investors more aware of redemp-

tion conditions including debt priority and collateral limits, and to evaluate credit risk more stringently. On the other hand, considering the past decade's estimated default probability of just 7 percent for BBB and 23 percent for BB ratings, it would not be surprising to see a high-yield bond market arise centered around junk bonds.¹³

In any event, increasingly rational price formation in the corporate and financial bond markets is expected to contribute to the growth of these markets.

Notes

1. Based on corporate bankruptcy data from Teikoku Data Bank. Failures exceed 10,000 in just the first half of fiscal 1998. Calendar year 1998 saw 19, 171 failures, the second highest postwar level.
2. Price data are OTC quotations, ratings are from R&I (Japan Rating & Investment Data Center, formerly Japan Bond Institute).
3. The yield spread is extremely large for B-rated bonds, which are omitted from Figure 1, and has a downward sloping term structure. This conforms with the theoretical assertion that bonds with low ratings have a downward sloping term structure.
4. This type of change occurred when the OTC standard quotation system was reformed in April 1997 (greatly increasing the number of bond issues and members reporting quotations). Moreover, the yields of many issues jumped when the system was reformed, indicating a qualitative change in price data.
5. We formulated a model for the yield spread with the explanatory variables of rating, time to maturity, coupon rate, and presence of collateral, and calculated the monthly spread differentials attributable to rating differences.
6. The yield spread for BBB-rated bonds dropped sharply in the fall of 1997 because construction company bonds, which have a large spread, were downgraded to BB.
7. In the interest of data consistency, we used OTC standard quotations for Japan Land Development bond prices, and the offer price of Towa Steel bonds provided by a major securities company. The ratings are from R&I. For Figure 3(a) only, the LIBOR spread is used.

8. We selected companies rated BB+ and lower (by R&I) as of the end of November 1998, and plotted monthly stock prices against corporate bond spreads (for 24 issues) from April 1997.
9. The solid curve is a regression of the logarithms of the spread and stock price.
10. Yield spreads for Central Bank for Agriculture and Forestry (Norin Chuo Kinko) and National Credit Bank Federation (Zenkoku Shinyo Kinko Rengokai) bonds are equivalent to Tokyo Mitsubishi Bank bonds, while that of the Central Bank for Commercial and Industrial Associations (Shoko Chukin Kinko) bonds is slightly smaller.
11. While the Deposit Insurance Corporation insures depositors for up to 10 million yen at each financial institution, financial bonds are excluded from coverage. However, the Minister of Finance has declared that financial bonds will also be protected by insurance by March 2001 to help alleviate the financial system instability. The fact that some bonds nevertheless continue to have large yield spreads reflects three conditions: (1) the market remains unconvinced by the statement; (2) no protective procedures have been announced to follow up the announcement; and (3) there is a risk that the bonds may not be fully liquid.
12. New issues have a large transaction volume than already issued bonds, and thus tend to carry a premium (lower yield).
13. We used the credit risk ratios from R&I (May 1998). These ratios are substantially higher than actual bankruptcy probabilities.