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Price discovery of subordinated credit spreads for Japanese mega-banks: Evidence from bond and credit default swap markets

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ABSTRACT

This paper investigates the determinants and dynamics of subordinated credit spreads for Japanese mega-banks using the bond and credit default swap (CDS) spreads. The main findings are as follows. Subordinated bond and CDS spreads are cointegrated in most cases, and the CDS spread plays a more dominant role in price discovery than the bond spread. In addition, there are significant volatility spillovers from the CDS to bond spread. This information leadership for the CDS spread can largely be explained by stronger reactions of the CDS spread to some financial market variables and bank-specific accounting variables than the bond spread.

1. Introduction

This paper attempts to empirically investigate the determinants and dynamics of subordinated credit spreads for Japanese mega-banks, paying particular attention to detecting the relative role of price discovery for banks' credit risk between subordinated bond and credit default swap (CDS) spreads. Subordinated bonds are unsecured fixed-income instruments that are senior only to common equity when a failed bank is liquidated. Thus, the spreads of subordinated bonds over government

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bonds should be more sensitive to the banks' credit risk than the spreads of senior bonds. On the other hand, a subordinated CDS contract is a swap contract with a subordinated bond as a reference bond (entity). The CDS spreads should mirror the credit risk identical to bond spreads as long as they refer to the same assets (entities).

Many studies investigate whether and to what degree subordinated bond investors are sensitive to the credit risk using the spreads of subordinated bonds issued by U.S. banks over Treasury yields. Their main objective is to examine the possible role of subordinated bonds as a tool for monitoring and disciplining banks' risk-taking behavior. First, Avery et al. (1988), and Gorton and Santomero (1990) show that (aggressive) risk taking by bank managers was not priced in the subordinated bond spreads in the 1980s. Studies using data from 1991 onwards, which corresponds to the post Federal Deposit Insurance Corporation Improvement Act (FDICIA) period, however, show that credit risk was significantly priced in U.S. subordinated bond spreads. In particular, Flannery and Sorescu (1996) argue that credit risk was not priced until the 1980s due chiefly to a rational response of investors to a "too-big-to-fail" policy along with well-established perceptions of forbearance by the government. Once such a perception on the institutional framework vanished, however, subordinated bond investors began to price credit risk.[1]

In contrast to the empirical studies on U.S. banks, there are no such works on Japanese banks except Kobayashi (2003) and Imai (2007). Using weekly data of subordinated bond spreads for 13 Japanese banks in the secondary market from 2000 through 2002, Kobayashi (2003) finds that the spreads are not significantly sensitive to both bank-specific risk measured by the market-based leverage ratio and market conditions such as the 10-year Japanese government bond yield and excess stock returns. She concludes that her results are consistent with the previous studies on U.S. banks, suggesting a nonnegligible 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 from 1993 through 2004 and finds that spreads are significantly higher for banks with weaker financial standing reflected in credit ratings, as well as accounting variables including nonperforming loan ratio and loans to asset ratio.

It should be noted here that in recent years, credit markets have created and expanded trading of credit derivatives, the CDS being the most popular product among them. In a CDS contract, the protection buyer pays the seller a fixed premium in each period until either prespecified credit events, typically a default, occur to the reference entity or the swap contract matures. In return, if the credit events occur, the protection seller must buy back from the buyer the valueless bond at its face value. Thus, the CDS spreads should provide a direct measure of the default probability and the recovery rate from the defaulted bond perceived by credit market participants. Because the principal is not needed for trading CDS contracts, given the nature of derivatives, CDS contracts tend to be traded more frequently, and thus the liquidity of the CDS market has been generally higher than cash bonds issued by the same reference entities.

In fact, the market liquidity of Japanese cash bonds in general, not to mention the liquidity of subordinated bonds, is very low compared with the corresponding CDS market. Probable reasons for this are: (i) Japanese bond investors tend to "buy and hold" those bonds and (ii) there has been virtually no repo market (transactions with repurchase agreements) for corporate bonds in Japan.

As for the Japanese CDS market, Ito and Harada (2004) document that the main reference entities are the Japanese (mega) banks, and that CDS spreads reflect the credit risks of Japanese banks more sensitively than other credit instruments including bond spreads. This is due mainly to the above-mentioned higher liquidity of CDS trading for Japanese banks, as well as the difference in investor types between CDS and bond markets.

The main investors in the Japanese CDS market are reported to be non-Japanese hedge funds and investment banks, while those in the Japanese corporate bond market are Japanese institu-

[1] Using extended data covering 1986–1995, De Yong et al. (2001) confirm the result in Flannery and Sorescu (1996), finding that subordinated bond spreads are significantly correlated with accounting and market risk measures. Covitz et al. (2004) also find that U.S. subordinated bond spreads are significantly risk sensitive after 1985 using a two-step Heckman procedure. Furthermore, Covitz and Harrison (2004) report a "positive selection" attribute in that issuance tends to be timed with the announcement of positive news like ratings upgrades.