



# Does the market discipline banks? New evidence from regulatory capital mix

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## Abstract

While bank capital requirements permit a bank to freely substitute between equity and subordinated debt, lenders and investors view debt and equity as imperfect substitutes. It follows that, after controlling for the level of regulatory capital, the mix of debt in capital isolates the role that the market plays in disciplining banks. I document that the mix of debt in capital affects bank behavior, but only when investors can impose real constraints. In particular, the mix of debt reduces the probability of failure and future distress for BHC-affiliated institutions (where the investor has control rights through an equity position) and for stand-alone banks before the Basel Accord (when debt issues included restrictive covenants). However, substituting equity for subordinated debt at the bank holding company level or in stand-alone banks since the Basel Accord (where the investor has few protections) only increases the probability of distress and failure.

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## 1. Introduction

Economists and bank regulators have recently shown great interest in involving the market more in the supervision of banks, particularly through the use of mandatory subordinated debt requirements. A proposal by a group of economists at the American Enterprise Institute (1999) recommended to the Basel Committee on Bank Supervision that the current risk-based capital framework be scrapped and replaced by tougher leverage requirements, part of which would be met through the issue of subordinated debt. Recently, [Evanoff and Wall \(2000\)](#) have proposed adding a mandatory subordinated debt requirement to the current risk-based capital regime, where institutions regularly roll over short-term debt. The potential for market discipline created

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by subordinated debt has also been considered extensively in a Staff Study by the [Board of Governors of the Federal Reserve System \(1999\)](#). Moreover, the third pillar of the Revised Basel Accord is predicated on market discipline through increased transparency and disclosure.

How might the market help regulate banks? There are two potential mechanisms. First, the market could provide information about default risk that helps supervisors allocate resources to the right places, or prevents supervisors from forbearing against problem banks. Second, the market could discipline banks directly by including restrictive covenants on debt issues or by recognizing franchise value in a bank's stock price, either of which would mitigate moral hazard during financial distress.

The existing empirical literature has largely focused on evaluating the efficacy of this first mechanism, i.e. the ability of bond holders to price changes in bank risk. While early research found little relationship between the measured subordinated debt spreads over US Treasuries and the measured risk from the bank balance sheet, studies using more recent data have more successfully found evidence that subordinated debt holders are effective monitors of bank behavior.<sup>1</sup> The conventional interpretation of the newfound relationship between spreads and risk is that subordinated debt holders felt safe under implicit guarantees by the FDIC to assume any losses, which were ended by Congress through FDICIA in 1991.<sup>2</sup>

However, the crucial question is not whether or not the price of debt is sensitive to risk, but whether or not this risk-pricing (or enforcement of covenants) would actually deter banks from taking risks that they would otherwise take. The only notable study on this issue is conducted by Bliss and Flannery (1999), who make a clear distinction between monitoring and influencing by debt holders, but fail to find any evidence that the market influences bank behavior.<sup>3</sup> This paper attempts to fill this gap in the literature by measuring the direct effect of subordinated debt on bank behavior.

A starting point for such an investigation must be Levonian (2001), who argues that a substitution away from equity towards subordinated debt in a bank's capital structure only increases

<sup>1</sup> Avery et al. (1988) found no evidence in a sample of the 100 largest Bank Holding Companies over 1983–1984 that debt spreads were sensitive to either ratings by Moody's or Standard and Poor's or an FDIC index of risk. Gorton and Santomero (1990) argued that the spread-risk relationship should actually be non-linear, as the payoffs to subordinated debt effectively look like those to equity when leverage is high. This observation did little, however, to help uncover a relationship between debt prices and risk, casting serious doubts on the ability of subordinated debt to impose any market discipline on banks.

Flannery and Sorescu (1996) investigated the issue over a longer panel using more recent data (1983–1991) on 422 bonds issued largely by Bank Holding Companies. The authors found that spreads are sensitive to measures of leverage, accruing loans past due, and real estate holdings of the holding company, but that this relationship is strongest with more recent data. These findings were largely confirmed by DeYoung et al. (1998). Jagtiani et al. (1999) find evidence that there is little difference between the pricing of debt issued by banks or bank holding companies. Morgan and Stiroh (1999) also present evidence that the spread-risk relationship on bank bonds is weaker for larger and less transparent banks.

<sup>2</sup> This story is difficult to reconcile, however, with widespread evidence that depositors have imposed market discipline on banks. Hannan and Hanweck (1988) found that interest rates on Jumbo Certificates of Deposit issued by 300 large banks in 1985:I were sensitive to balance sheet measures of risk. Park and Peristiani (1998) found evidence, in a sample of Savings and Loans over 1987–1991, that banks predicted to fail on the basis of balance sheet characteristics paid higher interest rates to uninsured depositors and had slower growth rates of uninsured deposits. Finally, Cook and Spellman (1994) concluded that GAAP insolvent Savings and Loans paid risk premia on their insured deposits in 1987–1988.

<sup>3</sup> The authors study a sample of 107 Bank Holding Companies over 1986–1998 that issued Y-9 Call Reports to the Federal Reserve, had stock prices reported in the CRSP Stock Returns and Master Files, and bond prices in the Warga/Lehman Brothers Corporate Bond Database. The authors found no evidence that bank behavior responds to excess security returns, and concluded that neither bond holders nor stockholders prominently influence managerial action.

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