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The risk-weights in the New Basel Capital Accord: Lessons from bond spreads based on a simple structural model

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Abstract

The Basel Committee designed a system of risk weights ("standardised approach") to measure the riskiness of banks' loan portfolios. We investigate its ability to adequately reflect risk through an analysis of the economic capital implied in corporate bond spreads. This is based on a dataset of issuance spreads, ratings and other relevant bond variables including 7232 eurobonds issued by an internationally-diversified sample during 1991–2003. Three main results emerge: the spread/rating relationship is strongly significant; the estimated spreads per rating class indicate a steeper risk/rating relationship than the one approved by the Basel Committee; no significant difference appears in the spread/rating relation of banks and non-financial firms issuers.

JEL classification: G15; G21; G28

Keywords: Eurobonds; Credit ratings; Spreads; Structural models; Capital regulation; Deposit insurance; Banks

1. Introduction

In June 2004, the Basel Committee for Banking Supervision released its reform of the capital adequacy framework originally introduced with the 1988 Accord. This reform is based on three mutually reinforcing pillars: (i) minimum capital requirements, (ii) supervisory review process,

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Table 1
Proposed risk-weights per rating bucket—standardised approach

	(1) Basel 1999 proposed risk weight (%)	(2) Basel 2004 proposed risk weight (%)	(3) Altman–Saunders proposals (%)
AAA to AA−/ Aaa to Aa3	20	20	10
A+ to A−/ A1 to A3	100	50	30
BBB+ to BBB−/ Baa1 to Baa3	100	100	30
BB+ to BB−/ Ba1 to Ba3	100	100	100
B+ to B−/ B1 to B3	100	150	100
Below B−/B3	150	150	150

Source: Altman and Saunders (2001), Basel Committee on Banking Supervision (2004).

and (iii) market discipline.[1] As far as the first pillar is concerned, the New Accord is based on minimum capital requirements for credit, market and operational risks. Credit risk capital requirements, in turn, would be set according to a standardised approach or an internal ratings-based approach (IRB). In the standardised approach[2] the 1988 risk weights based on some broad borrower categories (sovereign, banks or non-financial corporations) are to be refined by reference to a rating provided by an external credit assessment institution, such as a rating agency. Column (2) of Table 1 reports the new risk weights for corporate loans (banks would be assigned a more favourable set of weights).

In the years leading to the New Accord, a lively stream of literature focused on the structure and implications of the IRB approach, which undoubtedly constitutes the most unprecedented part of the reform.[3] However, the risk weights introduced by the new standardised approach also are likely to have a significant impact on the banking industry. Their appropriateness was discussed, e.g., by Altman and Saunders (2001) who criticised their broad degree of granularity (only three buckets for rated corporate loans were envisaged). Using data on historical corporate bond defaults and losses per rating class to simulate expected and unexpected losses, those authors showed that the three weights of 20% (AAA to AA−), 100% (A+ to B−) and 150% (below B−) were too broad to reflect the relative risk of unexpected losses in each bucket.[4] Based on their empirical findings, Altman and Saunders (2001) recommended a revised risk-weighting scheme that included splitting the A+ to B− bucket into two separate buckets (A+ to BBB− and BB+ to B−), reflecting the distinction between investment and non-investment grade borrowers (see column (3) of Table 1).[5]

[1] For an analysis of the relationship between capital requirements and market discipline, see Berger et al. (1995).

[2] Under the IRB approach banks would be allowed to use their own estimates of a borrower's probability of default produced by an internal rating system, conditional on specific criteria and on validation by national supervisors. The IRB approach also confers varying degrees of independence to banks in setting the parameters determining risk weights: the 'foundation' approach entails less independence than the 'advanced' one. Under both the standardised and the IRB approaches the original 8% minimum capital to risk-weighted assets is maintained.

[3] See e.g. Gordy (2003), Repullo and Suarez (2004).

[4] Altman and Saunders' critique lead to some fine-tuning in the weights approved in 2004, which are slightly different from those originally proposed by the Basel Committee in 1999 (also reported in Table 1).

[5] Note that Altman and Saunders themselves mention that their revised risk-buckets underestimate risk for grades BB, B and below B−.