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On the importance of systematic risk factors in explaining the cross-section of corporate bond yield spreads ☆

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Abstract

In this paper we examine the importance of systematic equity market factors in explaining the cross-sectional variation in yield spreads on corporate debt. Based on a sample of 1771 corporate bonds over the period from January 1985 to March 1998, we find that *once the default-related variables are controlled for*, bond betas or sensitivities to aggregate equity market risks have very limited explanatory power. This is in contrast to [Elton, E.J., Gruber, M.J., 2001. Explaining the rate spread on corporate bonds. Journal of Finance 56, 247–277] who find that market factors tied to expected returns are predominantly important, but who do not control for these variables (i.e. the relevant variables from structural models), possibly biasing their estimates. On the other hand, our finding that the systematic factors exhibit some limited explanatory power suggests that the standard contingent claims approach may not fully apply. This finding is consistent with previous research that bond betas are not completely irrelevant once market frictions are introduced. Overall, the evidence provides

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empirical support for the proposition that structural models capture important elements of corporate bond yield spread determination and equity market systematic factors are by no means predominant.

JEL classification: G12; G13

Keywords: Corporate bond; Yield spread; Systematic risk factors

1. Introduction

How important are systematic risk factors to the determination of the cross-section of corporate bond yield spreads? Structural models of corporate bond pricing imply that systematic risk factors should not play a role in the pricing of corporate bonds, while firm and issue characteristics should be among the most important factors. Yet recent empirical evidence indicates that systematic factors related to expected returns are of primary importance. Understanding the relative significance of these two influences is important for understanding how well structural models of bond pricing capture the process determining the yield spreads of corporate bonds.

In a recent article, Elton et al. (2001), examine rate spreads between corporate and government bonds and suggest that systematic risk factors related to expected returns on equity are of primary importance in the determination of these spreads. In particular, they find that rate spreads on corporate bonds are largely attributable to three factors: possible loss from default (estimated within the context of a risk-neutral world), tax differential between corporate and government bonds, and systematic risk of the equity market. For example, in the case of 10-year corporate bonds, they find that only 17.8% of the rate spread between corporate and Treasuries can be explained by the expected loss from default, while 36.1% can be explained by local taxes, and 46.7% can be explained by systematic risk factors. When performing cross-sectional regressions of the average rate spread on bond return sensitivities (or betas) to systematic equity market factors, they find that the market factors can explain about 32% of the cross-sectional differences for industrial bonds and about 58% for financial bonds. Thus, they conclude that the market factors used to explain returns in the equity market are the most important determinants of yield spreads on corporate bonds.

These empirical results appear largely contradictory to structural models of corporate bond pricing. In a line of research that stems from Merton (1974), structural models of corporate bond yields view corporate liabilities as contingent claims on the value of the underlying firm. As a result, contingent claims theory implies that the pricing of corporate bonds should be independent of the expected returns on the underlying asset because it is possible to hedge away the risk through replication. This implies that derivative prices (in this case, bond prices) should be unrelated to the expected return of the underlying asset and the systematic factors that affect