R&D, Risk Premia, and Credit Spreads

Zhao Liu*

Department of Economics

Duke University

October 21, 2019

Abstract

Empirical evidence suggests that R&D-intensive firms experience higher expected equity returns, but lower leverage, default rates, and credit spreads, than R&D-nonintensive firms. To provide a unified explanation for these cross-sectional differences, I propose a two-sector production-based dynamic stochastic general equilibrium model in which R&D firms are highly exposed to innovation risks, raising bankruptcy costs. Despite the tax benefits of debt, R&D firms tend to choose low leverage, lowering both default rates and credit spreads; nevertheless, the inherent riskiness of R&D activities dominates, generating high equity returns. The model generates sizable heterogeneity in the quantities of interest between R&D and non-R&D firms, as in the data, and fits the aggregate macroeconomic and asset pricing moments reasonably well.

Keywords: R&D, endogenous growth, innovation

*zhao.liu@duke.edu I am grateful to my advisors Craig Burnside, Max Croce, Lukas Schmid and Federico Bugni for their continuous support and guidance. I also thank David Berger, Francesco Bianchi, Cosmin Ilut, Kyle Jurado, Huseyin Yildirim and seminar participants at Duke Economics for insightful comments and discussions. All errors are my own.