

Common Failings: How Corporate Defaults Are Correlated

SANJIV R. DAS, DARRELL DUFFIE, NIKUNJ KAPADIA, and LEANDRO SAITA*

ABSTRACT

We test the doubly stochastic assumption under which firms' default times are correlated only as implied by the correlation of factors determining their default intensities. Using data on U.S. corporations from 1979 to 2004, this assumption is violated in the presence of contagion or "frailty" (unobservable explanatory variables that are correlated across firms). Our tests do not depend on the time-series properties of default intensities. The data do not support the joint hypothesis of well-specified default intensities and the doubly stochastic assumption. We find some evidence of default clustering exceeding that implied by the doubly stochastic model with the given intensities.

WHY DO CORPORATE DEFAULTS CLUSTER IN TIME? Several explanations have been explored. First, firms may be exposed to common or correlated risk factors whose co-movements cause correlated changes in conditional default probabilities. Second, the event of default by one firm may be "contagious," in that one such event may directly induce other corporate failures, as with the collapse of Penn Central Railway in 1970. Third, learning from default may generate default correlation. For example, to the extent that the defaults of Enron and World-Com revealed accounting irregularities that could be present in other firms, they may have had a direct impact on the conditional default probabilities of other firms.

Our primary objective is to examine whether cross-firm default correlation that is associated with observable factors determining conditional default probabilities (the first channel on its own) is sufficient to account for the degree of time clustering in defaults that we find in the data.

*Sanjiv Das is with Santa Clara University; Darrell Duffie is with Stanford University; Nikunj Kapadia is with the University of Massachusetts, Amherst; and Leandro Saita is with Lehman Brothers, New York. This research is supported by a fellowship grant from the Federal Deposit Insurance Corporation (FDIC). We received useful comments from participants at the FDIC Center for Financial Research conference, the Quantitative Work Alliance for Applied Finance, Education and Wisdom, San Francisco, Citigroup, the Quant Congress, Derivatives Securities Conference, Moodys-London Business School Credit Risk Conference, Federal Reserve Bank of New York, Bank of International Settlements and Deutsche Bundesbank workshop on Concentration Risk, Wilfrid Laurier University, National Bureau of Economic Research, the Q-Group, and the Western Finance Association Meeting. We are grateful to the editor and referees, as well as to Mark Flannery, Jean Helwege, Robert Jarrow, Edward Kane, Paul Kupiec, Dan Nuxoll, Neal Pearson, George Pennacchi, Louis Scott, Philip Shively, and Haluk Unal for their suggestions. We are also grateful to Moody's Investors Services, Gifford Fong Associates, and Professor Ed Altman for data and research support for this paper. The first author is grateful for the support of a Breetwor Fellowship.