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Predicting the Probability of Default Using Asset Correlation of a Loan Portfolio

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We use the asymptotic single risk factor model, which is a portfolio invariant model and preferred by BCBS with the factor based structural CreditMetrics portfolio default model to empirically estimate the Probability of default with asset correlation of a loan portfolio based on primary data from Public Sector Banks and compared the results with the estimated Probability of default without any asset correlation. We have used actual bank loan rating transition data for the period 2000-2010. Our study evidences that probability of default improves with asset correlation. We also find that asset correlation is an increasing function of probability of default. High rating firms have low correlation than low rating firms. These are opposite of BCBS assumptions for the developed nations. This implies that large corporate loans have the same systematic risk in times of economy distress. Our analyses suggest that it is imprudent to assume a decreasing relationship between average asset correlation and default probability in measuring portfolio credit risk. In light of this empirical evidence, we encourage the Basel Committee to revisit the use of this relationship in bank capital requirement.

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