

Modeling Ultimate Loss Given Default on Corporate Debt

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Loss given default (LGD), the loss severity on defaulted debt obligations, is a critical component of risk management, pricing, and portfolio models of credit.¹ LGD is among the three primary determinants of credit risk, the other two being probability of default (PD) and exposure at default (EAD). However, LGD has not been as extensively studied and is considered a much greater modeling challenge than PD. Traditional credit models such as PD have focused on systematic components of credit risk that attract risk premiums. Unlike PD, determinants of LGD have typically been ascribed to idiosyncratic, borrower-specific factors. However, there is now an ongoing debate about whether the risk premium on defaulted debt should reflect systematic risk and, in particular, whether the intuition that LGDs would rise in worse states of the world is correct; and how this could be refuted empirically given limited and noisy data. This heightened focus on LGD has been motivated by the large number of defaults and nearly simultaneous decline in recovery values observed through the last credit cycle as well as the current credit crisis, regulatory developments such as Basel II (Basel Committee of Banking Supervision [2005]), and the continued growth in credit markets. However, obstacles to better understanding and predicting LGD include a dearth of relevant data and the lack of a

coherent theoretical underpinning, a continuing challenge to researchers.

This study contributes to the research on LGD on several fronts. The review of literature considers recent contributions and combines many elements into a unified empirical framework. The methodology builds an internally consistent model of LGD that corresponds to *a priori* expectations and empirical findings, which is amenable to rigorous validation and represents an advance in econometric methodology. In particular, estimation of a two-equation system models LGD simultaneously at the obligor and instrument levels, using an extensive sample of corporate bond and loan defaults. In addition to answering the many academic questions regarding LGD, we provide a practical tool for risk managers, traders, and regulators in the field of credit. For example, these players in the credit markets can use our model to forecast ultimate LGD, which can serve as input into credit models for value at risk (VaR), distressed debt pricing, or regulatory capital.

LGD can be defined variously depending upon the institutional setting, the type of instrument (e.g., traded bonds or bank loans), or the credit risk model (e.g., pricing debt instruments subject to the risk of default, expected loss calculation, or credit risk capital). The ultimate LGD represents eventual discounted loss per dollar of outstanding balance at default. When considering loans that