Introduction: Special Issue on Pricing the Risks of Deposit Insurance

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The papers in this volume were presented at a conference on Pricing the Risks of Deposit Insurance cosponsored by the Federal Deposit Insurance Corporation (FDIC) and the Journal of Financial Services Research (JFSR). We thank Arthur Murton of the FDIC and Haluk Unal, editor of the JFSR, for organizing a forum on this important and timely subject. Current proposals to reform deposit insurance include provisions that give the FDIC greater power to set premiums reflecting the risks of individual banks, and each of the papers provides insights on how this can be done.

Over the last three decades, the literature on deposit insurance pricing has paralleled research on the pricing of default-risky bonds. This is not surprising, as there is a close analogy between the fair deposit insurance premium paid by a bank and the fair-market default risk premium paid by a firm on its debt. Merton’s (1977) initial work on deposit insurance pricing follows his research on corporate debt pricing (Merton, 1974) by applying option pricing methodology to value default risky claims. This research relates the likelihood of a corporation or bank failure, and the amounts recovered by debt holders or the deposit insurer in default, to the probability distribution of the corporation’s or bank’s assets and liabilities. Merton’s work spawned similar research modeling a firm’s default based on its financial structure, and such models have become known as ‘‘structural’’ models of credit risk. The Falkenheim and Pennacchi (FP) (2003) article in this volume employs a model of this type.

More recently, a variant of credit risk models, known as ‘‘reduced form’’ models have been introduced. Initial work in this area includes Jarrow et al. (1997), Madan and Unal (1998), and Duffie and Singleton (1999). These models do not link default or claimants’ recovery amounts directly to the financial characteristics of the firm. Rather, they abstract from the firm’s financial structure and model default as essentially a pure Poisson process with a time-varying default intensity. The default intensity typically is assumed to follow an exogenous mean-reverting diffusion process under the risk-neutral probability
distribution. The Fan et al. (FHRT) (2003) article values a bank’s subordinated debt using this sort of model, while the Duffie et al. (DJPY) (2003) article values deposit insurance based on this approach.

Studies of both structural and reduced-form models continue to be active areas of credit risk analysis. For both categories of models, a critical issue is how to estimate the models’ variables and parameters for a particular firm. When the firm has publicly traded securities, the model’s unknowns may be inferred from the firm’s security prices. FHRT provides a good example of this. For each of five individual banks, they estimate the parameters of its reduced form model based on the market prices of its outstanding subordinated debt issues. Once each bank’s risk-neutral default intensity process (equivalent to the credit spread process) is determined from these estimates, any particular default-risky security issued by the bank can be valued.

FHRT do this for hypothetical issues of subordinated debt with various contractual features, including fixed coupons, floating-rate coupons, and put features. With the exception of fixed-rate sub debt that includes a put feature, they find that sub debt with a variety of different contractual designs produce credit spreads that can give regulators a relatively clean signal of the bank’s risk. This is important because critics of proposals to make issuance of sub debt mandatory for banks have questioned whether spreads would provide a reliable signal of the bank’s default risk. FHRT show that for most sub debt designs, spreads would be valid “early-warning” signals for bank supervisors. While not the focus of their paper, it should be noted that FHRT’s estimates of a bank’s default intensity process also are potentially valuable for pricing its fair deposit insurance premium.

Similar to FHRT, DJPY also use the prices of banks’ default-risky securities to infer their risks. They show, in the context of a reduced form model, how a bank’s credit default swap spread can be used to estimate its fair deposit insurance premium, given an assumed recovery rate of the FDIC relative to that of bank bondholders. Moreover, using information in security prices is applicable not only to reduced form models. In the context of structural models of bank risk, many studies, starting with Marcus and Shaked (1984), have used the prices of a bank’s publicly traded shareholders’ equity (common stock) to infer its risk characteristics. FP is an example of how a bank’s market value and volatility of capital can be estimated from its common stock prices. In turn, these estimates can determine the bank’s risk-neutral failure probabilities and its fair deposit insurance premium.

A key challenge recognized by DJPY and FP is how to price deposit insurance for banks that lack publicly traded securities, the vast majority of institutions insured by the FDIC. The approach taken by DJPY involves predicting a bank’s physical probability of failure (actual default intensity) based on the historical relationship between bank failures and banks’ Call Report accounting ratios. Then, assuming that a bank’s risk-neutral default

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1 The ‘risk-neutral’ probability distribution is a pseudo probability distribution that adjusts the actual or ‘physical’ probability distribution for the presence of risk premia. The risk-neutral distribution often is convenient for valuing contingent claims such as default-risky bonds and deposit insurance. Such claims can be valued as the expectation, under the risk-neutral distribution, of the claim’s payoffs discounted at the risk-free rate. See section 2.3 of Duffie et al. (2003) for more details.