

Foreword

Credit risk has become the central focus of risk management in the last decade for a number of reasons. First, for a typical continental bank, credit risk is still the predominant risk category. Second, the new Basel Capital Accord of June 2004 allows for more advanced methods to assess the risk related with a bank's credit portfolio. Third, the markets to reallocate credit risk between agents experience the highest growth rate of all derivative markets. Fourth, from a theoretical and an empirical point of view, the modelling and valuation of credit risk is a more demanding problem than the analysis of market risk. Especially, the appropriate modelling of correlation effects, e.g. the correlation between defaults of different creditors or between default probabilities and recovery rates, is still not satisfactory resolved.

Collateralised Debt Obligations (CDOs) represent important derivatives to synthesise and reallocate the risk of banks' credit portfolios. These instruments are of specific interest as they, first, call for a determination of the whole loss distribution of a credit portfolio and not only for a few moments. Second and even more interesting, this loss distribution is carved into senior, mezzanine and junior tranches according to the needs and risk attitudes of the bank and the market.

Antje Schirm's dissertation represents the first academic study that thoroughly analyses the theoretical and empirical aspects of CDO valuation. The author makes three major contributions to the literature. First, she models carefully the general cash-flow structure for synthetic transactions. These transactions are typical for European securitisation techniques as compared to the predominant true-sale structures in the US. Second, she estimates a five-factor model to characterise the instantaneous spread of bonds in a Duffie/Singleton framework. These factors are related to the default-free term-structure of interest rates, a common risk factor and three rating related factors. Each factor is modelled as a Cox/Ingersoll/Ross process. Compared with a Gaussian framework, these processes pose a notable challenge to estimation, which is carried out by Kalman filtering. Third, she empirically analyses four European Collateralised Bond Obligation structures issued in 2001.

Antje Schirm's dissertation gives many important insights into the issues related with the valuation of CDOs using bond market data. Some of the most noteworthy findings are:

- The expected loss rate correlations under the physical and the risk neutral measure differ considerably.
- The choice of specific features of credit enhancement may have a big impact on the values of the individual tranches.
- The theoretical mezzanine premia are much larger than the observed ones. This difference boils down to a synthetisation premium of about 1% of the transaction nominal which is partly absorbed by transaction costs.

I strongly recommend this dissertation to anybody involved in the structuring and valuation of Collateralised Debt Obligations.

Prof. Dr. Dr. h.c. Wolfgang Bühler, Mannheim, 27 September 2004