Abstract

Statistical Measures of Discriminatory Power and Validation for Basel II Internal Rating Systems

By Dr. Maurice Joseph (Basel 2 Project - Commonwealth Bank of Australia)
maurice.joseph@cba.com.au

In this presentation I will outline some practical applications of the Bank of International Settlements (BIS) recommended model validation techniques[1]. The need for robust measures to compare scoring (or rating) systems has become even more important in recent times, especially given the requirements for a large-sized bank to become accredited under the Basel II Advanced Internal Ratings Systems. Given the significant amount of resources devoted to building credit risk models by financial institutions worldwide, it is somewhat surprising to see how little effort has been directed in the past towards the definition of a proper framework for validating and maintaining risk models over time.

A generalised assessment process for model discriminatory power is put forward following on from the pioneering work of David Wilkie[2] ("Measures for comparing scoring systems"). In addition, several approaches are highlighted for calculating standard errors and confidence intervals for the key model discriminatory measures (as per the recommended BIS guideline). We also examine a novel approach for validating Probability of Default numbers for a loan portfolio given dependencies amongst loan obligors[3] and the implications for capital requirements for dealing with dependencies between PD and LGD estimates.[4] Practical numerical examples will be given for all of the required formulae including Visual Basic for Applications (VBA) code that may assist with the implementation of these measures.

---

[1] Basel Committee on Banking Supervision, Working Paper No. 14, Studies on the Validation of Internal Rating Systems Feb. 2005

[2] Chapter 4 in Readings in Credit Scoring - Foundations, Developments and Aims, (Eds. Thomas, L., Edelman, D.B., and Crook, J.N) Oxford University Press, Oxford 2004

[3] Tasche, Dirk (2003), A traffic lights approach to PD Validation, Working Paper

[4] Tasche, D. (2004), The single risk factor approach to capital charges in case of correlated loss given default rates. *Working paper*