Book Review

IFRS 9 and CECL Credit Risk Modelling and Validation – A Practical Guide with Examples in R and SAS

Tiziano Bellini


Reviewed by Dr Arindam Bandyopadhyay, Editor, Prajnan, National Institute of Bank Management, Pune.

It is critical to appropriately determine how, when and in what amount should the effects of increase in credit risk must be recognized is a matter of priority for all stakeholders in the banking industry. The International Financial Reporting Standards 9 (IFRS9) rule has introduced fundamental changes in credit impairment standards since it suggests accounting practice should recognize expected loss based provision in the balance sheet instead of incurred loss based provisioning. Under the new accounting system, banks as well as NBFCs will have to adopt a new perspective in estimating Expected Credit Loss (ECL) for loan provisioning. Internal credit risk models need to be developed, loan cash flows need to be mapped diligently to appropriately measure expected loss. The book written by Tiziano Bellini explores wide range of modelling techniques available to develop credit risk models for this purpose. It discusses Generalized Linear Regression Models as well as Regression Trees and Machine Learning Techniques and their applications in credit risk assessment.

The book covers many interesting discussions like estimation requirements for stage 1 twelve month Probability of Default (PD) Vs stage 2 lifetime PD. The author has suitably explained the difference between IFRS9 expected loss provisioning and prudential Basel provisioning. To address the lack of incurred loss model under IAS 39, the author stresses that the new IFRS9 accounting model advocates for forward looking expected credit loss based provisioning. Hence, there is an improvement in provisioning methodology, from incurred loss based to expected loss based provisioning approach. The author also compares International Accounting Standards Board (IASB) introduced ECL (July 2014) Vs. Financial Accounting Standards Board (FASB) prescribed Current Expected Credit Losses (CECL, June 2016) approach and pinpoint their similarities. The allowances of credit losses by IASB are based on three stages with 12 months ECL for stage 1 and lifetime losses (based on PD for
entire time horizon of the loan and yearly LGD) for stage 2 and stage 3 (based on internal LGD estimates). Under IFRS 9, account level provisioning shifts to stage 2 after borrower shows significant increase in credit risk since initial recognition. The book explains the difference in modelling techniques in these stages. The FASB CECL standard focuses on estimation of expected loss over the life of the loans. It concentrates on specific aspects of the modelling process by focusing on lifetime estimates under FASB system. Unlike FASB, IFRS 9 requires one credit loss approach based on probability weighted scenarios for all financial assets. The book also highlights estimation methods for low default portfolios and scarce data model validation procedures.

Tiziano Bellini could have brought more discussion about the comparison of parameter calculation across different drivers of credit risk, e.g. of Exposure at Default (EAD) and Loss Given Default (LGD). Many internal approaches with numerical illustrations could have been more insightful. Similarly, discussion LGD methodologies to be adopted by banks might have improved the understanding of readers/students who are new in this domain. It doesn't provide a comprehensive calculation example of ECL across multiple years, where marginal PDs, lifetime PD, and marginal ECLs would be shown, because there are always some simplifications. So a little more discussions about a PD term structure on a life time path, how it is affected by economic cycle, as well as providing examples showing scenario based ECL calculation. The illustration on techniques to estimate forward looking PD by incorporating macroeconomic scenarios would have further enriched the book.

The book comprehensively covers many important aspects related to ECL modelling (e.g. loss rate methods, vintage analysis, PD, LGD, EAD methods, data preparation, validation techniques, etc.) and provides hands on training in SAS and R. It gives us a broad survey that demonstrates which models will work best for various categories of portfolios: Mortgage Loans, Small Business, Commercial Real Estate, Credit Card as well as Corporate Loans. Many case studies and numerical applications in R and SAS platform provide great insight about several technique in the measurement of credit risk. The reader will gain lot of insights on various approaches of measuring probability of default and obtain forward looking ECL estimates. The methods discussed in this book can be used as a good benchmark to implement and validate the expected credit loss measures.