**Rating Based Modelling and Stress Testing (8 hours)**

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**PROGRAM AND AIM OF THE COURSE**

The aim of the course is to introduce some basic concepts related to Basel 2 Regulation and IRB approach, in particular development of credit risk models for the estimation of the Expected Loss (PD, LGD, CCF/EAD and Stress Test). The course is divided into four parts:

***Part I: Overview of IRB Regulation and credit risk models***

The first part provides an overview of the Basel 2 Regulation main concepts, focusing on credit risk and IRB Approach, as well as credit risk models:

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| * **Overview of Basel 2 Regulation and IRB Approach** |
| * Basel 2 Regulation: general overview and key concepts |
| * IRB Approach: aim and benefits |
| * **General concepts for credit risk models** |
| * regulatory references |
| * segmentation |
| * default definition |
| * general overview of credit risk models (PD, LGD, CCF/EAD, Stress Test)   ***Part II: Rating models for SME/Corporate portfolios***  The second part provides an overview of the best practice approach for the development of rating models for corporate clients, illustrating all the steps of the development process; the theoretical explanation is integrated with a case study: |
| * **Rating models development – SME and Corporate portfolios – development process** |
| * introduction |
| * behavioural and application models |
| * possible approaches |
| * overview of statistical model (logistic regression model) |
| * development sample construction |
| * variable transformation and treatment of outliers and missing values |
| * long list construction and univariate analysis: Accuracy Ratio, Default Curve, Power Curve, Hit Rate, “Good/Bad” histogram, average ratios for good and bad, ... |
| * short list selection: performance and correlation analysis |
| * model selection |
| * model performance |
| * model calibration |
| * mapping to master scale |
| * **Rating models development – SME case study** |
| * long list construction and univariate analysis: Accuracy Ratio, Default Curve, Power Curve, Hit Rate, “Good/Bad” histogram, average ratios for good and bad, ... |
| * short list selection: performance and correlation analysis |
| * model selection |
| * model performance |

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| ***Part III: LGD and CCF/EAD models***  The third part provides a brief overview of the best practice approach for the development of LGD and CCF/EAD models for retail and corporate clients, illustrating all the steps of the development process: |
| * **LGD models development – development process** |
| |  | | --- | | * introduction | | * available approaches | | * overview of econometric model (multiple linear regression) | | * overview of Gross LGD approach | | * Gross LGD calculation | | * treatment of open defaults | | * cash-flows discounting | | * model selection | | * model performance | |
| * **CCF/EAD models development – development process** |
| |  | | --- | | * introduction | | * available approaches | | * overview of econometric model (multiple linear regression) | | * CCF/EAD calculation criteria for different products | | * model selection | | * model performance | |

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| ***Part IV: Stress Test***  The fourth part aims at proving an overview of the approach used for Stress Test models development): |
| * **Use test and use of credit risk models in the banking process** |
| |  | | --- | | * introduction | | * scenarios | | * macroeconomic factors and their correlation | | * models estimation | |

***READING LIST***

* Oesterreichische Nationalbank (OeNB) and Financial Market Authority (FMA) *“Rating models and validation”*, Vienna, 2004.