Wells Fargo's Quantitative Analytics Centers of Excellence

The Quantitative Analytics activities at Wells Fargo are organized into eight Centers of Excellence (COEs). The following six are involved in model development:
1)   Artificial Intelligence Model Development
2)   Consumer Credit Decision Support
3)   Corporate Risk Model Development
4)   Credit and PPNR Modeling
5)   Mortgage Model Development
6)   Traded Products Model Development
Of the remaining: 7) Corporate Model Risk CoE is responsible for model validation (model risk assessment), and 8) Model Risk Audit CoE conducts targeted reviews of model development and validation processes.

1) Artificial Intelligence Model Development
The AI Model Development team uses AI techniques such as machine learning, image recognition, and natural language processing (NLP) to improve business process efficiency and effectiveness while also supporting personalized customer experiences. Many of the AI models, and in particular all NLP development work, is centralized within this CoE to ensure consistency, quality, and efficiency. The AI Modeling CoE participates in the Credit & Operational Risk track.

2) Consumer Credit Decision Support
The Consumer Credit Decision Support helps our Consumer and Small Business partners make better credit decisions for customers and prospects. We do this by providing industry leading credit scoring models and advanced analytics that support the full consumer credit lifecycle: application, fraud, account management and collections. The Consumer Decision Support CoE participates in the Credit & Operational Risk track.

3) Corporate Risk Model Development
The Corporate Risk Model Development (CRMD) CoE develops and maintains cutting-edge models to monitor various risk types across Wells Fargo. CRMD has 115+ team members and five model development teams: Market Risk Analytics, Counterparty Credit Risk Analytics, Operational Risk Modeling & Quantification, Financial Crimes Model Development, and Analytics related to Fair Lending & UDAPP (Unfair, Deceptive or Abusive Acts or Practices Policy). Our model development activities use computing environments such as C++ and Python as well as SAS, R, and MATLAB. The CRMD team participates in both the Capital Markets and the Credit & Operational Risk tracks.

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4) Credit and PPNR Modeling

Credit and PPNR Modeling (CaPM) develops and implements: a) models supporting credit loss estimation for the entire loan portfolio, and b) Pre-Provision Net Revenue (PPNR) models used to forecast revenue and expenses. Models are used for stress testing, and to support various business uses. Modeling techniques used include statistical and econometric methods (e.g. regression, survival analysis, time series analysis), and the team conducts research on machine learning applications in credit risk modeling. CaPM is partnering with Technology to create a Python/Hadoop model calculation platform, which will initially supplement and eventually replace the use of SAS. CaPM participates in the Credit & Operational Risk track.

5) Mortgage Model Development

The Mortgage Model Development team develops risk models for all mortgage-related capital markets activities. We support Home Lending, Investment Portfolio, Treasury/ALM, Risk, and WFS Trading. We utilize various cutting-edge quantitative modeling techniques such as high-dimensional Monte Carlo simulation, multi-factor interest term structure model within no-arbitrage framework, and time series analysis for forecasting mortgage prepayment behavior. The Mortgage Model Development CoE participates in the Capital Markets track.

6) Traded Products Model Development

The Traded Products CoE is responsible for developing pricing and analytical components that feed pricing and curve/surface construction models used by various Wells Fargo trading desks. The CoE includes teams aligned with the various primary traded asset classes (Rates, Equities, Foreign Exchange ("FX"), Commodities, Credit, Asset-Backed Finance), as well as horizontal teams supporting Credit Value Adjustment ("CVA"), the Core library, and regulatory/policy adherence. Beyond model development, the team also directly assists trading and sales with portfolio analysis and sales/client support in derivatives pricing and structuring. The Traded Products CoE participates in the Capital Markets track.

7) Corporate Model Risk

The Corporate Model Risk (CMoR) CoE is responsible for model risk assessment (or validation) of all models developed at Wells Fargo. These include more than 1,400 models in both tracks: credit & operational risks and capital markets. The quantitative validation teams use sophisticated mathematical as well as statistical, machine learning, and NLP techniques to validate models developed by the modeling CoEs. CMoR currently consists of approximately 230 professionals. The validation teams mostly hold PhDs in statistics, mathematics, physics, economics, CS or a similar quantitative field. CMoR participates in both the Capital Markets and the Credit & Operational Risk tracks.

8) Model Risk Audit

The Model Risk Audit CoE provides "third-line" assurance for the implementation of regulatory guidelines and Wells Fargo's Model Risk Policy. The Quantitative Auditors leverage their technical and industry expertise to execute Quantitative Targeted Reviews of model development and validation processes, model use and production, as well as selective hands-on testing of technical aspects of a model. Quantitative Auditors provide technical expertise to support Line of Business Audits, on-going Continuous Control Assessment audits, horizontal reviews, business monitoring, and issue validations. The Model Risk Audit CoE participates in both the Capital Markets and the Credit & Operational Risk tracks.