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Financial Risk Advisory Practice

Our services include target operating model, model risk management, and system implementation to manage the key financial risks.



Our team

- Dedicated multi-locational **Financial Risk Services Team of over 540+ professionals**
- Professionals with experience of managing **multi-year risk and finance transformation projects** for **more than 30 banks and financial institutions**
- SMEs who have executed **risk, compliance and finance projects** for more than 50 banks, including credit risk model development/validation, regulatory compliance and system engagements
- Team members with extensive experience of **working with more than 20 global financial institutions**
- Global delivery model approach for project execution with seamless integration across global teams



Our experience

- Experience of providing services to the in-house departments and captive units of more than 30 financial institutions, supporting them in finance, credit risk, market risk & system initiatives
- Provided model validation, risk advisory and system automation services to more than 20 financial institutions for delivering on multi-year risk transformation initiatives
- Worked with the largest public sector, private sector and foreign banks in India, providing credit risk, market risk, Basel II reporting and model development/validation services.
- Managed a project for transitioning processes for regulatory reporting of credit risk and capital calculation activities to India, for a leading UK bank, and provided support over a 6 month period to stabilise the transitioned systems and models

Key strengths of our team



Subject matter experts

- Dedicated multi-locational Financial Services Team of over 800 professionals
- Subject matter specialists who have executed risk advisory projects for more than 30 banks, including top US and Global banks
- India team has experience of working on various dimension of risk functions. Our global presence has given us a broad perspective on changes in regulatory and business environment impacting bank's activities



Global delivery/Resource augmentation

- Global delivery model approach for project execution with seamless integration across global teams
- India team has collaboration with U.S., EMEA, APAC practices and global delivery centres
- Global delivery centres achieve time and cost efficiency, and also economies of scale



Diversified skillsets

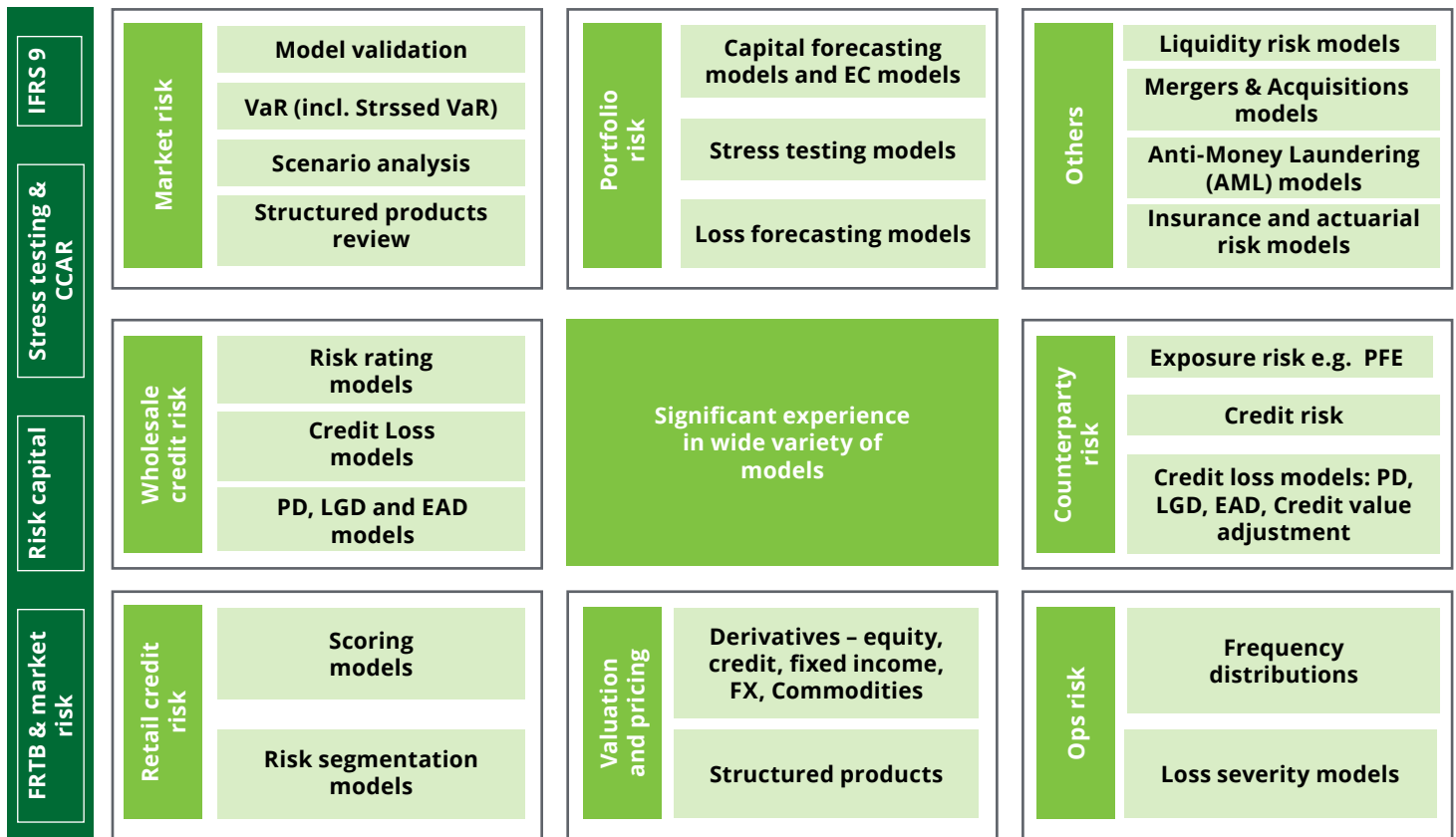
- Deloitte team has exposure to multiple analytical platforms, financial systems, and programming skills
- Developed proprietary tools to standardise delivery on areas of common concern in delivery of risk services





Operating model

- Mature operating model framework, processes, and quality control mechanisms for large scale risk management programs
- Time zone advantage helps to achieve quick turnaround and responsiveness for clients
- World class infrastructure and secured delivery environment across physical and information security

Financial Risk Analytics Capabilities



 **Key differentiators**

 **Tools**

Utilise time difference to accelerate deliver		Automation, RPA/ Cognitive		Significant team experience	
SAS	R	SQL	VBA	Python	Matlab

Imperatives for the Risk and Regulatory functions



Model validation

- Confirming model accuracy through validation of input data, model assumptions and statistical correctness
- Validation of risk and CCAR models



Retail credit risk

- Strengthening retail customer pooling methodology and scorecards
- Development / validation of retail credit risk IRB models



Corporate credit risk

- Strengthening rating models and validation of risk factors & weightages
- Development / validation of corporate credit IRB models in line with BIS WP14



Market risk and FRTB

- Changes to standardized approach and introduction of expected shortfall
- Use of incremental default risk model and back-testing at desk level



Asset liability management

- Strengthening liquidity risk and IRRBB framework incl. Basel III LCR / NSFR and intraday liquidity aspects
- Funding strategy & contingency plans



Profitability and capital management

- Objective profitability assessment using risk adjusted FTP & cost allocation
- Capital management and optimization through risk adjusted profitability



Regulatory compliance and testing

- Compliance requirements & controls across geographies and business lines
- Periodic compliance assessment and testing as per regulatory expectations



Comprehensive Capital Analysis and Review (CCAR)

- Increased rigor and accuracy of CCAR & associated PPNR models
- Development and validation of champion & challenger models



Risk data and system implementations

- Strengthening finance data governance, definitions and architecture
- Enhancing functionalities supported by finance, risk & compliance systems



Project / change management

- Monitoring progress of on-going projects & change mgmt. initiatives
- Periodic project status updates to Working Groups / Steering Committees



Model validation capabilities

Expectations from model validation initiatives

- Qualitative and quantitative validation for models to confirm correct performance and use-test from a business perspectives
- Assessment of validity of model assumptions and statistical correctness of the model
- Assessment of segmentation / pooling approach for credit models, especially in terms of factor selection, qualitative/ quantitative methodology and characteristics like segment cohesiveness, heterogeneity with other segments, etc.
- Appropriateness and correctness of input data employed for various models (loss data for operational risk models, market & position data for market risk models, customer & facility credit scores and recovery information for PD/:LGD models etc.)

Select client credentials in the asset liability management space

01

Largest public sector banking group in India and its five Associate Banks

Validated existing credit rating models and developed more than 50 rating models for specialized portfolios. Developed IRB estimation models & models for calculation of IRB capital charge and credit risk stress testing. Also developed models for risk based pricing of loans, based on the credit scoring / rating conducted.

02

One of the largest public sector banks in India, headquartered in Bangalore

Validated models employed for calculation of PD, LGD and EAD for the retail and corporate credit portfolios involving assessment of statistical soundness of models used. Assisted in credit risk system requirement finalization, system/implementation vendor selection, implementation and development of application to RBI for transitioning to IRB.

03

A leading bank in India with a significant trading portfolio

Established policies and processes for market risk management, including model validation standards, back-testing and stress testing. Conducted model validation for MTM valuation models, VaR, SVaR, back-testing framework etc. Assisted the Bank in collation of IMA documents and preparation of the application for submission to RBI.

04

A leading new generation private sector bank in India

Conducted pre-implementation validation of all credit rating, credit risk stress testing, RAROC, IRB estimation and capital charge calculation models (both Standardized and IRB approaches). Reviewed existing credit risk management framework, covering credit appraisal & approval process.

05

Leading Banks in US and Global conglomerates

Review and model validation for CCAR forecasting models for Capital, Revenue for sales and trading functions, deposit balances and interest expenses of retail business for multiple model types. These include PPNR, consumer, challenger and champion models. Reviewed data, assumptions, statistical basis for the models and developed revised models to address shortcomings identified, if needed

06

One of the largest private sector banks in India

Performed validation of operational risk framework which involved review of computation methodology and parametric estimation procedures built into the operational risk management system such as goodness of fit, sensitivity analysis etc., review of loss data modelling process, RCSA tools & KRI indicators and OpVaR estimate

Credit Risk-Model Validation Capabilities

Credit risk-Model validation				
Solution and offerings	<p>Models covered:</p> <ul style="list-style-type: none"> • PD Models (12M, Lifetime, 9Q) • EAD Models • LGD Models • Prepayment Risk • PD Transition Model • Scorecard Models • Risk Rating Models • RWA /Economic • Capital • Stress Testing Engine 	<p>Portfolios served:</p> <ul style="list-style-type: none"> • Credit Cards • Current Account • Personal Loans • Home Loans • Other Retail • Wholesale • Commercial Real Estate 	<p>Key activities:</p> <ul style="list-style-type: none"> • Methodology Review • Exploratory data Analysis • Model Re-performance • Validation of Technical Definitions • Independent testing design • Running independent test • Interpretation of testing results • Standardised Validation scoring • Identifying model limitations • Identifying action items for developers • Drafting Validation Report 	<p># Credit risk models validated</p> <p>FY18- ~200</p> <p>FY17- ~200</p> <p>FY16- ~150</p>
Key projects	<p>Top US Bank 1</p> <ul style="list-style-type: none"> • Validated Credit Risk Models as part of CCAR submission • Automated code scripts / templates and testing playbooks • Utilise multiple technology platforms to validate • Team Size: 50 • Duration: 3+ Yrs • Time/model: 8-12 wks • Models Validated: 50+ in FY18 	<p>Top US Bank 2</p> <ul style="list-style-type: none"> • Validated Credit Risk Models as part of CCAR and BASEL • Standardised testing procedures • Performed technical and Function Validation • Team Size: 75 • Duration: 4+ yrs • Time/ model: 8-12 wks • Models Validated: 100+in FY18 	<p>UK Bank</p> <ul style="list-style-type: none"> • Assisted a large UK Bank in transition to IRB approach • Developed BASEL suit for unsecured portfolios • Further, assisted the Bank in IFRS9 transition • Developed Lifetime PD for IFRS9 (all unsecured portfolios) • Validated IFRS9 models suit for unsecured retail portfolio • Team-Size: 15 • ~45 model developed in 15 months • ~30 model validated in 5 months 	<p>SA Bank</p> <ul style="list-style-type: none"> • Performed IFRS9 model development and validation for large SA Banks • PD, LGD, EAD, SICR and ECL methodology review • Developed standalone ECL calculation model for a client • Automated Data Validation Functions • Team Size: 8 • Duration: 1 year+ • ~20 models validated
Regulations	CCAR/ DFAST	BASEL IRB	IRB and IFRS9	SR-11/7



Retail credit risk capabilities

Expectations from retail credit risk initiatives

- Assessment of segmentation/pooling models and their validation methodology in terms of analytical techniques used and impurity measures employed to indicate the homogeneity of pools and the thresholds chosen to minimize the impurity factor
- Development and review of retail score cards for Housing Loan, Education Loan, Vehicle Loan, Personal Loan Portfolio etc.
- Data gap analysis for model development and data integrity checks on the data for the same
- Development of IRB estimation models for the retail portfolio and development / validation of models for calculation of IRB capital charge and credit risk stress testing.

Select client credentials in the retail credit risk space

01

Leading and Largest Public and Private banks in India

Developed customer pools based on assessment of credit quality and risk factors contributing suitable Information Value (IV). Developed models for calculation of IRB capital charge and credit risk stress testing for the retail portfolio. Reviewed credit risk management framework and supported the Bank in developing models for credit scoring. Reviewed data employed for model development such as methodology employed for removing exclusions such as NPA, de-dupe NPA, closed, corporate etc. from the sample base before modelling.

02

A leading public sector bank, headquartered in Mumbai

Developed credit risk retail models for IRB risk estimates like PD, LGD and EAD. Developed and validated retail scorecards for various retail portfolios of the bank to help access the credit worthiness the retail borrower. Defined customer pooling methodology and developed models for calculation of IRB capital charge.

03

One of the largest private sector banks in India

Assisted in validation of credit rating models for the retail portfolio by incorporating publically available CIBIL scores with facility specific criteria. Assisted in strengthening risk management practices through enhancement of suitable policies, processes, measurement models, reporting templates & monitoring tools

04

A leading private sector bank, headquartered in Mumbai

Reviewed credit risk management policies and assessed NPA management & collateral management frameworks. Supported the Bank in development of pooling models and IRB credit risk capital computation models for the retail portfolio. Assisted in credit risk system selection / implementation and developed application to RBI for transitioning to IRB.

05

One of the largest banks in the United Arab Emirates

Reviewed credit risk management framework and supported the Bank in developing models for credit scoring. Assisted the Bank in developing pooling models and determining IV thresholds for the same. Also developed models for the calculation of IRB capital charge for retail portfolio and assisted in system implementation for the same.

06

A leading private sector bank in Saudi Arabia

Developed statistical models for retail portfolio of the Bank to capture IRB risk estimates PD, LGD and EAD. Assessed impurity measure used by the Bank to indicate the homogeneity of one pool or segment and the threshold factor chosen to minimize the impurity factor for split into separate pools.

07

A leading new generation private sector bank, headquartered in Mumbai

Reviewed the retail credit scoring models employed by the Bank and appropriateness of the manner in which credit pooling has been conducted. Validated methodology used by the Bank for credit risk IRB capital computation for the retail portfolio and correctness of expected loss calculation models for reporting under US GAAP.



Corporate credit risk capabilities

Expectations from corporate credit risk initiatives

- Development of credit risk rating models for the corporate portfolio in the bank including NBFC, Infrastructure etc. portfolios.
- Development of transition matrix for the corporate portfolio over last 5 to 7 years in order to estimate the PD of the obligor.
- Assessment and enhancement of stress testing scenarios, estimation of metrics like downturn LGD, CCFs, etc.
- Data gap analysis for model development and performance of sanctity checks on the data for the same.
- Model recalibration / refinement for the existing models using various statistical tools.
- Review and enhancement of existing corporate risk rating methodology

A leading new generation private sector bank

01

A leading new generation private sector bank

Developed corporate rating models to assess the credit worthiness of corporate borrowers. Developed corporate PD models based on internal default rates for obligors in different rating pools and defined methodologies for LGD and EAD. Enhanced data management framework and documentation to address IRB issues.

02

One of the largest private sector banks in India

Co-developed credit rating methodology for new corporate obligors with the Bank and assisted the Bank in documentation, development of related processes and set up of model governance framework around the same. Validated data employed for model development to ensure integrity of data used for the model development exercise.

03

A leading public sector bank headquartered in Bangalore

Developed credit risk models (incl. credit rating, PD/LGD/EAD models) to augment business decision making and risk measurement. Reviewed stress testing models for credit risk and early warning systems established. Assisted in selection of credit risk management system and configuration of the credit risk models in the system.

04

Largest Public Sector Bank in India and its Associate Banks

Used benchmarking and other statistical techniques to validate and enhance corporate PD models. Developed stressed PD and TTC for each homogenous pool of borrower. Reviewed existing credit risk management framework, credit monitoring activities and credit risk measurement models.

05

A leading public sector bank headquartered in Mumbai

Validated corporate credit risk rating models and developed PD/LGD & EAD models for calculation of credit risk capital charge under IRB. Assisted in credit risk system selection / implementation and developed application to RBI for transitioning to IRB. Developed credit risk management policies and defined NPA and collateral management frameworks.

06

A leading private sector bank in the Middle East

Validated corporate credit rating models and assessed discriminatory powers of the rating models adopted. Developed models for calculation of PD, LGD and EAD in line with IRB requirements and implemented the same in the SAS system used by the Bank. Assisted in enhancement of policies & reports and in developing documentation around models.

07

Large Private sector Banking groups in India

Reviewed the corporate credit rating models employed by the Banks and appropriateness of the manner in which historical data is used for credit rating & IRB. Validated methodology used by Bank for credit risk IRB capital computation for the corporate portfolio & correctness of expected loss calculation models for reporting under US GAAP.



Market risk and Fundamental Review of Trading Book (FRTB) Capabilities

Expectations from market risk management and FRTB initiatives

- Change in systems to accommodate revision in regulatory requirements relating to prerequisites for trading book eligibility
- Market risk capital calculation methodology to incorporate changes prescribed to Standardized Approach, Internal Models Approach and FRTB related changes (use of Expected Shortfall) and associated enhancements in back-testing framework
- Introduction of liquidity horizons in the expected shortfall calculation, replacement of the incremental risk charge with incremental default risk model and increased disclosure requirements relating to market risk capital charges

Select client credentials in the market risk and FRTB space

01

Indian shared services center of a leading US bank

Conducted independent validation of the FinCAD based MTM valuation and market risk models in order to provide comfort to the management on accuracy of models employed for the derivative portfolio. Instruments covered as part of the validation exercise included valuation models for IRS, CDS, TRS, Swaptions and FX & Equity Options.

02

A leading European Bank with shared services center in India

Assisted a leading European bank in migrating its market risk capital computation processes and systems from the US to its Indian shared services center. Provided hand-holding support during the migration and trained the Bank's India users on the system, covering data flow for market & position data and correctness checks to be employed.

03

Multiple leading global banks with a presence in more than 15 countries

Provided market risk model validation services to more than 10 leading financial institutions, covering validation of MTM valuation models for all asset classes, models for VaR, Expected Shortfall & other risk metrics, SMM & IMA capital calculation models, counterparty credit risk models for CVA, PFE etc. as well as stress testing models

04

Largest private sector bank in India

Conducted independent price verification and validation of pricing & valuation models, configured in the Murex system for all asset classes. Benchmarked output of valuation models configured in system with proprietary models developed by Deloitte to determine accuracy of model output and confirm suitability of model performance for IMA transition.

05

More than 10 leading public sector banks in India

Provided end-to-end assistance in transitioning to the Internal Models Approach for Basel III market risk, covering policy enhancement, risk appetite framework and market risk system selection and implementation assistance. Also supported the Bank in validating market risk models and developing application to the regulatory for transition to IMA.

06

More than five leading private sector banks

Conducted diagnostic assessment of the market risk management function within the Bank to assess extent of compliance with regulatory guidelines related to Basel III IMA and FRTB. Benchmarked existing framework with leading practices and developed actionable roadmap to address improvement opportunities identified.

07

A leading Middle Eastern bank

Assisted a leading bank in implementing market risk and counterparty credit risk management systems. Defined business requirements, determined data validation / reconciliation checks required for loading data into the risk system and conducted user acceptance testing of the system to confirm delivery of all required functionalities.

08

A leading primary dealer

Assisted a leading primary dealer in validating the models used for MTM valuation of trading book instruments and risk metrics (viz. VaR, PV01 etc.) and benchmarked the qualitative aspects of the market risk management framework with regulatory requirements and leading practices adopted by peer institutions.

Market Risk Capabilities

We help clients with pricing models and market risk models across different asset classes : Foreign exchange, equity, interest rates, credit, securitised products, credit etc.

What do we do?

- Pricing Model Validation
- Valuation of Financial Instruments
- Regulatory Capital Modeling (SBA/ IMA)
- FRTB Implementation
- Economic Capital Modeling
- VaR / ES Modeling
- Algo Trading Models

How do we do?

- Financial Engineers, MBA, Mathematicians with CFA, FRM
- SME in Market Risk to guide validation
- Tools : R, Python, VBA and client pricing tools for model development and validation
- Use of in-house and vendor tools such as Numerix, ReVal, SuperDerivatives, Intex and Bloomberg for valuation

FY'18 key highlights

- Delivered 150+ pricing model validation in last 1 year and expected to validate another 100+ pricing model validation. 40+ professional on engagement
- Drove the FRTB implementation with book of work , Functional document creation, UAT Testing, Prototype creation. 5 professionals deployed on engagement
- Validated VaR models with independent replication, assumption testing and model performance testing. 5+ professionals on the engagement
- Scenario generation model involving data preparation, back-filing, impact assessment on VaR. 4 professionals deployed on the engagement
- The National Securities Pricing Centre (NSPC) provides securities valuation services for over 1200 of Deloitte's Audit clients

Examples of projects delivered:

- Big 4 US Bank
 - Pricing model validation
 - VaR based economic capital model
 - Scenario generation model
 - Monte-Carlo VaR based initial margin model
- Canadian Bank
 - FRTB implementation
- Big 4 US Bank
 - Pricing model validation for exposure monitoring
 - Margin model validation
 - RNiV validation
- Mid Size US Bank
 - Algo trading model development support
- Other clients



Asset liability management capabilities

Expectations from asset liability management initiatives

- Robust liquidity risk management frameworks, covering intraday liquidity management as well as all applicable regulatory reports for liquidity risk, including Basel III liquidity metrics (LCR, NSFR etc.) and intraday liquidity reporting requirements
- Interest rate risk framework covering sensitivity analysis using re-pricing & duration gaps & other metrics (EaR, NII & DGap)
- Strengthen stress testing framework for liquidity risk, intraday liquidity risk and interest rate risk in the banking book and establish contingency funding plans integrated with stress test results.

Select client credentials in the asset liability management space

01

Large public sector, private sector banks and NBFCs in India

Reviewed the liquidity risk management framework at the bank and benchmarked vis-à-vis regulatory requirements, including the manner in which liquidity risk reports (structural liquidity, dynamic liquidity, intraday liquidity reports etc.) are developed. Validated models used for cash flow development, intraday liquidity calculations (as per BCBS 248) behavioral analysis, liquidity report development and for calculation of Basel III LCR & NSFR metrics.

02

Two leading new generation private sector banks in India

Reviewed the intraday liquidity risk management framework established at the Bank and benchmarked the same with requirements under BCBS 248. Also validated models used for computing intraday liquidity risk metrics and reviewed the governance framework around the same, in addition to the contingency plans and stress testing framework.

03

A private sector bank based in Eastern India

Assisted a newly licensed Bank in defining the target operating the ALM function and defined suitable committee charters, policies and processes. Defined linkages with the Treasury, Compliance and Finance & Accounts units and developed models used for regulatory reporting and calculation of ALM metrics, including IRRBB models.

04

One of the top three banking groups in the US

Reviewed the Treasury & Global Markets and Risk Management function of the India branch, with a focus on the asset liability management framework and compliance with regulatory requirements in India and Group policy requirements. Also reviewed regulatory reporting and internal MIS mechanism and validated accuracy of the same.

05

A leading multinational bank, headquartered in Singapore

Benchmarked the ALM framework of the India branch of a leading multinational bank with regulatory requirements mandated by the RBI and home country requirements mandated by MAS. Reviewed the regulatory report development process and confirmed accuracy of ALM reports issued to the regulator.

06

A leading new generation private sector bank in India

Reviewed the manner in which ALM reports are developed, including reports related to interest rate sensitivity (duration gap and traditional re-pricing gap) and benchmarked the same with regulatory expectations. Validated models used for calculation of NII impact, modified duration and interest rate stress testing.



Profitability management capabilities

Expectations from profitability management initiatives

- Establishment of fund transfer pricing models covering all relevant drivers including cost of funds, risk premiums for balance sheet risks managed centrally and product specific risk premiums
- Cost allocation models to facilitate objective product and business unit performance assessment, considering applicable interest costs (captured in FTP) as well as non-interest costs (rentals, utilities, call centers etc.)
- Risk adjusted profitability driven capital allocation and optimization of capital consumption across banks / groups

Select client credentials in the profitability management space

01

A new generation private sector bank and number of public sector banks in India

Re-engineered FTP models and mechanisms framework to capture all cost components, including cost of funds, risk premiums and cost of compliance. Defined the product profitability framework. Assisted in testing FTP configuration and profitability results in OFSAA system.

02

A leading private sector bank headquartered in Mumbai

Validated the fund transfer pricing mechanism for the Bank, considering the appropriateness of each asset liability pool defined and extent to which risks inherent in the product characteristics have been considered in the product pricing. Also defined cost allocation framework for incorporating non-interest costs in product profitability.

03

Top private and public sector banks in India

Validated the cost allocation methodology adopted by the Bank and determined suitability of assumptions and drivers inherent in the methodology. Confirmed coverage of all cost factors and reviewed the basis on which costs are to be attributed to each product and / or business unit level, in addition to branch and zonal profitability and designed functional requirements for implementation in ALM / FTP system

04

A leading public sector bank headquartered in South India

Developed the fund transfer pricing mechanism to be adopted and segregated the balance sheet into suitable asset liability pools depending on the cash flow and risk characteristics. Determined suitable premiums to incorporate adjustments for risks and compliance costs (LCR, NSFR, regulatory mandated balance sheet ratios etc.)

05

A leading multi-national bank headquartered in Singapore

Assessed existing capital adequacy and balance sheet position and determined the need for additional capital and timelines when such infusion is required. Evaluated alternative options for optimizing capital consumption, considering risk adjusted profitability, impact of securitization and realignment of Group structure to benefit from regulatory arbitrage.

06

More than 20 banks in India, incl. public sector, private sector and foreign banks

Assisted multiple banks in developing and / or reviewing their multi-year capital plans, with a view to optimize capital consumption. Determined suitable assumptions and determined capital adequacy position of the bank over a 3 to 5 year horizon, considering impact of Basel III phase-in, transition to advanced approaches etc.



Regulatory compliance & testing capabilities

Expectations from regulatory compliance and testing initiatives

- Identification of compliance requirements across processes, geographies and business lines, covering both home and host country regulators as well as those mandated by self regulating industry organizations
- Repository of corresponding compliance controls and key compliance indicators at a process level to enable continuous control monitoring and provide pre-emptive alerts for instances of possible non-compliance
- Periodic testing of the compliance controls identified and confirmation of compliance for each requirement
- Implementation of continuous control monitoring tools for automating the compliance monitoring and testing framework

Select client credentials in the regulatory reporting & testing space

01

The largest public sector bank in India

Review and testing of compliance requirement undertaken by the Global Markets Department, including- Dealing activities across all asset classes, including the customer suitability & appropriateness framework, Control activities undertaken by Middle Office
Back office settlements and reconciliation activities.

02

One of the top five banking groups in the world

Review & testing of compliance framework, technology and operational risk & control mechanism for all activities undertaken by Fixed Income, Currency & Commodity (FICC), covering Front Office, Middle Office & Back Office activities. Developed compliance, operational risk & technology indexes for monitoring of health of FICC operations.

03

Leading public sector bank, headquartered in Mumbai

Review of the effectiveness of the overseas compliance function from a governance, organization, technology, process and people standpoint. Providing guidance to the senior management on effectiveness of the compliance function as a second line of defense within the organization

04

Top banking groups in the world

Review and compliance testing of the policies, procedures and processes and internal controls of the Treasury function for its India operations. Reviewed extent of adherence to regulatory and internal policy parameters & identified improvement opportunities. Enhanced policies, processes and internal controls of the Treasury Function.

05

The largest private sector bank in India

Review and compliance testing of deal processing, accounting & valuation and settlement & reconciliation processes for all products. Compliance testing of Treasury Middle Office Group (TMOG) activities across all overseas locations and Back office settlements and reconciliation activities

06

One of the largest banking groups in Australia

Advisory assistance to the Chief Compliance Officer of the India operations around the regulatory framework applicable to the area of wholesale banking. Providing guidance to the Chief Compliance Officer in assessing the impact of regulations accurately while providing inputs on any product , process or system related changes within the Bank

07

A leading multinational bank, headquartered in Singapore

Reviewed existing process and policy framework for compliance with extant regulatory requirements. Redefined process flows and enhanced policies in line with shortcomings identified and developed repository of compliance requirements and corresponding control requirements.



Comprehensive Capital Analysis and Review (CCAR) Capabilities

Expectations from CCAR initiatives

- Development of robust models for capital planning and budgeting at the Bank Holding Company (BHC) level
- Pre-provision net revenue (PPNR) models for projecting business line revenue over a period of at least 9 quarters and development of challenger and champion models for each business line
- Establishment of a sound model risk management framework to assess risk arising from models used across the bank, including those employed for business decision making, such as risk adjusted performance and stress testing models

Select client credentials in the CCAR space

01

Leading Banks in US and Global conglomerates

Review and model validation for CCAR forecasting models for Capital, Revenue for sales and trading functions, deposit balances and interest expenses of retail business for multiple model types. These include PPNR, consumer, challenger and champion models. Reviewed data, assumptions, statistical basis for the models and developed revised models to address shortcomings identified.

02

A leading bank, headquartered in the united States

Validated models used for financial and capital adequacy projections as part of the Basel II / III program. Reviewed assumptions employed for forecasting and confirmed appropriateness of models employed. Also assessed balance sheet growth and capital adequacy under various scenarios and conducted stress testing on forecasted positions.

03

A leading commercial bank, headquartered in the US, with more than 5000 branches

Assisted the Bank in development of models for forecasting balance sheet for the next five years, employing statistical techniques for projecting balance sheet growth and estimating profitability based on anticipated NIMs, fee based income as well as treasury income from the trading portfolio.

04

A leading multi-national bank headquartered in Singapore

Assessed existing capital adequacy and balance sheet position and determined the need for additional capital and timelines when such infusion is required. Evaluated alternative options for optimizing capital consumption, considering risk adjusted profitability, impact of securitization and realignment of Group structure to benefit from regulatory arbitrage.

05

More than 20 banks in India, incl. public sector, private sector and foreign banks

Assisted multiple banks in developing and / or reviewing their multi-year capital plans, considering business growth and change in portfolio composition. Determined suitable assumptions and determined capital adequacy position of the bank over a 3 to 5 year horizon, considering impact of Basel III phase-in, transition to advanced approaches etc.



Risk data and system implementation capabilities

Expectations from risk data and system implementation initiatives

- Realignment of existing data framework to **comply with BCBS 239 requirements**
- Establishment of data & technology architecture providing **holistic views of organization's risk & financial performance**
- Clear **business requirement documentation**, incl. functionalities required & illustrations of models / methodologies reqd.
- On-going **liaison with system vendor** / in-house technology team to resolve functional issues and provide clarifications
- Review of system configuration and system testing to confirm calculation accuracy and presence of all functionalities

Select client credentials in the risk data and system implementation space



01

Leading private sector bank in Eastern India

End-to-end development and implementation of finance & risk technology architecture for a newly licensed private sector bank, covering multi-year IT roadmap, risk systems procurement / implementation plan, data management norms and IT security framework.



02

More than 10 banks in India, including private sector, public sector and foreign banks

Development of finance & risk data management framework, focusing on financial & risk data elements required for submission under the risk based supervision (RBS) regime initiated by the regulator. Developed data dictionary for regulatory submission and defined data validation / reconciliation logic to be evaluated prior to regulatory submission.

03

Leading public sector bank, headquartered in Mumbai

Assistance in establishment of enterprise data warehouse to function as a finance and risk data store. Defined risk data management standards to be adopted as well as data validation checks to be enforced and defined transformation logic to be applied to data in the data warehouse for meeting regulatory reporting requirements.

04

More than 5 financial institutions in India

Assisted multiple financial institution in developing the finance & risk technology architecture and IT roadmap for a 5 year horizon, as part of application to the regulator for seeking a banking license. Also developed IT budgets considering likely system investments.

05

More than 10 leading public sector banks in India

End-to-end implementation of risk management and risk technology framework, covering all aspects of the Basel III framework. Assisted in selection & implementation of risk management systems for capital calculation under Basel III and defined data management protocols for sourcing required market data & position data.

06

Leading bank in the Middle East

Assisted in the implementation of data warehouse for finance & risk reporting. Identified risk data requirements, comprising position data & market data, and mapped the required data to source systems at the Bank. Defined data validation checks and configured reports on system to facilitate financial & risk regulatory reporting from data warehouse.

07

A leading life insurance company based in India

Developed technology architecture and IT roadmap for the company, spanning all facets of life insurance operations including policy administration, claims management, actuarial modeling, risk management and financial reporting systems. Defined data architecture and assisted in creation of finance & risk data store to facilitate risk modeling and MIS.

08

Leading life insurance company based in India

Developed risk data management framework and assisted the Company in defining data validation checks for policy & customer data prior to the same being used for actuarial modeling, risk analytics and economic capital calculation

09

Leading Middle Eastern bank headquartered in the UAE

Assisted the Bank in implementing a finance & risk data warehouse on Teradata and SAS. Defined business requirements for meeting all regulatory reporting and internal MIS through the DW, mapped data requirements to source systems, developed tools for extracting data and defined reports in SAS for meeting all finance & risk reporting needs.

10

A leading bank based in the Kingdom of Saudi Arabia

Provided functional assistance in the implementation of Moody's credit risk management system for capital computation under Standardized and IRB approaches. Developed business requirements covering details of credit rating models & IRB estimation models to be configured, defined test cases and tested the system for correctness of calculations.

11

A leading public sector bank headquartered in Bangalore

Implemented the SAS suite of risk management products for credit risk, market risk, operational risk, ALM and FTP. End to end implementation assistance covering requirement specification, details of risk measurement models to be configured, data mapping, review of system configuration and system testing to confirm correctness.

12

A leading bank based in the United Arab Emirates

Assisted the Bank in implementing market risk management and counterparty credit risk management systems. Supported the complete implementation lifecycle, including requirement documentation, data mapping / validation, review of system configuration and functional testing of the system and remediation of failed test cases.

13

Leading public sector banks in South India

Implemented the SAS ALM / FTP / CA modules for development of liquidity risk, IRRBB, cost allocation and profitability reports. Calculation of market risk capital charged under SMM and IMA. Defined methodologies to be configured in the system, undertook data extraction & validation. Developed pricing functions in SAS RD, configured system in line with requirements and assisted bank in conducting UAT. Configured the SAS system and provided training to bank users for system use and administration.

14

A leading public sector bank based in South India

Implemented SAS market risk system for MTM valuation and calculation of market risk capital charged under SMM and IMA. Defined business requirements, conducted data mapping, developed ETL for data extraction, developed pricing functions in SAS RD, configured system in line with requirements and assisted bank in conducting UAT.

15

Leading new generation private sector bank

Assisted in implementation of SAS suite of risk management systems for credit risk, asset liability management, fund transfer pricing and intraday liquidity management for meeting Basel III requirements for credit risk capital charge calculation, liquidity risk and IRRBB reporting as well as intraday liquidity management

16

Leading private sector bank headquartered in Mumbai

Assisted in implementation of the OFSAA ALM / FTP for liquidity risk, IRRBB and profitability reporting. Reviewed business requirements to confirm coverage of regulatory requirements, supported the Bank in resolution of data issues, defined test case for testing the system and identified workarounds for failed test cases





Project management capabilities

Expectations from project management

- Clear and unambiguous definition of project scope, work-steps, responsibilities, timelines and supporting infrastructure
- Close coordination with key stakeholders to the project to ensure that planned activities are on track
- Regular communication on project progress to senior management to provide increased assurance
- Timely escalation and resolution of potential show-stoppers or high impact issues which can adversely affect project delivery timelines, costs and effort

Select client credentials in the project management space

01

Indian shared services center for a global bank based in UK

Constituted and ran the Project Management Office for the establishment of a regulatory training academy in India. Coordinated with SMEs in the Bank's London, Scotland and India offices to create training content, identify training cohort, create internal visibility for trainings and publish training content on Bank's Learning Management Solution

02

A leading public sector bank, headquartered in Bangalore

End to end project management for the implementation of credit risk, market risk, operational risk and ALM / FTP systems. Coordinated across all functional users, IT team, system vendor and source system owners to finalize requirements, undertake data mapping, review configuration and conduct user acceptance testing of the system.

03

A leading European Bank with shared services center in India

Managed project for migrating the market risk capital computation processes & systems from US to Indian shared services center for a leading European bank. Coordinated with functional users in the US and in India as well as relevant technology teams to ensure correct migration and provide required training to the India users.

04

A newly licensed private sector bank in India

End to end multi-year program management for setting up the Bank, including defining operating model for every department within the Bank, obtaining regulatory clearances for products & services offered, establishing bank-wide processes, procuring all banking systems and project management of the entire system implementation lifecycle.

05

A leading new generation private sector bank

Managed project for implementation of SAS suite of risk management systems for credit risk, asset liability management, fund transfer pricing and intraday liquidity management. Coordinated with functional users, technology teams, system vendor and source system owners and monitored project timelines and quality of service delivery by vendor

06

A leading Middle Eastern bank, headquartered in Abu Dhabi

Managed project for implementation of finance and risk data warehouse. Coordinated with the Bank's technology team, functional users from the Finance & Accounts Dept. and system vendor team to keep track of on-going activities, maintain project timelines established and continuous quality check on work delivered by the vendor.

07

A leading US based bank holding company with shared services centers in India

Program management of global rollout of enhanced KYC and AML requirements, across 11 countries and 12 business lines. Created and implemented new globally consistent operating models for each of the client's 16 client-types to standardize the customer data collection and maintenance process

08

Leading commercial bank with presence in US, Canada & India

Provided program management services for rollout of the Enterprise Customer Risk Rating (ECRR) Program to address regulatory and internal audit findings. Rapid start up with no timeline disruptions, established effective working relationships with all key stakeholders and closely monitored project progress and adherence to timelines.

09

Leading US life insurance firm with captive unit in India

Program management for finance transformation initiative driven out of the India captive unit. Finance transformation initiative comprised the implementation of PeopleSoft General Ledger, operational data store, Business intelligence environment and Data Integration (DI) Hub across more than 20 locations in the US and India.

10

A leading life insurance company based in Mumbai

Program management for the technology enabled business transformation undertaken by the company. Identify key threads for Project Management and provided regular and periodic update to the senior management on the status, efficiency and effective management of the program for the duration of the project including DR site operations.

11

A leading Middle Eastern bank, headquartered in Saudi Arabia

Managed project for implementation of Moody's credit risk management system for credit rating, IRB parameter estimation and credit risk capital calculation. Coordinated with the bank's functional users, source system owners, IT infrastructure teams and system vendor to establish and monitor timelines and resolve issues, if any.

12

A leading bank in the UAE

Managed implementation of system for counterparty credit risk management. Defined project charter specifying oversight committees, governance mechanism, roles and project timelines. Coordinated with all key stakeholders, monitored project progress & alignment with timelines established and conducted on-going quality review of work done

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