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Capital Markets and Banking

Regulatory Services Segment-Seminar for CLEA

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Attilio Di Mattia

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Industry Specialization: Capital Markets and Banking

Expertise: Investment and Risk Management

Relevant experience

- Attilio is a intellectually curious and tenacious financial leader with 15+ years of experience in risk, financial regulation and investment management. His top skills are:

✓ Fixed Income and Structured notes valuations and valuation control frameworks
✓ Market Risk (VaR/SVaR & FRTB SA & IMA)
✓ Model Risk Management and Validation
✓ Counterparty Credit Risk (CVA & SA-CCR)
✓ Basel III (NSFR & Leverage Ratio)
✓ XVA
✓ Capital Optimization & Portfolio Compression

- Over the past four years , Attilio has been assisting large domestic banks with their Market, Counterparty Credit and Liquidity Risk programs implementation.
- Attilio has supported a Tier 1 bank in the past two years. Working across functions he developed and executed an agreed upon strategic vision and tactical project plan for the migration to a new risk platform by applying prior experience-based technical knowledge on various regulatory topics, including: Volcker, VaR/SVaR, CCAR Challenger, FRTB SA, and FRTB IMA.
- At a bank in Charlotte, NC Attilio is currently working on a strategic business capability assessment for the front office Spread desk.
- He advised a large multi-lateral bank, headquarter in Washington D.C., complete a market risk gap assessment. Attilio assisted them in building a market risk, IPV and operational risk governance framework for an emerging market and illiquid asset vehicle.
- Attilio worked as a Structured Products Portfolio Manager, Trader and Risk Factors Structurer at US and European hedge funds pre and post 2007 financial crisis.
- He is a recognized speaker at industry conferences and a quoted expert in Bloomberg, Reuters and Risk Journal regarding structured product trading and portfolio management. Attilio was also published in January 13, 2019 on the Financial Markets, Institutions and Instruments Journal by Editor Wiley.
- Attilio received his B.A. in Economics from University of Chieti-Pescara, Italy. He obtained his M.B.A from St. Joseph's University, Haub School of Business in Philadelphia, PA and a M.S. in Risk Management from NYU, Stern School of Business in New York, NY.

** Example Team: Subject to start date*

About PwC

Over 276,000 partners, principals and staff across our network **>50,000 in the US**

PwC leads professional services as one of the

Top 50

brands World-wide

Access Your Potential™ is our new **$320 million**, five-year investment focused on closing opportunity, education and skills gaps through curricula, educator training and student mentorship and coaching

We provide assurance, advisory or tax services to **429** of the **Fortune Global 500 Companies**

50K

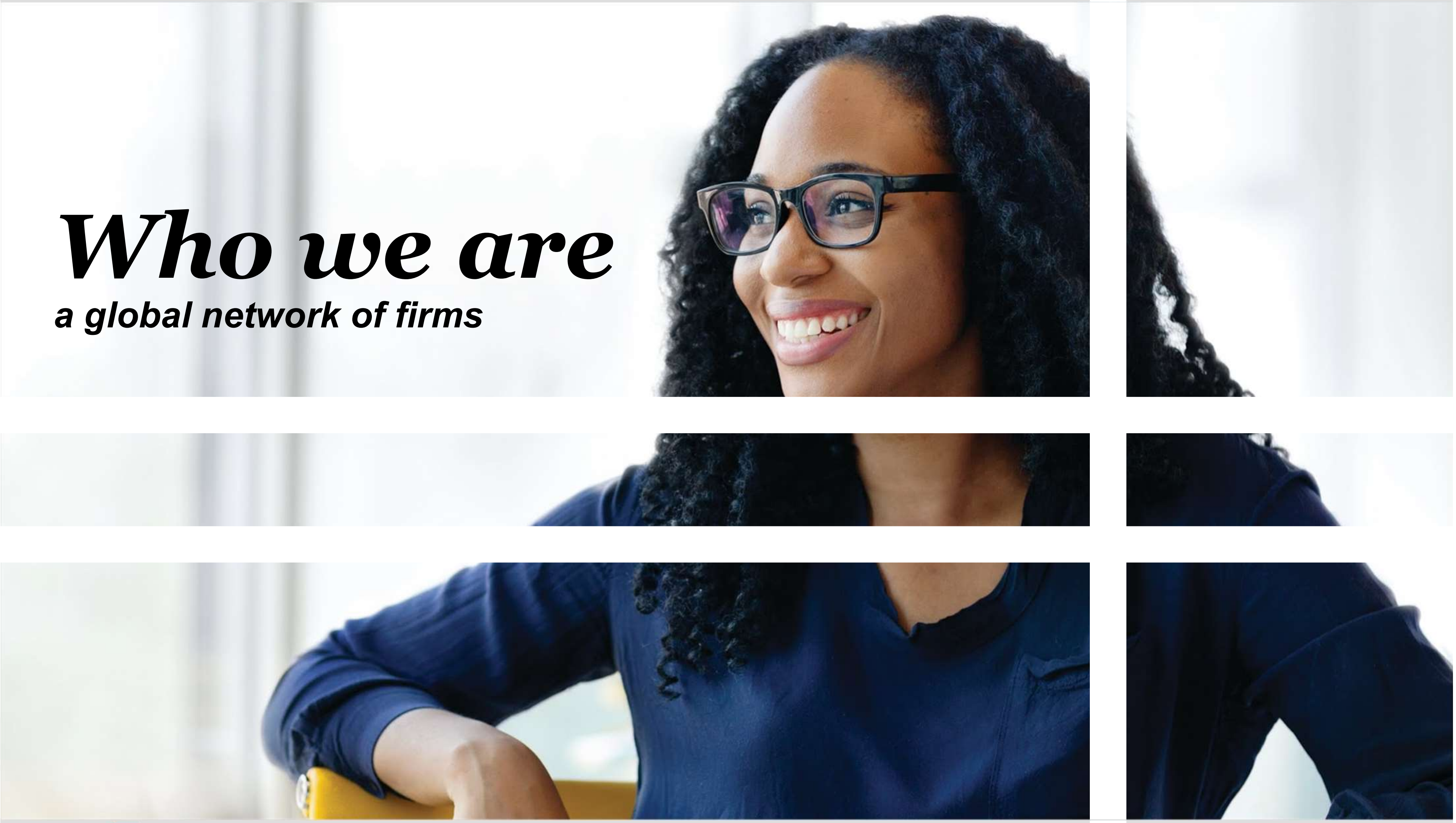
partners and staff being digitally upskilled

PwC

- Act with integrity
- Make a difference
- Care
- Work together
- Reimagine the possible

Who we are

a global network of firms



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Our global network

157
Countries

742
Locations

Assurance
115,438 Partners, Principals & Staff

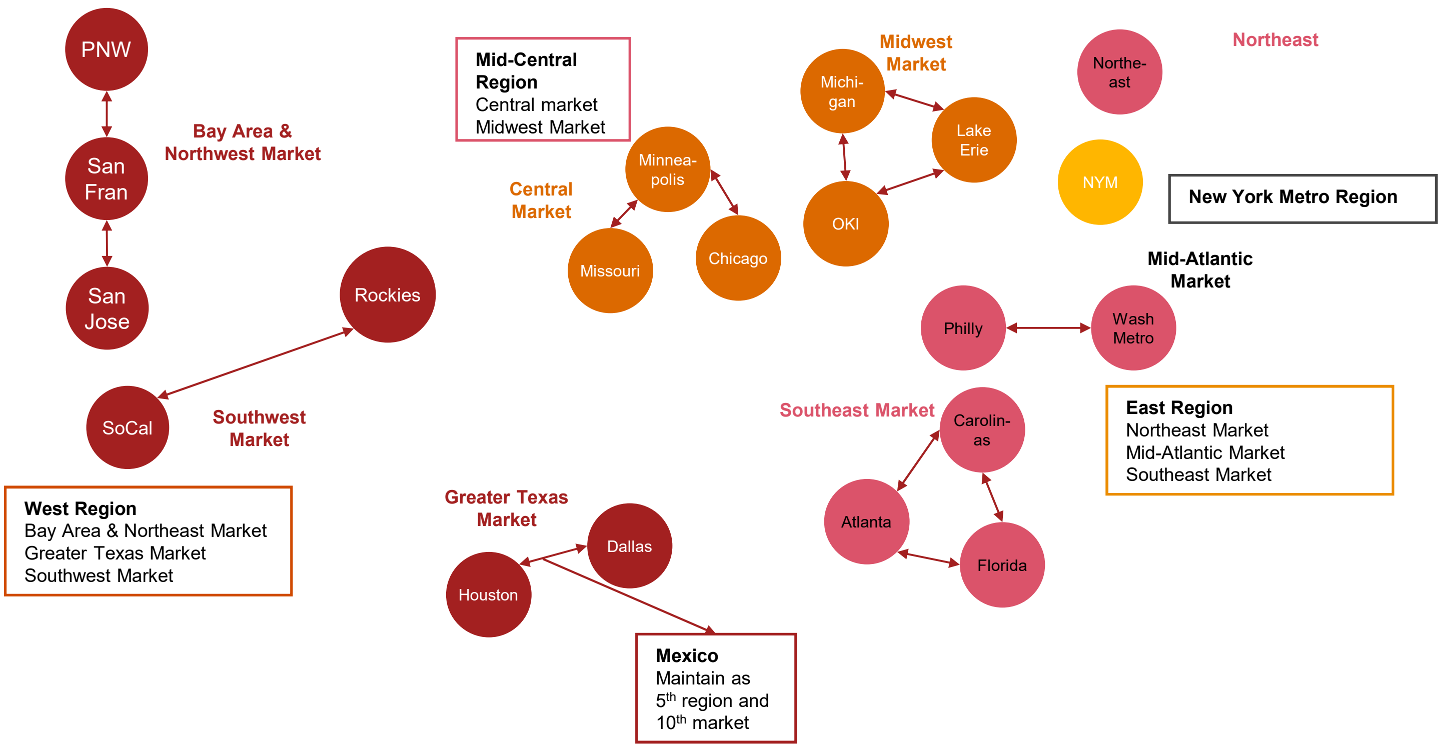
Tax
55,261 Partners, Principals & Staff

Advisory
68,194 Partners, Principals & Staff

Internal firm services
37,112 Support Staff

Source: PwC Global Annual Review 2019

Our US firm – 5 regions, 10 markets



Technology is changing how we work in professional services…

Today

Analysis of results, issue resolution, judgments and insights

Data processing, testing and documenting

Majority of the work is spent acquiring and processing data, testing and documenting results

Future

Analysis of results, issue resolution, judgments and insights

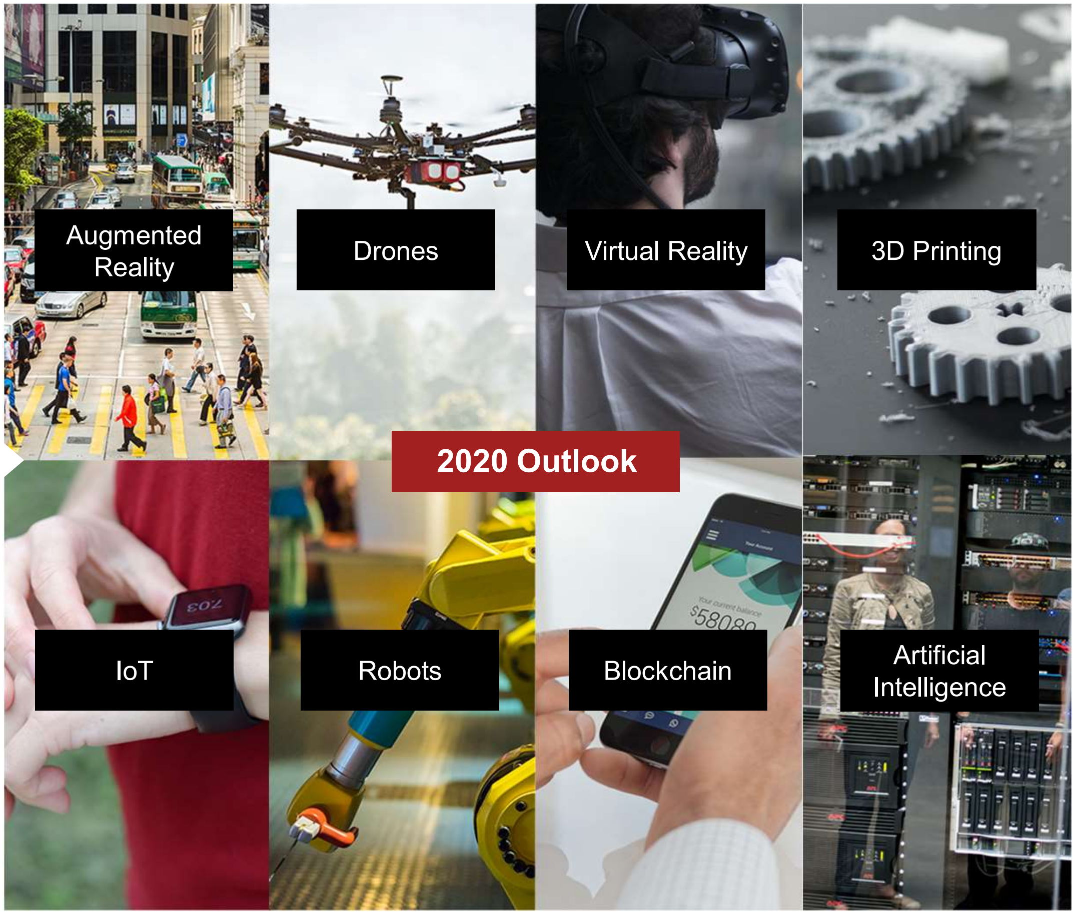
Data processing, testing and documenting

Automation will change how teams spend their time and create capacity to deliver additional **value-add** services

Future state a significant amount of data management processing will be **automated**.

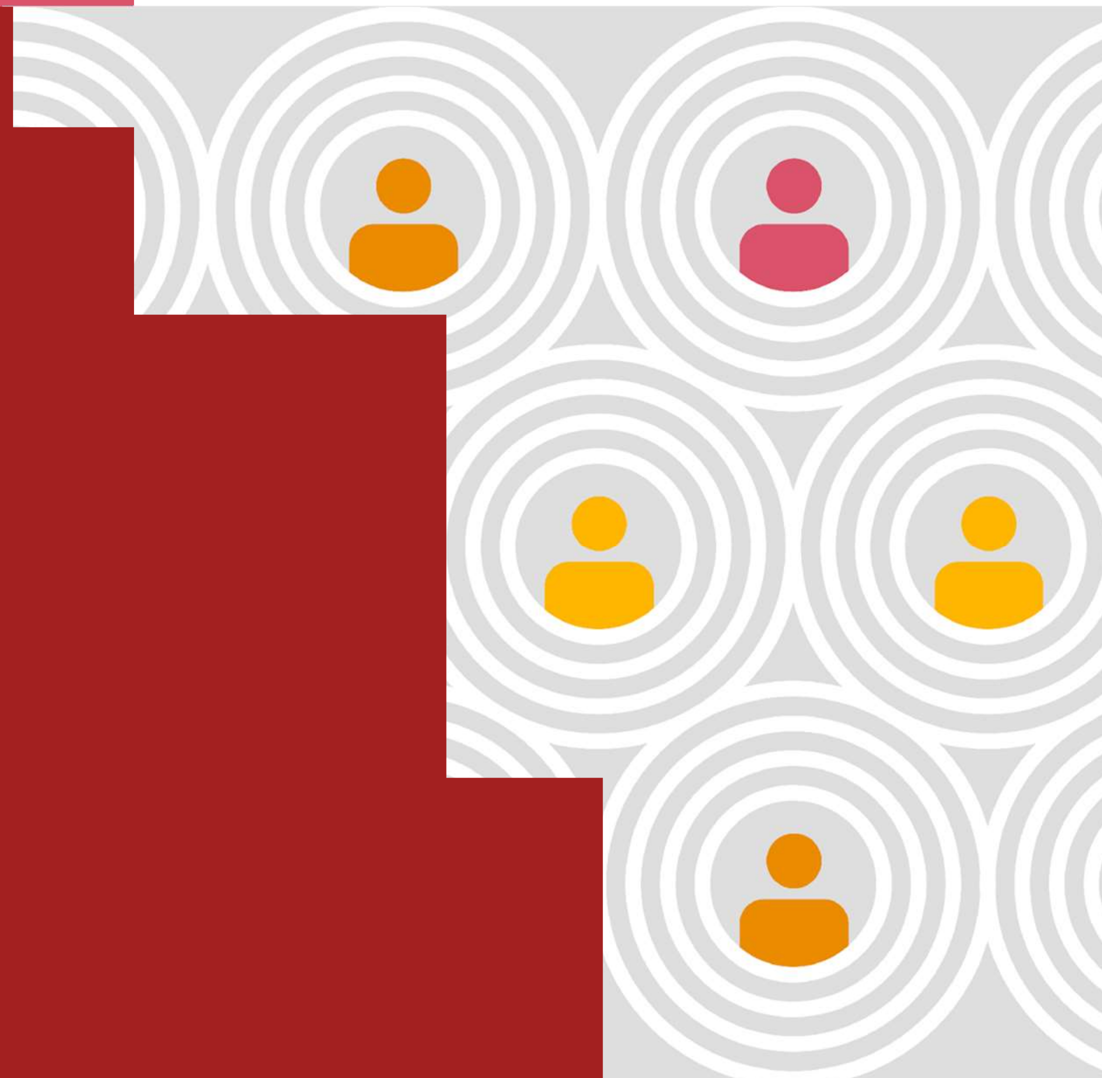
More time will be focused on **higher value**, **higher risk** areas, as well as uniquely **human activities.**

The ‘essential eight’ technologies continue to drive innovation and smarter organizations.



PwC's Leadership Development Experience

Enabling our people to bring our purpose to life



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PwC's Leadership Development Experience helps our people develop and progress with an integrated approach

Career coach
(every day: who can help me get there)

Career roundtable
(every year: where I stand)

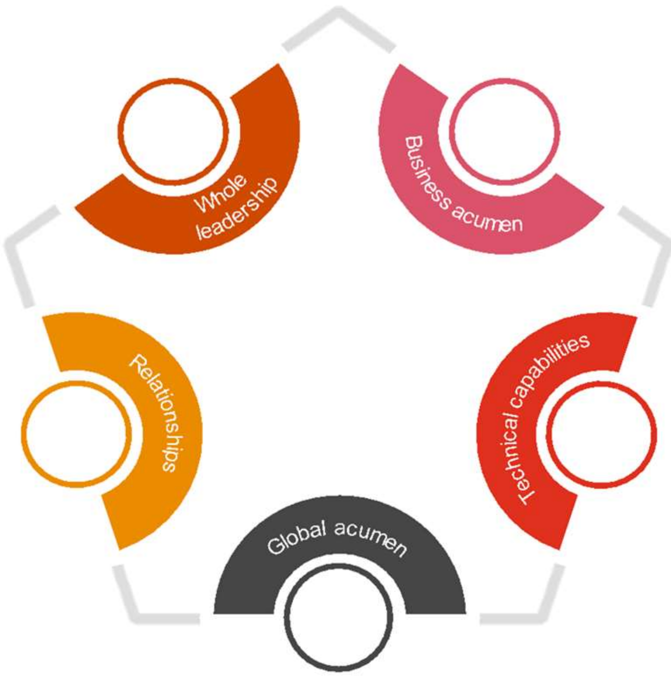
Career outlook
(every year: where I want to go)

PwC Professional career progression framework
(enduring: where I'm going)

Real-Time development
(every day: how I'm doing)

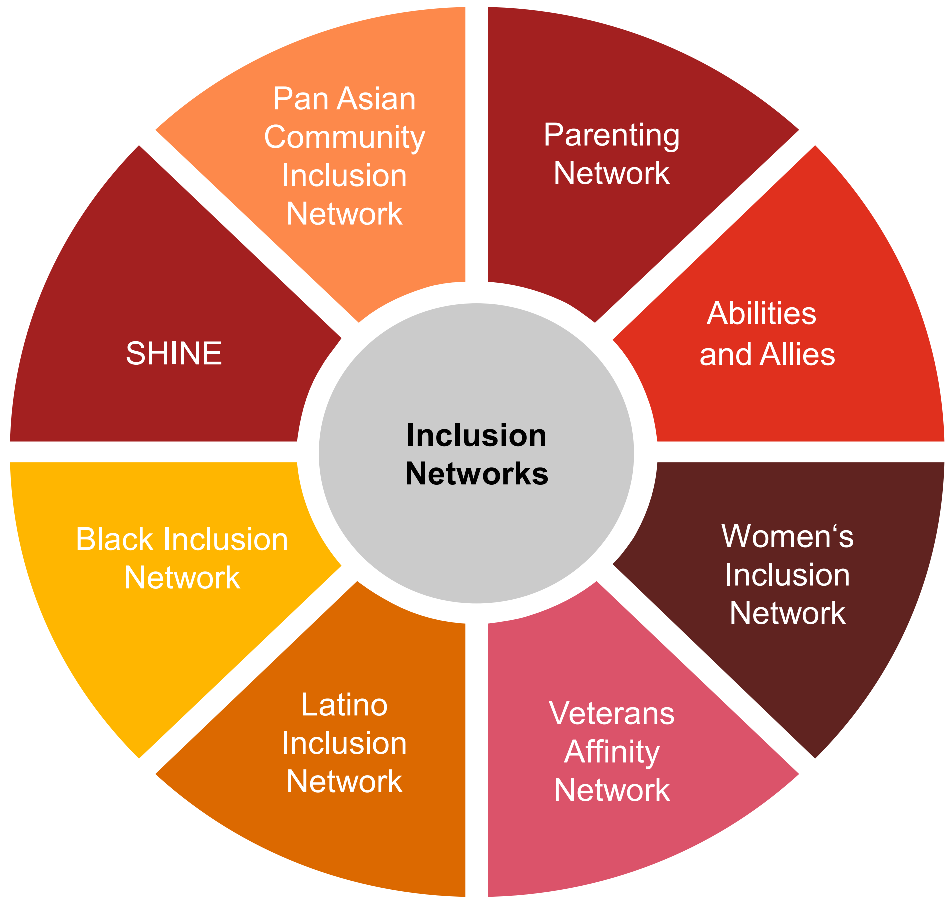
PwC Professional snapshot
(every so often: how I'm progressing and the value I'm creating)

PwC Professional breakdown



- **Whole leadership:** I lead myself and others to make a difference and deliver results in a responsible, authentic, resilient, inclusive and passionate manner.
- **Business acumen:** I bring business knowledge, innovation, and insight to create distinctive value for clients and PwC and other stakeholders.
- **Technical capabilities:** I apply a range of technical capabilities to deliver quality and value for clients and PwC and other stakeholders.
- **Global acumen:** I operate and collaborate effectively with a mindset that transcends geographic and cultural boundaries.
- **Relationships:** I build relationships of high value which are genuine and rooted in trust.

PwC Inclusion networks



Our business

PwC's lines of service

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Clients across a diverse mix of industries

Asset & Wealth Management

Health Services

Public

Banking & Capital Markets

Industrial Products

Tech/Media/Telecom

Consumer Markets

Pharmaceutical & Life Sciences

Technology

Energy, Utilities & Mining

Private Equity

PwC Advisory

Across industries, we help clients improve business performance, effectively manage crisis situations and extract value from transactions through Consulting, Deals, Forensics and Cybersecurity.

Consulting, deals, forensics, cybersecurity

Consulting

Deals

Forensics

Cybersecurity

Part 2- Risk and Regulations

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Overview of PwC Advisory – Data Analytics Practice

Strategy	Strategy
Digital	Digital Digital Technology & Cloud
Data Analytics	Data Analytics Data & Analytics Technology
Core Services	Asset Wealth Mgmt O&T Banking O&T Insurance O&T Capital Markets O&T Deals/M&A People & Organization
Risk & Reg	Risk Model Analytics
FTO	FinTech
FCU	Cyber AML & Fraud FCU Technology
New Services	Managed Services FinTech

Who are we?

We are an international team of quants with deep knowledge and experience in complex modeling for instrument pricing, risk and analysis

- 20+ Quantitative specialists focusing on the measurement and modeling of financial information
- Most team members hold a graduate degree in a quantitative field, e.g. MFE or PhD
- Our US team members are located in our NY, DC, Columbia SC and Mumbai offices
- Our team works closely with other teams across the globe including London, Frankfurt, Paris, Zurich, Singapore, Hong Kong, Shanghai and Tokyo.

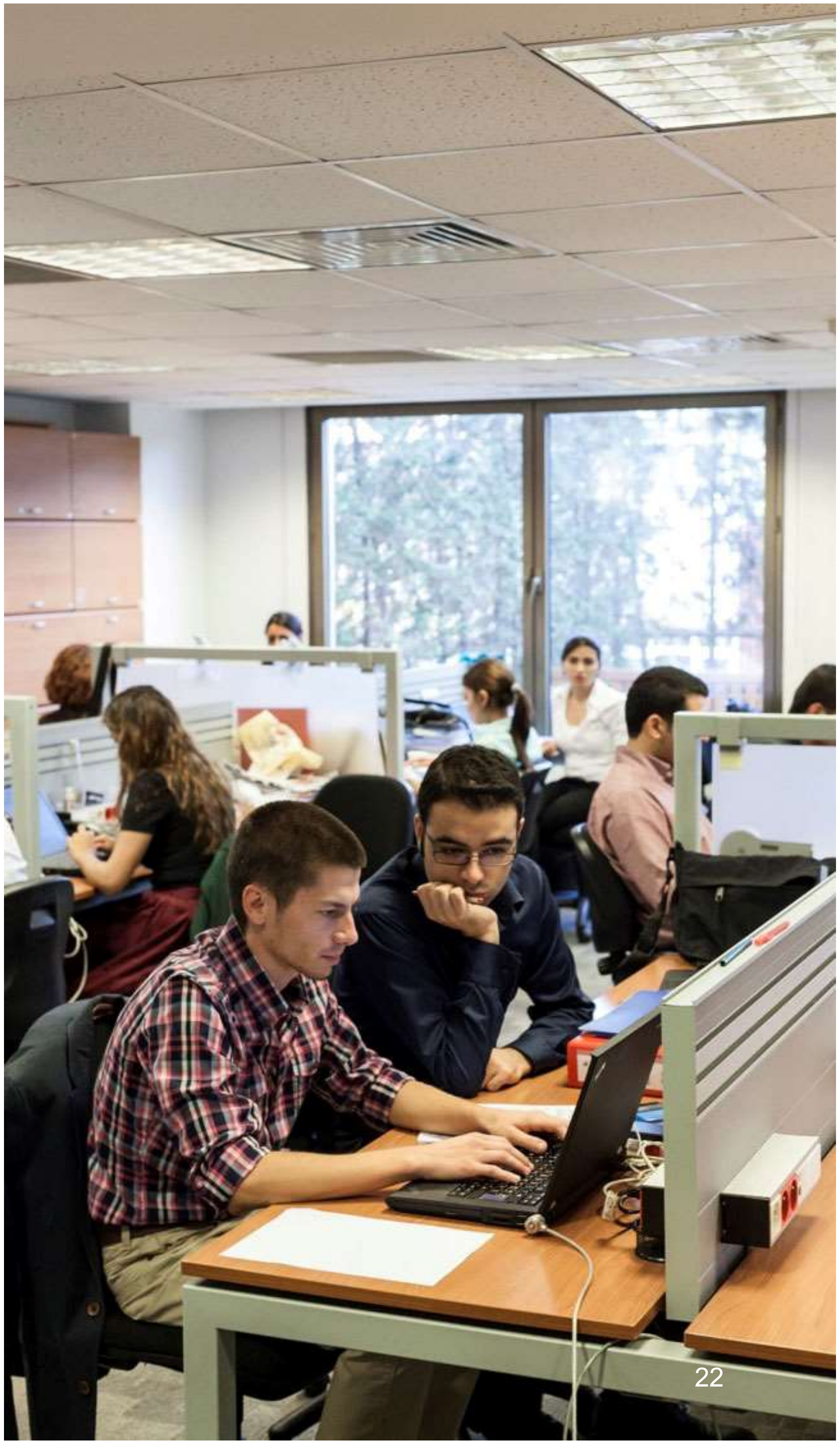
What do we do?

Within the FS Advisory Practice, our team focuses on Risk Measurements for Traded Products and Trading Activities

- We help clients deal with data and modeling issues arising from regulatory requirements and changes that have direct impact on the business (CCAR, FRTB, and SR 11-7)
    - Model Development, Validation and Governance
    - Risk Measurement and Analysis
    - Complex Instrument and Derivatives Valuation
- Our clients include:
    - SIFI/Global Investment Banks
    - Insurance Companies
    - Asset Management
    - Hedge Funds

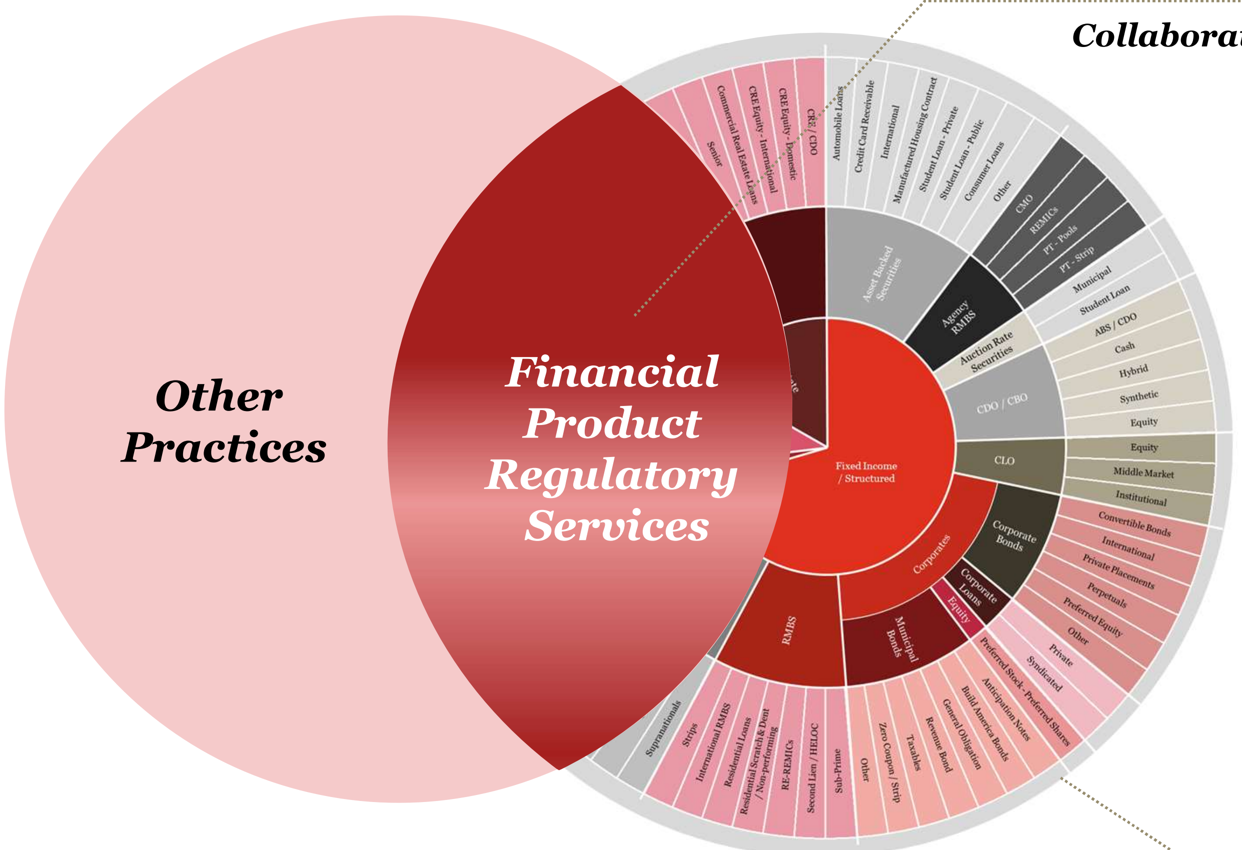
Agenda

1. Regulatory Landscape
2. The Consulting Mindset
3. Key Regulatory Initiatives
4. Additional Resources



Financial product regulations and our clients

Teaming opportunities: a combination of skills.



Collaborate to deliver client solutions

We collaborate with our colleagues in Risk and Regulatory Advisory to deliver our deep knowledge of financial products. Together, we provide solutions and add value to a variety of clients in an increasingly complex regulatory landscape.

With robust experience in a variety of services around financial products, Financial Markets goes to market with front office and product expertise across a wide range of financial instruments.

Financial Markets Product Expertise

Regulatory Landscape – A Timeline

Crisis		Regulation							Regulatory Refinement			
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

2008 Financial Crisis

- ***March:*** Bear Stearns taken over by JPM in government backed deal
- ***September:*** Lehman Brothers bankruptcy triggered global panic
- ***October:*** Congress authorized the issuance of $700B bailout through the Troubled Assets Relief Program (TARP)

Dodd-Frank Act

Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act in response to the financial crisis that began in 2008

Basel III

Final rules issued by US regulators with revisions from the global rule published by the Basel Committee in 2010

Volcker Rule

5 US financial agencies approved the Volcker Rule, banning proprietary trading and curbing risky investment strategies of Bank Holding Companies and Insured Depository Institutions

Credit Risk Retention

First effective date for non-RMBS transactions requires sponsors to retain 5% “skin in the game”

Qualifying Financial Contracts

Final rule was published (October) and went effective (December)

Volcker Rule went live

2016 Election

Donald Trump’s victory and Republican-majority Congress set stage for overall decrease in financial regulations

Asset Management Liquidity Risk Management

Rule finalized in October

Financial agencies appointments

Relatively moderate nominees with industry experience are appointed to lead financial services agencies

Discussions ramp up to revise certain provisions of the **Volcker Rule**, often criticized as too stringent by market participants

Alternative Reference Rate –Global Proposals

Fundamental Review of the Trading Book

First reporting date

Overview of regulators and our clients

Regulatory guidance comes from a broad range of regulators, and impacts the full spectrum of our client base, including large national banks, regional banks, foreign banking operations, insurance companies, and asset managers, just to name a few

Securities & Exchange Commissi (SEC)

Federal Reserve System (The Fed)

Commodity Futures Trading Commission (CFTC)

Consumer Financial Protection Bureau (CFPB)

Federal Deposit Insurance Corporation (FDIC)

National Futures Association (NFA)

Office of the Comptroller of Currency (OCC)

Financial Industry Regulatory Authority (FINRA)

The consulting mindset

The Consulting Mindset

Observing

- Consulting engagements often require us to be on the ground at the client. This provides us with an invaluable opportunity to observe not only what is happening on our engagements but also in the business around us.
- Use your strategic position to your advantage and keep your ears and eyes open for hot topics and business concerns to share with your PwC engagement team.

Listening to the client

- The client is not only our buyer but also the person with insight into the organization and its strategic priorities.
- While as consultants we provide subject matter expertise, it is important to pause, listen to our clients, and understand how best to adapt our approach to fit the unique needs of their team and organization.

Teaming with the client

- Whether we are co-sourcing with internal audit, project managing a cross-functional client team, or using a key contact at the client to point us in the right direction, the client is an integral part of our team.
- Approaching your relationship with a teaming mindset will inspire communication best practices and establish team rapport.

Learning about the client

- Doing our diligence prior to pitching for or starting new work – as well as throughout the engagement – is key to adding/driving value.
- Resources for information include clients financial statements, corporate website, and recent press releases.
- While the engagement is on-going, keep your eyes peeled for current events and internal developments at the client.

Building Relationships

- Relationships are what drive this firm and your career. Even as a brand new Associate, you have the power to create lasting relationships that could result in our next project.
- Start building relationships now to form the foundation of your career.

Further Training

- The needs of our clients are constantly evolving - disruptive technologies, regulatory updates, and market pressures – and should we.
- In order to go above and beyond our client's expectations, we need stay current on developments in the industry and how these developments can be applied to client-specific scenarios.
- Check out relevant trainings on Vantage or the Financial Markets Information database.

Delivering the Work

Connect the Dots

- Always listen
- Take notes
- Think big picture

Understand Your Environment/ Political Landscape

- Who are we working for?
- Who are the key players and client contacts?
- Who do we need to "impress" or not "upset"
- Maintaining visibility with the appropriate parties

Communication

- Client Updates - Ensuring that the materials we are presenting are appropriate for the forum
- Partner / Director updates
- Client Stakeholders / Steering Committee

Ongoing Monitoring

- Align Deliverables with SoW – Keep mental note of potential scope creep
- Keep MAP file updated

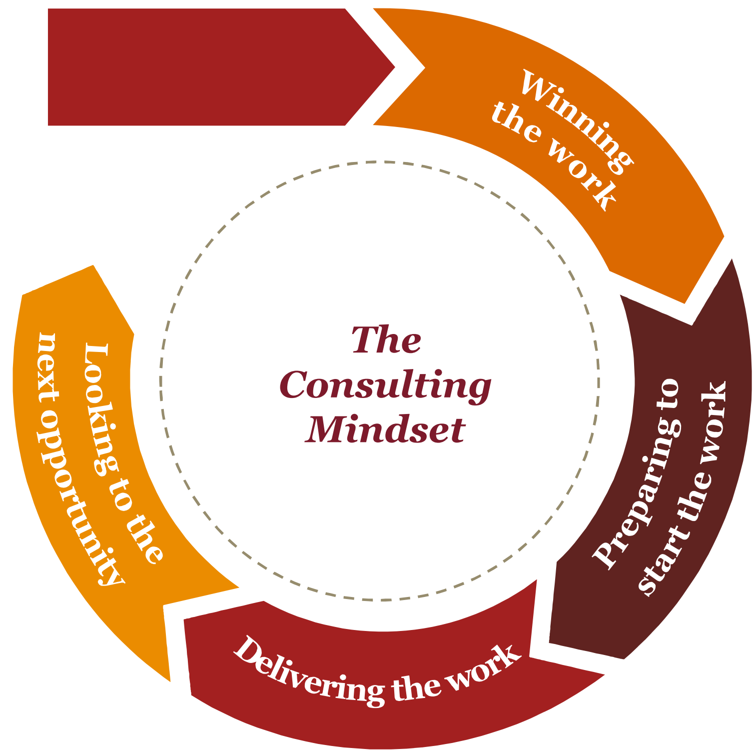
Value Report

- What value do we bring to our client?
- Examples of delivering value:
  - Successful delivery of a deliverable
  - Client reach-outs for assistance
  - General observations of our impact.

Success

Looking to the next opportunity

- Continuing the relationship/New opportunities/Value added lead to
  new conversations
- Observations and pain points –
  Value reports
- Being on the ground - awareness – relationships - Next project
- Documenting the systems we've worked with – Staying with the practice



Key regulatory initiatives

Examples of Financial Markets Regulatory Engagements

We go to market to assist our clients on a variety of engagements. Below is a list of past example projects to give you an idea of the scope of work performed by the Regulatory segment:

Regulatory Initiative	Recent areas of focus	Our experience
US Basel III	**Covered Positions**	• Facilitated implementation multiple large foreign banking organizations, including the identification of Covered Positions across a variety of business areas and the development of a target operating model to establish controls and governance through three lines of defense.
	Risk Weighted Assets	• Assisted both foreign and US banks in the development of a standardized framework for the determination of risk weights for securitization exposures under credit and market risk. • Provided assistance with the development of Basel III policies to foreign and US banks. • Assisted banks with the validation of their SSFA projection models.
Fundamental Review of the Trading Book (FRTB)	**Implementation Program**	• Assisted the client's development of an in-depth understanding of the regulation and advanced calculation specificities; performing an impact assessment identifying the scope and data requirements and readiness; preparation of the project plan and the design of the business requirements. • Assisted the client review hedging strategy, booking model and desk hierarchy implications to identify an optimal desk structure.
Stress Testing and Capital Planning	**CCAR/DFAST**	• Assisted DFAST banks with the end-to-end implementation and remediation of regulatory findings for capital stress testing and model processes. • Assisted internal audit in evaluating the design and effectiveness of the capital stress testing internal controls and processes to CCAR or DFAST regulatory expectations. • Advised several CCAR and DFAST banks on model risk management and model validation across a wide range of models.
	Risk Retention	• Assisted with the formulation of a capital efficient risk retention strategies. • Evaluated the alignment of complex legal, GAAP accounting, and tax analysis for structures compliant with the credit risk retention rules in the US and EU. • Developed a system of controls to monitor and enforce transfer, hedging, consolidation, and financing limitations, while identifying potential areas of noncompliance and prohibited activities.
Data and Record Keeping	**QFC**	• Established accelerated processes for identifying scope of legal entities required for QFC reporting under FDIC, Treasury and EBA requirements. • Developed templates for mapping QFC data to system architecture for identifying gaps and identifying remediation strategies. • Prepared business requirements and established interim solutions for recordkeeping and reporting functionality.

Overview of Basel requirements

Basel Risk-based Capital Timeline

	1988	2004	2005-2009	2010-2018+
	Basel I	**Basel II**	**Basel II.5**	**Basel III**
	• RWA guidelines for credit risk and market risk • Tier 1 and Tier 2 capital definition	• Guidelines of BI plus operational risk and updated credit risk • New Internal Capital Adequacy Assessment Process (ICAAP)	• Guidelines of BII plus additional risk measures for specific risk if approved by regulators	• Market Risk changes and advanced bank buffers and RWA changes plus redefinition of qualifying capital, including Tier 1 Common higher ratio levels for "healthy banks"
Capital Ratios & Targets	• Tier 1 & 2 definition			• New capital definition • New capital buffers • New leverage ratio • Higher minimum ratios • Systemic add-on
RWA Requirements	• Pillar 1 market risk • Pillar 2 market risk	• Pillar 3 disclosure • Pillar 2 ICAAP • Pillar 1 operational risk • New Pillar 1 credit risk	• Incremental risk • Trading book revisions • Securitization revision	• Counterparty risk • Standardized approach • Advanced approach
Liquidity Standards				• Coverage ratio • Net stable funding ratio

Regulatory capital overview

- A BHC and certain of its regulated subsidiaries are subject to minimum capital requirements
- The Basel Committee standards are often the benchmarks for member country's banking regulations
- The Basel Capital Accord published in 1988 first introduced the concepts of Risk-Weighted Assets, Tier 1 Capital, and minimum capital ratios. In July 2013 revised rules and were published that redefine qualifying capital and recalibrate the measurement of risk components

The fundamental issue any regulatory capital framework aims to address is "Capital Adequacy"—Does the financial institution have enough capital to withstand potential losses from risk taking in times of stress?

Capital Requirement under Current (Basel III) US Banking Regulation

Uses of Capital

Market Risk (2)
+ Credit Risk
+ Operational Risk (3)
= Total Risk-Weighted Assets (RWA)

Sources of Qualifying Capital (1)

Tier 1 Capital (includes Tier 1 Common)
+ Tier 2 Capital
+ Tier 3 Capital (effectively not-applicable)
= Total Capital

Capital Adequacy Measurement – Ratios and Standards for "Well-Capitalized"

• Tier 1 Common Capital Ratio	Tier 1 Common Capital / Total RWA > 6%
• Tier 1 Capital Ratio	Tier 1 Capital / Total RWA > 8%
• Total Capital Ratio	Total Capital / Total RWA > 10%
• Tier 1 Leverage Ratio	Tier 1 Capital / Total Average Assets > 5%

1. Regulatory capital components begin with GAAP equity which is then adjusted for qualifying elements, deductions and other adjustment
2. Applies to Banking Organizations subject to the market risk rule
3. Applies to Advanced Approaches Banking Organizations

FRTB Overview

Key highlights driving industry preparations

- Market risk regulatory capital to be calculated in one of two ways at the individual desk level:
  - Apply the **new risk sensitive standardised approach** (relevant for all risks including securitisation), in addition to:
    - Default Risk Charge
    - Residual Risk Add-On
  - Apply the **internal models approach** ('IMA') where it is impactful and can be qualified. The revised approach includes:
    - Shift from VaR to Expected Shortfall measure
    - Default Risk Charge
    - Non-Modellable Risk Charge
    - P&L attribution tests
- **Revised boundary between banking and trading book** to reduce incentive to arbitrage between the regulatory banking and trading book
- Firms are expected to manage their market risk to ensure capital requirements are met on a **continuous basis,** and to ensure **intraday exposures are not excessive**

FRTB Issues

A number of concerns have emerged across the industry relating to both the Standardized Approach and the Internal Model Approach

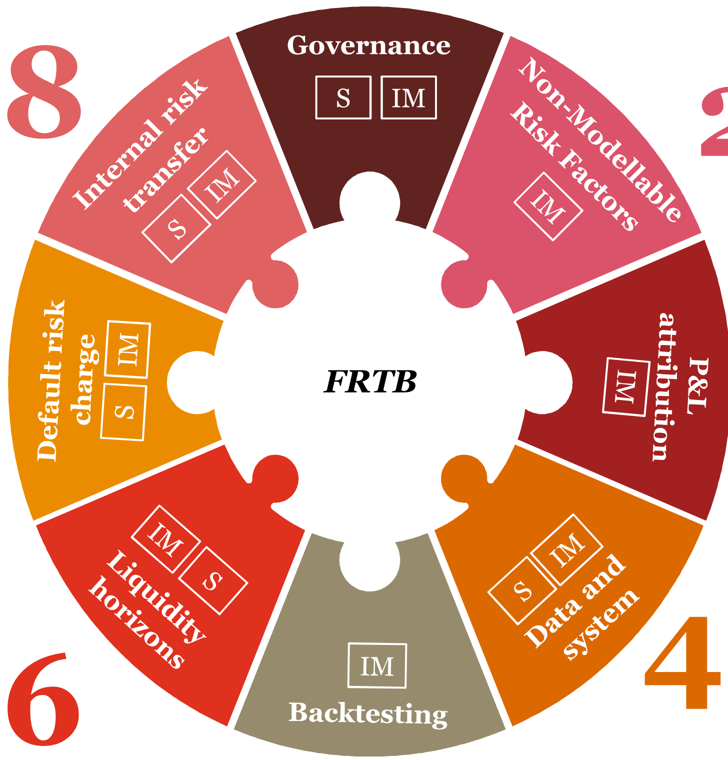
- ❑ Creation of management procedures
- ❑ Define board and committee oversight
- ❑ Internal controls

S Standardized Approach

IM Internal Model Approach

8

- ❑ Impact analysis of desk and model approach
- ❑ Use of internal risk transfer desks or agent desk
- ❑ Restructuring of trading and hedging desks



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- ❑ Defining risk factors
- ❑ Identify modellable proxies
- ❑ Analysis of inter-dependence with P&L attribution

3

- ❑ Integrating of P&L and risk
- ❑ Impact analysi of fragmented systems
- ❑ Identification of operational challenges due to manual processes
- ❑ Determine level of granularity of P&L attribution

4

- ❑ Define data processes
- ❑ Setup data governance structure
- ❑ Assessment of system infrastructure
- ❑ Consideration of vendor solutions

5

- ❑ Review of methodology
- ❑ Identification of exceptions due to data
- ❑ Assess hedging decisions based on cross factor dependencies

6

- ❑ Impact analysis of positions with long liquidity horizons on capital
- ❑ Identify approaches to minimize liquidity horizon diversification
- ❑ Bucketing of risk factors into appropriate liquidity horizon category

7

- ❑ Assessment of gap between current implementations of Basel 2.5 IRC to IMA DRC to determine potential modifications required
- ❑ Model evaluation and review in IMA DRC
- ❑ Identification of operational challenges

Alternative reference rate

Global state of play

Planning for LIBOR and reference rate reform has increased in urgency with the UK FCA's 2017 statements that panel banks are only committed to submit LIBOR through the end of 2021

Since 2014, regulatory working groups across the globe have focused on (1) identifying alternative benchmark rates based more firmly on executed transaction data and (2) developing transition plans to these new rates.

However, the transition roadmaps across regions remain unclear and inconsistent.

LIBOR and reference rate reform will have a significant commercial and operational impacts for firms, including challenges around pricing, funding, risk management, contract management and many other areas.

Current state of the proposed alternative benchmarks

Existing LIBOR rate	*Proposed alternative benchmark*	*Borrowing Type*	*Regulatory working groups*
EUR LIBOR	ESTER	Unsecured	European Working Group
USD LIBOR	SOFR	Secured	Alternative Reference Rates Committee (ARRC)
GBP LIBOR	Reformed-SONIA	Unsecured	Bank of England's Working Group on Sterling Risk Free Reference Rates
CHF LIBOR	SARON	Secured	National Working Group on Swiss Franc Reference Rates
JPY LIBOR	TONAR	Unsecured	Japanese Study Group on Risk Free Reference Rates

LIBOR Reform timeline

Jul 2014
FSB Official Sector Steering Group (OSSG) published its first report "Reforming Major Interest Rate Benchmarks"

Apr-Jun 2017
Regulatory working groups start sharing proposals for alternative benchmark rates, including SOFR for USD and Reformed-SONIA for GBP

Jul 2017
FCA's Chief Executive delivers speech questioning sustainability of LIBOR, signalling mobilisation for LIBOR reform

Q1 2018
ISDA delivers a roadmap and outlines report to be published on the transition across derivatives, loans, bonds and mortgages

April 2018
The FRBNY and Bank of England start publishing SOFR and reformed SONIA respectively

May 2018
CME starts trading in 1-month and 3-month SOFR futures

Q2 2018
Trading expected to initiate on alternative benchmarks, including swaps trading

Today

Q2 2021
CCPs no longer accept new swap contracts relying on legacy reference rates

Jan 2022
The panel of contributor banks will no longer be compelled to submit LIBOR

Wide-ranging impact across global financial markets

For financial institutions, LIBOR reform will affect a wide range of financial products across most business lines

Sales & Trading
DERIVATIVES
BONDS
LOANS
SECURITIZATION

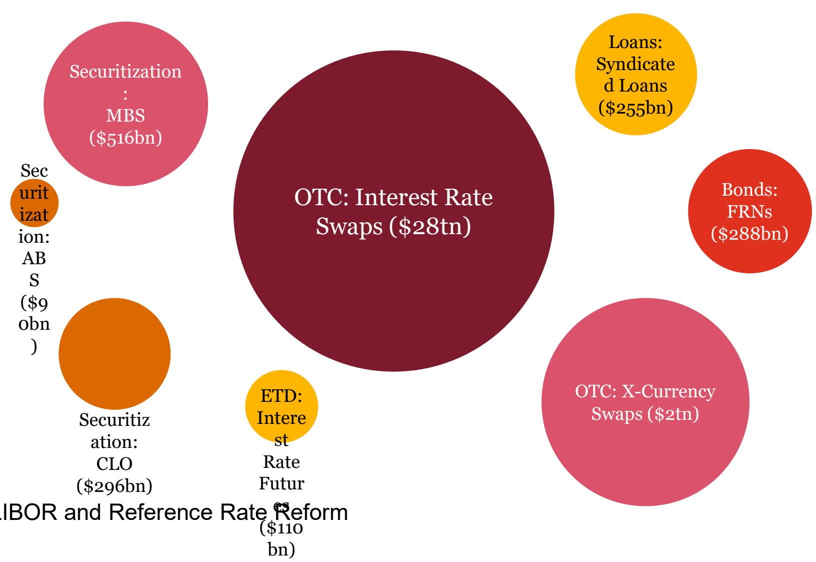
List of products are indicative and not comprehensive

Corporate Banking
LOANS & LEASES
STRUCTURED DEBT
TRADE FINANCING
TREASURY SERVICES
UNDERWRITING
DERIVATIVES

Asset Management
MUTUAL FUNDS
ETFS
SEGREGATED FUNDS
ALTERNATIVE FUNDS
PENSION FUNDS
DERIVATIVES

Retail & Wealth
DEPOSITS
MORTGAGES
LOANS

Projected remaining USD notional linked to LIBOR after 2021



As of 2016, LIBOR referenced contracts accounted for:

72% of the OTC derivatives market	71% of syndicated loans	82% of floating rate notes	SUBSTANTIAL PROPORTION of securitization & loan markets

There are approximately $200 trillion USD in LIBOR linked contracts (>$35 trillion currently have maturities beyond the 2021 cut-off date), requiring significant effort for remediation

Source:

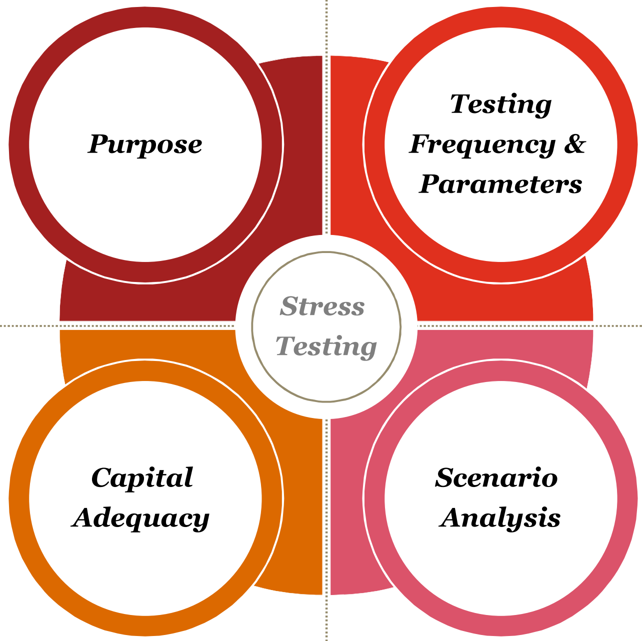
CCAR/DFAST

Capital Planning and Stress Testing

Based on the size of the institution, certain banks are required to perform annual stress tests in order to meet regulatory requirements. Across the various regulations, there are several important concepts and themes.

- Assessment submissions allow supervisory authorities to assess a bank's capital planning process, capital adequacy, and proposed capital distributions.

- Stress test results are submitted at least annually to the appropriate regulatory body. Banks are assessed against both quantitative (i.e. key capital and leverage ratios) and qualitative (i.e. internal controls, governance, risk identification procedures) measures.



- Capital adequacy is essential to the health of financial institutions that are systemically important to our economy. Stress testing seeks to understand if banks have sufficient capital to lend to households and businesses, continue operations, maintain ready access to funding, and meet obligations of their counterparties creditors during economic down cycles.

- Stress testing requires the use of scenario analysis to determine capital adequacy under a range of potential macroeconomic conditions. Depending on the size and complexity of the bank, institutions are required to use a set of predetermine variables and internally developed scenarios to forecast performance.

CCAR and DFAST: Basic Principles

Below are the fundamental principles of CCAR and DFAST

Dodd Frank Act Stress Test Program (DFAST)

- Covered institutions include the following (subject to different reporting timelines):
  - At least $10B and up to $50B in total assets
  - Over $50B in total assets
- Quantitative assessment forecasting an institution's capital adequacy under a hypothetical set of stressful economic conditions released by the FDIC
- The bank projects balance sheets, Risk Weighted Assets (RWAs), net income, and post-stress capital levels and capital ratios over a 9 quarter planning horizon
- The projections are based on 3 scenarios – baseline, adverse, and severely adverse
- Submission to the FDIC

The Federal Reserve's Comprehensive Capital Analysis and Review (CCAR)

- Quantitative assessment for all Bank Holding Companies with $50 billion or more in total consolidated assets
  - Quantitative assessments must include the bank's own scenarios in addition to those issued by the Federal Reserve
  - Uses the same projections of net income, total assets, and RWA as DFAST but has different capital action assumptions
- Qualitative assessments are performed for:
  - LISCC firms (those subject to the Large Institution Supervision Coordinating Committee) and
  - large and complex firms (average total consolidated assets over $250B or (ii) average total nonbank assets of $75B or more, and (iii) are not LISCC firms)
- Submission to the Federal Reserve

Credit risk retention

Standard Risk Retention

Eligible Horizontal Retained Interest (EHRI)

Tranche A
Tranche B
Tranche C
Risk Retained
(Most Subordinate)

- Risk held in the most subordinate tranche in the securitization
- Sized to 5% or greater of the **fair value** of all ABS Interests

Eligible Vertical Interest (EVI)

Tranche A | RR
Tranche B | RR
Tranche C | RR
Sub Tranche/Residual | RR

- A 5% or greater interest **(based on notional amount)** in each class of ABS interests in the issuing entity issued as part of securitization

Combination (L-shaped)

RR | Tranche A
RR | Tranche B
RR | Tranche C
Sub Tranche
Risk Retained

- **Fair value** of EHRI and percent of EVI must total at least 5%

Cash Reserve Account

Tranche A
Tranche B
Tranche C
Residual
Reserve Account

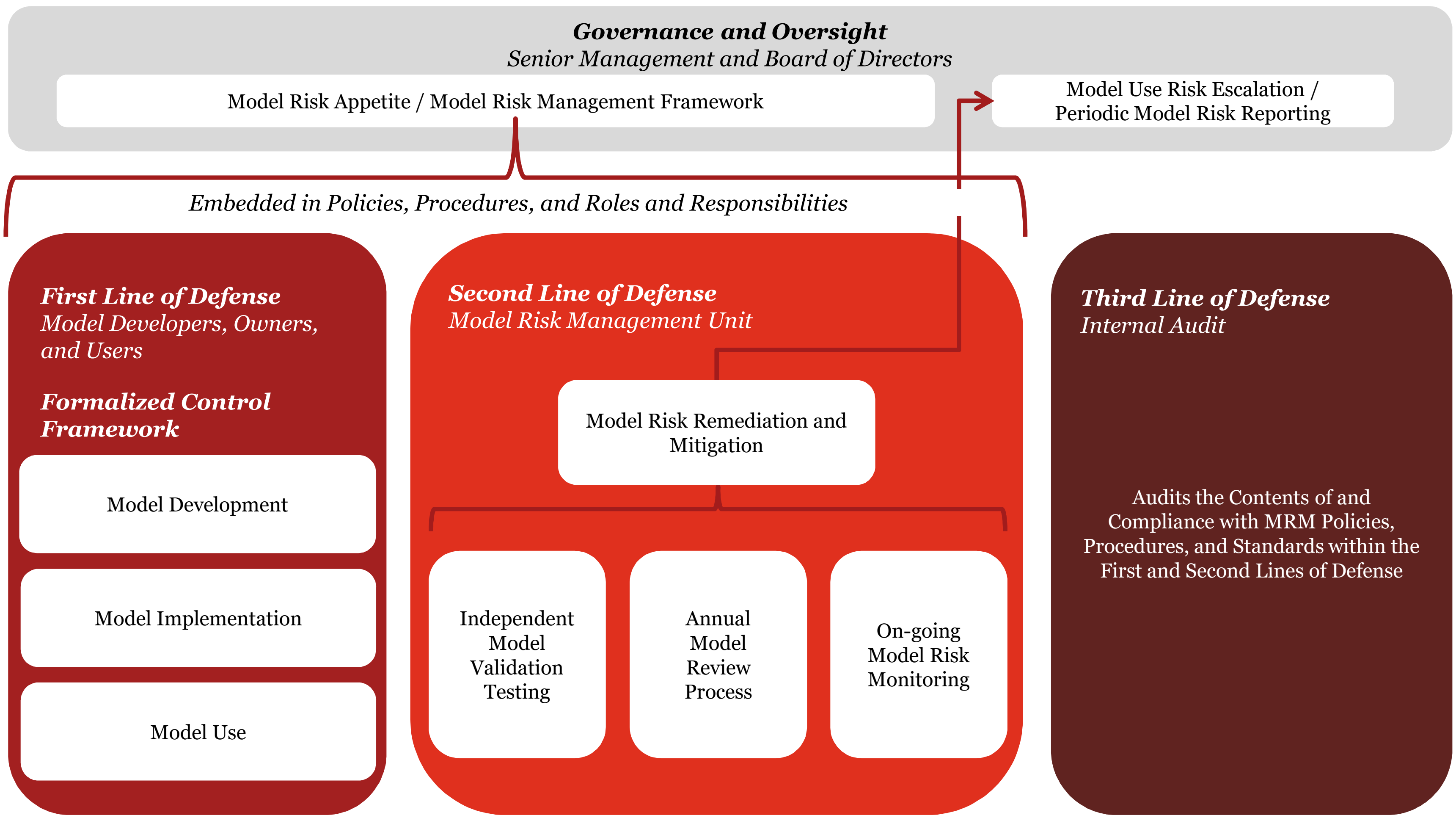
- Can substitute wholly or in part for the EHRI
- Subject to multiple conditions including limiting release until all ABS interests are retired / issuing entity

Capital planning

A key component of effective management and value-generation for stakeholders for financial institutions.

1. *Sound foundational risk management*
2. *Effective loss-estimation methodologies*
3. *Solid resource-estimation methodologies*
4. *Sufficient capital adequacy impact assessment*
5. *Comprehensive capital policy and capital planning*
6. *Robust internal controls*
7. *Effective governance*

Model Risk Management Framework



Q&A

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