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Optimizing the Capital Ratio under Basel III

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Highlights

Basel III stresses the integration between liquidity and credit risk, and the need to manage both from an enterprise-wide risk-management context. This demands a new enterprise-wide organization of tasks, processes, and calculation infrastructure, specifically in terms of systems integration, data flow coordination, model validation, and data interfacing. Under Basel III, analysis of eligible capital and deductions are fully embedded during the risk weighted asset calculation, which represents a significant change from Basel II. The calculation of tier capital, the allocation of deductions, and the optimization of risk weighted assets can no longer be performed in isolation. A holistic, enterprise-wide view should be in place to efficiently address them and coordinate the perspectives of finance, risk management and capital planning. Finally, Basel III provides a strong incentive for further integration of data management and analytics into an enterprise-wide risk management platform. Banks that integrate data across the enterprise will reduce costs, improve efficiency, automate capital ratio calculation, and optimize the calculation of its components (risk weighted assets and tier capital). This paper analyzes the key challenges institutions face when optimizing the capital ratio calculation and outlines ways they can overcome these challenges.

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Regulatory Background

The new elements in Basel III are focused on a set of qualitative and quantitative requirements to effectively monitor and proactively manage a financial institution's overall risk profile. An additional capital buffer, measured as a proportion of risk weighted assets (RWAs), is required for those institutions that regulators categorize as Globally Systematically Important Financial Institutions (G-SIFI).

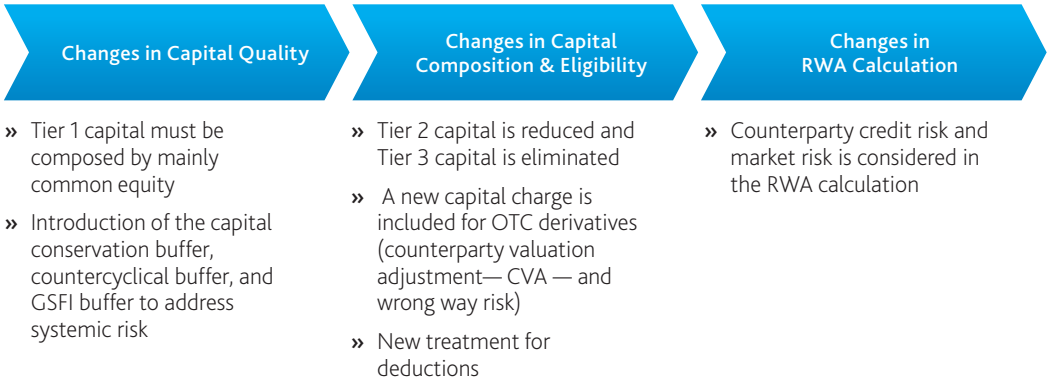
Basel III replicates Basel II by considering the capital ratio approach as the metric to monitor the solvency of a financial institution. However, it modifies the calculation process by changing the definition and components of the capital ratio. Overall, Basel III requires institutions to hold more higher-quality capital. The core differences between Basel III and Basel II are:

1. Enhanced regulatory capital requirements.
2. Stricter capital composition.
3. Changes to the treatment of deductions.
4. Increased perimeter for risk-weight calculations.
5. New standards for managing and measuring liquidity risk.
6. More comprehensive disclosure and reporting frequency requirements.

Basel III also introduces important changes to the definition of Risk Weighted Assets (RWAs) to capture market risk and counterparty-related risks that are not considered under Basel II. Specifically, Basel 2.5 and Basel III RWA calculations include higher risk weights for exposures to market risk and counterparty credit risk, a capital charge for Credit Value Adjustment (CVA) risk, and increased capital charge for exposures to large and un-regulated financial institutions or Central Counterparties (CCPs). It also introduces an incremental risk charge (IRC) to capture migration and default risk for securities within the trading book. Therefore, RWAs increase significantly under Basel III, especially for some portfolio segments and financial institutions with large trading books.

Finally, Basel III introduces an additional leverage ratio to supplement the risk-based minimum capital requirements. These changes have a significant impact on the capital ratio calculations and the capital structures of financial institutions that comply with Basel III requirements. Figure I summarizes these major changes.

Figure I: Basel III Significantly Affects The Capital Ratio Calculation



Given Basel III's new capital constraints, the incentives for having an enterprise-wide capital ratio calculation framework and reporting infrastructure have never been greater. As a result, financial institutions are focusing their efforts on maximizing the capital ratio. This in turn increases the return for shareholders and investors by accurately allocating and modeling capital and deductions (numerator of the ratio), optimizing and minimizing calculation of RWA (the denominator of the ratio), or a combination of both approaches.

Several strategies are being pursued by financial institutions to reduce and optimize their RWA under Basel III, including:

- Data quality and mapping optimization, supplementation, and enhancement.
- Balance sheet deleveraging: reducing the maturities of portfolios, reducing positions in illiquid assets and with higher RWA consumption.
- Hedging strategies: product and structuring innovation, performing RWAs model re-engineering.
- Cutting the exposure to capital and credit risk-intensive business lines or assets (structured credit, project finance, trading portfolios, etc.).
- Changes in business model (distribution model): scaling back or moving out of specific business lines.
- Application of collateral mitigation algorithms and strategies.
- Implementing enterprise-wide risk systems for data consolidation, model calculation, optimization, and regulatory reporting.

However, numerous studies from regulators have expressed concern about the consistency of RWA calculations, specifically concerning its reliability, its lack of cyclicality, and its usability as an indicator to measure balance sheet risk. Practitioners, market analysts, and investors have also analyzed these variations in RWAs reporting and their effect on the credibility of financial institutions' regulatory metrics and for comparison purposes.

- "…risk weightings are highly variable in Europe and have led to continuing declines in capital levels, even in the recession. There's pretty strong evidence that the RWA calculation isn't working as it's supposed to..."[1]
- "…there is a material variation in the risk weights for trading assets across banks after adjusting for accounting differences and riskiness of different banks' portfolios…"[2]

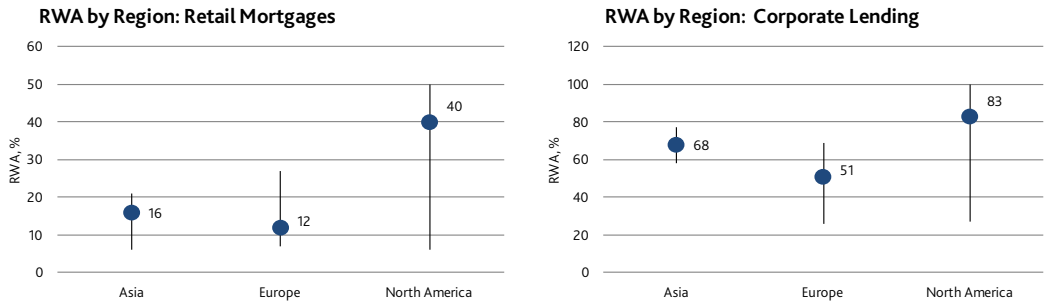
Quantitative impact studies from the Basel Committee[3] have also indicated that an institution's balance sheet composition and risk profile may not fully explain the variation in the reporting of RWAs. As a result, the application of these new regulations has the potential to affect the competitive advantage of financial institutions. For example, the capital surcharge for G-SIFIs is a function of RWAs and not of total assets. This can create competitive advantages for sophisticated, large institutions that can achieve lower RWAs compared to other institutions with higher RWAs, but smaller balance sheets. As a result, the G-SIFI charge may not necessarily penalize the largest, systematically important institutions.

Although the gap between the higher RWAs reported by retail banks than those reported by investment banks has been bridged under Basel III (through the introduction of counterparty and migration risk capital charges for the trading portfolios), differences in RWA calculations continue to exist across regions. For example, RWA density (defined as the ratio of RWAs to total assets) is substantially different across North America, Europe, and Asian institutions. European banks have, on average, the lowest RWA density versus Asian and North American institutions (36%, 50%, and 58%, respectively). Therefore, there are advantages for banks with a global presence, when calculating RWAs.

1 Sheila Bair. Former Chairman U.S. FDIC. Risk magazine, June 2011.
2 Stefan Ingves. Basel Committee Chair. 8th High Level Meeting Basel Committee, January 2013.
3 Regulatory Consistency Assessment Programme. "Analysis of RWAs for market risk". Basel Committee, January 2013.

Figure II illustrates the RWAs for retail mortgages and corporate lending across the three main regions for a sample of banks[4]. North America shows the largest variance as well as the highest RWAs for both retail and corporate assets. The major drivers of RWA variance are the diversity of regulatory and accounting regimes, modeling frameworks, risk appetites and portfolio composition, and the treatment of guarantees. It is noteworthy that there are significant variations in risk-weighting between and within regions.

Figure II: RWA Varies Across Regions And Assets – Corporate Lending Versus Retail Assets



We also note that differences in the RWAs reported by institutions with very similar balance sheet composition, risk appetite, business model, and under the same regulatory regimes can be driven by the use of internal probability of default (PD) models.

Take as an example two banks under the same regulatory jurisdiction and of similar size and business model. They both have corporate lending, average loss given default (LGD) of 45%, $50 million in turnover and a maturity of 2.5 years. Assume that both banks report very different risk weights for their banking book: 100% and 20%, respectively. A simple analysis[5] shows how the PD level drives the calculation. By reverse engineering, a RWA level of 20% should imply an average PD of 0.05% versus a PD of 1.3% for the bank with the RWA of 100% (ceteris paribus). At this stage, the validation of those PD levels should be assessed for regulatory purposes.

From an operational perspective, this optimization presents unique challenges for banks in terms of their enterprise-wide infrastructure, systems integration, data flow coordination, data interfacing and financial and risk management reporting. Communication across an institution's major stakeholders, like Finance, Capital Planning, Risk Management and Stress Testing is also important. Figure III summarizes the major areas that affect the calculation of the capital ratio components.

Figure III: Major Areas That Affect The Capital Ratio Calculation

Functional Area	Driver
Risk management and modeling	Risk models: credit, market, and operational risk Probability of default (internal, Point-in-Time vs. Through-the-cycle) LGD, credit conversion factor (CCF), exposure-at-default (EAD), haircuts models Maturity model (residual vs. effective maturity) Use of local currency ratings Hedging via guarantees or credit derivatives (for example risk transfer on guarantor asset class and PD, LGD model, double default approach) Collateral valuation and optimization Netting Securitization Stress testing

4 "Revisiting RWA: Why do RWAs differ across countries and what can be done about it?"International Monetary Fund, 2012.
5 Basel IRB tables.

Functional Area	Driver
Data quality & risk infrastructure	Data availability Data quality Enterprise-wide infrastructure and reporting Data consolidation (via datamart) Reconciling the General Ledger balance sheet with transaction level data
Accounting approach	IFRS Local GAAP General ledger (GL) strategy: available-for-sale vs. hold-to-maturity
Regulatory jurisdiction	Basel regime: I, II, 2.5, III National discretions Standardized vs. IRB Foundation/Advanced CCR EAD approach (CEM vs. IMM) CVA and market risk approaches Provisioning rules, Best Estimate of Expected Losses (BEEL) Consolidated vs. Solo calculations and reporting
Business model	Balance sheet composition Risk appetite strategy Economic cycle
Legal framework	Collateral type and eligibility Guarantees and credit derivative treatment Securitization eligibility (for example sufficient risk transfer, minimum retention) Netting agreement Central Clearing Recovery process Portfolio classification and booking

Optimizing Risk Weighted Assets

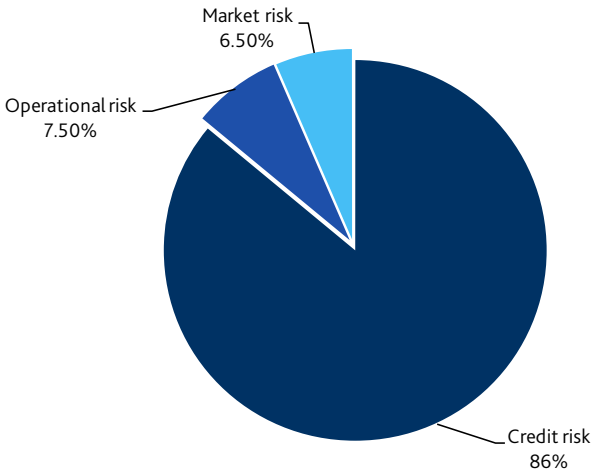
RWAs are a core input in the calculation of a financial institution's capital ratio[6] and were first introduced in Basel I. The risk weights allocate an amount of capital to the assets held by a financial institution as a function of their risk perception and the origination nature (the higher the perceived risk, the higher the risk weight). The calculation method varies depending on type of exposure.

Given the lack of granularity and the limited risks covered by Basel I, II and III have broadened the remit to include additional risks that may affect a financial institution's balance sheet (credit, operational, and market risk), increasing the risk sensitivity, and reducing regulatory arbitrage between banking and trading books by introducing counterparty and migration risk capital charges.

Under Basel III, risk-weighting takes into account credit, operational, and market risk (Basel 2.5 and Basel III introduce RWA updates to better address market risk and counterparty credit risk). Credit risk is usually the major driver of risk-weighting and can account for more than 85% of the total risk weight, followed by operational risk. Market risk usually represents a small proportion of the risk-weighting, although the average number can be higher for institutions with large trading portfolios (i.e., subject to counterparty and migration risks).

6 The capital ratio is defined as the ratio between the eligible capital and the risks that the financial institution is exposed to, as quantified by their RWAs.

Figure IV: RWA Average Breakdown By Market, Operational, And Credit Risk[7]



Forecasting RWA evolution also plays an essential part in a stress testing framework and it is core to meeting regulatory[8] and internal stakeholders' expectations. This, in turn, affects the balance sheet composition and business strategy. Therefore, RWA optimization metrics should be projected under scenarios for stress testing purposes since their evolution drives regulatory and risk management decisions.

There are major challenges for all institutions from an operational perspective that must be addressed during the RWA optimization process. These include:

1. **Data quality, granularity, and mapping**

   - Data quality can have important effects when calculating the RWAs and calibrating the risk drivers. For example, the calculation of EAD for undrawn facilities may represent a substantial challenge for those institutions without relevant credit history or appropriate behavioral models in retail credit facilities (for example credit cards).
   - Eligibility of credit risk mitigants impose a comprehensive gathering of data extending to characteristics that often had rarely been collected in collateral management systems, as well as a regular review under stringent re-margining and re-evaluation frequency.
   - PD, LGD data granularity creates significant differences in the RWA calculation: corporates, sovereigns, CCPs, retail, SME/middle market/private firms, and project finance.

2. **Institutions' risk appetite and business mix**

   - An empirical analysis[9] performed by the Bank of International Settlements (BIS) demonstrated that retail and corporate exposures are the main component of credit RWAs for banking portfolios due to their higher risk weights versus other asset classes (for example sovereigns). Corporate and retail exposures usually have the largest RWAs variance across financial institutions.

7 Analysis performed for a sample of banks across Europe, North America, and Asia. Revisiting RWA: ''Why do RWAs differ across countries and what can be done about it?"International Monetary Fund, 2012.

8 For example, US bank holding companies have to project RWAs for CCAR reporting and capital planning purposes over nine quarters under a set of forward-looking stress scenarios (Capital Planning Review 2013: Summary Instructions and Guidance. Board of Governors of the Federal Reserve).

9 "Report to G20 Finance Ministers and Central Bank Governors on Basel III Implementation" Bank of International Settlements October 2012.

- Differences in the risk treatment of products and business mix. For example, U.S. banks usually target higher returns and sell low margin, low risk-weighted retail assets (usually to government sponsored enterprises Fannie Mae and Freddie Mac), while European banks prefer low margin, low RWAs in their balance sheet like mortgages (government sponsored enterprises like Fannie Mae or Freddie Mac do not exist in Europe).
- Probability of default is usually the core driver of the RWAs for corporate and sovereign exposures, while loss given default plays a critical role in the RWAs calculation for retail and corporate exposures.

3. Treatment of on-balance sheet and off-balance sheet items

- Off-balance sheet items are usually subject to higher risk-weighting than on-balance sheet items.
- Regulations leave significant room for optimizing the CCF computation for multi-product, multi-counterparty facilities relying on mathematical models and accurate description of the facilities and sub-facilities structures.
- Treatment of derivatives and other. For example, U.S. banks can book most of the mortgage-linked bonds off their books thus potentially reducing capital and RWAs.

4. Allocation of deductions

- Under Basel III, each investment in the form of direct and indirect equity exposure to financial institutions now directly impacts the ability of a bank to build its common equity Tier 1, additional Tier 1 and Tier 2 capital.
- These types of investments, as well as mortgage-servicing rights and deferred taxed assets, participate in the deduction of the bank's tier capital. Their residual values after deductions must also be risk weighted.

5. Regulatory jurisdiction

- The regulatory jurisdiction where a bank operates is a source of potential conflict in the RWAs calculation. For example, the standardized approach is a floor for capital requirements in the US; whereas in the EU it is an alternative (banks can apply for Standardized approach or Internal Ratings Based approach).
- Although Basel III represents a unified framework in terms of a set of regulations, there are significant changes when it is adopted into national law. For example, rules to risk weight residential mortgages in standardized approach are usually specific per local country regulation.
- Another source of divergence is the use of external ratings to assess collateral eligibilities and haircuts or to derive risk weight. The US Dodd Frank Act is introducing an alternative Simplified Supervisory Formula Approach (SSFA) to the Internal Ratings Based approach to risk weight securitization products.

6. Accounting framework

- Netting treatment under local or IFRS GAAP accounting rules. For example, IFRS does not allow netting for certain balances, which increases the RWAs density.
- Treatment of clearing for derivative positions (cleared via CCPs), credit support agreements (CSAs), and break clauses.

7. Credit risk mitigants (CRM) treatment

- Regulatory requirements leave significant room for optimization on the application of CRMs through mathematical algorithms.
- Application of business rule-driven allocation can reduce the net RWAs after taking into account foreign exchange (FX) and maturity mismatches, financial collateral haircuts and other forms of effective LGD computation models.

8. Modeling, netting, and calibration approach

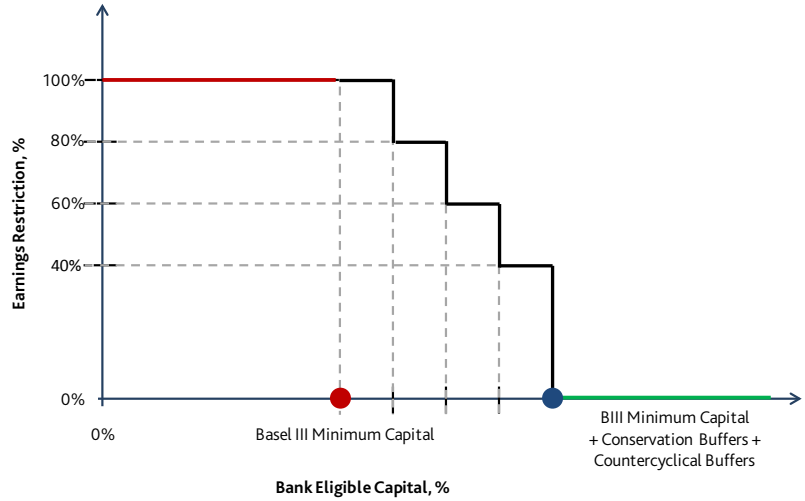
- Major sources of modeling uncertainty usually are the PDs, LGDs, and EADs. The risk weighting of a portfolio's exposure is a function of the minimum regulatory capital ratio requirement (υ), the EAD and the capital consumption (K) of that instrument[10]. The capital charge depends on the credit risk of the instrument, which is quantified by the PD of the counterparty and the LGD of that instrument.
- Standardized or advanced models have a significant impact on RWAs and capital. For example, under Basel III advanced IRB approach, financial institutions calculate their own PDs, LGDs, and EADs after regulatory validation. This internal model-based calculation can produce considerable RWA variance for the same instrument across institutions and geographies. It may represent an advantage compared to the standard approach by reducing the RWAs and improving the solvency ratio.
- Applying netting benefits under advanced models can be a game changer for RWAs calculation purposes.
- Model selection is another source of uncertainty. As a consequence, different levels of granularity when estimating these credit risk drivers can produce varying RWAs estimates: PDs, LGDs calculation across portfolio segments (private firms, sovereigns, corporate).

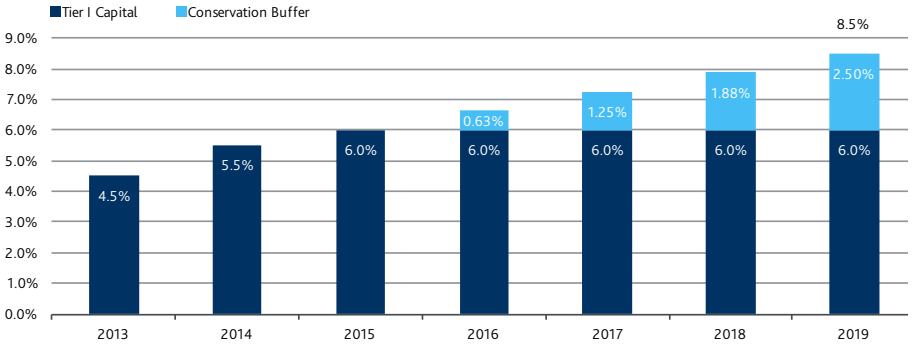
10 RWA = V x EAD x K

Optimizing the Tier Capital

Of prime importance under Basel III is the management and optimization of the capital structure[11], as well as the realization of a streamlined process to evaluate and optimize the Tier capital, as both affect revenue distribution and value added for shareholders. Figure V illustrates the effect of Basel III capital conservation standards on earnings distribution and the scheduled deployment calendar.

Figure V: Earnings Distribution Versus Basel III Capital Ratio Requirements and Indicative Deployment Timelines





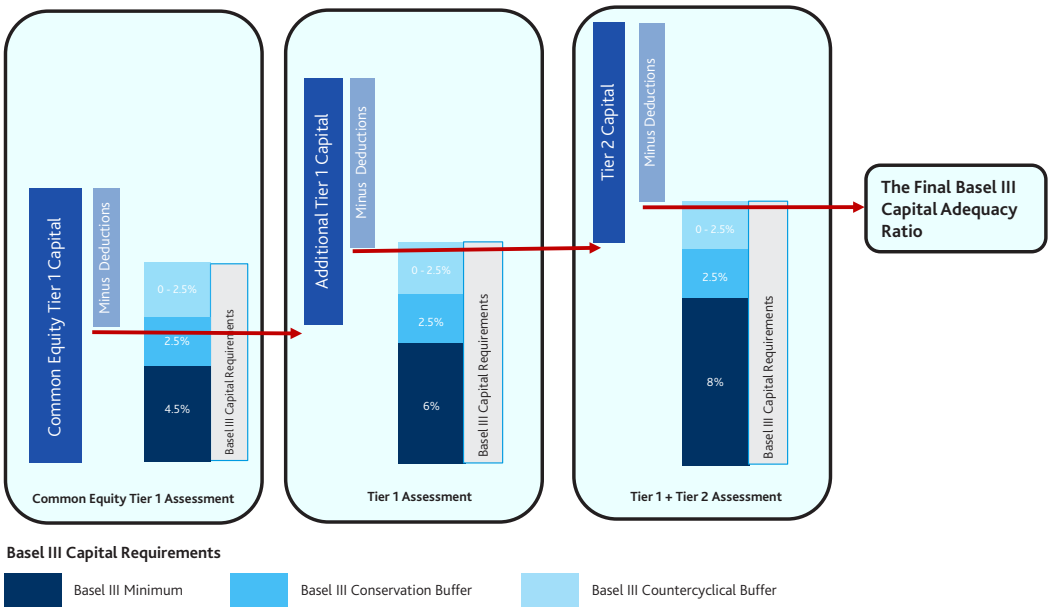
Given the Basel III constraints on earnings, the incentive for capital optimization by allocating precise capital eligibility criteria and calculating capital deductions accurately has never been higher. As a result, institutions have started analyzing their risk appetite and balance sheet composition to optimize their RWAs and maximize their scarce capital resources.

From an operational perspective, Basel III amendments to the calculation of Tier capital dramatically affect the performance of investing and lending activities, profitability, and efficiency metrics. Detailed Tier capital eligibility analysis (common Tier 1, additional Tier 1, or Tier 2) and the allocation of deductions (significant or non-significant investments) have become crucial to delivering acceptable returns commensurate with risk, and meeting the Basel III requirements.

Basel III dramatically increases the interconnectivity of the RWAs and tier capital calculations. For example, in order to finalize the RWA computation, a complex and sophisticated capital-eligibility process must be completed by including all capital deductions, and the remainder of significant risk-weighted investments. The calculation of eligible capital and deduction is now fully embedded as part of the RWA calculation. This demands a new enterprise-wide organization of tasks, processes and calculation infrastructure. Therefore, the optimization of Tier capital has direct effects on final and consolidated RWA numbers. Figure VI shows an example of the capital calculation process and how deductions affect RWAs.

11 Under Basel III, capital is divided into Common Equity Tier 1, additional Tier 1, and Tier 2.

Figure VI: Basel III Capital Calculation and Deductions are Complex



Integrating the Capital Ratio Calculation into Enterprise-wide Risk Management Systems

There are numerous challenges when calculating and optimizing the capital ratio. These affect data, models, processes, infrastructure, and reporting systems. In Moody's Analytics view, a holistic, enterprise-wide platform[12] must be in place to address them efficiently and coordinate the view of finance, risk management, and capital planning, as well as for regulatory reporting. Figure VII summarizes these challenges.

12 Moody's Analytics RiskAuthority™ provides an enterprise-wide, modular Basel I, II, and III platform.

Figure VII: Key Challenges When Optimizing and Calculating Tier Capital and RWA Under Basel III

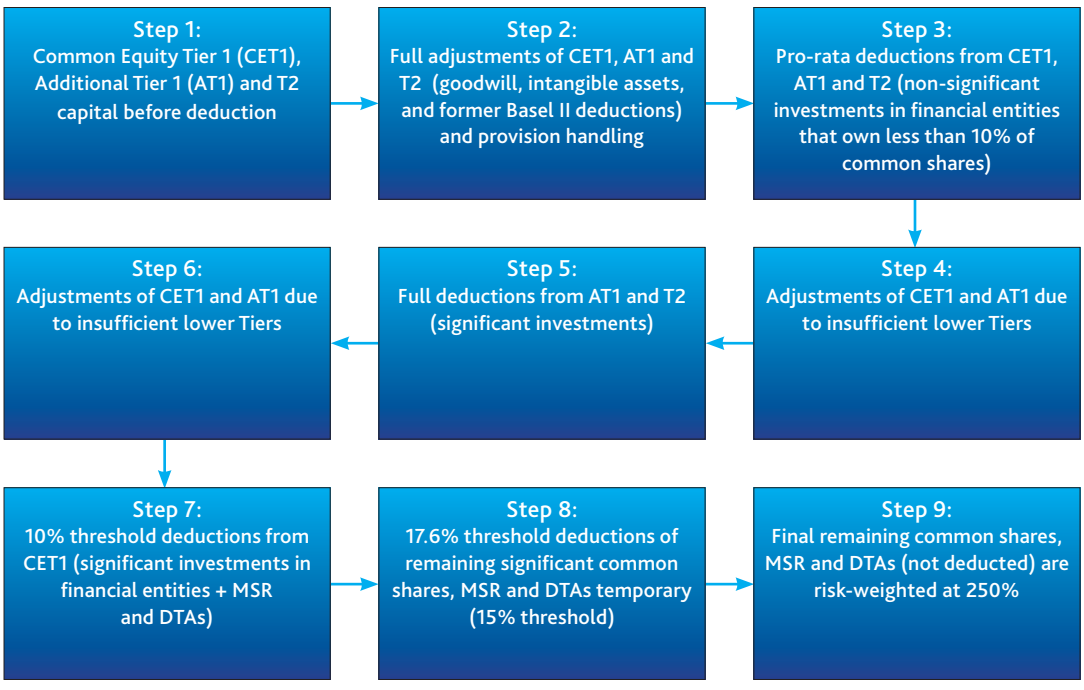
Functional Area	Challenge
Data	Integration of risk and finance data in a single datamart. Data granularity and completeness » Computing RWA at transaction level and not at aggregate level » to optimize credit risk mitigation techniques and ease the regulatory reporting burden. » Avoiding fall back prudential risk weighting rules due to lack of detailed information on exposure, counterparty or clearing characteristics. » Performing and comparing RWA calculation according to different regimes (for example Basel I versus Basel III) or local regulatory requirements (for example US versus EU rules) or calculation approaches (for example Standardized versus IRB). » Easily complying with future regulatory updates and new reporting requirements. Data quality » Automated quality and consistency checks. » Automated data patching rules adapted per portfolio. » Reconciliation of transaction level data with imported GL balance sheets. » Ability for end-user to easily key in and validate adjustments and re-run an RWA process incrementally. Data history » To easily compare various reporting dates and results, and perform variance analysis. » To justify previously reported figures in case of internal or regulatory audit. » To re-run past reporting dates data to back test changes in internal model or regulation. Data audit » To record and track any change performed on data by a given user. » Workflow process for data adjustments (maker/checker). » Ability to drill down from internal or regulatory reports to detailed transaction level information.

Functional Area	Challenge
Models and RWA computation	Internal models (for example PD, LGD, CCF) calibration, benchmarking and back testing. Collateral allocation optimization and effective LGD models. Provisions, BEEL and goodwill calculation. Leveraging netting agreement to reduce RWA for OTC derivatives and SFTs. Selecting the best approach (for example risk transfer or double default) to reduce RWA via guarantees or credit derivatives. Daily RWA computation for trading book: Counter Party Credit Risk (CCR) and Market Risk. The ability to switch between standardized models and internal models. The ability to easily perform incremental re-run and reporting processes to incorporate last minute data adjustments without using punitive risk weighting assumptions. Performing and comparing RWA calculations according to different Basel frameworks, local regulatory requirements or calculation approaches. To easily access RWA impact of future regulatory changes during Quantitative Impact Studies. To easily audit and justify all data inputs and regulatory rules applied to assess RWA for a given set of transactions (in case of internal or regulatory audit). To incorporate stressed parameters in PD, LGD and EAD models. Stress testing and forecasting RWAs, leverage and capital ratios and liquidity ratios. Assessing and optimizing the capital charge of the liquid assets eligible to the Liquidity Capital Ratio (LCR) numerator (liquidity buffer).
Capital Eligibility and Basel ratios assessments	Capital eligibility per local regulation and accounting GAAP. Phasing-out of some capital instruments. Phasing-in of some new Basel III capital deductions. Capital deduction versus RWA for significant and non-significant investments in capital of financial institutions. Minimizing capital deductions: » Due to expected losses versus provisions short fall. » Due to data gap or quality issues (for example ratings information on securitization). Assessing additional capital charge due to conservation, countercyclical and SIFIs buffers. Comparing Basel I with Basel III capital ratios. A single system should be in place to consistently calculate capital ratios, the leverage ratio, RWA and Basel III liquidity standards.
Infrastructure, Integration, and Systems	Enterprise-wide infrastructure: » Ability to aggregate data from various source systems. » Ability to handle large volume of transactions per reporting dates (over 100 MM records). » Performance of the end-to-end calculation and reporting process allowing daily processing (at least on the trading book or for short term liquidity risk ratios). » Ability to support 100s of concurrent users. » Embedded business intelligence tools allowing end-users to drill down and slice and dice the information very rapidly ("in memory" cubes). Ability to configure end-users workflow materializing the bank internal processes: » To perform data adjustments. » To validate results and the regulatory reports produced prior submission.

Functional Area	Challenge
Reporting	Capital charges should be allocated at transaction level for reporting and management purposes. » Distribute capital usage metrics to business units or individual desks across the organization. » To assess and monitor concentration of RWA. » To set an internal limit base on regulatory capital usage. An integrated calculation and regulatory reporting solution allows users to: » Justify all reported figures, using drill-down capabilities. » Perform last minute data adjustments and re-run the process to consistently update the various impacted reports. » Undertake variance analysis. » Easily manage future regulatory updates, reducing overall solution maintenance costs. Leveraging a single tool to produce: » Consolidated and solo reports. » Daily, monthly and quarter-end reports. » Regulatory reports according to the templates and format required by local jurisdictions. » Trade level reports consistent with aggregated versions. » Multiple type of regulatory report (for example regulatory capital, liquidity ratios, leverage ratio, large exposures, ALM Interest Rate Risk, stress testing, balance sheet actual and forecast). » Internal reports fully consistent with the regulator submitted versions. » All regulatory defined intra-report and inter-report consistency checks mandated by local regulators, prior to electronic submission of returns.

Figure VIII summarizes the optimal process that should be performed by an enterprise risk platform to allocate deductions in a recursive fashion under Basel III and calculate RWAs and the capital ratio.

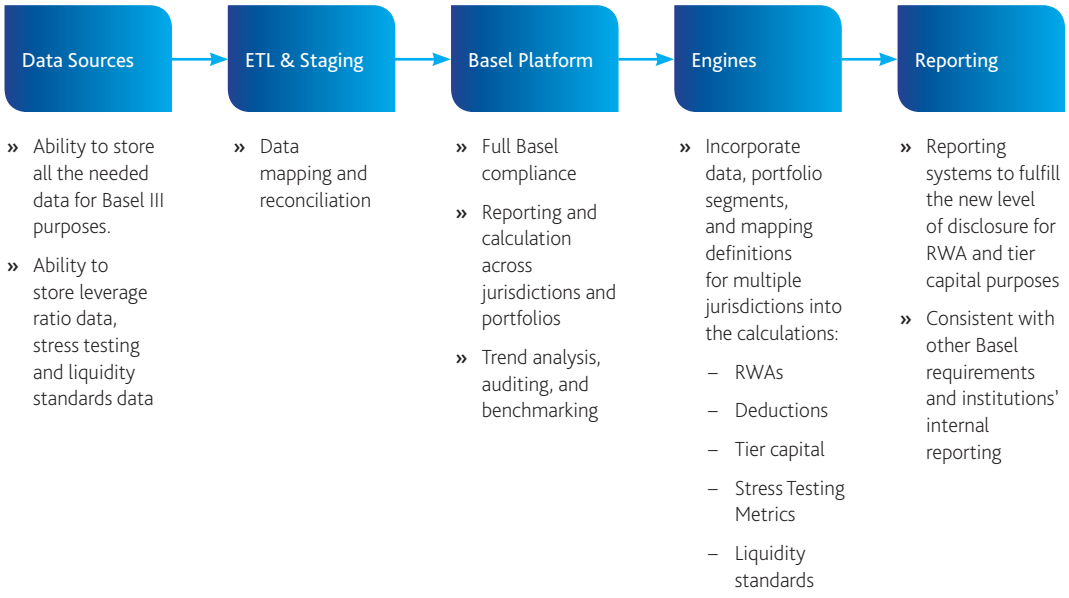
Figure VIII: Recursive Steps For Allocating Deductions and Calculating RWAs Under Basel III



Finally, all information critical to calculating, managing, reporting, and monitoring the capital ratio components should be easily and cost-effectively available for enterprise-wide management purposes. Therefore, an enterprise-wide platform should be able to maintain the calculation history for trend analysis, auditing, and benchmarking.

Figure IX outlines the workflow calculation that must be performed for capital ratio optimization purposes in that platform. Modular components would facilitate the scalability of the solution and deployment under different jurisdictions.

Figure IX: Capital Ratio Calculation Workflow Under Basel III



Conclusion

Basel III sets stricter solvency requirements in the form of capital ratios that financial institutions must continue to meet, and increases the interconnectivity of the calculations for risk-weighted assets (RWAs) and tier capital, which financial institutions use to determine the capital ratio.

The capital ratio is the main metric when analyzing the financial strength and soundness of financial institutions by both regulators and analysts, and plays a key role in the enterprise-wide risk management function. RWAs and tier capital levels are the core driver of the capital ratio. Inaccurate calculations when allocating deductions or a lack of granularity on the RWA calculation can bring additional capital costs for financial institutions that can significantly affect their investing and lending activities as well as their solvency perception under Basel III.

Optimizing the soundness of the capital ratio calculation has become essential to:

1 Ensuring proper risk-adjusted returns for shareholders and investors.

2 Maximizing capital-scarce resources.

3 Performing stress testing.

4 Planning capital while at the same time meeting regulatory requirements.

This paper has analyzed these challenges and how institutions can overcome them. Finally, it has also discussed the advantages in terms of efficiency and returns enhancement by implementing Basel III compliance and enterprise-wide risk-management platforms.

About Moody's Analytics Solutions for Basel III

Moody's Analytics helps capital markets and risk management professionals worldwide respond to an evolving marketplace with confidence. The company offers unique tools and best practices for measuring and managing risk through expertise and experience in credit analysis, economic research and financial risk management. By providing leading-edge software, advisory services, and research, Moody's Analytics integrates and customizes its offerings to address specific business challenges.

RiskAuthority™ calculates, consolidates and reports your organizations regulatory credit risk, market risk, operational risk, concentration risk and liquidity risk. It offers a truly integrated and comprehensive solution – from centralized data management, fast and accurate capital, RWAs, as well as liquidity and leverage ratio calculations. With RiskAuthority you can be confident you have the strongest solution in place to manage your organizations local and global Basel I, II and III requirements.

RiskAuthorty leverages RiskFoundation™, Moody's Analytics Enterprise Risk and Finance data platform to provide comprehensive enterprise risk management capabilities for banks. These include Scenario Analyzer™, which provides centralized stress testing and scenario analysis capabilities for regulatory compliance, portfolio management, asset and liability management (ALM) and strategic planning. The Regulatory Reporting Module leverages the data platform to provide comprehensive regulatory and management reporting.

RiskAuthority also integrates with RiskConfidence™ which offers integrated and essential enterprise balance sheet management including interest rate risk management (IRR), Funds Transfer Pricing (FTP), and Liquidity Risk Management. The solution helps financial risk managers and Board's of Director's understand risk exposures, profitability, and interdependencies to improve operational efficiency and enhance performance.

Learn more at www.moodysanalytics.com/basel3.

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