

WHITEPAPER

## ***BASEL IV:***

Can it be the Messiah for  
the **Banking Industry?**

The global banking system plays an important role in our lives and our economic well-being. The supervision of the banking industry, thus, is a matter of great interest to us. To this regard, we re-visit how the Basel regimes have transitioned to its current state.

In this whitepaper, we concentrate our discussion on the latest Basel wave (yet to take full effect, but popularly known as Basel IV), what it could mean for the Global Systemically Important Banks (G-SIBs), and how they can embrace it and ride the tide.

# Basel Accord – An Introduction and the journey

## Introduction

To understand the significance of Basel Accords to Banking Supervision, we need to revisit our recent memoirs during the period 2007-2009, when the world was besieged in financial crisis. The Basel Accords sprang into action through its then latest 'avatar' – Basel II – in its endeavor to 'exorcise' the demon.

### Pillar I: Capital Requirements

Minimum capital requirements for market, credit & operational Risk.

### Pillar II: Supervisory Review

- Supervision & approval process for banks using internal model approach vs standardized approach
- Categorization of instruments in trading books

### Pillar III: Market Discipline

- Adhering to the standards set with respect to various risk measures, financial ratios, minimum capital requirements.
- Quantitative disclosures
- Qualitative disclosures

## Flashback – Previous Basel regimes

Basel II was brought about in 2007, which put greater emphasis on the minimum capital requirements for market and credit risk, and leverage ratios.

While most banks were using the Internal Models Approach (IMA) to ascertain the Risk Weighted Assets (RWAs) and arrive at their capital requirements, there lacked control on the usage of internal models, apart from no clarity on the boundary between trading & banking books and the absence of an '**Output floor**'.

Coupled with that, the risk measures used were the traditional ones – the VaR for market risk, which cannot account for 'tail risk' for a bank's portfolio and the Internal Models Approach (internal scorecard-based analysis of default probabilities – Probability of Default (PD), Loss Given Default (LGD), Exposure at Default (EAD etc.) for credit risk.

## The 'Litmus' Test

Basel II was put to test during the financial crisis of 2008. The very pillars on which Basel was based was challenged by the financial crisis, and were found inadequate.

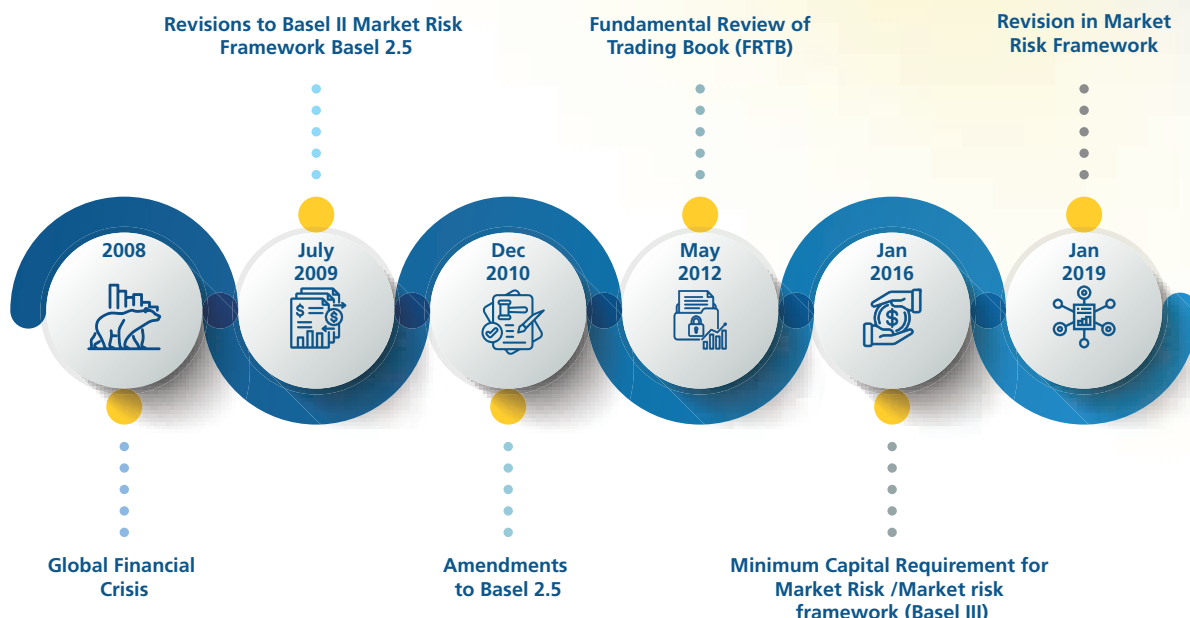
The failure to prudently measure risks associated with traded instruments caused major losses for some banks during this crisis. In addition, the credit risk assessment with securitized assets was not transparent and consistent with banks, which is one of the reasons that brought about the infamous 'sub-prime' crisis.

## The 'too big to fail' stigma attached to some of the banks proved disastrous for the banking system!

The significant trading book losses that banks incurred during the 2008 global financial crisis highlighted the need for the Basel Committee to improve the global market risk framework. The remedy to the inadequacy of the Basel II accord was the need for a stricter Capital Requirements culture, more stringent Supervisory Review process and to improve on the framework's Risk Coverage in certain areas that was used and found wanting.

Shocked by the crisis, as a 'stop-gap' response in July 2009, the Committee introduced the Basel 2.5 framework to help improve the risk coverage in certain areas and increase the overall level of capital requirements, with a particular focus on trading instruments exposed to credit risk/default risk (including securitizations).

Given below is a timeline of the Basel regulations published post the crisis and the amendments made to them from time-to-time.

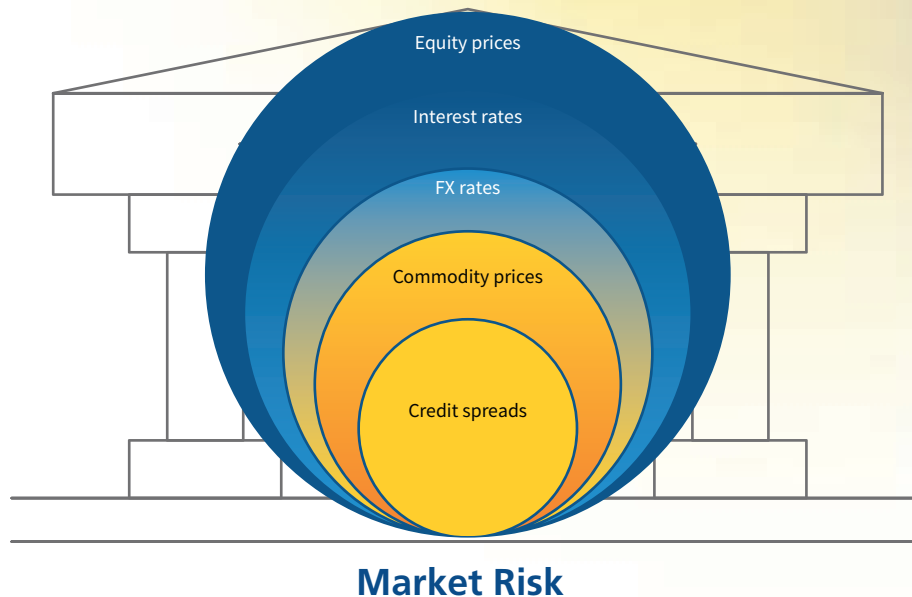


We present a prelude to the 'deep-dive' – some commonly used verbiages in Basel Framework, which will often be referenced during the course of this discussion.



# The Market Risk framework

## What are the main drivers of market risk?



## Evolution in market risk measures (Basel II – Basel IV)

### Basel II

#### Value at Risk (VaR):

It is a measure of the worst (maximum) possible loss that a portfolio of instruments can suffer in a one-day time period due to (unfavorable) market movements at a given 'confidence level'.

#### Pitfalls of using VaR:

- 'Tail risk' & liquidity risks of trading portfolios were not sufficiently measured. It ignored losses with less than a 1% probability of occurring
- Did not adequately incorporate credit risk

### Basel 2.5

#### Stressed VaR:

It is a measure of the worst (maximum) possible loss that a portfolio of instruments can suffer during a stressed period (account for 'tail risk') due to (unfavorable) market movements at a given 'confidence level'.

#### Pitfalls of Stressed VaR:

- Ignored losses with less than a 1% probability of occurring
- Did not adequately incorporate credit risk

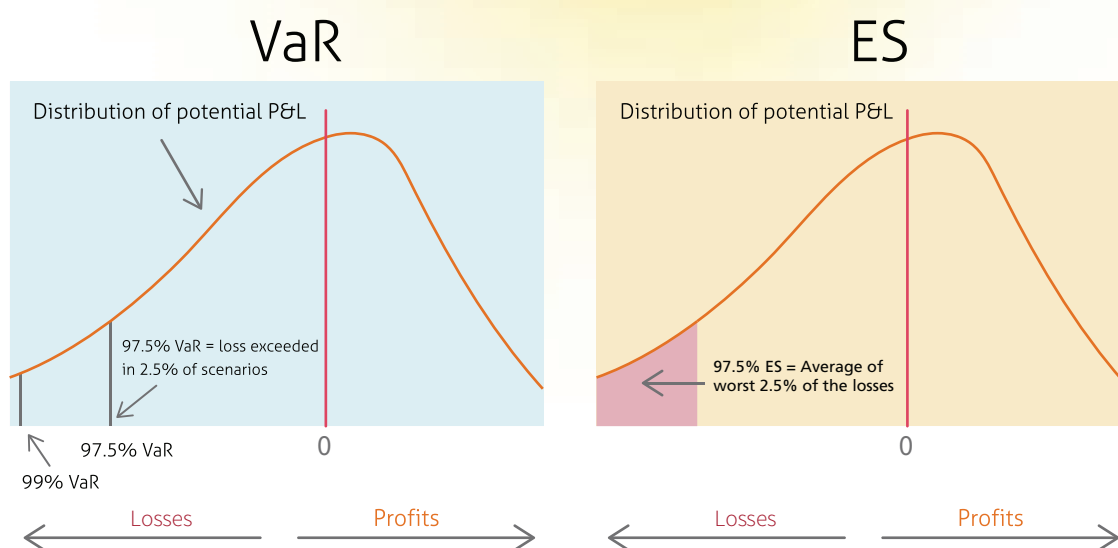
# Basel III – Revised Market Risk framework

## Expected Shortfall (ES)

Expected shortfall captures ‘tail risks’ that are not accounted for in VaR or ‘stressed’ VaR. VaR calculates the maximum possible loss that a portfolio can suffer over a given confidence level (say 97.5%), i.e., through VaR, we can say that there is 2.5% probability that expected loss will exceed a value on a certain day. Expected loss tries to deduce a loss figure from a different angle by calculating the average loss above a certain confidence level (say 97.5%), i.e., the average of the worst 2.5% of the losses is measured by ES.

It is designed to capture credit risks better and to incorporate the risk of market illiquidity.

## Comparison between VaR & ES



In other words, whereas VaR calculates losses at a single cut-off point in the distribution (say 97.5%), ES looks at the average of any losses that exceed the cut-off point in the distribution. Therefore, if the same cut-off point is used (in this case 97.5%) for VaR and ES, the value of ES will be higher than that of VaR. In the revised market risk framework, the 97.5th percentile ES is roughly equivalent to 99th percentile VaR used in Basel 2.5.

To recognize the risk of market illiquidity, ES prescribes different liquidity horizons, that is, the time required by banks to exit a position or hedging against an exposure without materially affecting market prices under stressed market conditions. Essentially, it means higher capital requirements for banks with more illiquid positions.

## Basel IV

Expected Shortfall (ES) as a part of Fundamental Review of Trading Book (FRTB) project

### Transition Waves – Basel III to Basel IV

The market risk framework has been the center of attraction under the previous Basel regimes and largely been baselined. Similarly, credit/default risk has also been baselined to quite an extent ('Standardized Approach' agreed as a measurement of credit/default risk). Basel IV draws further attention to operational risk, credit value adjustment, output floor and leverage ratio (including their application to G-SIBs).

We first look into the main components under Basel IV and their potential impact on Bank Holding Companies (BHCs), including EU 'G-SIBs'.

# Main components of Basel IV

- Market Risk
- Credit Risk
- Operational Risk
- Credit Value Adjustment
- Leverage Ratios
- Output floor

To envision the impact of these components on Bank Holding Companies (BHCs) including EU-G-SIBs, refer to the below matrix.

Potential impact	Other impacts	1. Pricing of long term credit exposures 2. Systems and data 3. Read-across to counterparty credit risk	Systems and data	Systems and data	1. Systems and data – in particular to meet the 'ten year loss data capture' requirement. 2. Reduced risk sensitivity and quality of risk management, compared with current more advanced approaches.	Systems and data – ability to calculate floor using Standardised approaches	Leverage ratio becomes binding constraint for fewer banks
	CET 1 Capital Ratio	4.5 percent reduction (4.7 percent for EU G-SIBs) Other impacts:	2.3 percent reduction (3.4 percent for EU G-SIBs)	3.8 percent reduction (5.4 percent for EU G-SIBs)	6.4 percent reduction (7.5 percent for EU G-SIBs)	6.5 percent reduction (5.4 percent for EU G-SIBs)	1.0 percent increase (4.3 percent for EU G-SIBs)
	Capital Requirements	Higher Capital Requirements	Higher Capital Requirements	Higher Capital Requirements	Higher Capital Requirements	Higher Capital Requirements	Higher Capital Requirements
		Credit Risk	Market Risk	CVA	Operational Risk	Output Floor	Leverage Ratio

Figure 1

## Will survival become a threat for G-SIBs under the new Basel regime?

### Ongoing challenges for banks

Before banks transition to the new standards, they must address certain key challenges at hand.

### Systemic/industry-wide challenges

#### Banking Regulations (Basel III +)

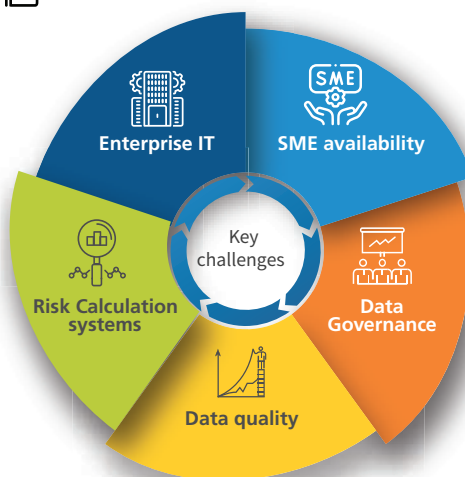


Figure 2

## SME availability

There is a dearth of SMEs who understand the mandates and metrics to be reported under regulations. Understanding the regulations itself and their overlap, as in case of Basel, is a challenge that banks are having to contend with. Additionally, the impacts of Basel Accords across Governance - Process - Data - Technology – People is what matters, and is found wanting.

## Data governance and data quality

There is minimal data governance and documented controls, and a lack of common definitions of data, which creates doubts on the data policy. Furthermore, the absence or minimal data governance results in poor data quality, which is an important lever for accurate reporting.

## Risk calculation systems

Near-mundane enterprise risk management systems, and inflexible and expensive legacy frameworks of enterprise risk management cause barriers to Risk Calculation Systems for accurate risk calculations.

## Enterprise IT

Prevalence of a technology that is driven by scheduled batch-run is incapable to capture 'near-real time' info to feed the risk management system, which inhibits timely reporting of risk figures.

# Upcoming challenges for banks

**The impact of Basel IV will be significant throughout the banking industry. We foresee following challenges:**





- Banks will have to deal with new adjustments (mandates) under the new regime which includes risk-data aggregation and IT (BCBS 239), the revision for interest-rate risk in the banking book (IRRBB), and the introduction of IFRS 9 accounting standards, that will indirectly affect capital requirements under Pillar 1 and Pillar 2.
- Moreover, additional capital requirements imposed by supervisors will increase capital thresholds, loss-absorbency requirements (total loss-absorbing capacity, or TLAC), the minimum requirement for own funds and eligible liabilities (or MREL). This would result in higher funding costs for banks arising out of new issuance of eligible loss-absorbing liabilities, which could vary significantly from country to country in the Euro region if EU is unable to define a roadmap and strategy to implement the new standards.
- Coupled with the revised risk-measurement approaches, the new rules will no doubt entail expenses that affect banks' ability to build up organic capital.

## Impact on banks in various regions

The ramifications of Basel IV include an expected capital shortfall among European and Asian banks, though estimates of the size of the impact differ widely. According to [analysis](#) by various consulting majors, if banks do nothing to mitigate the cumulative impact, EU-GSIBs will need about €120 billion in additional capital.

In contrast, [US banks](#) see relatively minimal changes to capital requirements – the Collins Amendment of the Dodd-Frank Wall Street Reforms and Consumer Protection Act requires US banks to report RWAs as the higher of amount calculated by standardized approach or internal models approach, effectively setting a floor of 100%. This is in contrast to EU banks, which state a minimum of 72.5% of the amount of RWAs as calculated by Standardized Approach. In addition, current modelling of operational risks by US banks closely resembles the standardized Basel approach, which is not the case for many European and Asian banks. However, the main impact for US banks will be felt in the changes to market risk capital standards. This needs to be carefully analyzed and streamlined, especially for complicated trading books vis-à-vis banking books for 'Manhattan' banks.

## Expected impact on financial ratios of BHCs

Financials	Increase /Decrease	Reason
ROE		<ul style="list-style-type: none"> <li>Higher funding costs needed for investments outlay to run large-scale implementation programs</li> </ul>
Capital Requirements		<ul style="list-style-type: none"> <li>Due to factoring in of other components of risk, partially lowered due to increase in leverage ratios</li> </ul>
Investments		<ul style="list-style-type: none"> <li>To run large-scale implementation programs</li> </ul>
CET1 ratio		<ul style="list-style-type: none"> <li>Largest effect comes from internal-ratings-based (IRB) output floors</li> <li>ROE drop</li> </ul>
Leverage ratio		<ul style="list-style-type: none"> <li>Due to additional capital requirements imposed by supervisors</li> <li>Due to higher funding costs from new issuance of eligible loss-absorbing liabilities to run large-scale implementation programs</li> </ul>
RWAs		<ul style="list-style-type: none"> <li>More stringent standardised approach with banks having to 'top up' any shortfall in risk weightings and capital allocation resulting from IRB method of capital requirements not meeting atleast 72.5% of the standardized approach (the 'output floor')</li> </ul>

## Key components expected to be mandatorily reported under Basel IV

1. Capital ratio
2. Tier 1 capital ratio
3. CET1 ratio
4. CCB
5. LCR, NSFR
6. RWAs
7. CCyCB
8. Leverage ratio surcharge equal to 50% of CCB for G-SIBs
9. Output floor (an interim figure till full implementation by 2028) of no less than 72.5% of the level generated by the standardized approaches
10. Capital allocation per risk component as in Figure 1
  - a. The excess capital, if any, per risk component
  - b. How the excess capital have been utilized towards other risk components



However, it's not all lost for banks, especially the bigger ones. EU G-SIBs have some breathing space due to COVID-19, which caused the postponement of Basel III reforms (deferred by a year, new implementation date is 01/01/2023), and the deferment of revised market risk framework (deferred by a year, new implementation date is 01/01/2023).

## Possible [response plan](#) for banks towards the new regulation

- Banks will have to run large-scale implementation programs and ensure they have adequate resources to cover substantial one-time costs and provisioning needs.
- Banks will have to work out an appropriate capital-management strategy by adopting a package of changes to mitigate the impact of Basel IV, based on their own position.
- Banks to hold a more diversified portfolio to be able to respond with many smaller actions instead of a one-off 'big bang' implementation.
- Proposed strategic shifts in business models will have to be tested for sustainability in the new regulatory environment.
- Most banks can make beneficial business changes to increase capital efficiency and profitability.
- Also of primary importance will be more rigorous technical measures to measure risk-weighted assets more accurately and improve regulatory capital—for example, by reducing capital deductions.

## What scope do IT Services firms have?

On-time and accurate reporting to regulators has always been the central theme with any regulation. Banks need to report capital, leverage, and liquidity ratios and the like to regulators on-time and accurately. Just understanding the regulations and its implications or understanding the overlaps in transition from one regime to another is not sufficient.

Beyond the headline capital numbers and strategic concerns, banks' technology organizations will have their hands full in managing another major regulatory initiative.

IT services firms have a big role to play in designing a regulatory reporting framework that will always adhere to compliance.

This includes but not limited to:

- Interpreting the regulations and advice on the implications of the regulation
- IT systems benchmarking and assessment
- Roadmap and strategy formulation
- Data enrichment, integration, and migration
- Report design and development
- Control framework to ensure accuracy
- Interfacing with Authorized Regulatory Mechanisms (ARMs) for submission
- Staying abreast with regulators to 'refit' or 'retrofit,' should the need arise

IT services firms should look to 'cash-in' on the myriad of opportunities that the ongoing regulation brings. In fact, most of the current challenges that the banking industry is facing (refer the paragraph under Figure 2) manifest themselves by way of opportunities for IT consulting & services firms.

'Right-selecting' the combination of suites, tools and processes that best create a regulatory reporting ecosystem befitting the client it serves is an unharbored territory and could be the 'mantra' going forward for IT consulting and services firms.



### Data

- Data aggregation
- Data quality
- Systems upgrade to align to business model changes



### Domain Consultancy

- Decipher the new reforms, understanding the different risk measures
- Timely & accurate RWA reporting
- Understanding the new accounting standards (IFRS – 9)
- Advising on the changes & impact of migrating to new accounting standards (IFRS, US GAP etc.)



### Analytics & Automation

- Automation of the process such that all data flows to RWA calculation engine
- Automated Regression suite to capture changing model parameters for banks using Internal Models approach

## What the future holds in the banking regulation space?

With the full adoption of Capital Requirements Regulations 3 (CRR 3) & Capital Requirements Directives 6 (CRD 6) by the EU, it will set the ball rolling for the full adoption of Basel IV, barring the 'aggregate output floor,' envisaged to be fully operational in a phased manner by 2028.

### Conclusion

In this whitepaper, we have tried to encapsulate all the dimensions of Basel IV, adding a brief comparison with its earlier regime, and how the BHCs can plan to welcome the new wave.

Indeed, it's an arduous task, but with the bitter past as an experience, we hope Basel IV will be embraced by most G-SIBs. While we like to believe the new Basel regime as the 'messiah' for the banking industry, will it be so with 'a pinch of salt'? Only time will tell...

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