FISER CONSULTING
FINANCIAL SERVICES

The evolution of Basel IV: implications and implementation challenges

Executive summary

The Basel committee is expected to provide new guidance soon in terms of what has now widely become known as Basel IV. This involves revisions to the standardised and internal ratings based approach to the calculation of risk weighted assets for credit risk; a shift to the standardised approach for operational risk; and the application of a capital floor which reduces the potential difference in risk weightings between the internal ratings based approach and the standardised approach.

Coupled with the new Basel IV requirements, the enhanced CRD V (Capital Requirements Directive) as well as CRR II (Capital Requirements Regulation) introduce significant revisions to capital, funding, and liquidity requirements covering market risk, counterparty credit risk, interest rate risk, and liquidity and funding risk. The changes impact both banking and trading books. CRD V will effectively legislate Basel IV in to EU legislation.

The EBA will develop Regulatory Technical Standards in due course which will provide further details on implementation. The proposals and the legislative process that they initiate will frame developments in European banking regulation for the next two to three years. They implement the key outstanding elements of the Basel III agenda i.e. the Net Stable Funding Ratio (NSFR) and Leverage Ratio, as well as a key component of the Financial Stability Board's (FSB) work to end "too big to fail" with the new Total Loss Absorbing Capacity (TLAC) requirement for Global Systemically Important Banks (G-SIBs).

In this paper, we will focus solely on Basel IV i.e. expand on the evolution to Basel IV from its original foundations, the challenges under Basel III and the current Standardised approach, capital requirements for each of the revisions, timelines, implementation challenges and overall implications. We will discuss in detail the various revisions of the Basel requirements that are impacted under Basel IV, namely credit risk, operational risk, interest rate risk in banking book (IRRBB), market risk, securitisation and credit value adjustments (CVA). These are covered in individual BCBS papers (Basel Committee on Banking Supervision) which are either finalised or currently in the process of being reviewed.

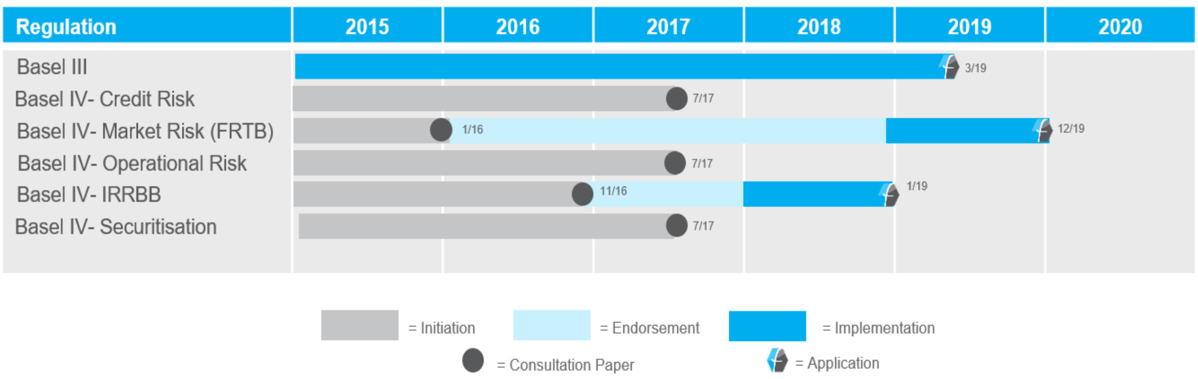

Figure 1. Basel IV timeline

As shown above the implementation dates are staggered from 2018 onwards. It will be of key importance that banks take the following steps in order to be proactive in responding to the new requirements:

i. Monitor and engage with the process as the proposal gets finalised
ii. Understand the interaction between different elements (e.g. leverage, NSFR, TLAC) and review the product mix to balance regulatory requirements, costs and profitability
iii. Enhance infrastructure, data granularity, processes and controls to implement the new requirements

Separately, we will detail the services that FiSer Consulting provide and how we can help you best respond in a proactive manner to the implementation of Basel IV.

Contents

The evolution to Basel IV

The Basel Capital Accord, the current international framework on capital adequacy, was adopted in 1988 by a group of central banks and other national supervisory authorities, working through the BCBS. The accord's fundamental objectives are to promote the soundness and stability of the international banking system, to level the playing fields with regards to cross border banking and to provide a basis for competition amongst banks i.e. by being able to compare the level of capital held by banks.

Over the years, shortcomings in each of the various Basel regulations have meant that the BCBS have been constantly refining the accord to be current with the ever changing and ever more complex world of banking. Basel III was drafted based on an urgent response to the financial crisis which had a devastating global impact in 2008. It was quite clear that the underlining principles and objective of Basel II had not been achieved and even more rigorous requirements were needed to prevent another crisis in the near future. Since then the BCBS has been constantly engaging on how to ensure that the regulations have a balance between complexity and simplicity.

What has been considered is that the reliance on internal models for determining capital levels combined with a lack of transparency has several drawbacks. One such drawback is that market discipline is hampered in that market participants are not in a position to gauge the level of risk that a bank is exposed to. An additional drawback is the circulation of numerous internal models, it does not provide a consistent basis for senior management to adequately assess and steer the level of risk at their particular bank. On the other hand, where a simplified approach is used the risk sensitivity of a high-risk exposure may not be shown in the correct light.

Hence the move now for an enhancement of Basel III, which has now effectively been referred to in the industry as Basel IV.

IDEAL WORLD: Risk sensitivities of Basel II and III combined with the simplicity of Basel I.

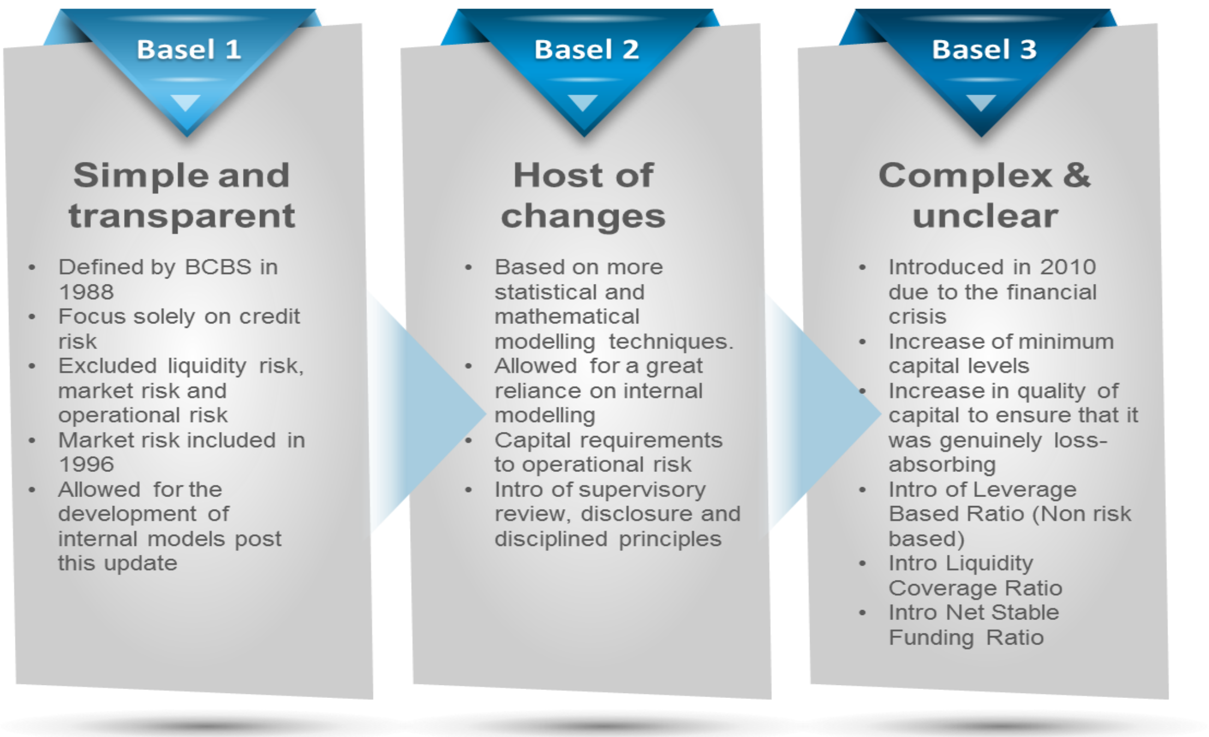

Figure 2. Basel framework evolution

Challenges addressed by Basel IV

The BCBS is looking to address two key questions:

- Two banks with a similar risk appetite. *How is it that there are differences in RWA using the Advanced IRB Approach?*
- Similar banks where the risk profile is identical for an exposure but *Why do the RWA levels differs one from the other?*

The main proponent for this is credit risk as it contributes to the majority RWA dispersion between banks.

The main items that affect credit risk related to the above key questions:

- Capital ratios vary significantly i.e. different RWA levels calculated for same level of risk
- PD values are significantly different for same risky counterparty
- Differences in PD and LGD outcomes for similar levels of risk

Most significant reason for differences:

- The use of different credit risk approaches by banks
- Different definitions of defaults by banks
- Different margins of conservatism added by banks to risk parameters
- Differences in adjusting for cyclical effects
- Differences in translating of external ratings to internal ratings
- Issues in estimating risk parameters for low-default portfolios. An especially salient issue when estimating LGD. This is due to the fact that LGD is conditional on occurrence of default.

Regardless of the size and complexity of the organisation's business model, the new Basel IV directive will change the RWA calculations and respective capital ratios.

In light with fully closing the gaps which were exposed post the financial crisis in 2008, the BCBS is in the process of finalising various papers which ultimately guide the required changes for each respective risk element.

This is shown in the diagram below and forms the basis for the remainder of the paper.

Capital floors	Credit risk	Counterparty credit risk	CVA risk	Market risk	Operational risk	Interest rate risk	Securitisation	Other topics
BCBS 306	BCBS 347 BCBS 362	BCBS 279	BCBS 325	BCBS 352	BCBS 355	BCBS 368	BCBS 374	Large Exposures: BCBS 283 Step-in risk: BCBS 349 Disclosure: BCBS 400

Figure 3. Risk elements and BCBS papers

Impact components of Basel IV

Below follows a high-level overview of the impacts on the main risk categories where significant changes have been suggested.

1. Change to RWA approach regarding Credit Risk

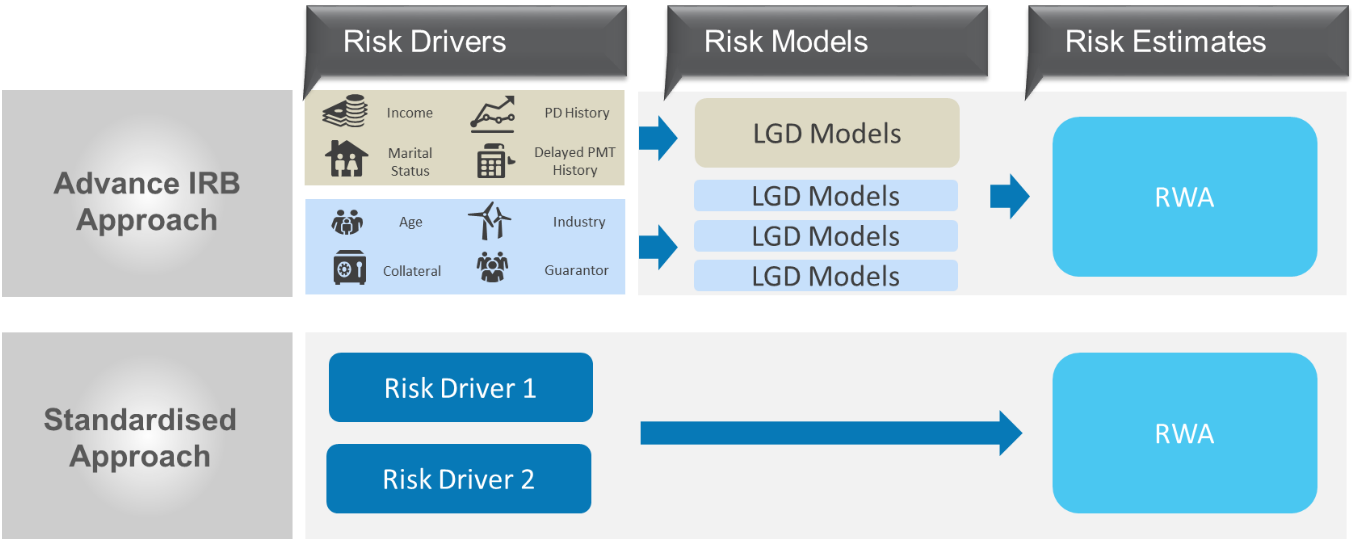

Figure 4. High level comparison between approaches

- Increase risk sensitivity by a combination of external ratings and risk drivers (which have been used previously).
- Avoid reliance on internal modelling.
- Strengthen the link between standardised and internal model based approaches to allow for mandatory and meaningful capital floors.
- Reduce national discretions to increase comparability of capital requirements.
- Re-introduction of the use of external ratings for exposures to banks, corporates and Specialised Lending.
- Modification of the proposed risk weighting of real estate loans, with LTV ratio as main risk driver.
- The possibility of requiring banks to disclose more information. The riskiness of a bank would then be more transparent to external parties. Banks will be expected to provide more detailed information regarding choices of credit risk approaches, asset class mix, risk grade distributions and additional items in the near future.

Shown below are the proposed changes from current Standardised Approach to the revised Standardised Approach.

Exposure class	SA Approach current	SA approach BCBS 347
Institutions	External ratings **RW:** 20%-150%	**Rating:** a) External b) Unrated exposures (both require due diligence to be completed) **RW:** a) 20%-150%. If due diligence provides a higher risk then need to adjust to at least one bucket higher **RW:** b) 50%-150%. Three grades A, B, C depending on regulatory parameters, due diligence is now a requirement which involves a credit risk assessment of an exposure
Corporates	External ratings: RW of 20%-150% If unrated then apply 100%	**Rating:** Key driver is whether a) jurisdiction allows external ratings or b) does not allow ratings **RW:** a) 20%- 150%, 100% if unrated. As per institutions, the due diligence exercise may raise the RW. Apply 85% RW if it's an SME **RW:** b) 100%; 75% if the criteria for investment grade is met, 85% if SME
Specialised Lending	No rules	Rating: a) External b) If external ratings are not available RW: a) As corporates b) 120% if unrated or permitted object and commodities finance; 100% for operational project finance; 150% for pre-operational project finance
Retail Note: Where real estate is used as collateral refer to figure	**RW:** 75%	**RW:** 75% if criteria met (i.e. product, granularity, low level of exposure) **RW:** 100% if individuals do not meet criteria, exception is where there is real estate as collateral
Multi-Lateral Development Bank	External ratings **RW:** 0% or weighted as per conditions for Institutions	External ratings **RW:** 0% based on certain criteria (i.e. quality, maturity, liquidity); 20-150% if rating based, 50% if unrated

Table 1.Comparison between current and proposed SA

2. Exposures secured by retail or commercial real estate

Under the current approach, residential real estate is assigned a risk weighting of 35%. This falls away with the new Standardised Approach. The BCBS has decided to place a heavy focus on collateral received. This is taken in to account in the LTV (Loan to Value) ratio.

In the past, experience has shown that the lower the outstanding loan amount in relation to the value of the collateral attached, the lower the loss incurred in the event of default. This approach can have a dramatic effect on the housing market, as banks would more than likely be unwilling to provide a loan for the full value of the house.

The impact on RWA according to the LTV ratio as well as the nature of the underlying collateral is reflected below in figure 5.

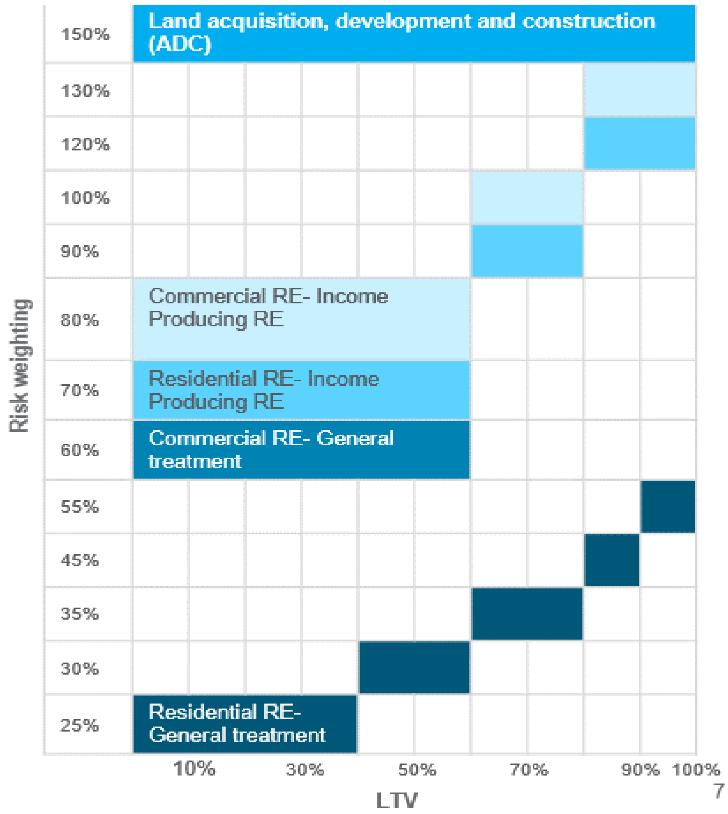

Figure 5. RWA Impact (per LTV% and mortgage type)

3. Securitisation

New requirements have been proposed to address weaknesses such as mechanistic reliance on external ratings, lack of risk sensitivity, cliff effects and insufficient capital for certain exposures.

- Reduced complexity. The revised hierarchy relies on the information that is available to the bank and on the type of analysis that it can perform on a specific transaction.
- Strengthening of risk sensitivity. The capital requirements have been significantly increased. This is to factor in the risk of securitisation exposures.
- Introduction of caps to risk weights of senior tranches and originators.
- Introduction of minimum risk weight of 15% for securitisations and 100% for re-securitisations.
- IRRBB (Interest Rate Risk in Banking Book)Greater guidance has been provided with regards to stress testing, disclosure, model validation and the regular review of the IRRBB by the supervisor.

4. Market Risk

Otherwise known as the Fundamental Review of Trading Book.

- Introduces a revised boundary between the trading book and banking book. Incorporates the risk of market illiquidity.
- Introduces a revised risk measurement approach and calibration.
- A revised standardised approach that is sufficiently risk-sensitive to act as a credible revert back to internal models, and is still appropriate for banks that do not require sophisticated measurement of market risk.
- A revised IRB approach which encompasses a more rigorous model approval process, and more consistent identification and capitalisation of material risk factors.
  For more details on the impact on Market Risk please see our separate Positioning Paper on FRTB.

5. Operational Risk

The new SMA aims to simplify the calculation of operational risk capital by replacing the three existing standardised approaches as well as the Advanced Measurement Approach (AMA).

- This approach will combine the Business Indicator (BI) with specific operational loss data.
- Loss component will be introduced
- Historical loss experience will be regarded as a relevant risk indicator of future operational risk loss exposure.

6. CVA Risk Standard Approach

A revised approach which aims to capture the exposure at default of the counterparty with three factors: Alpha, replacement cost, potential future exposure. The approach also aims to be consistent with the FRTB revisions.

- Replacement for existing current exposure approaches (MTM method, standardised method).
- EAD is to be calculated separately for each netting set.
- EAD of a margined netting set cannot be higher than the netting set's EAD without considering the margin agreements

Implementation challenges

Banks should assess the strategic impact of the proposals along four key areas: capital management, portfolio composition, product structure, and operational adjustments. This should then be combined into a holistic strategic response.

Our key callout is to consider Basel IV as a holistic exercise and for it not to be tackled on an individual component level as this is not conducive to a strategic approach. For this reason, we have also consolidated all the revisions of the new requirements into one positioning paper.

Capital management

The first step is to assess the future impact of Basel IV on the bank's RWA and capital ratios. (this is expanded on in our service offering further on in the paper). Plans for managing the bank's capital will need to be revised and potential gaps closed by measures to raise capital or deleverage the balance sheet. This is especially for banks that have limited access to equity capital markets or that have credit portfolios with long durations. Investors will expect banks to have a capital plan ready once the final BCBS proposals are presented.

Portfolio composition

Capital planning needs to go hand in hand with a strategic review by each line of business. To illustrate, as some components of RWA become less risk-sensitive under Basel IV, banks could shift capital toward higher risk assets that offer higher margins. Banks should also consider a transformation towards business models that are less dependent on their own balance sheet for generating revenues. This would allow more income to be generated without facing high capital requirements. Similarly, trading institutions should review their market risk portfolios and exit instruments traded with their own capital if they lack the scale or knowledge to participate competitively.

Product structure

Banks currently incorporate a wide set of risk drivers in their internal models to determine credit risk RWA. The new regulation would likely make banks adapt their product and pricing structures to reflect the new regulatory drivers for calculating RWA risk. E.g. RWA for residential mortgages will be assessed by the value of the underlying collateral rather than by the creditworthiness of the borrower. As a result, banks may consider pricing mortgages based on loan-to-value ratios instead of borrower income and credit history.

Operational adjustments

The list of operational adjustments required to comply with Basel IV is long. The changes range from i) modelling and data requirements to ii) the approval process for internal models to iii) enhanced due diligence requirements for assessing credit risk. Given the scope and complexity of the proposed reforms, banks must understand early on how they will affect operations.

Overall implications

Standardised data for reporting purposes

Basel IV is expected to place more pressure on banks to have sound data management policies and principles in place. Combined with this, a bank will need to prime itself to obtain more accurate and up to date information on their counterparties. BCBS 239 or PERDARR (Principles for effective risk data aggregation and risk reporting) require a bank to be able to report quickly i.e. there must be single representations of data rather than multiple databases, which could lead to differences. The aim is to be able to aggregate on a number of known and unknown questions quickly at a high level, so the bank can tie the risks it is taking to its risk appetite. Although assigned an implementation deadline of Jan 2016, the complexity of this requirement has meant that many banks are behind with this requirement.

Our recommendation is that BCBS239 needs to be top of the agenda in facilitating the change which will be forthcoming with Basel IV.

Changing customer selection criteria

Proposal by the BCBS that the Standardised Approach will indicate limits on outputs from more advanced internal models. Customer selection criteria may change e.g. if the bank estimates that the RWA of a potential customer is below the RWA per the revised Standardised Approach, then it may choose to not engage with a customer as expected return does not compensate for the potential increase in risk. The consequence of such is that banks increase the overall riskiness of their portfolio.

BCBS should therefore investigate if a floor will really achieve what it's trying to. Banks may therefore be unwilling to provide a loan that covers the full house price of a borrower.

New mortgage providers, who are not bound by Basel regulations, may then provide a borrower with the additional funding needed to cover the full house price

Increased transparency and detailed risk reporting

Additional financial information will now be required to support future reporting. This will include identifying the data source behind the final reporting figure as well as how adjustments can be traced. Lack of such information will lead to higher RWA and penalties imposed by individual regulators.

The impact of the new regulations will be felt by all banks irrespective of the size of organisation or business model. Although its implementation will be challenging and both time and resource intensive, it will also present banks with an opportunity to reassess, address and embed its risk and governance strategy in to business models and wider overall strategy agenda. The key is to approach Basel IV as one would do with most regulations with a proactive approach addressing potential hurdles early in the process.

Strategic approach

The most efficient way for banks to tackle the new requirements, which will be imposed, is by using a single platform to run all of the different calculations. The benefits of taking this approach are as follows: avoidance of the need to load the same data onto many different systems; consistency is ensured between the data used to run the different calculations; and easier to feed the outputs of individual calculations into other related calculations.

Banks also need to think about how they will manage the staggered implementation timetable for Basel IV, due to their phasing over a number of years. Many banks struggle to keep up with a quick succession of regulatory changes as a result of their inflexibility of their technology which is often still hampered by old legacy systems. These banks often find they need a complete software update to accommodate each regulatory change. Installing and testing such an update is a long and complicated process, which eats into the time that banks have to prepare and increases the risk of missing a deadline.

With the implementation of the new Basel capital rules, banks should use a calculation platform that separates the regulatory functionality from the core platform functionality. This will mean that when the final version of one of the new calculations is published, a bank will be able to add it to the platform quickly without having to update the entire infrastructure, impacting other functionality and users in the process.

Our services and how we can help

Our value proposition

FiSer Consulting is a young, niche and independent consulting firm with an exclusive focus on international business transformation within Financial Services. We deliver a broad range of Transformation Services which help drive change through strong content and project management capabilities across business and technology lines. We operate at the heart of the change organisations and we ensure that complex programmes are being delivered according to plan, across international locations with multidisciplinary teams. Please revert to the figure below for FiSer's value proposition.

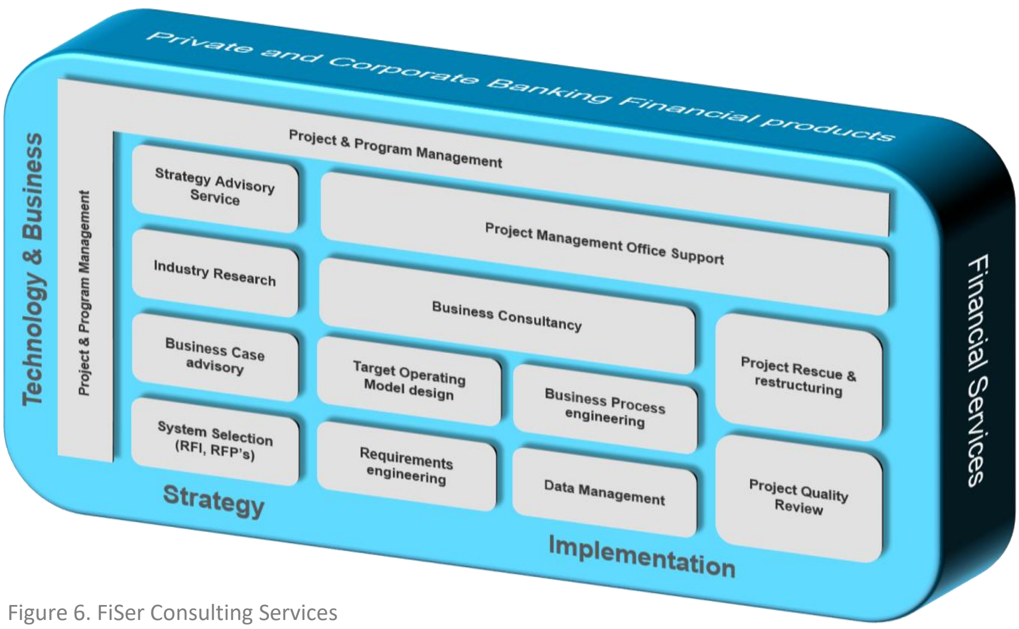

Figure 6. FiSer Consulting Services

FiSer Consulting can assist you in the adoption of Basel IV and its implementation utilising our skills and expertise in the following areas:

Impact analysis

As mentioned earlier in the paper, the new Basel IV regulatory changes present a new set of challenges for banks. FiSer Consulting can assist with assessing the readiness of your organisation for the changes required, as well as assist with developing the strategy required to deliver in line with the regulatory timeframe. This is achieved by firstly identifying upfront the key touchpoints where Basel IV will create a significant impact. This approach focuses on a "Product life cycle analysis". The analysis aims to provide a holistic view of the impacts across the different stages and processes of a financial product, from inception through to its design and on to its termination or settlement. The individual BCBS papers specific to each risk category are highlighted in this analysis.

For each product, we would categorise impacts in the following lifecycle stage: (refer to figure 7)

1. **Product Development -** This phase is the particularly affected by Basel IV as financial institutions will need to incorporate or update their general risk policies in order to comply with the regulation and ensure a healthy asset portfolio.
2. **Origination -** The most important process to highlight is the client onboarding, which contains the credit risk assessment (rating/scoring) of the client/collateral, the Anti-Money Laundry (AML) and Know Your Customer (KYC).
3. **Operations -** The processes included at this stage are concerned with the mechanics and possible automated part of the entire process.
4. **Termination -** This stage covers all the processes required to liquidate the loan.

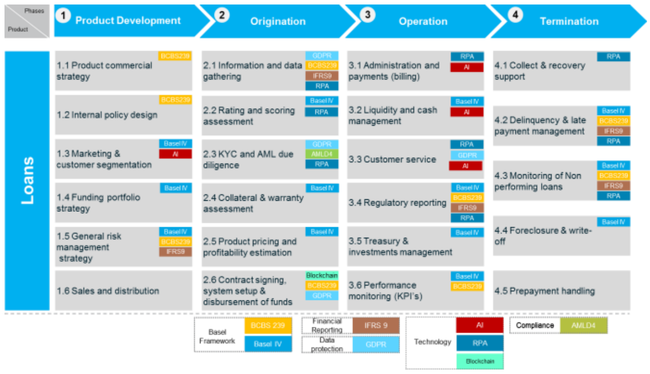

Figure 7. Basel IV impacts on Loan life cycle

Once this analysis is completed, we then conduct interviews within the organisation using our Basel IV readiness questionnaire.

Gap analysis and implementation plan

Our questionnaire will determine whether there are significant gaps between current Basel requirements and reporting versus the new Basel IV directive. Each answer per the questionnaire is plotted against an overall heatmap showing the key impacts and provide a snapshot of the overall readiness status of institution. Additionally, a implementation roadmap will be provided. Figure 8 provides a high-level overview of the steps followed to produce such heatmap.

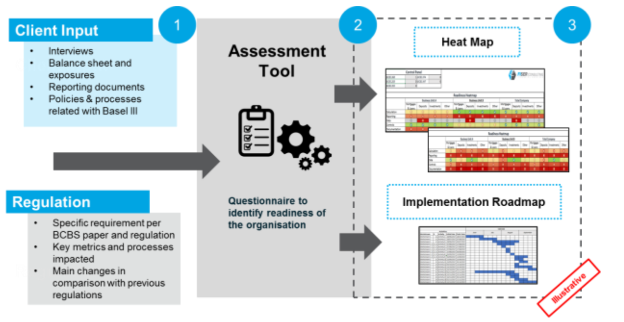

Figure 8. High level methodology of Basel IV impact assessment

Benefits

The above approach will allow organisations to assess the impact of key regulations in an efficient and timely manner, the most relevant benefits can be as follow,

- ✓ Quick results (refer to figure 8 below an illustrative example of the project schedule)
- ✓ Early identification of high impact areas and key readiness requirements

- ✓ Proposal for immediate actions / next steps to take
- ✓ The ability to develop an implementation approach to meet the regulatory implementation deadline
- ✓ Minimum impact on your organisation – limited resources required from your company
- ✓ Prompt detection and implementation of quick wins
- ✓ Independent and objective examination
- ✓ Leverage on external experience and industry best practices

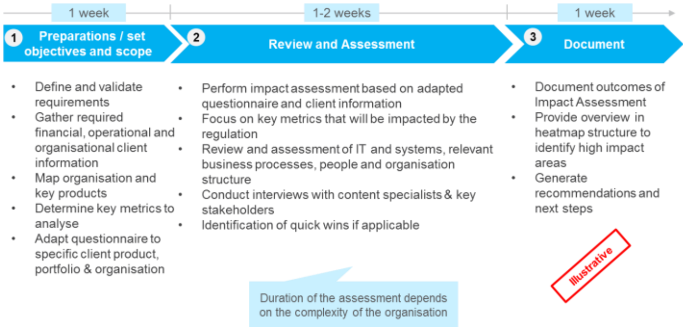

Figure 9. Timeframe to complete the impact assessment

Business Consultancy, Target Operating Model Design & Business Process Engineering

Due to our exclusive focus on Financial Services, our consultants have a strong content background which covers the Finance Reporting and Risk areas. With a strong background and extensive knowledge of the organisation and processes, our consultants can assist you with:

- ❖ Design of infrastructure, risk controls and processes to support your regulatory compliance requirements.
- ❖ Changes with operating models.
- ❖ Assisting with developing a holistic plan and strategy which includes assistance with technology selection, considerations and implementation.
- ❖ Enabling your organisation towards usage of AI or robotic functionality where we see processes and tasks within the regulatory space which can benefit from automation.

Project & Program Management

The implementation of Basel IV will cover changes that effect many stakeholders of the organisation. Our Project & Program Management capability can help you structure and manage a variety of stakeholders across your business. Our project & program managers combine multiple years of experience with in-depth knowledge of the Financial Services and Reporting space.

Our approach can be standalone and tactical, whereby we rapidly address particular pain points, or strategic and transformational where we automate the relevant regulatory and compliance processes and create a Basel IV operating model.

Business Case Advisory

With a major change to your technology infrastructure, internal modelling, resource capacity as well as far reaching implications for the entire business, our consultants can formulate and develop a solid Business Case which will cover:

- ❖ A description of the business challenge
- ❖ An assessment of the potential costs and benefits of implementing the new regulatory change
- ❖ An assessment of the risks that may arise during the implementation.
- ❖ Facilitate the process of defining, quantifying overall implementation costs and selecting these solutions.
- ❖ Recommendations on a preferred course of action.
- ❖ Description of the implementation approach

Project Management Support

Aligned with our Project & Program Management capability, the Basel IV implementation requires detailed and frequent risk & issue tracking, planning & dependency management as well as internal status reporting. Our Project Management Officers, with proven experience within the Financial Services industry, assist the organisation in managing these challenging activities.

Data Management

FiSer consultants can support your needs to have data managed correctly as well as having the necessary security safeguards in place. Our service would facilitate the implementation of the according and necessary required changes. This will also include gap and impact analysis on data and systems specific to Basel IV implementation.

Glossary of terms

Term	Definition
BCBS	Basel Committee on Banking Supervision
CET1	Tier 1 Capital Ratio
CPCR	Counter Party Credit Risk
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
CVA	Credit Valuation Adjustment
DSC	Debt Service Coverage
EAD	Exposure at Default
FRTB	Fundamental Review in Trading Book
FSB	Financial Stability Board
GHOS	Governors and Heads of Supervision
G-SII	Global Systematically Important Bank
IFRS	International Financial Reporting Standards
IRB	Internal Ratings Based
IRRBB	Interest Rate Risk in Banking Book
LGD	Loss Given Default
LTV	Loan to Value
MTM	Mark to Market
NPA	Non-Performing Asset
NSFR	Net Stable Funding Ratio
PD	Probability of Default
RWA	Risk Weighted Assets
SA	Standardised Approach
SME	Small and Medium Sized Entities
TLAC	Total Loss Absorbing Capacity

Next steps

For further information on Basel IV and where FiSer Consulting can assist you, please contact:

FiSer Consulting | Mischa Wesdorp - Managing Partner

Mischa brings over 14 years of experience in the Global Financial Services Industry where he has been employed mostly by large international Dutch based banks. In his career Mischa acquired an all-round understanding of Risk, Lending and Payments. He is specialised in Operational Risk and Payments related projects.

Contact: m.wesdorp@fiser.consulting

FiSer Consulting | Dirk Worm - Managing Partner

Dirk has over 20 years of experience in the Investment Banking and Corporate & Commercial Banking industries. Dirk's consulting skills lie in risk management, front office transaction management and the implementation of asset & liability management. Furthermore, Dirk has a comprehensive understanding of the implementation of regulatory processes, including Basel II, III, MiFID and EMIR.

Contact: d.worm@fiser.consulting

FiSer Consulting | Paul Nielsen - Senior Consultant

Paul has over 15 years of financial and project management experience across retail banking, investment banking, asset management, IT and FMCG sectors. He has extensive consulting skills in Basel II, Solvency II and Sarbanes Oxley regulatory reporting. Paul also has a wide-ranging understanding of FATCA, CRS, IFRS9 and MIFID requirements and implementation.

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