Risks not in VaR (RNIV) and their role in market risk management

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Executive summary

Risks not in VaR (RNIV) is a concept introduced by the UK Financial Conduct Authority in 2010 to account for risks not captured in a VaR model. For banks that have adopted the RNIV framework, RNIV represent a material proportion of their Internal Models Approach (IMA) capital. Our contention is that the RNIV framework is not only essential for effective market risk management but can also serve as a valuable stepping stone towards making a smooth and efficient transition to the framework for non-modellable risk factors (NMRF) under the Fundamental Review of Trading Book (FRTB) for Basel III.

The starting point of this report is the 2008 financial crisis, which was the impetus for a host of regulatory reforms in the domain of market risk management. The crisis uncovered many of the shortcomings of a typical VaR model. Basel II.5 (2009) addressed some of those shortcomings by supplementing VaR with stressed VaR, incremental risk charge, and a comprehensive risk measure. But it failed to adequately address some of the liquidity risks which were one of the main drivers of the financial crisis. The RNIV framework was developed in response to capture those risks.

To set the context for our discussion, we take a step back and glance through the history of market risk management and its evolution over the years – from the use of traditional exposure-based risk measures to the regulatory adoption of expected shortfall in the forthcoming FRTB framework. In our journey, we make a crucial stop to study the characteristics of a VaR model, the methodologies used to calculate it, and its limitations. As we study those limitations, our discussion moves naturally to RNIV.

After exploring its origins, definition, and scope, we survey the extent of RNIV adoption in the industry, both within and outside of the UK. For banks that have adopted the RNIV framework, we study the materiality of RNIV contribution to their IMA capital. We conclude our journey with the FRTB, where we inquire about the usefulness and relevance of RNIV in the shifting regulatory landscape.

Our study leads us to conclude that the RNIV framework is an important and useful tool for effective market risk management. However, it is especially important now as banks work towards the challenging and costly implementation of the FRTB. The concept of NMRF in the FRTB has its basis in RNIV. Both apply to hard-to-model risk factors, and both are capitalised using stress scenarios. The systems and processes developed for an RNIV framework can be restructured and streamlined into an NMRF framework for the FRTB.

As banks navigate the ongoing regulatory upheaval, it makes sense for them to develop an RNIV framework that will bring them a step closer towards absorbing some of the impact of FRTB implementation.

01 Introduction

The financial crisis that began in 2007 revealed serious deficiencies in the market risk models used at the time to calculate a bank's capital requirements. The value at risk (VaR) models that banks used, in accordance with the Basel Committee on Banking Supervision's (BCBS) '1996 Amendment to the Capital Accord to Incorporate Market Risks', failed to capture some key risks. In response, in 2009, the BCBS introduced a set of additional risk measures which would account for some of the risk factors missing in VaR.

The measures taken by the BCBS helped strengthen the regulatory framework for market risk management. However, there were still some important risk factors that the new framework failed to capture. This report presents a study of those risks.

RNIV

In 2010, the Financial Services Authority (FSA), a former regulator of the financial services industry in the United Kingdom, published a discussion paper titled 'The prudential regime for trading activities',[1] in which it stated that firms prudentially regulated in the UK are required to hold capital buffers against the risk factors that are either missing or poorly captured in their internal models. The paper refered to such risk factors as risks not in VaR (RNIV).

In 2013, the FSA was divided into the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA). In the same year, pursuant to a directive issued by the European Parliament and Council, the FCA issued a 'Capital Requirements Directive IV Instrument'[2] which consolidated the concept of RNIV into a well-defined framework now known as the RNIV framework. The 'instrument' came into effect on 1 January 2014, post which all investment firms in the UK have been required to report their RNIV capital charge as part of their Pillar 3 Disclosures.

02 Evolution of market risk measures

Before the VaR measure came into widespread use in the 1990s for measuring the market risk of a portfolio, exposure-type metrics such as beta for stocks; duration and convexity for bonds; delta, gamma and vega for options were used to calculate and manage market risk. The problem with these traditional measures of market risk is that they cannot be aggregated – not only across asset categories but also across risk factors. With the proliferation of new and exotic products in the market, there was an increasing need for a metric that could be applied consistently across asset categories.

In 1996, the BCBS officially recognised this need by making the 'Amendment to the Capital Accord to Incorporate Market Risks'. The amendment required that banks that have approval to use an internal model to calculate their market risk capital charge use the VaR methodology to do so. VaR became a universal method of calculating the amount of capital a bank should hold in order to absorb losses resulting from market risks.

A decade would pass and a global financial crisis would unfold before the validity of VaR as an all-encompassing measure of market risk was seriously questioned.

1992	1993	1996	2009	2013	2016	2019
UK Securities and Futures Authority adopts a crude VaR measure for determining market risk capital for equity, fixed income, foreign exchange and commodities	EU Capital Adequacy Directive adopts a crude VaR measure to loosely reflect a 10-day 95% VaR	BCBS' Amendment to the capital accord to incorporate market risks – 10-day 99% VaR	Revisions to the Basel II market risk framework – stressed VaR, incremental risk charge, comprehensive risk charge	UK FCA issues Capital Requirements Directive IV Instrument introducing the concept of RNIV framework	BCBS issues a new framework for market risk capital based on the Fundamental Review of the Trading Book (FTRB)	BCBS issues a revised framework for market risk capital – revised FRTB

The crisis

On 13 July 2009, the BCBS issued 'Revisions to the Basel II market risk framework':[3]

> **Since the financial crisis began in mid-2007, an important source of losses and of the build-up of leverage occurred in the trading book. A main contributing factor was that the current capital framework for market risk, based on the 1996 Amendment to the Capital Accord to incorporate market risks, does not capture some key risks. In response, the Basel Committee on Banking Supervision (the Committee) supplements the current value-at-risk based trading book framework with an incremental risk capital charge, which includes default risk as well as migration risk, for unsecuritised credit products. For securitised products, the capital charges of the banking book will apply with a limited exception for certain so-called correlation trading activities, where banks may be allowed by their supervisor to calculate a comprehensive risk capital charge subject to strict qualitative minimum requirements as well as stress testing requirements. These measures will reduce the incentive for regulatory arbitrage between the banking and trading books.**
>
> **An additional response to the crisis is the introduction of a stressed value-at-risk requirement. Losses in most banks' trading books during the financial crisis have been significantly higher than the minimum capital requirements under the former Pillar 1 market risk rules. The Committee therefore requires banks to calculate a stressed value-at-risk taking into account a one-year observation period relating to significant losses, which must be calculated in addition to the value-at-risk based on the most recent one-year observation period. The additional stressed value-at-risk requirement will also help reduce the procyclicality of the minimum capital requirements for market risk.**

Supplementing VaR with stressed VaR, incremental risk charge (IRC) and comprehensive risk measure (CRM) addressed many of the shortcomings of the original market risk framework. However, these models still failed to address some of the key limitations of VaR that are inherent in the very concept.

For several years since, VaR remained a topic of controversy within the industry, forcing BCBS to initiate a 'Fundamental Review of the Trading Book' on 03 May 2012.[4] This consultative document proposed a move from VaR to expected shortfall (ES), a measure which is better able to capture 'tail risk'. After a period of deliberation and interaction with the industry – on 14 January 2016 – the BCBS issued a new framework for market risk capital, confirming the move from VaR to ES.[5]

03 VaR

VaR is a measure of the maximum loss that can be incurred on a portfolio of trading positions over a holding period with a given probability. Regulatory standards typically require the use of a 99% confidence interval with a 10-day holding period.

Probability calculations require the use of a probability distribution of a set of random variables. The random variables, for the purpose of calculating VaR, are the market variables associated with the trading positions of a portfolio. The calculation of VaR starts with the collection of a time series of the set of market variables for a given observation period. Then, at every observation point on the time series, the portfolio is valued using the corresponding set of market variables. The process leaves us with a time series of the portfolio values which can be used to construct a time series of the portfolio returns over a holding period. Once we have the distribution of portfolio returns, a quantile can be calculated in order to arrive at a value for VaR.

Despite its long-standing reputation for being a composite measure of market risk, VaR fails to capture a number of key risks. While some of those missing risks are a consequence of the limitations inherent in the concept of VaR, others are a result of the methodology used to calculate it.

3.1 Methodology

From our brief account above of the process used to calculate VaR, it is easy to see that the calculation consists of two basic steps:

Step 1: Collection or creation (through modelled simulations) of a series of observations on a set of market variables

Step 2: Valuation of the portfolio at each observation point in the series

There are several ways of performing each of these steps which, in turn, define the methodology.

Step 1: Simulation		**Step 2: Revaluation**	
Historical	Stochastic	Full	Partial
Historical data is used to predict future changes	Simulation of market movements based on assumptions about the distribution of market variables	Full revaluation of a portfolio at each observation point of the simulation could be computationally intensive, especially if the portfolio consists of complex non-linear products.	Partial revaluation in the form of a Taylor series expansion is used as an approximation.

Step 1: Simulation

There are two basic approaches for performing the first step.

Historical simulation

The historical approach uses historical data to predict changes in the future value of a portfolio. It creates a distribution of changes in the value of the portfolio based on the historical changes in the value of market variables. Since real historical data is used, no assumptions are made about the form of the distribution, nor about the co-movements between the market variables. However, the underlying assumption is that the future movements in the market variables can be perfectly anticipated from their historical counterparts. This obviously has its pitfalls. Using historical events to predict the future means that a risk factor or an event which has never played a part in the observation period chosen for historical simulation is inevitably going to be ignored.
The results can be catastrophic, as proven by the financial crisis of 2008.

Stochastic simulation

The modelled approach to simulation of market movements makes assumptions about the form of distribution of the underlying market variables. Based on these assumptions, it creates simulations for future movements in the value of the market variables. These models are simplifications of the real world and could be far from accurate.

Step 2: Revaluation

There are two ways of valuing a portfolio.

Partial revaluation

A financial institution's portfolio could consist of thousands of positions in a variety of complex products. Full revaluation of the portfolio for each scenario is computationally intensive. So, a lot of banks use partial revaluations instead which are approximations in order to get faster results. For example, options can be valued using Greeks through a Taylor series expansion. These approximations are correct only if there is a minute change in the underlying market variable. For higher changes, the higher derivative risks cannot be ignored.

Full revaluation

Full revaluation of a portfolio at each observation (or simulated) point is economically feasible only if the portfolio consists largely of linear products – bonds, stocks, futures, forwards, swaps. For a portfolio consisting of complex non-linear products, full revaluation could be extremely costly and time-consuming, in which case most banks resort to partial revaluation.

3.2 Limitations

VaR as a metric has some universal limitations which persist regardless of the type of methodology used. It is a quantile of a loss distribution, which fails to provide any information on either the magnitude or the distribution of losses beyond that quantile. Moreover, it assumes that all positions within the portfolio can be liquidated during the holding period, which may not be true in times of distress. VaR models with a one-day or ten-day horizon may not fully capture the liquidity risk of positions that cannot be closed/hedged out within that horizon. A VaR methodology which prescribes, as in the FRTB ES model, different liquidity horizons for different risk factors is needed to adequately capture such liquidity risks. A VaR model with risk-factor-based liquidity horizons is also able to capture the risk of credit migration through the use of credit spreads as risk factors. It fails, however, to capture default risk.

Limitations of VaR	
Does not account for fat tails	Does not capture default risk
A fixed holding period fails to account fully for liquidity risks	Is not a coherent measure of risk
Does not account for intra-day risks	Is a static measure of risk
May not capture illiquid risk factors such as basis risks, cross risks	

VaR models are typically based on close-of-business observations, so that intra-day risks are not captured.

Since most risk factors are less than perfectly correlated, an important measure of the utility of a risk metric is its subadditivity. Subadditivity, which is one of the four properties of a coherent risk measure, means that the value of the risk measure for the portfolio is never larger than the sum of the risk measures for the individual components of the portfolio. VaR satisfies all four properties of a coherent risk measure only when the losses can be assumed to be elliptically distributed as in the case of normally distributed losses. This is to say that VaR is not a coherent measure of risk.

VaR is a static measure of risk which makes it more suitable for long-term investment decisions as it is less responsive to new information compared to dynamic risk measures such as price risks.

The accuracy of a VaR model depends on the availability and quality of observable data for each of the risk factors. It may not adequately reflect the risk of losses due to risk factors such as basis risks, cross risks (e.g. cross gamma and correlation) and volatility, which tend to precipitate in times of stress. Concentration risk also increases as diversification benefits disappear. A VaR model's ability to capture events that lead to extreme market movements is subject to the specifications of the observation period in case of historical simulation and of the model attributes in case of modelled simulations.

Financial crisis and liquidity risks

The financial crisis of 2008 was a stark demonstration of the significance of liquidity risks. Most of the banks at the time of the crisis relied on VaR measures to determine their economic capital. Simplifications were made by omitting risk factors considered to be immaterial. Certain basis risks, for example, were ignored. In 2008, spread between 1-month and 3-month US LIBOR rates jumped from 10 basis points to 100 basis points, reflecting increased counterparty credit and liquidity risks.[6]

Another critical risk factor that was ignored is correlation. Most of the models assumed correlation coefficients to be constant. However, broadly speaking, correlations tend to increase under stressful conditions reducing risk-mitigating benefits of diversification.

3.3 Regulatory response

As discussed in this report, a number of steps have been taken by regulators over the years to address some of the aforementioned shortcomings of VaR.

3.3.1 Basel II.5

- A stressed VaR measure to capture abnormal risks that arise under extreme market conditions characterised by spiked volatilities, correlations, basis spreads, and liquidity dry ups
- An IRC to capture the default and migration risks for unsecuritised credit products in the trading book
- A CRM to measure and monitor the risks in a bank's correlation-trading portfolio, taking into account credit spread, correlation, basis, recovery, and default risks

3.3.2 FRTB

- Replacement of VaR with ES to capture tail risks
- Use of risk-factor-based liquidity horizons in the measurement of ES to better account for liquidity risks
- A non-modellable risk factors (NMRF) framework to provide banks with a systematic approach to identify and measure the risks deemed ineligible to be included in their internal market risk models

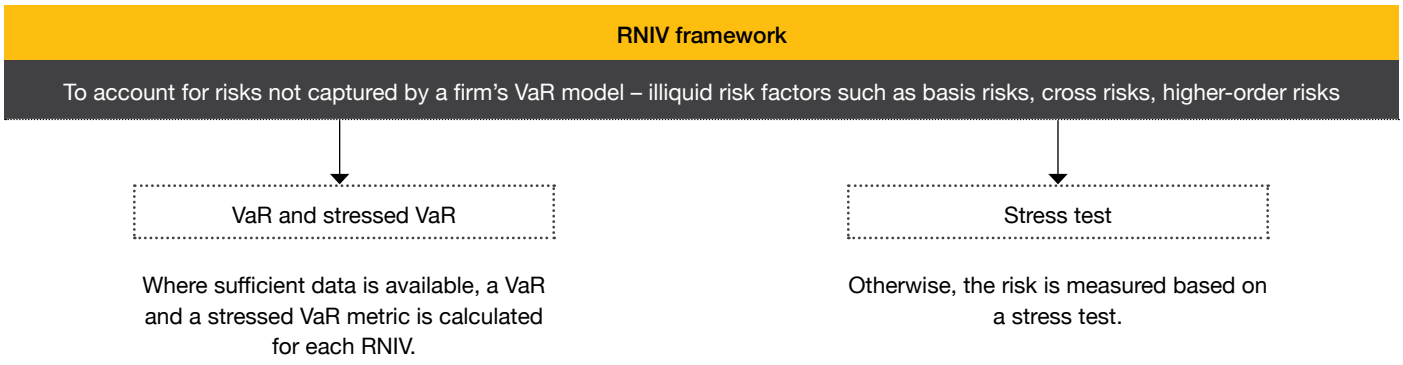
Although the FRTB is a substantial move towards a more holistic and effective treatment of market risks, it is not due for implementation until 2022. Moreover, the revisions made in 2019 and the implementation challenges that loom ahead suggest that it could be delayed. Meanwhile, almost all of the banking world continues to rely on Basel II.5 for its market risk management. It is against this backdrop that we move towards a discussion on the value of the RNIV framework in present-day market risk management and its utility in making a smooth and efficient transition to the FRTB framework with all its revisions.

04 RNIV: Present use and significance

4.1. RNIV framework: The methodology

As mentioned earlier, the RNIV framework was a prerogative solely of the financial services regulators of the UK. The FCA prescribes a set of clearly defined rules and guidelines for the application of the RNIV framework.

A prudentially regulated firm in the UK which has permission to use internal models is required to identify any material risks that are not captured by their models. It must then hold additional capital against those risks. The methodology for the identification of those risks and the calculation of the required additional funds is known as the RNIV framework.



The framework states that[7]

- "Where sufficient data is available, and where it is appropriate to do so, the FCA expects a firm to calculate a VaR and stressed VaR metric for each risk factor within scope of the framework. The stressed period for the RNIV framework should be consistent with that used for stressed VaR. No offsetting or diversification may be recognised across risk factors included in the RNIV framework. The multipliers used for VaR and stressed VaR should be applied to generate an own funds requirement."
- These can be classified as VaR-based RNIV resulting from methodology/infrastructure limitations in a VaR model, e.g. implied volatility skew risks, higher-order risks.
- "If it is not appropriate to calculate a VaR and stressed VaR metric for a risk factor, a firm should instead measure the size of the risk based on a stress test. The confidence level and capital horizon of the stress test should be commensurate with the liquidity of the risk, and should be at least as conservative as comparable risk factors under the internal model approach. The capital charge should be at least equal to the losses arising from the stress test."

These are stress-based RNIV and can represent events that may not be historically observed, e.g. de-pegging event of a pegged currency.

4.2. Scope of the RNIV framework

The FCA defines the scope of the RNIV framework as follows:[8]

> **The RNIV framework is intended to ensure that own funds are held to meet all risks which are not captured or not captured adequately, by the firm's VaR and stressed VaR models. These include, but are not limited to, missing and/or illiquid risk factors such as cross-risks, basis risks, higher-order risks, and calibration parameters. The RNIV framework is also intended to cover event risks that could adversely affect the relevant business.**

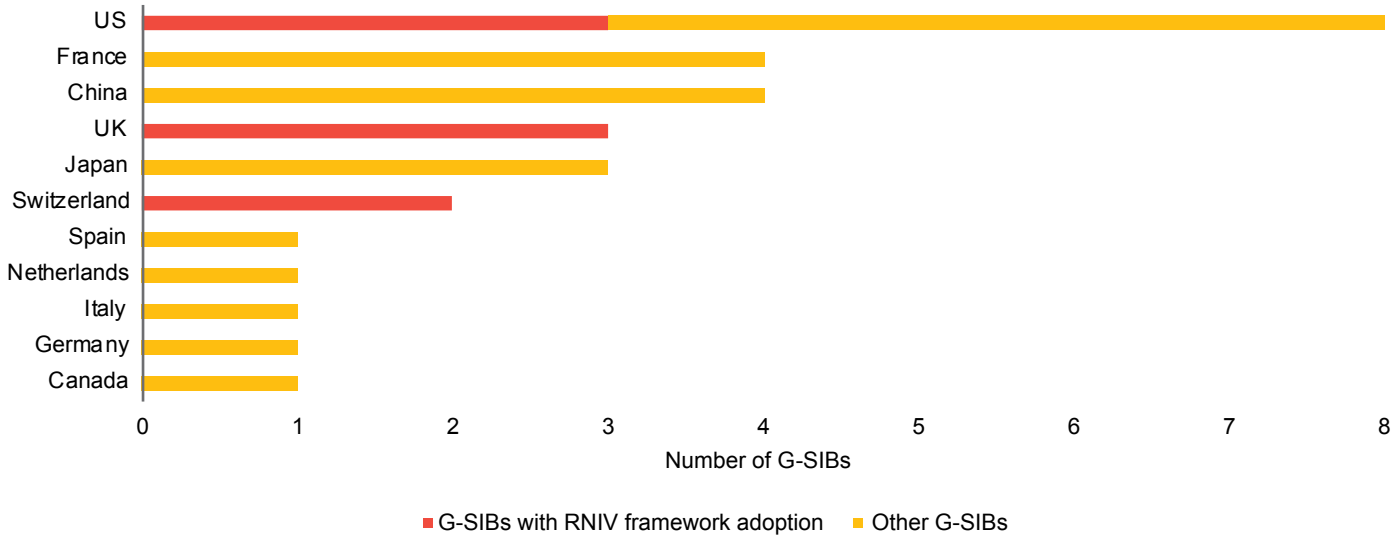
4.3. RNIV contribution to IMA

We studied the use of the RNIV framework in the global banking industry over the past five years. Although originally a requirement for banks in the UK, it has been adopted over the years by some regulators and banks outside of the UK. We surveyed Pillar 3 disclosures of the 26 global systemically important banks (G-SIBs)[9] to determine the extent of RNIV framework adoption and for banks that have adopted it, the average contribution of RNIV capital charge to total IMA capital.

G-SIBs

As shown in Figure 1, outside of the UK, the RNIV framework has been adopted by the two Swiss G-SIBs as required by the Swiss Financial Market Supervisory Authority (FINMA). Three of the US G-SIBs have also adopted the framework, two of which have limited its use to their UK subsidiaries.

Extent of RNIV framework adoption by G-SIBs



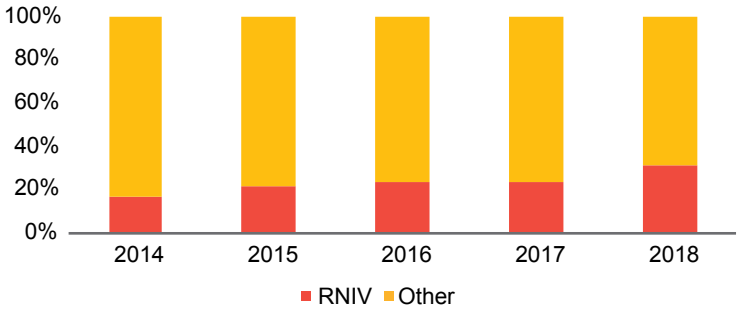
Source: PwC analysis

Note: 'Adoption' of the RNIV framework as reported in this document is considered to be a case when either RNIV values, capital charge or risk-weighted assets (RWA) are reported separately from the rest of the components of IMA. There may be banks that report the sum of their VaR and RNIV results and yet others that monitor RNIV internally.

For the G-SIBs that have adopted the RNIV framework, we calculated an average of their RNIV capital proportion to IMA capital by taking the ratio of their combined RNIV capital requirements to their combined IMA capital requirements.

In the five-year span covered in our survey, the average contribution of RNIV capital to IMA capital for market risk increased steadily from 17% in 2014 to 32% in 2018 (Figure 2), highlighting the increasing importance of the RNIV framework as used by the industry.

Global average RNIV contribution to IMA (2014–2018)



Source: PwC analysis

Note: Country-wise average contributions are presented in an annexure at the end of this report.

05 RNIV: A stepping stone to FRTB

The revised FRTB framework issued by the BCBS on 25 February 2019 is scheduled to be effective from 1 January 2022.[10] The framework introduces some radical changes to the Basel II.5 market risk framework currently in use. Some of the core features of the framework are discussed below.

5.1. A move to expected shortfall

A move from VaR to ES addresses some of the key shortcomings of VaR. Unlike VaR, which gives no information about potential losses beyond the confidence level of the loss distribution, ES is the average of those potential losses. In other words, ES is better able to capture tail risks, which is especially important when the distribution is characterised by fat tails, as is often the case.

Another important advantage of ES over VaR is that it is subadditive. Subadditivity implies that the overall risk measure of a combination of two portfolios can be no greater than the sum of the risk measures of the individual portfolios. In other words, subadditivity means that the risk measure takes full account of the diversification benefits across risk factors. The VaR of a portfolio can produce results which are greater than the sum of the VaRs of the components of the portfolio. This can happen when the loss distribution is non-elliptical, which is more often the case for credit and operational risks than market risks.

ES, however, does have one drawback. It is non-elicitable, which means that it cannot be backtested. The FRTB framework gets around this problem by continuing the requirement of backtesting to be done using VaR.

5.2. New requirements for modellability of risk factors

The Basel II.5 framework for market risk includes RNIV as one of the components of its IMA capital. However, it also states that

> **A value for RNIV capital should only be provided if the reporting institution's national supervisor directly requires that any risks not captured in the bank's VaR model be included as part of the bank's regulatory capital calculation. Otherwise, if the bank merely monitors materiality of its RNIV but does not include RNIV capital in its regulatory capital calculation, zero should be reported.**[11]

The fact that return on capital (ROC) is an important indicator of a firm's financial performance, it is in their interest to hold the minimum amount of capital after taking into consideration any potential loss of investors' confidence. As a result, most banks have refrained from reporting RNIV calculations in their regulatory disclosures.

The FRTB framework, however, marks a change from this regulatory sanction of discretion. The FRTB sets out stringent quantitative as well as qualitative criteria for the identification and quantification of NMRF. In fact, the standards set out by the original January 2016 issue of the framework were so stringent that according to a study conducted by an association of the International Swaps and Derivatives Association (ISDA), Global Financial Markets Association (GFMA), and Institute of International Finance (IIF), the NMRF capital was going to be 4.3 times the RNIV capital charge then being reported by a subset of banks.[12] The magnitude of this estimate can be explained by the differences between the definitions of the two concepts:

Attribute	RNIV	NMRF
Classification	Classification of a risk factor as non-modellable rests on banks provided regulators are satisfied with the reasoning	Hard-coded rules leaving no room for discretion
Granularity	Allows flexibility in the identification of a risk factor. For example, a yield curve can be treated as a single risk factor	Specific points in a yield curve correspond to separate risk factors
Capitalisation	Allows the use of stress tests for capitalisation with reasonable flexibility in defining the scenario	Capitalisation to be done using an ES measure calculated at a 97.5% confidence level over a period commensurate with the liquidity horizon of the risk factor calibrated to a stress scenario specifically designed for the risk factor

However, the revisions made in the January 2019 issue are likely to reduce the overall impact on capital. According to the BCBS, the expected increase in total market risk capital relative to Basel II.5 is now approximately 22% as compared to 40% under the January 2016 framework.[13]

5.3. Stress-based RNIV and FRTB

As mentioned in 5.2, the risk factors under the new FRTB framework are to be classified as either modellable or non-modellable, based on a set of quantitative and qualitative criteria.

All the risk factors that are classified as modellable on the basis of observability in the current period (last 1 year) become eligible to be capitalised using the ES model and become a part of the 'full set'. Out of these risk factors, the risk factors that are modellable in the stress period under consideration constitute a 'reduced set'. The FRTB requires that the reduced set of risk factors explain at least 75% of the P&L variance calculated using the full set of risk factors. If this condition is not met, the risk factors are to be charged as NMRFs until the condition is met.

An example of a risk factor failing to qualify under the reduced set would be the central counterparty (CCP) basis which came into the picture around July 2016. Although it meets the criterion to be classified under the full set, the absence of market data for the stress period makes it ineligible for the reduced set.

Under the RNIV framework, such risks are usually captured using a stress test. A robust RNIV framework that identifies all such 'stress-only RNIV' in the current regime will help identify risk factors failing to qualify for the reduced set in the FRTB.

06 Conclusion

Our study of the banking industry provides evidence of the importance of the RNIV framework in market risk management, both for internal as well regulatory purposes. An RNIV framework enables a bank to continuously identify, measure, track, and manage material risks not captured by their internal models. Since the risks identified in this manner require special treatment, a bank has incentives to address any methodology/infrastructure limitations identified in the process.

Apart from being an essential tool for effective risk management, under the present regulatory environment, an RNIV framework also serves a bank's practical considerations. The concept of NMRF in the forthcoming FRTB has its basis in RNIV. Both apply to hard-to-model risk factors, and both are capitalised using stress scenarios. The methodology used for the classification of risk factors as non-modellable under the RNIV framework may be fine-tuned to comply with the requirements of the FRTB.

The FRTB implementation, which is scheduled to be effective from 1 January 2022, will require a complete overhaul of a bank's risk management framework. Given the present almost universal use of VaR models under Basel II.5 and the fact that NMRF is going to make up a significant portion of the IMA capital, adoption of the RNIV framework, which is based on VaR, appears to be an inexpensive and safe choice as a step towards the full implementation of FRTB.

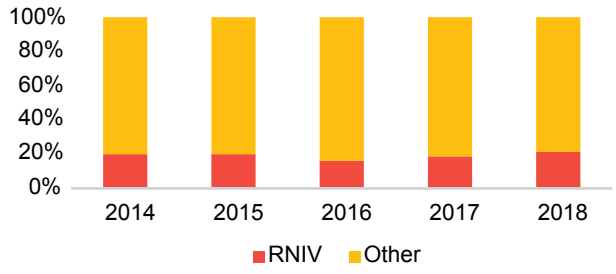
07 Steps to implement the RNIV framework

- A comprehensive review of existing VaR and stressed VaR models to identify missing or inadequately captured risk factors. This can be done through:
  - P&L attribution analysis
  - backtesting
  - full revaluation against partial revaluation to gauge the materiality of higher-order risks.
- For the risks identified (RNIV), investigation of the source, reliability, and quality of data to determine
  - whether the RNIV can be included in the VaR and stressed VaR models through an improvement in methodology, e.g. including higher-order risks in partial revaluation or switching to full revaluation
  - whether the volume of data is sufficient to calculate a separate VaR and stressed VaR for the RNIV
  - or else the RNIV are to be quantified using a stress test.
- Implementing a robust governance around the implementation and administration of the RNIV framework with special focus on

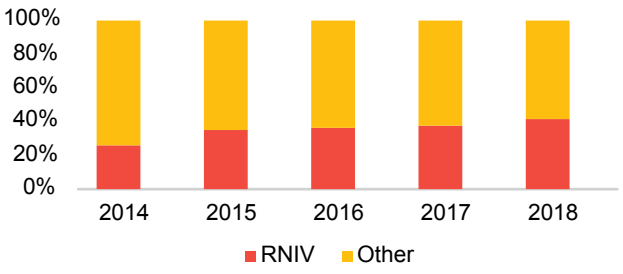
Data	Model risk management	Methodology
• Data validation • Calibration techniques	Periodic review of model performance and adequacy through, e.g. • test of assumptions • P&L attribution • backtesting	• Method of quantifying an RNIV • Rationale • Specifications of stress scenario

Annexure: Country-wise averages

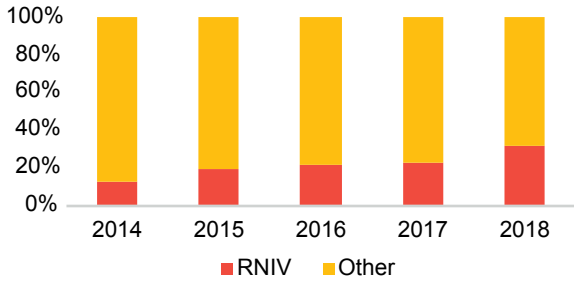
UK average RNIV contribution to IMA



Swiss average RNIV contribution to IMA



US average RNIV contribution to IMA



a) Average calculated considering all of the UK G-SIBs that have adopted the RNIV framework

b) Average calculated considering all of the Swiss G-SIBs that have adopted the RNIV framework

c) Average calculated considering all of the US G-SIBs that have adopted the RNIV framework

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7. https://www.handbook.fca.org.uk/instrument/2013/FCA_2013_74.pdf
8. https://www.handbook.fca.org.uk/instrument/2013/FCA_2013_74.pdf
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Notes

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