

WHITEPAPER

SA-CCR: Impact and Implementation

How will the Standardised Approach for
measuring Counterparty Credit Risk change
capital requirements for banks and their clients

Commissioned by:

QUANTILE

SA-CCR, or Standardised Approach for measuring Counterparty Credit Risk, is the new framework for assessing capital requirements relating to counterparty risk for banks with derivatives exposures. SA-CCR was introduced by the Basel Committee in 2017 and is in the process of being implemented across global jurisdictions.

The new framework will replace the existing non-internal model approaches, namely the Current Exposure Method (CEM) and the Standardised Method (SM), and is designed to address long-criticised failings in the two models.

Principally, SA-CCR is designed to reflect the differing counterparty risk between margined and non-margined transactions, to account for different volatility profiles across instruments and to better recognise netting benefits between risk-offsetting positions.

While most in the market welcome the move away from the dated CEM calculation methodology to a more risk-sensitive framework, SA-CCR introduces new problems and disproportionately impacts certain client types, instruments and asset classes.

In addition, as banks across the global derivatives market go through the implementation process, regulators in different jurisdictions are taking different approaches, raising fears of an uneven playing field.

This study, commissioned by Quantile Technologies, compiles the views of over 40 banks and financial intermediaries from across the globe about how SA-CCR will impact their derivatives business, their approach to the implementation and management of SA-CCR and its likely impact on market structure for derivatives in the future.

The key findings are:

- Banks are split on whether SA-CCR will benefit or hinder their derivatives business, with clearing businesses generally, but not universally, expecting benefits
- Commodities and foreign exchange (FX) face significant increases in capital requirements under SA-CCR
- Corporates, pension funds and long-only asset managers face higher costs
- Clearing is set to increase with FX and rates the major beneficiaries
- Banks, particularly those in the European Union, fear an unlevel playing field
- Some US banks may still shift to SA-CCR ahead of regulatory implementation
- Agreeing on the approach, gathering the data and developing technology have been the major hurdles for banks
- SA-CCR will increase incentives for active risk and portfolio management

The study concludes that, while SA-CCR is an improvement on CEM in terms of reflecting the risk of exposures, it is an imperfect fix that disproportionately impacts certain company types. The problems SA-CCR brings to these firms need to be addressed at a global level.

Introducing SA-CCR

Anyone with even a passing interest in the derivatives market is keenly aware of the negative impact that capital requirements have had on banks' ability to serve clients profitably and effectively in the market.

Post-financial crisis reforms, such as the leverage ratio, collided with incumbent rules and processes to skew the economics of intermediation in derivatives markets, raising costs for banks and their clients and reducing efficiency in the market. In response, several firms pulled back or out of the market entirely, reducing competition and choice for end-users.

The introduction of the Standardised Approach for measuring Counterparty Credit Risk (SA-CCR) is designed to address some of these issues by replacing the Current Exposure Method (CEM), the rarely used Standardised Method (SM) and, to a lesser extent, the Internal Model Method (IMM) for calculating counterparty risk and capital exposures relating to derivatives transactions.

CEM has long been considered a flawed model. Dating back to the 1980s and the first Basel accords, CEM is a simple, notional-based method of calculating counterparty risk and specifically potential future exposure (PFE) in derivatives.

Being a deliberately simple measure, CEM did not differentiate between margined and unmargined positions, the supervisory add-on factor did not capture real-life volatilities and it did not take into account sufficient netting between risk-based offsets.

Enter SA-CCR, the new framework designed to address the flaws in CEM and provide a more risk-sensitive methodology that reflects the modern derivatives market structure.

SA-CCR has a broader scope than both CEM and SM applying to the leverage ratio, elements of the framework of global systemically important banks (G-SIBs), the calculation of exposures for banks with regards to cleared derivatives and for large exposures and capital floors.

Therefore, while large banks would previously have used a mix of internal and standardised methods to calculate capital requirements, after the introduction of SA-CCR, standardised models will have a more prominent role.

This does not mean that internal models will not be used – 80% of respondents to this study said that they would still use internal models in addition to SA-CCR going forward, and 48% said that they expect internal models to be the major constraint for their businesses post SA-CCR.

However, with the benefits of the IMM being curtailed more and more, all banks will need to run SA-CCR models once the approach is implemented in their jurisdiction. Earlier this year, Risk.net reported that a senior Federal Reserve official cast doubt on the future of internal models entirely, saying that the Fed was 'actively reassessing what role bank internal models should have on the future of US regulatory capital'.

How does SA-CCR work?

A full analysis of how SA-CCR works is outside the scope of this report, and there is a wealth of literature online analysing the full (and extensive) calculation processes.

In brief, SA-CCR is used to calculate the total exposure at default (EAD) of a derivatives position. This is calculated by adding the replacement cost (RC) and PFE and then multiplying that by the so-called alpha factor of 1.4 (for all positions aside from those in the US with an end-user as the counterparty – further discussed later).

Therefore, the equation is: $EAD = \text{Alpha factor} * (RC + PFE)$

The RC calculates the loss that would occur were a position to be closed out on current valuations. It is calculated as the total mark-to-market (MTM) value of the derivatives trade, taking into account whether it is margined or unmargined with acceptable forms of collateral (also discussed later) and any netting allowed within that netting set.

Meanwhile, the PFE consists of a multiplier that allows for partial recognition of excess collateral and an add-on specific to the asset class and supervisory factors. The scale of the add-on is dependent on the hedging set for that asset class (see box on next page), while the supervisory factor is designed to reflect the volatility of the underlying asset of the derivatives contract.

In addition to the above, a whole host of other factors are used to calculate exposures under SA-CCR including maturity, notional, trade type and more.

SA-CCR was a response to the Lehman crisis, which highlighted the shortcomings of the risk-insensitive standardised models and the variability of internal models. Previously dubbed NIMM—the ‘Non-internal Model Method’—the final standard for SA-CCR was agreed upon by the Basel Committee in 2014 and took effect in 2017. SA-CCR is now live in several jurisdictions including the EU, where it came into force in June 2021.



The SA-CCR hedging sets

Interest rate derivatives:

All derivatives that reference interest rates of the same currency such as USD, EUR, JPY, etc can be included in the same hedging set. Hedging sets are further divided into maturity categories. Long and short positions in the same hedging set are permitted to fully offset each other within maturity categories; across maturity categories, partial offset is recognised.

Foreign exchange derivatives:

Hedging sets contain derivatives that reference the same foreign exchange currency pair such as USD/Yen, Euro/Yen, or USD/Euro. Long and short positions in the same currency pair are permitted to perfectly offset, but no offset may be recognised across currency pairs.

Credit derivatives and equity derivatives:

A single hedging set is employed for each asset class. Full offset is recognised for derivatives referencing the same entity (name or index), while partial offset is recognised between derivatives referencing different entities.

Commodity derivatives:

Four hedging sets are employed for different classes of commodities (one for each of energy, metals, agricultural, and other commodities). Within the same hedging set, full offset is recognised between derivatives referencing the same commodity and partial offset is recognised between derivatives referencing different commodities. No offset is recognised between different hedging sets.

Source: BIS

The US and UK will bring in the SA-CCR in January 2022, although firms in the US have the option of adopting it prior to that date. So far, of the large US dealer banks, only Bank of America Merrill Lynch (BAML) has done so. The Acuiti survey found that no respondents from US-headquartered banks that were not live were currently planning to move ahead of the mandatory implementation date; however, 29% of such firms said that they remained undecided.

The fact that only one large US firm has taken the option to move ahead with SA-CCR ahead of the mandatory implementation date reflects that, while SA-CCR solves many of the issues that banks had with CEM and SM, it raises additional problems.

What are the issues with SA-CCR?

SA-CCR addresses many of the key flaws in both CEM and SM but it is by no means a panacea for banks' capital woes. Firms that Acuiti spoke with for this report generally welcomed the move to a more risk-sensitive methodology. However, key concerns have been raised over the 1.4 alpha factor embedded into the calculation of EAD and the treatment of initial margin (IM).

With regards to the latter, the PFE multiplier is a major diversion from CEM in that IM is now able to reduce PFE; however, the risk-offset benefits are curtailed by a non-linear formula.

The result of this, according to a paper by Citi, is that a clearing member would need to collect approximately six times the SA-CCR exposure in IM to reduce the capital requirement by 91%. At the point that IM is equal to the exposure calculated under SA-CCR, says Citi, the clearing member will be required to hold capital against 60% of the calculated exposure.

In addition, SA-CCR sets a floor of 95% for the offset that posting margin can achieve, meaning that even the most heavily over-collateralised positions will still be subject to a 5% capital requirement. In practice, coming even close to such a floor seems infeasible for most derivatives portfolios.

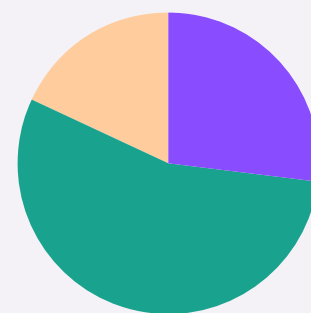
The second area of concern is the blunt nature of the alpha factor, the 1.4 scaler applied to the calculation of RC and PFE. This figure is based on an analysis conducted in 2003 in the context of the design of the IMM and is widely said to result in far higher requirements than the underlying economics and risk profile – one of the residual risks this alpha factor was designed to capture is model risk itself, i.e. the possibility of the internal model design erroneously underestimating risk in certain situations. While the industry has long argued that a carryover of this scaler into the standardised model world is counterintuitive, regulators have been unwilling to meet such demands via a general exemption.

The International Swaps and Derivatives Association (ISDA) has suggested that a scaler of less than 1.1 would be more appropriate, and in the US, regulators have exempted the use of the alpha factor for commercial end-users (CEUs), creating some relief but also raising concerns over an unlevel playing field between jurisdictions.

The Acuiti study found that 82% of respondents were concerned about an unlevel playing field, a figure that was particularly evident among EU-based respondents, all of whom raised concerns, with 55% saying they were very concerned.

In addition to these fundamental concerns, there are a host of other issues relating to the lack of diversification benefits across asset classes and the negative impact on certain client types. These create a disproportionate impact on certain asset classes, instruments and client types.

Are you concerned that different implementations of SA-CCR across jurisdictions will create an unlevel playing field?



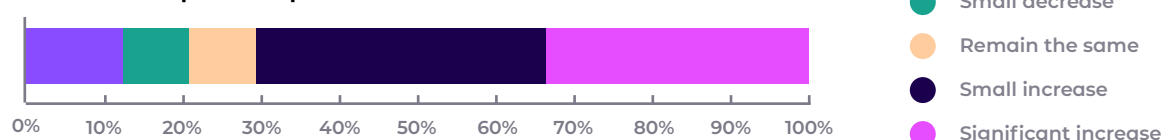
● Yes – very concerned
● Yes – somewhat concerned
● No – not concerned

What is the impact of SA-CCR?

SA-CCR is not designed to reduce capital held by banks. Indeed, the Basel Committee estimates that capital requirements will increase by around 27% under full implementation of SA-CCR. This was a figure similar to one arrived at in a study by a series of associations including the ISDA and the Futures Industry Association (FIA), which found that CCR default-standardised risk-weighted assets (RWA) would increase by 30% under SA-CCR.

In order to gauge how SA-CCR would affect different asset classes and client types, Acuiti asked banks that had conducted analyses of the impact whether capital requirements would increase following its introduction. Acuiti found differing views on the impact across asset classes and client types, which reflect the complexity of SA-CCR and the wide-ranging impact it has depending on the specific portfolio of positions.

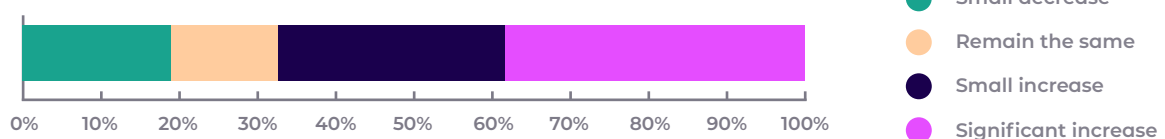
What impact did/will the introduction of SA-CCR have on capital requirements for interest rates?



Interest rates: higher capital requirements

While on the face of it, overall exposures in the rates market are expected to be significantly reduced by the ability to offset risk-cancelling positions and a relatively low supervisory factor, the construction of the netting sets allows only very limited offsetting between different maturity buckets. In addition, the hedging sets are limited to the same underlying currency and further fragmented for intra-currency basis trades. The introduction of a duration-based approach further penalises long-dated trades compared to CEM, where any trades longer than 5 years are subject to the same supervisory risk factor. The impact of SA-CCR on interest rates is diverse, which is reflected in the bimodal distribution of the reported changes in capital requirements set out in the chart above. Banks with multi-directional, predominantly cleared portfolios will benefit vs CEM. However, for banks and their clients with non-cleared, directional positions with a higher margin period of risk, the impact of SA-CCR can be punitive. Much of the rates market has moved to clearing already but SA-CCR is likely to further that trend.

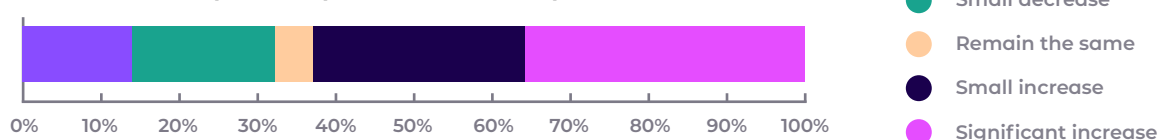
What impact did/will the introduction of SA-CCR have on capital requirements for FX?



FX: significantly higher capital requirements

While FX only has one maturity bucket under SA-CCR, the market is one of the big losers from SA-CCR owing to both the current market structure and to the construction of the hedging sets, which are limited to each currency pair. Optimisation of portfolios can go a long way toward mitigating some of the impact. For example, a bank that is long euros/short dollars and then short sterling/long dollars can net out the positions to arrive at a long euro/short sterling position. However, this only has a limited impact on reducing increases in capital requirements. In terms of market structure, large swathes of the FX market remain bilaterally traded and many users, such as corporates, rely on non-cash collateral to margin positions, which is penalised under SA-CCR particularly for leverage ratio calculations. As a result, 38% of respondents predicted a significant increase in capital requirements for FX.

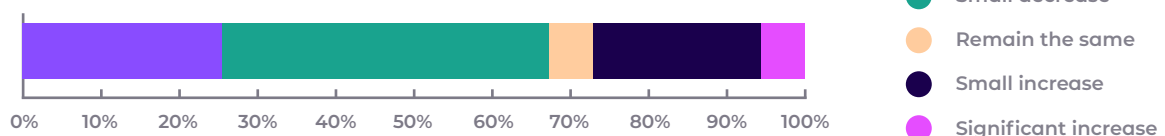
What impact did/will the introduction of SA-CCR have on capital requirements for equities?



Equities: higher capital requirements

There is a single hedging set for equity derivatives and full offsetting is allowed for positions that reference the same underlying, whether a single name or index. Partial offsetting is allowed across different underlying entities. The supervisory factor add-on for equities is high at 32% for a single name and 20% for an index, which results in an increase for most positions compared to CEM. In addition, SA-CCR applies a 'one-size fits all' add-on for both single stock equities and equity indices, which does not account for the different risk and volatility profiles of, for example, investment-grade vs emerging market names - a distinction that is made for credit. However, this impact contrasts with the impact on market makers, particularly with regard to equity options, who benefit significantly from banks' ability to offset trades. For this reason, several banks reported significant decreases in capital requirements for equities, while those who serve other parts of the market are subject to increases.

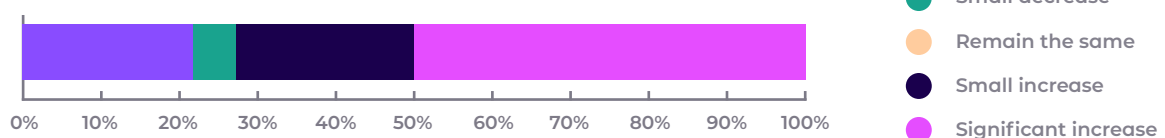
What impact did/will the introduction of SA-CCR have on capital requirements for credit?



Credit: lower capital requirements

The calculation of the add-on for the equity derivatives is similar in construct to the calculation of the add-on for the credit in that it only gives full recognition of the offsetting of long and short positions for derivatives that reference the same entity or index. However, in credit, the supervisory factor scales up depending on the rating of the issuers as well as the tenor of the trade. In addition, the lower end of the scale is significantly lower compared to equities at 0.38% for AAA rated names and investment grade indices, reflecting the seniority of credit over equity in the capital structure leading to lower volatility assumptions. Additionally, as much of the credit market is now cleared, it is subject to additional benefits under SA-CCR. The result is that credit is one of the big winners from SA-CCR, with 68% of respondents saying that capital requirements will reduce.

What impact did/will the introduction of SA-CCR have on capital requirements for commodities?



Commodities: significantly higher capital requirements

Commodities under SA-CCR suffer from both a high supervisory factor and netting sets that do not fully reflect market structure. Electricity attracts the highest supervisory factor add-on at 40%, while other commodities are subject to 18%. These volatility assumptions and the broad nature of the hedging sets create significant adverse consequences for commodities. According to the study by ISDA, the FIA and other associations, EAD and RWA increase by 29% and 70%, respectively, when compared with CEM. The market structure also significantly impacts commodities, in particular with regard to energy. While parts of the market are exchange traded and centrally cleared, thousands of very similar or identical instruments are listed on different exchanges. Netting is not permitted between exchanges, and so firms that actively trade across different markets are subject to significantly higher capital requirements. This is expected to have a particularly negative impact on market makers trading across different exchanges. Overall, 72% of respondents said that SA-CCR would increase capital requirements for commodities.

The impact on client types

The impact on clients is naturally dependent on how and what they trade. The big losers are those with directional positions in long-dated instruments such as pension funds and long-only asset managers.

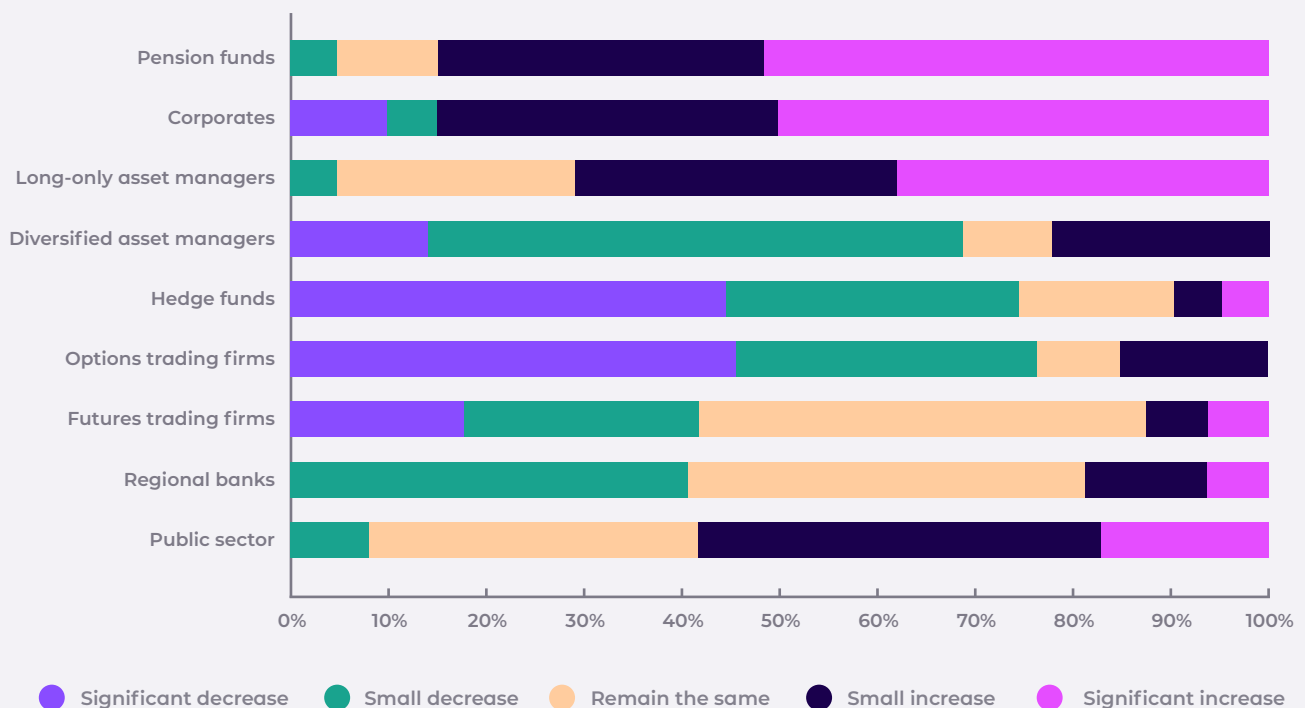
Corporates and other CEUs have cried foul at SA-CCR's treatment of non-cash collateral, which is generally posted by these firms. CEUs use the derivatives markets almost exclusively for hedging purposes and have therefore historically been exempt from many of the post-crisis rules that have impacted other firms.

This means that their positions are generally not centrally cleared or subject to the Uncleared Margin Rules. CEUs tend to provide letters of credit or asset liens, which, as far as banks are concerned, are sufficient to significantly reduce counterparty risk, but are treated as unmargined under SA-CCR.

CEUs have been exempted from the uplift of the alpha factor in the US and there is growing pressure on EU regulators to follow suit. However, the typical structure of their portfolios and use of non-cash collateral offsets the benefits of the alpha factor exemption.

The big winners are diversified asset managers, hedge funds and options trading firms. The former two firm types benefit significantly from having multi-directional portfolios, and the latter from the different calculations of options exposures.

What impact did/will the introduction of SA-CCR have on your capital requirements for each of the following client types?

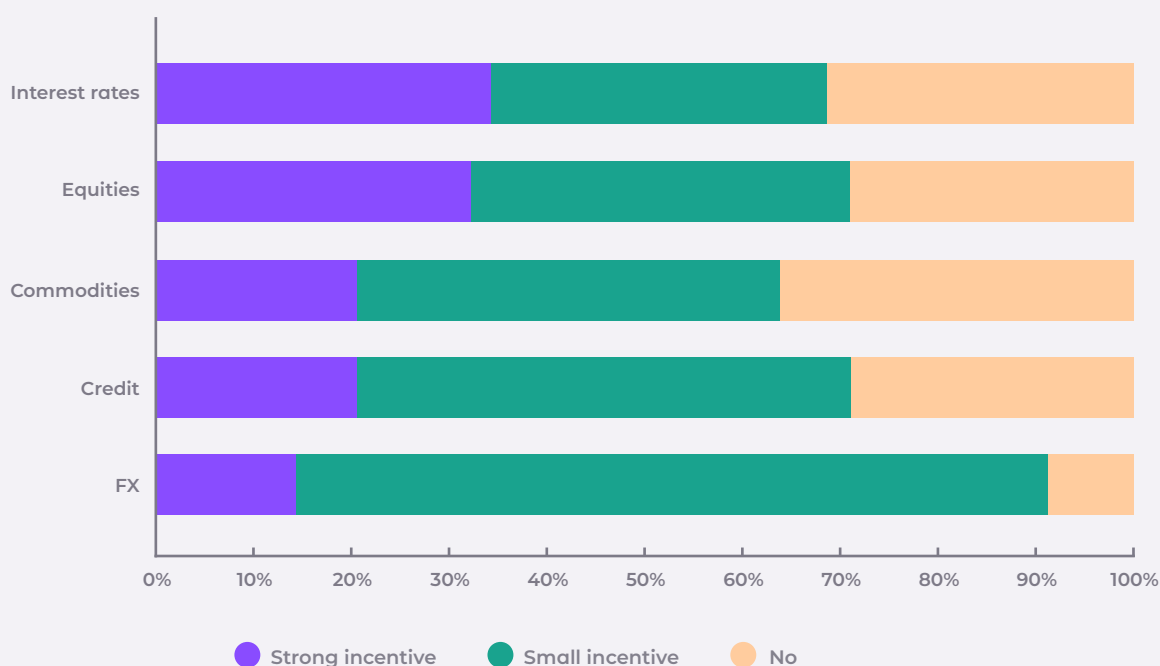




Will SA-CCR boost central clearing?

Overall, 69% of respondents to the survey said that they planned to increase central clearing in response to SA-CCR. In addition, 96% of respondents said that SA-CCR had a very negative impact on uncleared, unmargined derivatives. Under SA-CCR, clearing will be far more capital-efficient than it currently is, which led to initial expectations of a huge boost to central counterparties (CCPs), in particular in FX markets. 91% of respondents thought that SA-CCR would produce an incentive to clear FX. However, while clearing FX will significantly reduce exposures under SA-CCR, there are other barriers to overcome to move the market into a cleared environment, such as CCP IM requirements. Elsewhere, respondents said that SA-CCR would provide a strong incentive to clear interest rates and equities.

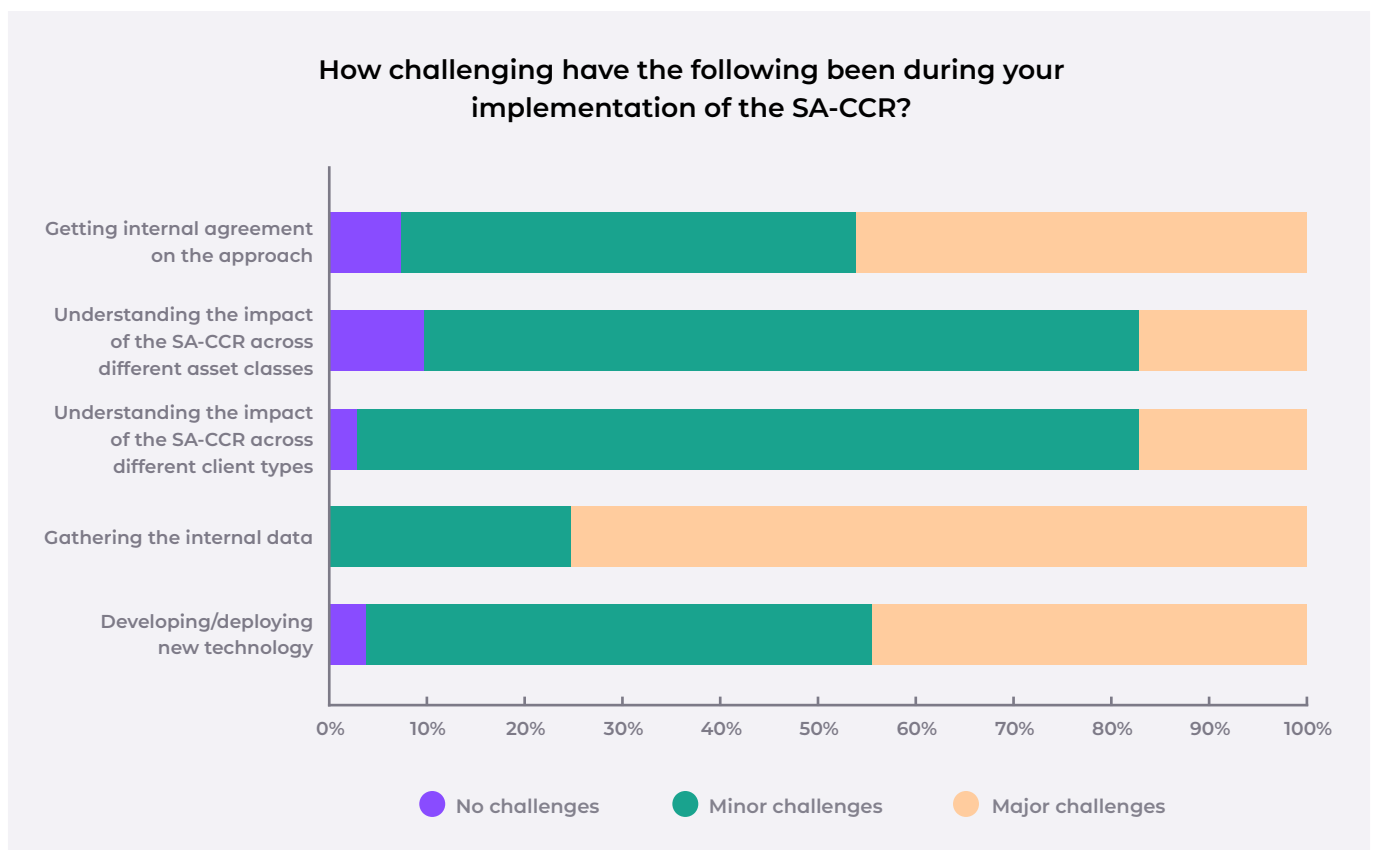
Do you think the introduction of SA-CCR will provide an incentive to clear more trades in any of the following asset classes



How will banks manage SA-CCR?

For banks, SA-CCR has been a major exercise in data processing. For many firms, SA-CCR was more complicated than the models they had been using previously. In addition, SA-CCR required new automated feeds from across the bank to be built to run the calculations.

As a result, the biggest challenge for banks implementing SA-CCR as cited in the survey was gathering the internal data, with three-quarters of respondents citing it a major challenge. SA-CCR has a wide range of impacts across banks and firms also struggled to get internal agreement on their approach, with 92% of firms reporting a challenge in this respect.



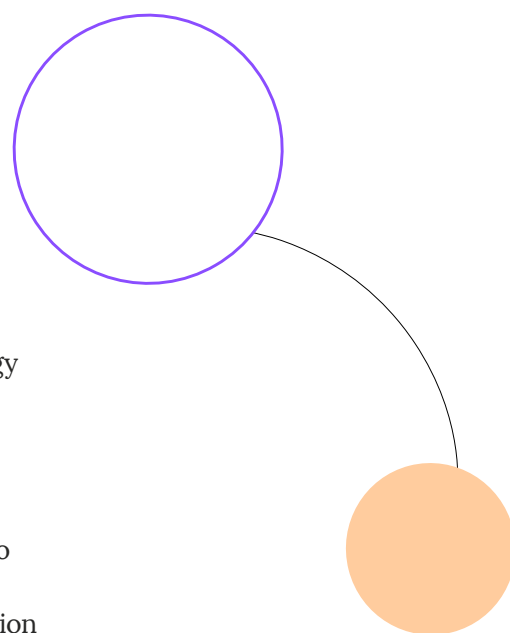
Understanding the impact of SA-CCR across different asset classes and client types posed minor challenges for most respondents, while almost half reported a major challenge in developing and deploying the technology required to make the calculations and bring in all the data feeds.

Going forward, all respondents said they intended to actively manage SA-CCR, with the majority saying they would do so internally via bilateral discussions, the use of multilateral optimisation services via a third-party, backloading positions to clearing and actively managing client portfolios to reduce their capital impact.

In the past, regulatory models and policies encouraged the use of variation margin and, to a lesser degree, initial margin between counterparties on a bilateral basis. A risk-based framework such as SA-CCR requires far greater use of a multilateral approach to risk management by matching offsetting positions across counterparties rather than improving bilateral terms of trading with single counterparties. This is expected to translate into much greater use of optimisation networks, especially in the interbank and hedge fund community.

While there were expectations of a reduction in compression to reduce notional exposures following the introduction of SA-CCR, only 13% of respondents expected a strong decrease, with 46% expecting a slight decrease.

One thing is certain – SA-CCR will bring requirements for more active risk management and a greater focus both pre- and post-trade optimisation on the capital impact of individual trades. Optimisation services will play a key role in helping banks automatically rebalance and actively manage their portfolios to improve capital efficiency.



How Quantile can help

Quantile offers various optimisation techniques such as trade compression, IM optimisation and risk capital optimisation, which address counterparty credit exposures calculated under SA-CCR. Typically, a network of participants submits risk data to Quantile, where it is verified and algorithmically optimised. The resulting optimisation proposal can include new offsetting trades or the termination or backloading of existing trades, all with the objective of reducing risk and financial resource consumption. A common model across the industry, such as the Standard Initial Margin Model (SIMM) for IM calculation or SA-CCR for CCR, greatly facilitates solutions beneficial for all participants.

Conclusion: An imperfect improvement

SA-CCR was born out of the global financial crisis and the failings in existing models to effectively reflect risk and volatility. While it is certainly a more risk-sensitive measure of capital requirements, it is resulting in some significant adverse consequences for certain company types and instruments.

As SA-CCR creates winners and losers for asset classes and clients, so too does it for banks and specific functions within them. Respondents to the survey were almost evenly split on whether SA-CCR would benefit or hinder their business.

Those overseeing clearing businesses were the most positive, with 67% of respondents saying it would benefit their business, including 42% who thought it would be a significant benefit. However, even among clearing executives, 18% said they thought it would be a hindrance.

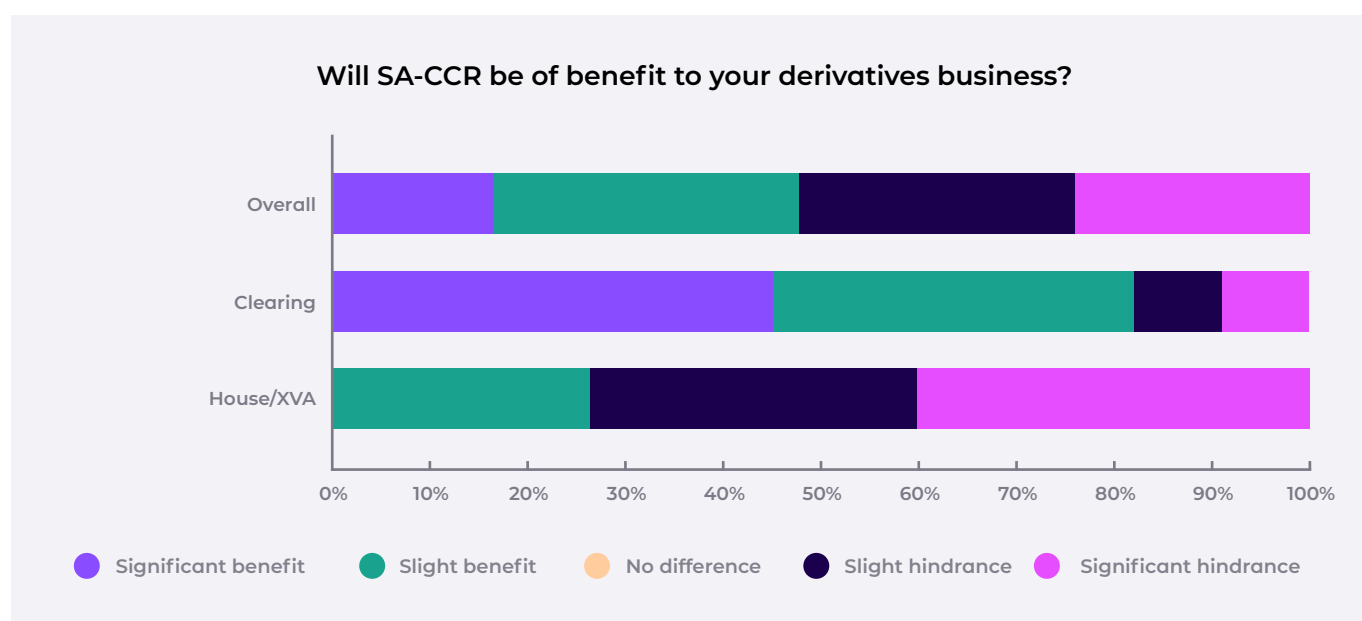
Those respondents overseeing house/trading business and XVA operations were the most negative, with 70% believing SA-CCR would be a hindrance to their business, including 40% who thought it would be a significant hindrance.

SA-CCR is an imperfect fix for the problems raised by CEM and SM but an improvement on the previous methodologies. However, SA-CCR was not conceived to raise the costs of participation in the derivatives market for corporates, pension funds and long-only asset managers. Owing to the impact of increased capital requirements for these firms' portfolios, relief should be considered to mitigate any unintended consequences and increased costs. For those participants not subject to mandatory clearing obligations, optimised backloading to a central clearing house, where only targeted risk is cleared, presents an opportunity to manage exposures prudently.

The hope is that, once implemented, changes can be made to address the major issues such as the treatment of IM and the scale of the alpha factor. More urgent changes will need to be made to the treatment of specific asset classes, with energy markets topping the list for attention.

It is essential, however, that changes are made at a global level. The move by the US regulators to remove CEUs from the alpha factor uplift, while a sensible adjustment that should be extended to other users, has raised significant concerns over the impact of bilateral changes on the level playing field.

SA-CCR will bring significant relief to some parts of the market but bring additional stresses to others. Active management of SA-CCR will be key to optimising portfolios in the post-SA-CCR world. While changes will likely come, there is much that firms can do today to mitigate the downsides of the new capital order.





QUANTILE

About Quantile

Quantile exists to reduce the size, risk and complexity of the derivatives market. Powered by market leading technology and driven by a deep understanding of industry challenges, Quantile increases the efficiency and liquidity of markets, improves returns for clients and helps make the financial system safer. Since launching its first services in 2017, Quantile has eliminated over \$275 trillion of gross notional through interest rate compression and billions of dollars in margin through initial margin optimisation. Clients include all of the G15 top tier global banks, regional banks and other large institutional market participants. Quantile is headquartered in London and has offices in New York and Amsterdam.

www.quantile.com

About Acuiti

Acuiti is a management intelligence platform designed to provide senior executives with unparalleled insight into business operations and industry-wide performance. Acuiti helps identify market trends, enhance decision-making and benchmark company performance. The platform anonymises and aggregates information from its exclusive network of senior industry figures to provide insightful in-depth analysis.