EUREX Architects of trusted markets

Derivatives markets 2022 key trends & developments

A review of the Derivatives Forum Frankfurt 2022

Content

Introduction

After another unusual year since our last Derivatives Forum, we were all hoping to be in the final stages of the pandemic. But not only is the virus still present – we are also facing a terrible war in Ukraine. Over the last three years, we have held one physical event, last year's strictly virtual event and a hybrid version this year. While I wouldn't dare to make a prediction for our next event, one thing is for sure: just like our fourth Derivatives Forum did this year, it will take place, in whatever shape or form possible.

Today, we are delighted to take a look back at the most recent Forum, held on 24 and 25 May 2022, by presenting our event report. With more than 1,100 colleagues joining us this year, both on-site and virtually, we are very pleased with the successful and rapid development of our Derivatives Forum into the top derivatives industry event in Europe.

Eurex is one of the world's leading derivatives exchanges. And while serving a global community, we are equally committed to Frankfurt as an important financial centre. One of the pillars this strength rests upon is derivatives trading, while risk and collateral management also play an important role.

And Frankfurt's importance to European capital markets continues to grow as we have built a financial ecosystem that is attractive to international investors while also facilitating a European recovery from the current crisis.

At Eurex, we provide leadership through innovation. As the architects of trusted markets, we respond to clients' needs and to market trends. And we will continue innovating.

The attached report covers six streams: Markets & Regulation, Derivatives & Portfolio Management, Liquidity & Collateral Management, Technology & Innovation, Sustainability & Investing, and Digital Assets & Markets. It also presents ideas on how to react to a changing financial and derivatives markets, discuss the rise of digital assets and markets, and debate the changing landscape of regulations, as well as liquidity and collateral management, to name just a few topics.

Enjoy reading.

Michael Peters, CEO, Eurex

Markets & regulation

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The European clearing industry continues to grapple with the fallout from the UK's vote to exit the EU in 2016. CCP equivalence has been extended until 2025 but few know what a final regulatory framework to govern the two jurisdictions will look like.

In 2022, European authorities have proposed a number of ideas to foster and grow the health of the continent's clearing ecosystem. Dialogue over which of these will be effective will continue throughout the year. Getting the regulation right will be crucial for the strength of Europe's CCPs, banks and ultimately its ambitions for a Capital Markets Union.

But while the regulatory debate plays out, European market infrastructure has strengthened. Euro swaps liquidity at Eurex has grown. Market participants are increasingly looking at how they can maximize the efficiencies of clearing through cross-margining.

Innovation will also come from the final phase of uncleared margin rules, due in September. Previous implementations of UMR gave rise to the total return future, one of the ETD world's greatest success stories.

That regulatory push is coming alongside a revolution in index production, which is bringing highly sophisticated underlying products to the derivatives markets. If the futures industry is to help this trends' growth it will have to adapt to meet the unique challenges that it poses.

This section will touch on all these themes, taking in the current state of play EU clearing regulation, and where it might go next, the resurgence of cross-margining, as well as the product innovation that can be expected following UMR 6. It also examines the rise of the thematic index, and how providers are capturing mega trends.

Clearing industry seeks regulatory balance for swaps market

After years of post-Brexit uncertainty, the danger of regulatory fragmentation in Europe's clearing industry is still uncomfortably present. Market driven solutions to this tricky solution have already emerged but for them to truly take hold, thoughtful regulation will be needed, and soon.

Since the Brexit referendum, EU regulators have fought to ensure the security of their clearing infrastructure by incentivizing more euro swaps clearing onto the continent. The journey has been long and arduous, with the balance between carrot and stick proving difficult to strike.

"Brexit, of course, has had negative consequences for Europe," says Thomas Book, Member of the Executive Board at Deutsche Börse. "It has also put a spotlight on some of the EU's weaknesses. When we speak of dependencies on the energy side, we see the same dependencies in financial market infrastructures and of course also in risk management – which again stresses the importance for the EU to reduce dependencies and to focus on European sovereignty."

In recent months, European authorities have floated the possibility of capital charges for EU banks with excessive exposures to non-EU CCPs. Also under consideration are an obligation to hold an active account at EU CCPs and increased supervisory powers over CCPs.

This could lead to a renewed focus on UK CCPs, which are currently operating under equivalence until at least 2025.

"As a result of ESMA's comprehensive assessment of tier 2 CCPs, we have deemed that Swapclear at LCH ltd. and the CDS and short-term interest rate segments in ICE are of such substantive systemic importance that there may be situations where the existing EMIR framework does not suffice," says Klaus Löber, Chair of the CCP Supervisory Committee, European Securities and Markets Authority.

While EU market infrastructure is of paramount importance, a delicate balance is needed to avoid unintended consequences. At stake is the ability of Europe's banks and market infrastructure to be globally competitive. The continent's long-standing ambitions for a Capital Markets Union also depend on getting the regulation right.

"All the initiatives and the drive to build European liquidity are obviously of upmost importance, to support building on and strengthening our European sovereignty," says Stefan Simon, Chief Administrative Officer at Deutsche Bank.

"Building liquidity in the European Union is great in terms of CCP capabilities. What we should not forget is that we also need to ensure that European participants, be it banks or other financial institutions, have to the best possible extent, full access to liquidity outside of the European Union. We should not be trapped in thinking we trade off CCP liquidity in the European Union, for access to liquidity outside the European Union."

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> **“CCPs are investing, innovating, and working to make their clearing environments more competitive and more attractive for the market.**

Gaspard Bonin
Deputy Global Head of Derivatives Execution and Clearing, BNP Paribas

Building the right incentives

Market participants have been perturbed in recent years by talk of European regulators imposing punitive capital requirements on banks that clear with third country CCPs. Of even greater concern is the lack of finality on the question of equivalence for UK CCPs, which is set to lapse in 2025, with the potential for serious market dislocation.

The market is developing potential solutions with initiatives like Eurex’s partnership program and cross-margining product.

“For us this is a very positive outcome of a competitive market between different CCPs,” says Gaspard Bonin, Deputy Global Head of Derivatives Execution and Clearing at BNP Paribas. “CCPs are investing, innovating, and working to make their clearing environments more competitive and more attractive for the market. That is a great result of the competition. We strongly welcome all of the work that Eurex and LCH have been doing in this regard. Both from a product and partnership perspective.”

“Further growth of the euro swaps market within the EU will be better achieved with progressive, rather than punitive measures”, says Matthias Graulich, Member of the Executive Board, Eurex Clearing.

“We are in favor of a market driven approach and started on this path five years ago with our partnership program, we see that approach as a contribution to achieve the regulatory objectives and at the same time balancing those with the interest in particular of EU based market participants.”

“The question now is how we ensure more participants to be phased in and create more activity within the EU, without massive regulatory intervention and putting EU banks at a global disadvantage. The idea of an active account in the EU presented in the EU Commission consultation is a very neat one. It would be a natural step for EU market participants to prepare appropriately for the prevailing risk of losing access to some UK CCPs in 2025 and at the same time trigger the ‘activation button’ in the EU.”

Graulich’s ideal outcome is a Euro swaps clearing ecosystem where the exposures are re-balanced with more activity happening within the EU. This would ultimately ensure continued access to UK CCPs based on a re-balanced and therefore significantly reduced systemic risk profile of UK CCPs from an EU perspective.

“That is the outcome which everyone would prefer, as it allows people to optimize in their best interests, but at the same time addressing systemic risk concerns of EU regulators and central banks. Some market participants benefit from keeping elements of their portfolio together on a multi-currency basis and achieving offsets there.”

“But other market participants might be better off combining their portfolio with bund futures or euro denominated repo business at Eurex.”

Bringing in more real money

Ultimately to grow liquidity in Euro swaps clearing, the market needs more than just a mandate from regulators.

"If you look at the kind of market participants that don't have a clearing obligation, the smaller market users like insurance companies and pension funds, or sovereign bodies, they could be a route to increasing (volumes in) the EU market," says Thilo Rossberg, Head of Fixed Income, Currency and Commodity Markets at LBBW. "If you incentivize these institutions to be on Eurex then maybe we can create more of a critical mass in euro cleared swaps."

Pension funds represent a highly desirable addition to the euro clearing ecosystem. Their unique portfolio structures, which constitute long dated receivable flows, would provide an important balance to the predominantly payer positions of dealer desks.

But pension funds, to date, have been reluctant to clear and been exempted from mandatory clearing requirements on multiple occasions owing to concerns over significant variation margin calls during stressed market conditions. This poses a unique risk to pension funds given they hold long dated and directional portfolios.

One way of incentivising these participants to the market could be by offering central bank liquidity through the cleared repo system. While the ECB only intends to provide outright liquidity to banks, these dealers could act as an intermediary for these back-stop funds. Doing so in the cleared repo market would allow the banks to then reduce their balance sheet exposures through netting at the CCP.

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Cross-margining momentum builds

The potential for cross product margining within a CCP is finally being recognized, as a confluence of factors has forced a focus on margin optimization and capital efficiencies.

Cross-margining creates efficiencies by calculating collateral requirements according to the combined risk across a portfolio.

Continued pressure on firms' balance sheets and the high cost of capital have forced many to seek greater margin efficiency in their operations. At the same time, rising liquidity in Eurex's euro swaps service has provided an opening for funds running relative value strategies to cross-margin with the CCP's futures suite.

> **"The cost of funding when cash is no longer cheap has meant that clients are looking for advantages and opportunities.**

> **"Many buy-side firms now have specialist funding teams that are focused on managing margins and collateral more efficiently.**

Jamie Gavin
Head of OTC Prime Clearing – EMEA, Société Générale

Pressure is also coming from UMR, which is bringing more market participants in scope for SIMM calculations. The increased frequency of margin calls in volatile markets has also given greater urgency to finding margin solutions.

"The cost of funding when cash is no longer cheap has meant that clients are looking for advantages and opportunities," says Jamie Gavin, Head of OTC Prime Clearing – EMEA at Société Générale.

Further hurdles

The internal lift to onboard cross-margining is significant and firms need to plan and budget carefully as they prepare to use the service.

"Many firms use specific front, middle and back-office systems for their futures trading business and when they incorporate swaps trading into the clearing operational environment, they often use a separate set-up," says Isabelle Blanche, Fixed Income Sales, Derivatives, Funding & Financing at Eurex. "It is difficult to implement cross product margining when a firm has to reconcile positions and manage collateral across two different back-office infrastructures."

"Some clearing members have had to harmonize their back-office platforms between futures and swaps before they could support cross product margining, and this took some time. Systems and operational processes supporting the ability to optimize portfolios and collateral were initially not widely available, however, there are now elaborate solutions from vendors. Also, many buy-side firms now have specialist funding teams that are focused on managing margins and collateral more efficiently."

Once those hurdles have been completed, momentum can pick up swiftly though.

Société Générale recently started providing cross-margining to a multi-billion multi-strategy hedge fund. For Gavin, the amount of clearing brokers needed to ramp up cross-margining is in fact, relatively small.

From there, more product pairings can be added, like repo, futures, rates and even FX products.

"You don't necessarily need critical mass to get cross-margining going," says Gavin. "There is a competitive opportunity for brokers who move sooner to offer the service to clients, as was the case with cleared repo and compression services."

"It doesn't need a critical mass, just one or two brokers to offer, like Société Générale, and then to pass that on to clients."

UMR set to spur product innovation as futures prepare for new era

The final stage of uncleared margin rules will hit hundreds of firms in September this year, with the higher cost of bilateral OTC trading sending more market participants towards exchange traded products. At the same time, rapid innovation in investable indices is set to increase the demand for new underlyings that will challenge futures product development.

In many ways, the buy-side's move to UMR will be gradual and more likely to be felt after the Phase 6 deadline has passed. This is what happened on the sell-side, much of which has been working under UMR since 2016. Once the new costs of trading uncleared positions become clear and real, market participants will increasingly be interested in cheaper alternative products.

An instructive case study is one of the biggest success stories in bringing OTC liquidity onto exchange: the total return future.

This product was the result of a collaboration between Eurex and sell-side firms, as they worked to best fit the complex characteristics of an OTC total return swap onto in an exchange traded product, where it could benefit from margin efficiencies and central clearing.

"The key impact was that there was an OTC total return swap market that had a natural flow from the sell side, particularly from structured product flow because there was a risk that needed to be hedged," says Stuart Heath, Director, Equity & Index Product Design at Eurex. "That risk was implied repo derived out of structured products and the hedging using options."

"There was a problem, there was an impact of UMR and what we tried to do was come up with a solution. The innovation was solution provision."

From there, market participants have realized other benefits to the TRF, such as its use as a return product with limited dividend risk. For buy-side firms coming under UMR 6, it may also be attractive as a beta replacement product.

> **Clients really want to co-create products, they want to put way more input into product development than I have ever seen in my entire career.**

Axel Lomholt
Chief Product Officer, Indices and Benchmark, Qontigo

Meeting new challenges

While the first effects of UMR are likely to be seen in the development of listed OTC alternatives, ETD participants are also set to benefit from innovations in index construction.

The pace of change in investible indices in recent years has been rapid. Trends like co-creation and developing precision exposures are attracting significant demand. Exchanges are increasingly launching futures that capture highly customized underlying indices.

"Clients really want to co-create products, they want to put way more input into product development than I have ever seen in my entire career," says Axel Lomholt, Chief Product Officer, Indices and Benchmarks at Qontigo. "This is happening at a speed right now that means we really need to think about our technology, our platforms and infrastructure. How do we actually cope with that?"

"Not only do they want to co-create, with an input on product design, they want to deliver the data. That is an amazing trend."

On precision exposures, Lomholt says: "We are getting to a level of detail that 10 years ago I thought we would not get to. You can now get exposure to segments that when I was a portfolio manager were unheard of."

Many investors currently use swaps to take on these types of exposures. But the futures industry is also ready to compete for the incoming volumes generated by these new trends.

However, when futures are built to reference these new underlyings, they create a risk-modelling challenge for clearing houses. CCPs will look at an index's last five years of performance when calculating the risk profile of a future referencing it.

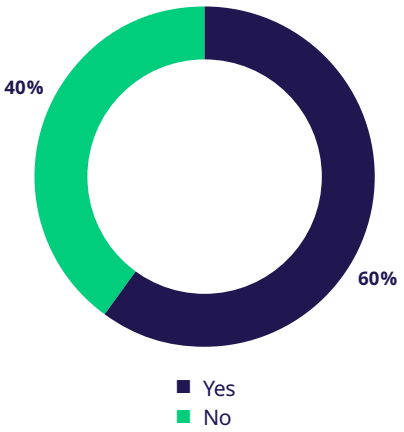
For the new generation of indices, product developers must instead assess individual constituents. But given the high turnover that is common in customized indices with a smaller number of constituents, the trend throws up a new challenge for risk assessment.

"That is one of the challenges we have, how do you correctly quantify a dynamic and authored index into a derivatives product?" says Heath. "It is a challenge we are hopefully accepting."

Capturing the mega trends: index providers accelerate

As markets are roiled by rising rates, geopolitical realignment and increased skepticism about the enthusiasm for technology stocks that drove equity investment in recent years, investors are trying to judge what the next major growth trends will be in the coming decades. The desire to capture the gains of these trends has driven the rise of the thematic index.

Are you currently investing in thematic strategies?

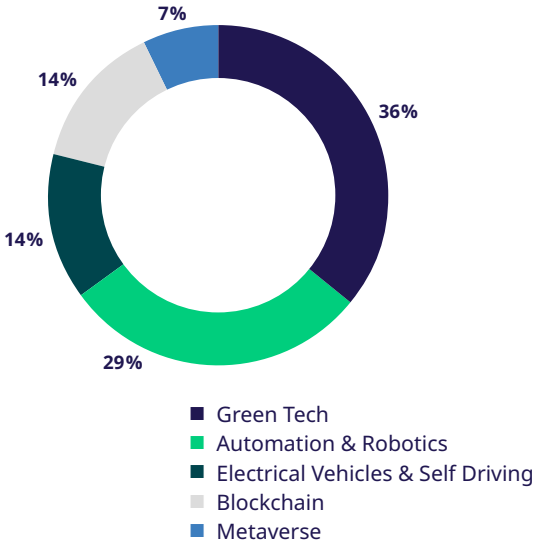


For index providers, these conditions require constant assessment and a mastery of big data. Mega trend indices seek to capture themes such as the digital economy, cyber security, future mobility and the transition to net zero.

The strategies that invest in these thematic indices are designed to be unconstrained and create targeted exposure to structural growth in the theme. Given how broad these themes are, approaches to how to best capture them in an investment strategy vary greatly.

Zubin Ramdarshan, Head of Equity & Index Product Design at Eurex, says that to attract the most money, thematic indices must be global in scope.

In which themes do you see the greatest potential?



"If you take a theme on a regional basis, you may not have enough stocks in the basket and it becomes too illiquid. To make it investable it has to be in some way optimized so you can invest a good degree of AUM in the theme."

> **"Thematic indices must be global in scope.**
>
> Zubin Ramdarshan
> Head of Equity & Index Product Design, Eurex

> **“The quantitative approach allows investors to distinguish who is a pure player.**
>
> **Stephane Mattatia**
> **Managing Director, MSCI**

This does not mean that a broad-brushed approach will do. Deciding which companies best reflect those trends requires regular analysis and debate. Index providers and investors engage with academics and specialist analysts as they seek to best define a theme. This then leads to scouring the globe for specialized data that provides as much detail to the theme as possible.

“If you take a purely qualitative approach without any quantitative analysis to support it, you will end up with the same usual suspects for a lot of themes,” says, Stephane Mattatia, Managing Director at MSCI. “The quantitative approach allows investors to distinguish who is a pure player, even if they are a small cap, and who is a more generalist company.

Intertwined with the growth of thematic indices is big data. Investors have long relied on official data sources to judge their macro risks, such as PMI and regional growth.

But providers are now offering data sets that capture economic data on a monthly or even weekly basis, to give a near real time estimation of inflation, job data, international trade and growth. This allows investors to react even more quickly to market movements.

“New technology allows you to analyze, almost in real time, the constraints of an economy,” says Mattatia. “It opens up a whole universe of new indices that can be created, as you have much more flexibility and reactivity. People are showing a lot of interest as with today’s data we can now access methodologies that would have been out of reach only three years ago.”

Derivatives & portfolio management

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2022 seems set to be the year when volatility become an embedded feature of markets and trading strategies that reaped profits in the previous decade had to be rethought.

In a world of high global inflation and retreating central bank stimulus, traders are rapidly adjusting to a new paradigm. Correlation has broken down and the winners and losers of previous years have been upturned.

The breakdown in previously reliable patterns has created stressful moments but also opportunities.

While market movements have changed rhythm, so have operations. The rise in volatility has led to a rise in margin calls. This has led to an urgent focus on capital efficiency and the tools for achieving it.

These unpredictable adjustments are unfolding alongside more signaled changes that could have equally profound effects on trading.

Uncleared margin rules have not yet created the rise in FX futures volumes that some expected. But with another regulation, SA-CCR, making forwards more expensive, the prospects for exchange traded FX still looks bright.

This section will take in the new volatility landscape and how traders are adjusting to it. It will also analyze how fixed income markets are adjusting to inflation and the evolution of technology. Also covered is the evolution of FX futures, and where this nascent market might go next.

Volatility enters new era as monetary stimulus retreats

With most central banks now well into monetary tightening cycles, the equity market euphoria that followed market stimulus measures in spring 2020 is long gone.

For options traders, this is cause for hope but also trepidation. After a near decade in which subdued markets were hit by big events but rapidly recovered losses, traders are sensing change. Central bankers (with the notable exception of Japan) are pulling back market support in their fight against inflation. The new paradigm is already roiling markets and sending traders back to the drawing board to design new strategies.

In short, realized volatility will go up and so will implied. This will bring opportunities but also acute challenges for protecting portfolios.

"The two main trends we've seen over the past 10 years are firstly, the near perfect correlation between increases in the S&P 500 and aggregated central bank balance sheets. And secondly, what was interpreted as an implicit, near explicit put, from central banks," says Tobias Hekster, Co-CIO at True Partner Capital.

> **"We're going back to a much more normal volatility environment, where the drawdowns we are seeing now are not that special.**
>
> Tobias Hekster
> **Co-CIO, True Partner Capital**

"At the very least, in the current environment the inflection point at which central banks move to intervene will become much lower, but potentially the put might not remain at all: the put made sense with central banks guiding investors to more risk taking by suppressing rates, but such is less required in the current inflationary environment removing part of the logic underlying that put."

"At the same time, there will be headwinds from central banks unwinding their balance sheets. So, we're going back to a much more normal volatility environment, where the drawdowns we are seeing now are not that special."

"That will mean more changes in volatility around a slightly higher constant level, rather than the boom-and-bust cycle of the last couple of years."

This shift in market conditions should be good for traders in the long term but in the near term, prices are still whipsawing too much for comfort for many.

There have been some bright spots, with long gamma strategies, while not perfect, providing a rare light spot. These strategies have worked best in Europe this year say experts.

"There are not many ways to play it," says Marc Moehrle, Portfolio Manager at DWS. "I would argue that there is potential in being long gamma now. It's the only thing which you can afford on the long run and use intra year trends to get something out of the position."

A breakdown in correlation has accompanied the volatility. Instead of across the board sell-offs, single stocks and indices have often come unstuck

this year. Indices have often held up reasonably on days when some constituents have dropped by double digits.

This has been caused by a winners and losers trend resulting from the end of the pandemic "stay-at-home" trade in which stocks like Peloton and Netflix soared. As a result more speculative tech stocks have suffered while defensive names in sectors like healthcare, energy and staples have held up.

That has made dispersion one of the few successful strategies of 2022.

"The fundamental backdrop for dispersion is great as many of the trends of the last decade reverse," says Hugo Bernaldo De Quiros, Senior Cross Asset Trader at Optiver. "We have also had quite a few single stock blow-ups, which helps when running that strategy."

"The EURO STOXX 50 is a great index to set up this dispersion trade as it has a healthy mix of sectors and good liquidity on both the index leg and most of its constituents."

"This rotation is also partly why index convexity hasn't been working so well on the way down. Correlation hasn't been there like in your classic risk-off move where index hedges would perform nicely."

"Correlation between bonds and equities is the most positive it has been in a very long time. The market is trying to figure out where the new Fed put is and when bonds will be bid as equities sell off. That creates new dynamics for rates skew as well."

Hedging conundrum

While dispersion has worked, market conditions have made hedging very difficult, as convexity has broken down.

"Convexity has not worked great and that is based on the fact that the market differentiated between different sectors and styles which lead to low correlation between the single stocks and the index itself," says Moehrle.

> **"The fundamental backdrop for dispersion is great as many of the trends of the last decade reverse.**
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> **Hugo Bernaldo De Quiros**
> **Senior Cross Asset Trader, Optiver**

"Many of these effects actually started in 2020 first working-from-home stocks, after the Vaccine announcement, travel & leisure and banks performed strongly, in 2022 energy increased substantially in value."

"Hedging needs at the beginning of the year weren't that high, so brokers hadn't been that short volatility or gamma. In an environment like that it's always tough to use convexity to hedge overall equity performance or equity components within funds in particular using implied volatility (VIX/V-STOXX) as a hedge."

Retail evolves

While correlations broke down during the pandemic, market structure also shifted with the rise of retail traders. Reddit trading communities forced big market moves in stocks like GameStop and AMC during the height of 2021 lockdowns.

While initially driven by the Reddit message board and "meme-stock" movement, retail trading has become a lot more sophisticated during the pandemic.

"In the past, retail investors were not seen as 'smart money'," says Hekster. "This was in part reflected in the US by the concept of payment for order flow, with firms paying to be the counterparty to retail orders. What we see now is that with these messaging boards, the retail space is able to harness each other's knowledge. Collectively these investors have become quite a savvy market participant."

There are also signs that retail has moved on from targeting hedge fund scalps through short squeezes to having an impact on the market in other ways.

One noticeable trend has been a huge rise in weekly options for some indices. This has led to more short-term products such as daily option expiries. Hugo Bernaldo De Quiros notes that retail has been a significant buyer of these options, a factor that he in part attributes to spiking activity when cash equity markets open.

"In short-term options there's a lot of volatility because of this retail activity," he adds, "These participants are mostly buyers so they tend to become expensive."

FX futures swell as SA-CCR and UMR come online

The tsunami of trading volume from the OTC FX market to futures that some predicted when uncleared margin rules began to kick in has not happened. Instead, exchange traded FX volumes have steadily swelled higher, building a robust momentum that is set to increase with incoming regulation.

For all that the UMR roll-out is making FX futures trading an attractive product, it is not making it obligatory. That has meant that market participants have not faced a cliff-edge transition, as some expected. Instead, the rules have instigated a step-by-step process. This seems most likely to lead to a hybrid market, where listed and OTC products co-exist.

"The lack of a wave doesn't mean that the interest is not there," says Jens Quiram, Executive Director, Head of FX Derivatives at Eurex. "Nor does it mean that the development of a hybrid market will not happen. Instead, it will be a slower progress."

"People are reluctant to change their entire workflow from one day to another. This means risk and effort. Market participants are instead transitioning some of their portfolios, testing and moving them step by step into the workflow. It is not a big bang approach."

"Once people have tested and seen the benefits of FX futures, they will move more in this direction. The benefits are crystal clear, especially under UMR. It means multi-lateral netting and significantly reduced funding costs."

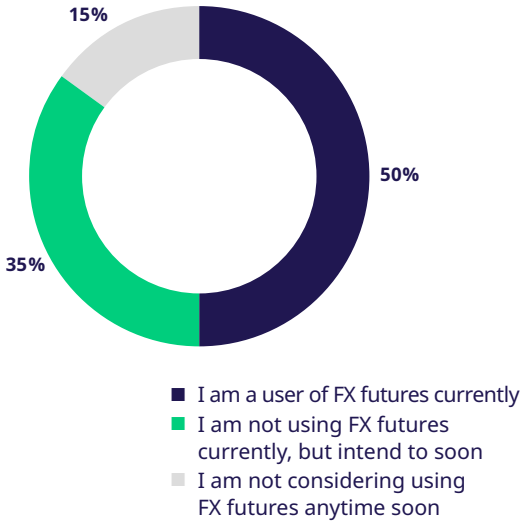
Those already making the transition are very pleased with the results. Christoph Hock, Head of Multi-Asset Trading at Union Investment, and

> **"We have clearly seen a tendency away from business traded in a bilateral way towards a centrally cleared business.**
>
> Christoph Hock
> **Head of Multi-Asset Trading, Union Investment**

his team have now moved 15–20% of the existing FX forwards position into futures. He describes the transfer as "a tremendous success story for FX futures".

"It fits absolutely into the strategy we have as an asset manager," says Hock. "Looking at our derivatives business as a whole over the last four to five years, we have clearly seen a tendency away from business traded in a bilateral way towards a centrally cleared business. And centrally cleared business means either you stay in the OTC world like fixed income [swaps] or in FX either go into the listed future business or NDFs and trade a centrally cleared version."

What is your relationship with FX futures at the moment?



"This central clearing element is a key component of our strategy in derivatives – to deliver a highly robust, best in class service to our end investors."

Hock adds that the lower liquidity in futures compared to the OTC markets was less significant because of the high liquidity in the underlying instruments itself and the mechanism of EFRP (Exchange for Related Position Transaction). He pointed out that his desk's experience in other products, like MSCI World Index Futures, where the derivatives' liquidity had started low before improving, had helped with their adoption of FX futures.

> **"SA-CCR in FX is going to have a bigger impact than UMR.**
>
> **David Reid**
> **Managing Director, Global Foreign Exchange, Deutsche Bank**

That liquidity is already building, and it is important not to mistake the lack of an UMR big bang for a dearth of liquidity. A steady move is happening and those involved in the market are witnessing healthy growth.

"We are already witnessing this shift to an extent," says Scotte Moegling, Institutional Trading at Flow Traders, "with exchanges and ourselves seeing an uptick trend in FX futures blocks recently.

"We have observed requests coming in from new counterparties, and an increase in inbound price requests from historical relationships, which has translated into higher volumes for us as a market maker in these products."

SA-CCR set to provide extra push

The effects of UMR's final phase are set to be more subtle than expected. But FX futures are also set to receive a regulatory boost that has carried less headlines than UMR. SA-CCR, which has been phased in since its became effective in 2017, is set to make the capital cost of servicing directional clients very punitive for some banks, who may have to increase fees to compensate.

"In FX, the impact of UMR has been consistently overestimated over the phases of its implementation and I feel that that is going to be the case with phase six as well," says David Reid, Managing Director, Global Foreign Exchange at Deutsche Bank. "There is a slow burn impact to it where some clients will modify behavior but there is no cliff edge to UMR because of the way it has been implemented."

"If anything, I think that SA-CCR in FX is going to have a bigger impact on the short to medium term evolution of this marketplace. Because of the way it has impacted on short-dated forwards in particular. I think there is a potential for it

to really accelerate the way banks especially look at this segment of the market. Certainly, a greater impact than UMR will have on behavioral change."

Flow Trader's Moegling agrees: "There is a limitation with operational efficiency that can be gained to minimize the impact of SA-CCR for such businesses, and it will come to a point where the only variable to toggle will be the fees they charge such clients. This increase could come as an increase in prime fees or via bid-ask the bank is quoting."

"This will factor into the assessment firms are performing for their cost of execution, and if increased enough could make the futures market more appealing. If this holds true, it would be another driver for liquidity to pick up in the futures space, which could present a compelling argument for others to see the execution benefits over OTC."

Ultimately, the listed and OTC FX markets are set to exist in harmony. This effects of this are already starting to be seen in products like Eurex's monthly FX options, which are unstandardized contracts designed to mimic the flexibility of OTC options but in an exchange traded environment.

"I 100% think FX derivatives will be a hybrid world," says Quiram. "The OTC market is so huge, flexible and liquid. There are so many currencies there that cannot move under the exchange and CCP umbrella. I think it will stay hybrid and the OTC market will remain the main place for liquidity."

"The question is how can you combine these two worlds. The biggest objective for the ETD market is how can it be linked to the OTC market. How can a user benefit from the OTC liquidity as well as benefiting from the multilateral netting and the position netting capabilities of a CCP?"

"If exchanges and CCPs can offer very flexible ways of linking these two worlds this will help the ETD market to grow and increase the offerings of both OTC and ETD liquidity."

Steering Fixed Income in an inflationary environment

The fixed income markets are undergoing an era-defining shift as central banks shift from the loose policies they introduced after the 2008 financial crisis to combat inflation.

That is reversing the period of ultra-low rates and negative yielding bonds that made fixed income markets predictable terrain for many traders. The change that is coming will affect trading strategies, collateral management and execution infrastructure.

Markets were jolted into volatility this year when Russia invaded Ukraine, which compounded inflation, already stoked by supply chain issues in the wake of Covid-19. Central banks are now rapidly re-evaluating their monetary policies of the last decade.

That creates opportunity for fixed income traders, with volatility and divergence in the speed of rate hiking cycles across the globe.

But the volatility also creates stresses. Trading desks are now contending with frequent margin calls. Dealing with this new normal for the medium to long term will require a new focus on collateral management.

"When fixed income was flat and boring, collateral management wasn't really a problem as there wasn't much volatility or inflation in the market," says Phil Simons, Global Head of Sales, Fixed Income Derivatives Funding & Financing at Eurex.

"Rates were negative and the market was awash with cash. Now in recent weeks, we have seen the first euro repo trades that are yielding greater than 0% for the first time in many, many years. The world looks significantly different now compared to a couple of years ago."

"People need to respond accordingly, as these conditions are not going away any time soon. Everything will be higher for longer, whether that be interest rates, inflation or volatility."

This new and unpredictable environment is set to accelerate demand for new, capital efficient solutions to keep pace with the rapid changes. Not only are traders grappling with higher, and often more frequent, margin calls but the roll-out of UMR, in its final phase this year, has obliged a huge swathe of the uncleared derivatives markets to post initial and variation margin.

Momentum is now building in collateral management solutions such as cleared and indemnified repo, which can be integrated with other cleared parts of a portfolio.

"It has taken a number of years to get here," says Simons. "To a large extent cleared repo was solving a potential future issue around balance sheet and capital. In a benign interest rate environment, there was no real pressure on everybody to focus on this. It was more attractive to make hay while the sun shined. But those that took an early lead in adoption are reaping the rewards now."

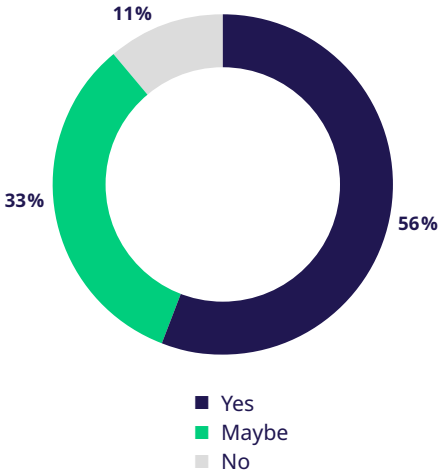
Electronification to step up a gear

At the same time, market participants will also be adapting to the evolution of long-term changes to market structure.

It is a well-worn cliché that the most recent generation of traders has never experienced first-hand the volatility of a rates hiking cycle. But the fixed income markets have also changed significantly in terms of infrastructure and technology. The pace of electronification in fixed income markets certainly lags equities or FX. But the trend has undoubtedly taken hold and is only moving one way.

"Technology is here to stay," says Lee Bartholomew, Head of Fixed Income Derivatives Product R&D at Eurex. "You have seen an acceleration in the use of technology at all levels of the decision-making process. That applies to an infrastructure provider looking at how they are going to evolve their market access, tech, products and functionality, as well as the tools they provide to end clients."

Do you plan to invest in collateral management technology in the next year?



"Those end clients are also trying to navigate an optimal set up. This means deciding how much to automate, whether to high touch or light touch. It involves how they look at the total cost of trading and how that impact what products they use going forward."

"Ultimately it all comes into the melting pot of how make smarter and better decisions."

> **"Cleared repo was solving a potential future issue around balance sheet and capital.**
>
> **Phil Simons**
> **Global Head of Sales, Fixed Income Derivatives Funding & Financing, Eurex**

Liquidity & collateral management

3

Russia's invasion of Ukraine in February roiled markets and added to inflation concerns that have stoked volatility through 2022.

For market participants, the movements resurrected memories of March 2020, when Covid-19 swept through the world. Back then, chaos reigned in the futures market, as systems struggled to keep pace with the huge volume of trades.

In 2022, the market handled a larger volume of transactions much more adeptly. The next stage for the industry will be driving forward collective efforts to improve data standards and information flow across the industry. This is no easy task, but it is essential for the market to find answers.

Volatility has also changed the game for collateral management, with firms suddenly having to view margin efficiency as an essential part of operations, rather than a nice to have. Services like cleared repo have come to the fore and collateral management is set to evolve rapidly in the coming years.

Also due for evolution is liquidity provision, where Europe needs to boost its on-screen futures and options markets with new participants. Key to this will be market incentives and perhaps regulatory reform.

All of these issues are covered in this section, with examination of the futures market's drive to improve workflow issues, the quest to boost exchange liquidity and collateral management's time in the spotlight.

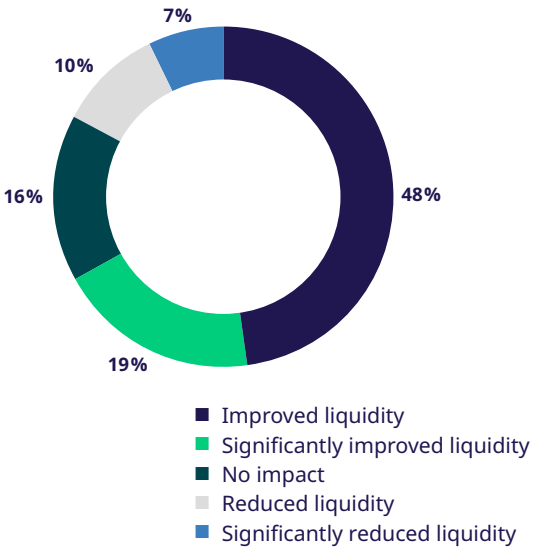
European liquidity providers mull booster measures

European listed derivatives markets are lagging other jurisdictions like the US, and even native cryptocurrency markets, when it comes to liquidity. With the right mix of regulatory reform and market incentives, this trend could be reversed.

European marketing making functions are dominated by bank dealer desks and specialist liquidity providers. Banks can make markets on listed and OTC products as well as offering other services like clearing and research. They have superior capacity to make markets in more niche, illiquid and complex products. Traditionally they can warehouse risk across a broad range of products.

Electronic liquidity providers tend to have a much narrower focus, specializing in specific instruments or markets and only offering prices and execution. This focus on a smaller range of products usually enables them to offer tighter pricing and develop specialist expertise in risk management for those markets.

What impact has the expansion of ELPs into providing direct services to the buy-side had on liquidity in Europe?



The dominance of these two types of market makers has taken hold as other providers exited the market, such as smaller institutional brokers. This has led to increasing concentration of liquidity provision and a dwindling pool of liquidity across products.

> **“The amount of end user flow in Europe is not growing at the same pace when compared to the US.**
>
> Cathal Hardiman
> **Head of Direct Counterparty Trading Europe, IMC Trading B.V.**

“The pie isn’t growing enough,” says Cathal Hardiman, Head of Direct Counterparty Trading Europe at IMC Trading B.V. “The amount of end user flow in Europe is not growing at the same pace when compared to the US.”

Europe’s problems are not down to market structure alone. Russia’s invasion of Ukraine and the implications this has for European energy security have hit risk sentiment in the continent harder than other regions.

But ultimately, Europe needs more end-users.

"We trade with a lot of the big volatility hedge funds and the message we are getting from them is that they are trading more S&P500 and less EURO STOXX 50 (SX5E) because the S&P options are so much more liquid," says Hardiman.

"It is a situation that we all have a duty to try and amend, to improve liquidity in Europe."

Regulatory review could help

Liquidity begets liquidity. So too does illiquidity lead to end users leaving a market.

One way of improving liquidity could be to tweak legislation to bring in more providers. In Germany, one factor holding back new entrants is the country's High Frequency Trading Law, which sought to prevent flash crashes by restricting temporary liquidity providers in the market.

"The irony is that this regulation has created an environment where we cannot allow third-country liquidity providers from countries like the UK and US, the most important capital markets, on our venue," says Randolf Roth, Member of the Executive Board at Eurex.

"That obviously reduces liquidity rather than increases it. If you look at the native crypto markets the liquidity is amazing. There is no exchange with a comparable liquidity picture. That is because the entry barriers for being a liquidity provider are minimal. As well as there being so much client flow rewarding the liquidity provider."

"The irony is that with very good intentions we have built regulation that excludes key liquidity providers. Meanwhile other markets that have no such regulation have a depth of liquidity that is also not going to fade away if markets become volatile."

Creating incentives

Exchanges can also take measures to encourage partnerships with liquidity providers. These comprise rebates fees for liquidity providers, revenue sharing agreements and stipends.

Revenue sharing rewards growing volumes in a market. But it can also undercompensate the main contributors of that growth while overcompensating less active liquidity providers that latch onto overall growth.

Stipends can be useful to encourage market making in new products but in the long-term create the least alignment with exchanges. Liquidity providers that receive stipends have less incentive to create trades. This can compensate traders that are devoting resources to less liquid markets and need their costs covered. But long term it does not induce the positive contributions to markets that participants want to see in Europe.

The third option, rebates, provide the most direct reward for activity. These are the more preferable option for encouraging growth in a product, matching increased activity in a market with lower fees on transactions.

Increased transactions of course, bring additional benefits, some of which are more important for liquidity providers.

"The real reward for market makers is the client interaction, it shouldn't be exchange stipend or reduced fees but client flow," says Roth. "The challenge are new or rather illiquid products where there is not yet enough client flow to reward the market makers."

After 2020, futures industry moves towards standardization

Unprecedented trading volumes and the abrupt shift to remote working when Covid-19 spread through the world in March 2020 put serious pressure on the derivatives industry.

The huge increase in volume that resulted from that volatility put longstanding workflow issues into stark relief. Areas like the give-up/give-in process came close to breaking point and clearing-houses had to extend hours to try and cope with the demand. Settlement times were thrown out of whack, with nearly 20 million contracts pushed beyond T+1. Some went as far as T+6.

20 Mio.

contracts pushed beyond T+1

Ballooning CCP margin requirements added more stress to the already extreme volatility in markets.

Also revealed were major inefficiencies in the flow of data, with the high volume of transactions causing spikes in the number of exceptions and trade breaks at some firms. Fault lines that could be lived with in normal times were exposed as severely deficient when under strain.

The shock from March 2020 has brought two main issues to the fore: data standardization and transparency on the lifecycle of a trade. These are the remit of FIA Tech, as it tries to pull the industry together to lay the foundations for a market that won't be hit by the same chaos again.

On standardization, the aim is to bring uniformity to the trade reference data exchanged between the back and middle office, vendors, execution platforms and exchanges, all of which use different models and references to describe the same products and entities. This will be key to improving interoperability between these different systems.

The project will take time to deliver material reforms but early dialogue has been promising, especially on issues like creating a common symbiology for products.

"It starts with creating an awareness of why people have done things differently, understanding the price of that and then sorting out how we converge," says Nick Solinger, CEO at FIA Tech.

"There has been a lack of feedback loops until now, leaving many providers and their users unaware of the downstream impact of their processes. We have found the vendors very receptive in understanding the impact of the variation in their standards."

Also crucial is the effort to increase transparency through a golden source network of trade information for execution through to final clearing. This could deliver transparency not just on the lifecycle of a trade but also on fees and commissions.

This is an exciting and ambitious program and progress has been slow, despite early good will.

"We have seen that a large number of our clients have streamlined some of their internal processes, but the futures industry has made limited progress collectively," says Per Haga, Global Head of PDS

Product at Barclays. "I view technology vendors playing a critical role as we look to solve the standardization of the industry. There are tremendous economies of scale and the buy-side typically will want a consistent operating model across their multiple executing and clearing brokers."

"A vendor-based solution that can be implemented across brokers, both executing and clearing, is likely to be the most credible option."

Cleaning up the clearing pipeline

While collective efforts are taking longer to set in, individual firms have showed considerable progress. This was most notable when Russia's invasion of Ukraine sparked a comparable bout of volatility to March 2020. Despite 50% higher volumes than the volume spikes in early 2020, only 14% of contracts were late compared to 30% two years ago. In addition, most of the backlog was cleared by T+1.

"During the Covid and Ukraine crisis, our systems were stable and worked very well," says Melanie Weber, SVP Derivatives Clearing Design at Eurex Clearing. "In areas like member requests for extension of clearing hours we noted differences when comparing the two events. During the Ukraine crisis the amount of requests for clearing hours extension were significantly lower."

Much of the improvement came from CCPs.

"In March 2020, the traffic jam was in clearing firms taking in give-ups; in 2022 it was from executing brokers and client allocations being delayed," says Solinger. "In 2022, 85% of volume was delayed due to late allocation by the client or a late give out by an execution broker."

"Relative to 2020, its flipped it almost to the inverse. Clearing brokers and clearinghouses have largely addressed their capacity bottlenecks. We are now down to the last kilometer of the journey."

Eurex has won praise for its improvements since 2020, cutting its clearing delays by hours. It is now working to solve some of the issues caused by average pricing methodology by offering a second average pricing functionally.

"We are working closely with our clearing member to design clearing functionalities, which create additional value and meet their requirements," says Weber. "A certain level on standardization in this context can support a quicker and more efficient adoption of new services and therefore support innovation."

For the futures industry as a whole, the focus must now be on moving beyond internal improvement and strengthening momentum for the wider aims of standardization and transparency. From there, potentially more improvements could be made on issue such as calculation and margin settlement.

Collateral management bursts to the fore

Requirements for sophisticated collateral management processes across the market have been growing with increased regulation and a related move to central clearing. The huge uptick in volatility experienced over the past two years is adding significantly to the pressure.

As interest rates rise and central banks begin quantitative tightening, volatility has returned to nearly all asset classes with a vengeance. After being flooded with liquidity, market participants are suddenly having to contemplate a scarcity of assets for their day-to day operations.

These changes in market conditions are being compounded by regulation. UMR has already increased focus on managing collateral and cash more efficiently. Its sixth and final phase, due later this year, will oblige more buy-side firms to post margin on their bilateral derivatives positions.

Even before volatility truly kicked off, margin requirements were making their presence felt. The top 20 largest dealers globally collected USD 286 bn of initial margin for uncleared derivatives positions last year, according a recent ISDA survey. This represents a 38% increase on 2020.

This rapidly changed environment has brought long existing challenges for collateral management to the fore. The high costs and operational challenges of physically moving collateral have become even more acute in 2022. Some market participants who rarely faced a margin call historically are now struggling to meet them on a daily basis. A lack of standardization has also created difficulties. This is already causing strain on the buy-side. The need for speed has become acute.

"Risk management has moved to be real time and collateral management now needs to play catch up," says Phil Simons, Global Head of Sales, Fixed Income Derivatives Funding & Financing at Eurex. "You also have to deal with multiple collateral pools if you are clearing at multiple CCPs and brokers, as well as bilateral activity. Optimization has now become a genuine challenge."

Cleared repo as a solution

While the rapidly increasing demand for collateral is testing the limits of management systems, it is also raising questions about how big the pool of assets that can be posted is.

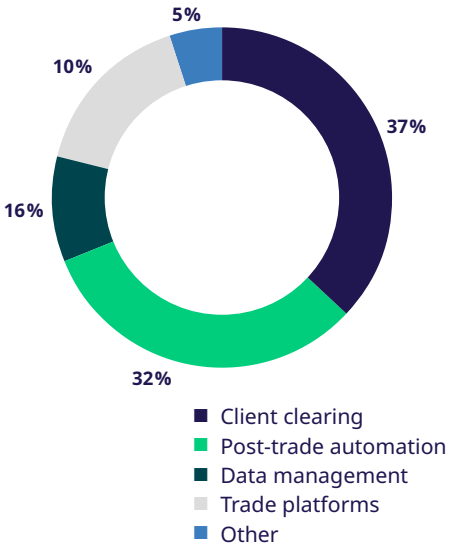
"There is an ongoing industry discussion around broadening out from the traditional collateral set like govvies into posting other asset classes, such as equities," says Danny Foster, Director, Derivatives Clearing Services at HSBC. "Obviously, that is not typically the case on the clearing side. But it is certainly something we are seeing in the market."

> **"As more collateral is tied up for margin, it follows that there is less available for repo transactions or securities lending that could otherwise be used for revenue generation.**
>
> Danny Foster
> Director, Derivatives Clearing Services, HSBC

"As more collateral is tied up for margin, it follows that there is less available for repo transactions or securities lending that could otherwise be used for revenue generation."

Firms grappling with this challenge face multiple options for overcoming it, such as bilateral repo or cleared repo. Demand for capital efficient methods of repo should follow the pattern it did in the US, when demand rose as central banks began to taper.

What repo innovations do you find most important in 2022?



"The ability to provide similar volumes of repo as our peers that offer more leverage relies on cleared or balance sheet light structures, starting with cleared sponsored repo," says Travis Keltner, Managing Director, Head of Repo Trading and Financing Solutions at State Street.

"The sponsored repo model serves everyone in both tightening and loosening market environments."

In Europe, Eurex is already seeing increasing interest in its cleared repo offering. In May it won a significant new member on its ISA Direct platform, as APG Asset Management joined.

"What is very clear is that the buy-side want access to cleared repo," says Simons. "We already have a number of buy-side clients that are very active in the full ISA direct model."

Simons adds that Eurex is already seeing significant hedge fund demand for its indemnified repo service, an extension to the cleared model that provided access to smaller and more diverse counterparties. A diversified and larger membership will be crucial to the success of cleared repo.

"It shows people see what is going on in the market now and understand that cleared repo is part of the solution to the problem. In particular, they want repo integrated with other cleared products; it is the derivatives products that are creating the demand for collateral and cash, these positions are what creates IM and VM. So to have repo integrated with the products driving the demand for cash, addresses the operational challenges and real time aspects of that demand."

Exploring DLT

Through 2022, firms on the buy and sell-side have been grappling with issues such as documentation, standardization, and settlement. Upgrading systems to meet these challenges is not a straightforward proposition at the best of time.

For the sell-side in particular, the process of improving legacy systems presents a major challenge. Few can afford the time and costs to undertake such a massive project.

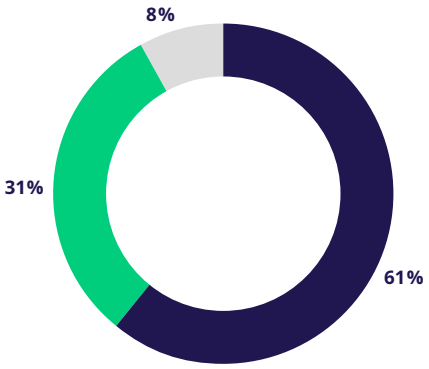
Technology may provide some answers though, with collateral management in a good position to latch onto the momentum in distributed ledger technology. This has the potential to create huge efficiencies through tokenization. By tokenizing securities, firms can then transfer ownership on a blockchain without the actual security leaving the collateral giver's custody account.

DLT systems can also be added onto existing collateral management systems, removing the headache of overhauling infrastructure and starting from scratch.

"We are beginning to engage with the buy-side community to use our platform for posting non-cash collateral to satisfy variation margin requirements in the OTC derivatives space," says Guido Stroemer, Chief Executive Officer, HQLA-X, which offers distributed ledger technology (DLT) solutions for liquidity and collateral management.

"Currently the processes around delivering non-cash collateral to counterparties are operationally onerous and also fraught with risk, and the buy-side see value in leveraging DLT solutions to streamline and de-risk these processes."

What is your current strategy to address collateral management challenges



- Utilise margin optimisation tools / services
- Move uncleared flow to central clearing
- Invest in technology, such as DLT

> **"The sponsored repo model serves everyone in both tightening and loosening market environments.**

Travis Keltner
Managing Director, Head of Repo Trading and Financing Solutions, State Street

> **"The buy-side want access to cleared repo.**

Phil Simons
Global Head of Sales, Fixed Income Derivatives Funding & Financing, Eurex

Technology & innovation

4

The pace of technological innovation in financial markets in 2022 is relentless and could cause lasting changes to the way that market participants interact with each other.

The ascent of Blockchain has long been talked about but the technology is now taking hold in multiple asset classes. Firms are embracing its potential to solve deep seated inefficiencies in a number of markets. Its capacity to reduce transaction costs and times and broaden investor bases could herald an exciting new era for financial markets.

But the technology's adoption is still at an early stage in many asset classes. How it changes market processes is still an open question. Some participants fear that the technology will just be used to replicate existing processes. In fact, it has the potential to redefine participants' roles in their markets.

While blockchain is dominating headlines, other innovations are also accelerating. Algorithm use is extending to more asset classes and being adapted to cover more parts of the execution processes. Algo providers are also having to adapt to the new world of big data and rapidly increase their products' capabilities.

This section will cover this algo evolution, as well as the state of play in blockchain and how experts think the technology will transform traditional financial market structures.

Blockchain: Developing the capital markets of the future

The concept of the blockchain was born out of the launch of Bitcoin in January 2009 and was synonymous with the digital asset in the early days of its existence. Today however, blockchain, or distributed ledged technology (DLT) is being applied in practice and theory to almost every aspect of the derivatives trade lifecycle.

Blockchains are decentralized databases where records of, for example, trades or transaction are held on nodes distributed across a network. The major innovation that DLT has brought is the ability to maintain a secure, single-source and immutable record of data without the need for a third party to intermediate.

The blockchain has evolved from the means of buying and selling crypto assets utilizing an efficient settlement protocol to a means of gaining yield on assets. This is achieved by staking them to a blockchain protocol in both the retail and institutional world.

According to Tim Bruenjes, Head of Sales for Germany, Austria, Nordics, CEE and Russia at Fireblocks, DLT is being applied today to concepts far outside its traditional purpose. "Today the main discussion with regards to DLT concerns broader blockchain applications and the audacious goal of tokenizing unbankable assets," he says.

Tokenization and the development of smart contracts represents the most disruptive element in how DLT is being applied in capital markets today. Through tokenization, a physical asset can be fractionalized, or broken up into smaller, more affordable units that can then be traded on a chain – lowering the barrier to entry and transaction costs.

Bruenjes says: "Blockchain technology provides cost reduction and efficiency increases within current infrastructures and we are working on several use cases here including digital securities and carbon credits, for example. But we see huge opportunities in developing mechanisms to trade unbankable assets and bringing asset classes such as art or real estate investment to a much wider audience."

While tokenization allows the fractionalization of assets, smart contracts provide the ability to embed instructions in a contract or token that will be executed when pre-agreed conditions are met. For example, in a simple example, a bond could be issued in the form of a smart contract that automatically executes coupon payments.

In April 2021, the European Investment Bank launched a bond issuance on the Ethereum blockchain. The issuance, which was arranged by Goldman Sachs, Santander and Société Générale, removed the need for a CSD and reduced the settlement time from five to one day.

> **"DLT is being applied today to concepts far outside its traditional purpose.**
>
> Tim Bruenjes
> **Head of Sales for Germany, Austria, Nordics, CEE and Russia, Fireblocks**

> **We are seeing a lot of client interest initially in fixed income to reduce settlement cycles from T+5 or more down to T+0.**

Amar Amlani
Head of EMEA Digital Assets, Goldman Sachs

Amar Amlani, Head of EMEA Digital Assets at Goldman Sachs, agrees: "The most immediate opportunity today is to streamline existing processes. At Goldman Sachs we are seeing a lot of client interest initially in fixed income to reduce settlement cycles from T+5 or more down to T+0," he says.

However, while tokenization and smart contracts promise to revolutionize access to investments in traditionally illiquid and hard to access asset classes, there is a lot of work to do in developing a liquid secondary market to buy and sell the assets. Developing this market is essential to be able to build and scale products that leverage DLT and tokenization.

Amlani says: "If you look at applying DLT to real assets you can do the primary issuance, but you need to build liquidity in the secondary market to create a network effect that will allow the concept to properly develop."

DLT technology, encompassing tokenization and smart contracts, has applications across the entire trade cycle - from issuance to trading to clearing and settlement. It could also change the world of regulation. Speaking at the Eurex Digital Assets and Crypto Derivatives Focus Day in April 2022, Chris Giancarlo, Former Chairman of US Commodity Futures Trading Commission, predicted a world in which regulators operate as nodes on the blockchain automatically issuing fines and penalties in the form of smart contracts.

Interoperability

Collaboration between peers has been central to development of DLT in the market to date. The most notable example is R3, which began as a consortium of over 60 banks to develop DLT applications, platforms and initiatives. Another example is the Pyth Network, an initiative to develop a decentralized, low latency market data platform backed by many of the world's top trading groups.

"This is one of the most collaborative markets I have ever seen and everyone is working together to build the networks that will ultimately bring liquidity on chain," says Amlani.

However, while collaboration between traditional competitors is accelerating the development of DLT applications, interoperability between chains remains a key area in need of development if the market is to flourish and deliver on its potential. The evolution that blockchain will enable will not be optimized if the funds needed to pay for a bond sit on a chain that is not interoperable with the bond itself, for example.

Bruenjes says that the technology to build bridging solutions exists already. The question today, he says, is whether the owners and developers of DLT applications will allow their customers to switch between different chains operated by their competitors.

Regulation

Regulation is another major uncertainty for executives developing DLT-based initiatives. Regulators across Europe are moving at different speeds when it comes to authorizing blockchain led projects.

In September 2021, Swiss regulators approved SIX's application to launch a market for digital assets based on DLT. In June 2021, Germany brought into law the Electronic Securities Act which established a legal basis for the trading of rights through electronic securities registers.

Regulatory frameworks are likely to be accelerated through the development of Central Bank Digital Currencies (CBDCs), digital tokens pegged to the value of that country's currency and issued by a central bank.

Rob Scott, Global Head of Market Infrastructure, Participants & Services Institutionals – Markets, Sponsors & Service at Commerzbank, says that CBDCs represent a major step forwards in the development of DLT: "CBDCs offer the potential for institutions initially to replicate what they do today but on a chain. Once that process is complete, we will start to see true innovation."

Amlani adds: "The first step tends to be replication but then innovation will turn to how we improve functionality or enhance processes. CBDCs and other scalable forms of digital money will be key as the lack of available digital money will begin to hold back innovation in digital securities."

As central banks increase their adoption of CBCDs and regulators develop sandboxes to test concepts, the development of a detailed and clear regulatory environment should begin to evolve.

Bruenjes says: "You have to make sure the technology is secure and scalable but you also need regulatory clarity to be able to build anything at scale. Financial institutions need the permissions and licenses to operate what they do on DLT."

Building the blocks

There are big visions for DLT in capital markets but there is a long road ahead to realizing them. To date most major financial institutions have developed concepts or betas based on the DLT. However, while most have been successful, they have all been relatively limited in scope.

But what is clear is that there is an emerging consensus that permissioned blockchains have a significantly disruptive role to play in capital markets.

Scott says: "We are very early in the application of DLT to capital markets. I think the first phase of the development we are seeing is the replication of existing processes using securities in a token form. This can drive a lot of substantive change. However, the next phase will be developing new processes and new ways of doing things."

Scott says that what DLT will ultimately lead to is a "redefinition of the actors" in financial markets. One bank, for example, could develop the best protocol for moving collateral around the market, which would then become the default platform for everyone in the market to access as-a-service.

We are already seeing the emergence of this trend with the development of JP Morgan's Onyx blockchain for repo trading, which is being used by several other banks across the market.

"If all we did with this technology is replicate essentially what we have today that would be a travesty. What I think we will see, if we can develop interoperable solutions, will be interoperable blockchains that excel in one specific function in the market," he says.

> **"CBDCs offer the potential for institutions initially to replicate what they do today but on a chain. Once that process is complete, we will start to see true innovation.**

Rob Scott
Global Head of Market Infrastructure, Participants & Services Institutionals – Markets, Sponsors & Service, Commerzbank

Into the futures: the evolution of execution algos

Execution algorithms have long been used by the buy-side to minimize slippage and reduce execution costs in equity markets. Today, they are increasingly being adopted for derivatives markets and becoming much more sophisticated in their applications.

The origins of execution algorithms lie in the automation of trade execution. Once smaller trades began to be executed algorithmically, human traders had more time to spend on higher value orders.

However, as markets became more electronic, the ability for larger orders to be executed diminished. This created a demand for simple execution algorithms that executed large orders over time to reduce market impact.

At the same time, says Jonty Field, global head of product management and head of EMEA at Quantitative Brokers (QB), institutional buy-side firms were seeking to create a more integrated, multi-asset trading desk.

"The centralization of the trading desk that came with a move to increased multi-asset trading meant that some of the expertise that traders had in a specific asset class had was lost," he says. "This created a requirement for execution algorithms that were previously dominant in cash equities to be developed that reflected the nuances of how different asset classes trade."

Yven Scholz, Multi-Asset Derivatives Trader at Allianz Global Investors, adds: "In the past a lot of algorithms that were used to trade cash equities were just copied into the futures world."

"Today algo providers are starting to customize algorithms for the futures market. If you look at things like sector futures or fixed income futures, it is a very different world to cash equities, so you need specialist algos. Futures can be very liquid but have close to zero trading volume. A cash-based algorithm that builds its schedule on traded volume will not work at all."

Algos for futures markets have to take into account unique complexities of market structure such as multiple contracts settling in different months but referencing the same underlying product. In addition, listed derivatives venues have multiple orderbook matching rules, such as pro-rata execution.

Understanding these nuances is key to building execution algorithms that properly reflect the underlying market.

> **"Algo providers are starting to customize algorithms for the futures market.**
>
> Yven Scholz
> Multi-Asset Derivatives Trader, Allianz Global Investors

Sam Boulton, Director of Execution Research at Aspect Capital, says: "We have our own in-house algos but we are looking to expand and on-board various broker execution algos that are beyond the remit of our in-house algos. Automation allows us to measure and control execution costs and look a lot closer at where we are incurring execution costs and where we can improve."

Getting the right benchmark

As algorithms become more sophisticated, so too must the approach firms take to implementing them. One key question for the buy-side is understanding what the best benchmark is to use for their strategies.

"VWAP and TWAP are easily measurable benchmarks but that doesn't mean they are the right benchmark to use," says Field. "Over the last couple of years, firms have shifted attention to second-order considerations in evaluating the benchmarks they are using to measure execution performance."

"Taking the time to understand what benchmark is right for a specific firm's goals and strategy is key."

Field points to metrics such as arrival price, settlement benchmarks or liquidity seeking benchmarks as considerations that are growing in popularity.

A related consideration for firms is how to evaluate the performance of their benchmarks. To do this effectively, firms need to set up simulations and identify where the noise is in their measurements. Field says that firms need to change configurations of their algos to identify the impact on overall execution quality.

He adds: "Sometimes it is less about understanding the algo and more the nature of a market. In the futures roll, for example, it is not just about the order placement but whether the market conditions are right to start the roll at all that day."

> **"Automation allows us to measure and control execution costs.**
>
> **Sam Boulton**
> **Director of Execution Research, Aspect Capital**

Increasing sophistication

Advances in technology, in particular with regards to the processing of big data and machine learning, are furthering the sophistication of algorithms.

Field says QB is seeking to leverage reinforcement learning by building an environment in which thousands of scenarios can be run against the firm's execution algorithms to test how they work in various configurations in different market conditions.

"The benefit of the reinforcement approach is that the algo is built through the learning process and ends up an entirely different algo to what we would have built from scratch," he says.

Sustainability & investing

5

ESG investing has been on a meteoric rise in recent years. Listed equity products have proliferated, and fixed income instruments are now being introduced to investors. The green bond market is innovating at a rapid pace and an EU carbon market is starting to bloom.

At the same time, the ESG industry is facing new challenges. More volatile markets are competing for investors' attention. Russia's invasion of Ukraine has complicated energy security in Europe.

Amid the fast growth of the industry, views on what constitutes ESG abound. This presents a challenge for the listed derivatives industry as it strives to create products that appeal to the broadest possible range of strategies.

Market participants are also grappling to adapt to the regulation. This is moving at a dizzying pace. In Europe it is throwing up entirely new ESG legislation as well as new ESG stipulations in existing regulation, such as MiFID.

Striking the right balance between ensuring compliance through credibility and fostering innovation is a hard task for authorities. Despite the surge in investor interest, there are still important corners of the market, such as pension funds, where the investment framework needs tweaking if more money is to enter the space.

This section will cover these issues in depth, looking at the listed ESG market and the challenges of attracting pension funds to the space. It will also chart the state of green bonds, as well as the maturing of the EU carbon credit market.

Developing a listed ESG trading environment

Listed derivatives have provided a major tool for investors to meet their ESG investment goals. Born out of equities, listed ESG products are now gaining significant traction in fixed income. However, several barriers to growth remain.

The major challenge for exchanges developing listed ESG derivatives is to be able to develop products that are standardized enough to trade while at the same time embedding the myriad approaches institutional investors take to ESG investing.

Julien Nizard, European Head of Equity Derivatives Trading at J.P. Morgan, says: "One of the main challenges (in building out the ESG derivatives market) is that each client has its own internal ESG guidelines, targets and benchmarks, and there's a lack of homogeneity across all investors."

Eurex's initial ESG index derivative launches, and those of other listed derivative venues, followed a negative screening or exclusion methodology, taking an index and stripping out sectors such as controversial weapons, tobacco and thermal coal.

Newer index methodologies around ESG integration and positive screening were then developed with futures products launched on indices that reflect these approaches.

Zubin Ramdarshan, Head of Equity and Index Product Design at Eurex, says: "A key challenge for us as we develop new ESG products is that as you increase the complexity of an index methodology, liquidity becomes a function of successfully educating investor on the index construction."

As more products are launched, costs also increase as exchange participants consume more ESG rating datasets to support their offerings to clients.

As the cost of this data increases, the business case also has to strengthen to justify the investment. Many index providers recognize this issue and have

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> **European Head of Equity Derivatives Trading, J.P. Morgan**

offered data package solutions for derivative liquidity providers in order to support the ecosystem.

Regulatory challenges

Another challenge is regulatory. The market generally views regulatory intervention as essential to the development of common approaches and taxonomies. But different approaches globally and within jurisdictions are adding to complexity.

Nizard says: "There is a fast-evolving regulation landscape, especially in Europe: SFDR, ESG labels and forthcoming MIFID ESG related requirements will have an impact on client demand.

"At a local level, countries introduce different regulations for their internal market. As a result, a multitude of indices are being created to adapt to the varying types of demand. Harmonization will be needed to ensure common product development and increased liquidity."

In the EU, the Sustainable Finance Disclosure Regulation (SFDR), which came into effect in March 2021, seeks to improve transparency in the market for sustainable products and prevent greenwashing. The SFDR is ambitious in its approach but has come under criticism with regards to its implications for derivatives.

The regulation sets out guidance on how firms should calculate their ESG taxonomy alignment ratio. Asset managers, for example, should report the proportion of taxonomy-aligned investments managed by an asset manager in the value of all covered assets under management. This must apply to both its collective and individual portfolio management activities. This is called the Green Investment Ratio.

However, derivatives are excluded from the numerator of KPIs in the Green Investment Ratio as the Commission has taken the view that their primary use is in mitigating counterparty risk rather than to finance an asset or an economic activity.

Davide Masi,Fixed Income Derivatives Product R&D at Eurex, says that this stipulation may have unforeseen detrimental effects to the derivatives industry in general, and to development of ESG derivatives in particular. He warns that such formulation may disincentivize future R&D in the ESG derivatives space, including further work on methodologies for assessing taxonomy alignment.

Georg Kell, Founding Director of the United Nations Global Compact and Chairman of Arabesque, a technology firm, says that European regulations risk harming innovation. "In Europe, regulators pushed for the green taxonomy, which is very complex and imposes significant burdens as well as being binary in nature."

"The US is taking a pragmatic approach to address the most important areas, such as emissions, first while the EU is trying to proscribe top down. There is a risk that the EU approach kills off innovation and shifts the emphasis to compliance rather than innovation."

> **"In Europe, regulators pushed for the green taxonomy, which is very complex and imposes significant burdens as well as being binary in nature.**
>
> **Georg Kell**
> **Founding Director of the United Nations Global Compact and Chairman of Arabesque**

> **We are creating an ecosystem of listed derivatives products to allow investors to trade a fixed income index via a future instead of OTC.**

Davide Masi
Fixed Income Derivatives Product R&D

Growth to date

Eurex has been a pioneer of listed ESG derivatives launching its first equity index contracts in early 2019 and developing a total of 14 equity indices products since then. As of the end of April 2022, notional open interest stood at over EUR 3.9 billion.

Eurex then became the first exchange to offer listed derivatives on fixed income indices that embed an ESG methodology with the launch of futures on the Bloomberg MSCI Euro Corporate SRI and Global Green Bond indices in September 2021.

Masi says: "We are creating an ecosystem of listed derivatives products to allow investors to trade a fixed income index via a future instead of OTC."

"Our products are designed to allow managers of ESG securities to have access to a product which has a reduced basis than traditional fixed income indices, with the capital efficiency of a listed product."

Masi adds that volumes in the fixed income ESG futures have been growing well during 2022 and more traditional buy-side and institutional clients are using the products primarily as a hedging instrument against widening spreads in the Euro investment grade market.

Future growth: new products and carbon markets

Any predictions on the future of ESG derivatives and the overall sustainable investment movement have to take into account the present. One key question today is what impact the war in Ukraine will have on the short to medium term outlook for ESG investing.

Ramdarshan says: "The war in Ukraine has led to a period of self-reflection in terms of where people stand on issues such as energy security and weapons."

"The question is does this cause a slight pause in the growth trajectory and adoption of ESG strategies as energy security is at the forefront of people's mind. More likely the recent reversal in the technology stocks will dampen ESG index returns, given the typical heavier weight of that sector."

Another trend that will impact the future development of ESG derivatives is different focuses in different regions. "The bulk of interest in Europe is on the environmental side with growing interest in areas such as bio-diversity or nature-based solutions," says Nizard. "In the US, we see more interest in the social part of ESG with diversity, equity and inclusion being a major focus for investors."

"There are fewer indices focused on the "S" of ESG compared with the "E" currently but that is changing as index providers respond to the growing demand."

Eurex is researching new products to meet demand and facilitate the rapid evolution of ESG investing. On the equity derivatives side, Ramdarshan says that the exchange is next looking to solutions based on Paris-aligned and climate transition benchmarks, once the market establishes a broader consensus on standardized index methodologies.

Meanwhile, Masi sees opportunities to develop fixed income ESG products referencing non-Europe underliers. "Our ambition is to be the global exchange for ESG derivatives," he says.

ESG investing for Pension Funds

Institutional ESG investment is driving the development of the sector, but pension fund adoption has in some cases lagged behind due to a perceived challenge of aligning ESG criteria with fiduciary duty. However, that is beginning to change, says Lars Kaiser, Head Group Sustainability at VP Bank AG.

Kaiser says that there is a bifurcation in the market between larger and smaller funds when it comes to adoption of ESG.

“Smaller funds are at times behind the curve in their adoption of ESG investing mainly owing to the lack of manpower and internal expertise,” he says.

“Of course, if you are running the pension fund with Greenpeace as a beneficiary, you will have an ESG investment strategy in place with a clear impact focus.”

“But occupational pension funds are generally in the position that they rarely interact with the individuals on behalf of which they are managing the pensions and so there is limited ESG pressure applied, compared to other institutional investors.”

Kaiser says that that education is key to increasing adoption of ESG among pension funds. “You need the commitment of all involved he says, from the board right down to the portfolio managers.”

“It is important that pension funds act now on ESG. Individual pensioners and public interest groups are becoming increasingly active as the sustainability debate grows,” he adds.

“It would be naive to assume that this public interest won’t move into a greater interest into how pensions are being invested. Pension funds would do well to get ahead of the curve in this respect.”

Green bonds: Increasing in scope and sophistication

The market for green bonds grew at a record pace last year. According to Climate Bonds Market Intelligence, more than $571bn of green bonds were issued in 2020, a 50% increase on 2020 levels. The first sovereign issuance of a sustainability-linked bond also highlighted the potential in this segment.

Green bonds are bonds issued to fund new and existing products that deliver environmental benefits or contribute to a more sustainable future. While the first green bond was issued in 2007, it is only over the past five years that the market has started to really take off.

EU takes the lead in Green Bonds

In the EU, the green bond industry got a major boost from the NextGenerationEU funds program, an ambitious plan to issue up to EUR 250 bn in green bonds to finance the bloc's post-Covid recovery. Not only does the program mark the first issuance of bonds on behalf of the EU, it represents by far the largest green bond issuance globally to date.

"With the EU issuing the largest volume of green bonds worldwide, it is also setting the standard for the industry and will drive the way the taxonomy is developed," says Jutta Frey-Hartenberger, Fixed Income Derivatives Product R&D at Eurex.

Indeed, as the EU becomes the largest issuer of green bonds, it is also developing the most ambitious standard to govern their issuance.

The European green bond standard (EUGBS) is a voluntary standard to help scale up and raise the environmental ambitions of the green bond market.

The EUGBS is designed to set a gold standard for how companies and public authorities can use green bonds to raise funds on capital markets to finance such ambitious large-scale investments, while meeting tough sustainability requirements and protecting investors.

However, according to Steffen Hoerter, Head of ESG, Munich RE Investment Partners, while the goal of the EUGBS is well intended, the proposed implementation could be too stringent and hold back the market.

"There is an ongoing discussion about whether the standards should be mandatory and several transparency requirements have been tightened," he says. "Green bonds have been working well as an asset class to date and there is a concern that this new direction of the Green Bond Standard could hold back the market."

> **"With the EU issuing the largest volume of green bonds worldwide, it is also setting the standard for the industry.**
>
> Jutta Frey-Hartenberger
> **Fixed Income Derivatives Product R&D, Eurex**

> **“ Green bonds have been working well as an asset class to date and there is a concern that this new direction of the Green Bond Standard could hold back the market.**

Steffen Hoerter
Head of ESG, Munich RE Investment Partners

> **“ The highest growth in volume is in sustainability-linked-bonds and loans.**

Claire Coustar
Managing Director, Global Head of ESG & Sustainable Finance, Deutsche Bank

If the rules are too stringent, says Hoerter, there is a risk that issuers may seek to issue debt outside the EU to avoid them or choose a standard, non-ESG financing mechanism.

Within the EU, Germany has been an early mover in green bond issuance with the development of the twin bond concept, in which it issues green bonds alongside a conventional “twin” bond. The aim is both to drive the development of green bonds and fund sustainable government products within Germany but also to establish a forward yield curve for government-issued green bonds.

Frey-Hartenberger says: “Eurex has been working closely with the German Finance Agency to support the development of the twin bond concept. We changed contract specifications to reduce the minimum issue amount, which now allows the green twins to be deliverable into German fixed income futures. German FI futures were the first to allow green bonds being deliverable.”

Sustainability-linked bonds

As interest in the issuance of green bonds grows, owing to the ability to tap into new investor bases and highlight the issuer’s green credentials, innovation has thrived. The development of various subsectors of the market has included sustainability-linked bonds, in which the coupon is tied to sustainable KPIs.

“The part of the ESG market that has had the most attention over the past year and the highest growth in volume is in sustainability-linked-bonds and loans,” says Claire Coustar, Managing Director, Global Head of ESG & Sustainable Finance at Deutsche Bank.

“Proceeds from sustainability-linked bonds are not directly tied to specific sustainable initiatives but instead the issuer commits to ESG targets in the future that they will work towards. Sustainability-linked bonds require a clearly prepared transition plan by the counterparty articulating how they intend to achieve these targets. Typically, the interest rate paid will vary up or down depending on whether these targets are reached.”

Coustar says that sustainability-linked bonds will play a key role in the path to net zero as they link back to what investors and banks are doing to steer their investment portfolios towards net zero commitments.

Under these commitments, institutional investors need to set forward carbon emissions targets for their lending and investing activities. To achieve this, they need to have a good sense of what the carbon characteristics of their portfolio will look like, which is a considerable challenge as it involves forward looking data.

“Today the data in the ESG market comes in a multitude of different shapes and sizes in terms of what and how a corporate discloses its exposures,” says Coustar.

“Sustainability-linked bonds are central to overcoming this issue as they give investors a good sense of where the issuer is heading, enables them to monitor progress through the bond reporting obligations, and can link back to investments in some of the benchmark key indices such as the EU decarbonization or climate transition benchmarks.”

Carbon markets to take center stage in the transition

After a stuttering start, the EU carbon market is now leading the world as the bloc shifts to a voluntary model.

Launched in 2005, the EU Emissions Trading System was the world's first large scale carbon trading scheme. The early years of the scheme were plagued by over-supply and price volatility. However, today the EU ETS has established itself as a global blueprint to aid the transition.

"Carbon markets are a really interesting area right now and we are seeing a lot of growth in carbon markets and compliance markets in particular in the EU ETS markets," says Claire Coustar, Managing Director, Global Head of ESG & Sustainable Finance at Deutsche Bank. "Prices are going up consistently because of the increasing ambition of the EU accelerating its decarbonization targets."

"These ambitions are benefitting EU ETS markets in terms of price and liquidity and the EU ETS market is now by far the largest carbon market globally."

Coustar points to an uptick in trading activity and growing interest in carbon markets from investors locking in the positive term structure but also with corporate issuers risk managing their carbon emissions exposure.

As jurisdictions across the world set up their own "cap-and-trade" carbon markets, the EU is developing voluntary markets, a move which is likely to rapidly accelerate carbon trading. Eurex is working with the market on the set-up of voluntary carbon markets across the EU and Deutsche Bourse has invested in Air Carbon, a voluntary carbon market.

"There is also a lot of ongoing activity to build the framework around the voluntary carbon market in areas like the standardization of contracts and building the integrity of the market through things like verification and registration standards and the expiry of carbon credits once they have been used," says Coustar.

Several initiatives are underway to develop the protocols and standardization around which the market will trade, including those from Voluntary Carbon Market Integrity Initiative, the Integrity Council for the Voluntary Carbon markets, the IETA, ISDA and many other industry associations.

Georg Kell, Founding Director of the United Nations Global Compact, sees carbon markets as key to the transition to net zero. "In Europe, the ETS has already made an impact. It is now imperative that other sectors are included, notably transport and buildings and that the price per tonne of carbon increases steadily. If the price exceeds €150 per tonne then the business case for decarbonization even in sectors such as steel and chemicals is within reach.

"Despite current uncertainties, the forces of technology and the imperative to decarbonize markets will continue to accelerate and shape the landscape for business and finance. Autonomous finance is around the corner and smart ESG analytics based on comparable and accessible data will be integral to this transformation."

EUR 150 per tonne – minimum price needed for the business case for decarbonization

Digital assets & markets

6

The heady rise of cryptocurrencies has taken financial markets by storm and forced traditional finance to consider this new asset class. Previously a retail investor phenomenon, banks and market infrastructure providers are now dealing with increasing institutional interest in digital assets. Beyond trading, many are still coming to terms with how crypto's underlying technology will change their markets.

Native crypto exchanges have literally existed offshore from the world of traditional exchanges. But that situation is changing, as the newcomers increasingly look to move onshore.

Given the completely different market structures these two marketplaces have employed, conflict is inevitable. FTX's plan to use a novel market structure for onshore crypto derivatives trading has already caused a stir in traditional finance circles.

But these changes are also bringing opportunities to learn from each other. Institutional investors interested in digital assets expect the exchanges and brokers that have served them for other markets to provide an entry point to this new one.

Crucial to the safe evolution of the market will be regulation, which is needed to give investors the certainty to allocate capital.

This section will explore the colliding market structures of native crypto and traditional exchanges, as well as asking what can be done to make institutional interest secure enough to enter the market. Also covered will be the products and innovations that exchanges are creating to allow institutions an entry point to the market.

Crypto derivatives and market structure: two worlds colliding?

In the five years between November 2016 and November 2021, the total market capitalisation of crypto currencies grew an astonishing 22,000% from EUR 14bn to more than EUR 3tr. While the market has come off since the November peak, there is today a near universal acceptance that crypto trading is here to stay.

The crypto market has grown and evolved, creating an entirely new market structure. In the spot market there are almost 580 centralised exchanges according to research from CoinGecko. While the crypto derivatives market has far fewer exchanges, the landscape is still highly fragmented when compared to traditional derivatives market structure.

22,000%

growth in market capitalisation of crypto currencies

In the crypto futures market, there are around 12 centralised exchanges reporting notable market share in bitcoin futures, with Binance and Bybit the largest in terms of open interest. The bitcoin options market is more concentrated, with Deribit home to more than 90% of trading volumes but there are around 7 other markets with notable market share.

Unique market structure

Crypto derivatives market structure has also evolved in two distinct environments – on traditional exchanges such as Eurex and CME and on crypto-native markets such as Binance and Deribit.

The traditional world has launched crypto derivatives trading within the existing market structure. This means predominant sell-side intermediation and trades clearing at a central clearinghouse.

Crypto native exchanges, however, have brought a new model to the market.

In the crypto native model of derivatives trading there is no central clearinghouse or traditional sell-side FCM intermediating in the market. Instead, the exchange collects two margins – initial margin and maintenance margin – directly from the client when the trade is placed and then calculates the value of that position at regular intervals – every 3 seconds on some markets – throughout the day.

If the margin held to cover the position falls below the required level of maintenance margin, the exchange will automatically begin selling off the position until the margin level is sufficient to cover it.

This market structure has been developed to mitigate for the absence of traditional sell-side intermediation and has led to an evolution of the role that market makers play in the market.

Liquidity providers such as Jane Street, Flow Traders and Cumberland DRW today offer liquidity across crypto markets direct to clients globally and have built out technology, expanded their balance sheet and developed new processes to navigate the unique market structure in crypto derivatives.

"In order to successfully manage significant risk transfers in a product that is trading with a 100% implied volatility, liquidity providers need a big balance sheet to be able to warehouse that risk if necessary and finesse the markets," says Rob Strebel, Head of Relationship Management at DRW.

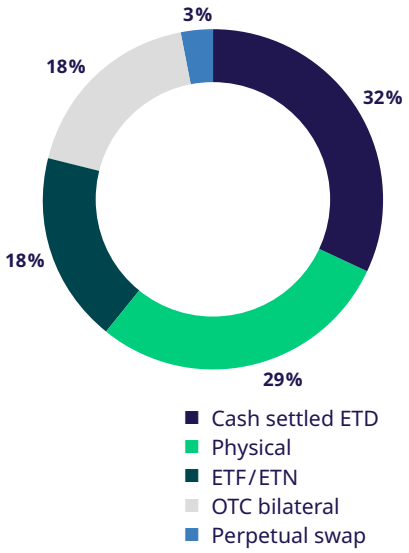
> **Spot and the derivatives markets today are still highly fragmented.**

Rob Strebel
Head of Relationship Management, DRW

Market makers have had to evolve to adopt many of the functions provided in the traditional world by prime brokers in order to offer liquidity across multiple venues.

"Both the spot and the derivatives markets today are still highly fragmented," says Strebel. "And without a real prime brokerage offering within crypto, it can be very challenging for an end user to properly access liquidity."

What would be your preferred method of trading in cryptoassets?



"They have the choice of posting their own capital on multiple exchanges, which is a cumbersome and capital inefficient strategy, or they can choose to execute through a liquidity provider whose job it is to efficiently aggregate the liquidity on those exchanges."

As Strebel notes, for liquidity providers, the challenge is not simply the size of the balance sheet that is required to provide liquidity across multiple venues in a prefunded market, it is also a question of mobilizing and moving capital between venues.

"Because capital is distributed across multiple exchanges, it restricts a liquidity provider's ability to respond adequately to large orders on a single venue," says Thomas Uhm of Jane Street. "If somebody sends a large order to one venue, market makers and liquidity providers can only respond to the extent that they have capital posted there."

"And after that capital has been used up, there are limitations on the speed at which they can transfer capital from another venue. So, a large order can create dislocations between the price on that venue relative to other venues."

Market makers have invested heavily in the technology and processes required to move capital efficiently and effectively across venues. However, the requirement to do so remains a major barrier for many firms looking to optimize their strategies in the crypto market.

Chris Tryer, Head of Fidelity Digital Assets Europe, says that this is an issue that his firm is addressing: "Where there has been a lack of capital available, we are starting to see innovative technology solutions applied so you can operate a PB model in a capital constrained environment. We are creating the opportunity for our clients to trade on different venues without having to post capital on different venues through a partnership with TP ICAP."

Searching for regulatory clarity

The reason for the division between the native and traditional worlds is predominantly regulatory. Regulators in the major financial jurisdictions globally have taken a cautious approach to regulating crypto and the trading of digital assets. This has forced native markets to be regulated offshore and is the main reason for the lack of significant traditional sell-side intermediation in the markets today.

The challenge for regulators is that they are grappling with both highly volatile products in which there have been some high-profile examples of fraud and failure but also with the emergence of new technologies and processes that will fundamentally change how global capital markets operate.

These two factors have converged in the US with FTX's proposal to the CFTC to offer regulated, onshore trading in crypto derivatives utilising the model for market structure that disintermediates the FCM/centrally cleared model dominant in the traditional world.

FTX claims that the initiative is an important step forward in bringing the more than 97% of crypto derivatives trading that happens offshore into the US. However, the push back from traditional exchanges and the wider market has been significant. CME Group CEO Terry Duffy has led the charge claiming the proposal is "glaringly deficient and poses significant risk to market stability". Whatever the CFTC decides on FTX's proposal, regulatory frameworks around crypto and crypto derivatives trading are being developed and will soon be in place in jurisdictions across the globe.

In the EU, the Markets in Crypto-assets Regulation (MICA) is being developed to provide a legal framework for the trading of crypto currencies and derivatives.

MICA seeks to provide a detailed regulatory framework for the full spectrum of crypto markets, from issuance of tokens to the provision of services to crypto trading. The regulation has been criticised in some corners for being too over-arching, however, most in the market welcome any initiatives to properly regulate markets.

"I think everybody on the institutional side is very much aligned that we need greater regulatory clarity before they can fully devote resources to growing the ecosystem," says Jane Street's Uhm.

"There is clearly the potential for a framework that can encourage Fintechs to innovate and access funding while still retaining consumer protection. I think today there is a risk that innovation will be stymied by the focus on consumer protection. If, for example you don't allow anyone to invest in crypto until the product is listed on a regulated exchange, then you do set the bar unnecessarily high."

Strebel adds: "There are many different directions that new regulation could take. At times, the crypto market is too extreme, while TradFi is at times too rigid. There is certainly a middle ground where one can develop this amazing new technology and bring innovation to a traditional world that has traded pretty much the same way for decades."

Two worlds colliding?

The key question today is what path the evolution of market structure within crypto derivatives trading will take. As the regulatory environment evolves, will the traditional and native world conjoin into one and if so, which innovations in the native world will become embedded in market structure?

"What will be interesting is how the two worlds collide," says Tryer. "We expect to see more involvement from the traditional sell-side as the regulations become clear, which will bring more volume and depth to the market."

"But we are starting to see innovations in the crypto world applied to traditional finance. It will be very interesting to see how the technology-first mindset dominant in crypto markets ultimately changes traditional financial infrastructure."

For Jane Street's Thomas Uhm, any convergence of the two worlds of native and traditional markets, will bring significant improvements to the environment for crypto derivatives trading.

"One of the main ways that institutions like hedge funds have been accessing the market is by having distinct pools of capital at spot and derivatives exchanges," he says. "For instance, they might

> **"One of the main ways that institutions like hedge funds have been accessing the market is by having distinct pools of capital at spot and derivatives exchanges.**
>
> **Thomas Uhm**
> **Global Crypto Institutional Sales & Trading, Jane Street**

have an account at a native venue, and they might clear futures on a traditional market via a prime broker, which is obviously very capital inefficient.

"If we can get to a world where firms can trade spot and derivatives in the same place using the same pool of capital, I think that could meaningfully change the way that institutions access the market and significantly reduce the cost for participants."

Regulation is vital to realising the potential of the market. Once the regulatory environment is developed, not only will traditional institutions on the sell-side be able to provide greater balance sheet to crypto derivatives markets, native institutions will be able to scale at a faster pace.

One thing is for sure, while coins and companies will come and go, the innovation and revolutionary potential of the technology underlying crypto assets is here to stay.

Institutional adoption: cautiously gaining traction

A clear regulatory framework is essential to enable wider scale adoption of institutional crypto derivatives trading. Until then, significant adoption of digital assets for many of the institutional buy-side will remain impossible to get through compliance teams. Already, however, there is significant and growing participation in crypto markets from traditional institutional investors.

"We see a bifurcation in the institutional marketplace," says Jane Street's Thomas Uhm. "The split is between, on one side, firms that either have lean decision-making structures, such as family offices and certain hedge funds, or firms that have to be very responsive to customer demand, such as retail brokers. On the other side are institutions that require the approval of multiple departments such as tax and accounting, compliance and cybersecurity etc, to make investment decisions."

"Of the former, the family offices and the retail brokers, many are active in crypto now and they're active across the crypto ecosystem trading multiple coins, including many that would be defined as 'alt-coins'. The firms with more complex approval processes are still in the process of understanding how crypto can fit within their existing infrastructure and looking to trade in a more limited way."

Chris Tryer, Head of Fidelity Digital Assets Europe, agrees: "We continue to see growing interest from traditional institutional investors. Hedge funds and family offices are moving the quickest but there is more and more interest from traditionally more conservative investors."

"There is a spectrum of learning for institutional firms that are not yet trading. Some firms are right at the beginning and asking basic questions about the nature of digital assets, custody agreements and infrastructure etc."

"Others are at the other end of the spectrum and close to allocation asking very detailed questions about different custody models and approaches to the market. The key point is that everyone now is on the spectrum. Crypto has become too engrained to ignore."

Tim Bevan, Co-CEO of ETC Group, says that the institutional adoption in Europe to date is lagging other regions.

"The rate of institutional adoption in Europe is sometimes overstated, especially compared to the US market where there is significant pension fund investment, but it is growing."

"We have seen early adoption in size from retail, hedge funds, private banks and wealth managers but institutional interest from the larger asset managers is growing as firms appreciate that digital assets are here to stay."

For traditional institutional firms adopting crypto derivatives into their portfolios, there are several challenges to overcome. To mitigate these challenges, firms like Fidelity Digital Assets and Crypto Finance have launched to bridge the divide between institutional investors and native crypto markets and infrastructures.

Crypto Finance CEO and Founder Jan Brzezek says that the firm works with a range of traditional institutions, from banks to asset managers, helping them to overcome the challenges unique to the crypto markets.

"Aside from the complex regulatory framework, there are several areas that institutional investors find challenging," he says. "Firms from traditional backgrounds trade on markets like Eurex that are well-established and reliable."

"Crypto exchanges are not as sophisticated or reliable yet. You don't have many order functionalities yet, for example, or they change the API, and you don't get a six-month notification period explaining exactly what is going to change."

"These technical challenges pose a big challenge for firms. Many banks, for example, have an extensive background in trading and are connected to multiple venues in the traditional markets so think that they can apply that experience to the crypto world. However, they soon realize it is a completely different ball game."

New products and innovation

A key question for institutional investors is whether to access crypto via the spot markets or through derivatives or structured products. For firms looking just to hold crypto, the spot market makes sense traditionally but there are fundamental challenges in accessing many spot markets for institutional investors not set up to trade crypto.

Investors looking to trade derivatives in a regulated entity would naturally look to a traditional exchange to trade futures and options or structured products tied to crypto. Eurex has launched single stock futures on a crypto ETP to meet this demand.

Randolf Roth, Member of the Executive Board at Eurex says: "Eurex is positioning itself as the crypto venue for its institutional customer base of sophisticated financial market players."

"We are minimizing the barriers to entry for these firms into the market by having standardized derivatives on an exchange traded note with central clearing and the traditional processes for post-trade in a regulated environment with security of custody."

Tim Bevan, Co-CEO of ETC Group, which manages the BTCetc Bitcoin Exchange Traded Crypto on which Eurex's futures contract is based says that ETFs and ETF futures are a good way for institutional investors to access bitcoin exposure. These routes avoid having to go down the "rabbit

hole" of building their own digital assets infrastructure, as well as mitigating the operational risks of trading directly in the market.

"The ETP is a great solution that addresses the key issues that institutional investors face in gaining exposure to crypto assets," he says. "It is a Bafin-regulated product that trades on Xetra in a way that firms are familiar with. The ETP also acts an aggregator of bitcoin prices across the fragmented spot market."

ETC Group now offers ETPs in 14 digital assets/protocols and Bevan says that institutional interest in expanding their coverage of the sector is growing.

Edd Carlton, Institutional Digital Asset Trader, Flow Traders says "We see a lot of action in exchange traded products. This is growing not only in terms of issuers coming to market but also in the number of products from single assets to baskets."

"We are also seeing increasing innovation and demand for cash settled products giving traditional institutions access and exposure to crypto but in a cash settled format."

It is well known that handling crypto is a key challenge both from a regulatory stance but also in terms of infrastructure. The entities that are facing the barriers the most are from the traditional world that cannot hold physical bitcoin on their balance sheet. "These firms are looking for cash settled listed futures or an ISDA-based NDF or TRS," says Carlton.

The market for ETFs is also becoming more sophisticated. Tryer says that Fidelity Digital Assets is building thematic products to allow investors to gain exposure to broader sectors without being exposed to the volatility of a single coin. Institutional investors are also increasing adoption of basket products, again to avoid exposure to a single coin.

Currently most of the activity in ETPs is on screen and the listed market dominates in derivatives. However, Rob Strebel of DRW says that there is growing interest in OTC trading, a sector that most expect to grow significantly as the market matures. Cumberland DRW started to offer bilateral options at the start of the year.

Institutional investors will increasingly engage with the spot markets in digital assets as the technology and infrastructure develops. More and more traditional software vendors are writing to native spot platforms and embedding crypto trading in their offerings.

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