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September 2022

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TALES FROM THE CRYPTO

DIGITAL ASSETS IN THE STRUCTURED
PRODUCTS MARKET



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Filling the gap

by Nick Cogswell, head of asset management sales at Eqonex

For many people, crypto markets and traditional finance markets have very little in common. Crypto markets have displayed frightening volatility at times and accurately valuing these assets has appeared to some to be very much an art rather than a science.

But crypto market adoption over the last 10 years has been seismic, and more traditional private banks and asset managers are now starting to take note and realise that at some stage in the near future they may need to allocate a proportion of client's portfolios to decentralised finance and crypto markets – or at the very least have a solution available to allow investors to do so.

The fact that many large global investment banks are starting to develop crypto desks is a solid indicator that mainstream adoption is inevitable.

I arrived relatively late to the crypto market as there was still so much happening in the equity and fixed income space as quantitative easing continued and regulation had increased. More recently it has become very clear to me that whether we like it or not, crypto and blockchain technologies will play a crucial role in the future of finance, and that transition is occurring quickly.



Research being done now and the companies being created to take advantage of this new dawn in finance are fundamentally altering our view of traditional finance and how things will work in the future – we are seeing this filtering through to clients too.

While the crypto market this year has shown that the skills and risk tools we have developed within the TradFi markets haven't fully crossed over in to the mainstream markets, developments in regulation and risk management off the back of this, will lay the foundations for significant institutional adoption.

Against the backdrop of a fiat currency devaluation brought on by loose monetary policy exacerbated by the GFC and Covid, the long-term fundamentals of a limited supply store of value should drive a more sustained move upwards in the market.

Structured products that offer investors the ability to define their own return parameters and risk levels are growing in importance, particularly in the context of ushering through the adoption by clients who are new to this asset class.

Issuers who operate native crypto businesses are coming up with new and novel ways to simplify the investment process for investors; whether through Exchange-traded and listed Bitcoin notes backed by physical bitcoin holdings or Structured Notes backed by fully collateralised positions.

The key going forward will be to ensure that - as we saw with structured products 10+ years ago, we strive to both educate and communicate clearly and simply how we see the products and the asset class developing.

Ultimately, we believe in the potential of digital assets and are committed to creating pathways that give our clients access to them in a risk managed way.

Crypto and blockchain technologies will play a crucial role in the future of finance

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Slowly but surely: the unstoppable Blockchain

Distributed ledgers, blockchains and smart contracts are posed to have a transformational effect in business and society, but also in the structured products market.

Financial institutions are exploring and testing the potential of distributed ledger technology (DLT) to streamline and automate many of the functions and processes as well as offer new products and services.

Cryptocurrencies such as bitcoin and open source blockchains are the two most high-profile applications of distributed ledger technology. However, the range of potential applications goes far beyond cryptocurrencies and includes a number of financial functions such as trade execution and settlement systems, trade finance, supply chain management, asset registration, identity management (including for anti-money laundering and know your client purposes) and corporate governance.

Some of the benefits of blockchain technology in the structured products business include cost reduction, reconciliation, and transaction processing errors, as well as transparency, efficiency and investor protection.

This report aims to shed light into a nascent part of the market and increase awareness around cryptocurrencies as a new investment asset class and the use of decentralised finance (DeFi) in the structured products ecosystem.

The report also seeks to contribute to build thought leadership, provide a global overview of market activities, and showcase and highlight those players front-running developments in relation to structured products.

The digital assets market is still in its infancy and despite the recent focus on the 'crypto winter' and the fall of the market cap from US\$3 trillion at the end of 2021 to under US\$1 trillion today, the market cap amounted to US\$57 billion only five years ago, which suggests the



“DeFi structured products demand will closely replicate traditional markets”

Arisa Toyosaki, founder, Cega

forward-looking trend of the new asset class is still one of growth.

DeFi as a new technology/infrastructure to issue and transact investment products and digital assets as well as drive product development and innovation is also in an embryonic stage and is posed to have a transformational effect in the industry, but perhaps at a slower pace than initially expected.

“It’s very interesting to see how blockchain technology such as Ethereum and Solana is being deployed in the structured products market by firms like Ribbon Finance,” says a former investment banker now working for a provider of crypto structured products.

“Institutional investors can now trade structured products on chain, and there are also some market makers providing liquidity in these protocols.”

According to the former banker, crypto structured products providers are seeking to get entry into these protocols but question marks on KYC and AML remain.

“At the moment we don’t feel comfortable,” he says. “As a regulated US entity, all our activities must be regulated. There is room to improve KYC and AML on these protocols and that will give us

the comfort that we need to start trading via blockchain. There is a huge potential to reduce the cost and streamline the issuance of structured products using blockchain technology.”

Since the boom of decentralised applications in 2020, there has been a rise in the number of malicious hacking exploits. While front-end attacks are not a common approach used by hackers, flash loans have facilitated multiple successful hacks recently.

In April, Deus Finance, was hacked for more than US\$13 million in a flash loan attack, and in July, the Solana-based DeFi yield platform Nirvana suffered another flash loan hack resulting on a US\$3.5 million loss.

Larger hacks in the crypto community this year include the Axie Infinity attack which recorded the largest loss worth US\$625 million and the Wormhole bridge hack which saw US\$318 million siphoned into the pockets of hackers.

According to research from Acuiti, a management intelligence platform, the main consequence of the recent market correction in crypto prices will be the market moving closer to the infrastructure in traditional finance (TradFi).

Research also found that 59% of respondents within a group of senior executives from across the globe from hedge funds, banks, brokers, prop traders, asset managers and exchanges, expect a more severe regulatory approach in the medium to long term which could thwart the speed of developments.

Despite the market uncertainty resulting from the recent crypto crash, the number of protocols creating, trading, and settling on-chain permissionless derivatives and structured products continues to increase.

Vyper protocol, a DeFi Hub targeted at investors 'seeking yield and protection when interacting with DeFi applications,' offers a common infrastructure for on-chain derivatives aimed at increasing scalability and reducing costs, as well as bringing modularity to DeFi derivatives, replicating many of the existing features of TradFi for a fraction of the cost.

"The Vyper team are structured products people very keen to get into the Defi world and apply their structured product experience into DeFi," says Keith Bear, associate partner at consultancy Elixirr, former co-founder of IBM's original Risk Management Practice. "Essentially, they have built a compatible solution which will interface with other DeFi protocols and enable investors to have a risk return perspective rather than just entering into something without a real understanding of the risk and return characteristics."

The Vyper Protocol is deployed as a set of smart contracts on Solana so that investors can access Defi investments based on the risk and return profile which is most appropriate for them.

"At the moment, there are two tranches. One which delivers a higher return but at a higher risk, and another which is more conservative and gets the bigger proportion of the return in the event of a loss but sacrifices some of the upside," says Bear.

Dao Ventures is another example of recent developments around DeFi. The Web3 studio is offering DeFi,

Metaverse, NFT exposure via DeFi-based investments such as HydraSwap, a Solana-based decentralised exchange focused on maximising the returns for liquidity providers.

"They also have a number of themes such as follow the crypto whales - they look at their tracks on the public blockchain, understand where the biggest holders of crypto assets are moving their assets and find a way of replicating that in a fund structure," says Bear.

"Having a Metaverse base opens opportunities to a whole range of different types of investments from a thematic point of view. There are many investment products and structured products taking advantage of this because a lot of the core components and the premises are there."

The activities of some DeFi protocols are also being supported by investment as shown by the millions of dollars being raised by companies seeking to facilitate access for investors to the complex world of crypto derivatives.

Earlier this year, Ribbon Finance raised US\$8.8m after partnering with Paradigm to build new risk products native to DeFi and double down on the project's multi-chain approach; and Struct Finance raised US\$3.9m to develop structured products in DeFi - the protocol offers a way to customise interest rate products and compose them with options available in the ecosystem.

Also, this year, Delta One, a Solana-based DeFi protocol, raised US\$9.1 million from investors to develop its offering based on packaging complex yield generation strategies into 'user-friendly structured products'.

Cega, the protocol founded by former UBS derivatives trader Arisa Toyosaki, is setting out to create a new category within DeFi — exotic derivatives after completing a US\$4.3m seed round at US\$60m valuation to build exotic defi-derivatives. It also offers fixed coupon notes (FCNs) based on fully funded put selling with knock-in/knock-outs,

"There are no other protocols currently

creating on-chain exotic derivative contracts for traders," says Toyosaki. "We expect the DeFi structured products demand to closely replicate the traditional markets."

The first tokenised structured product in Asia was launched by ADDX, a digital securities platform for private market investments, in September 2021. The Singapore firm partnered with Vontobel to tokenise an equity-linked note and a fixed coupon note linked to blue-chip stocks in the US and Europe.

"By tokenising a structured product, manual interventions throughout the life cycle of the product from the distribution to the post-trade phases are significantly reduced and corporate actions can be executed with the use of smart contracts," says Oi-Yee Choo, CEO, ADDX.

Tokenisation allows ADDX to fractionalise structured products and offer them in \$10,000 minimum sizes, lower than the \$100,000 minimum size offered by most financial institutions.

"We also estimate that the efficiency gains from the use of technology allow us to generate cost savings that can be passed on to clients in the form of a one to two percent per annum yield increase for a three-month structured product," says Choo. "Going forward, we plan to expand our structured product offerings to include actively managed certificates and other thematic products."

Dimitris Karyampas, head of structuring Europe at crypto native firm Amber Group, notes that anything issued and/or settled on chain is very much welcome.

"Product issuance under traditional methods is also something which we have worked on and are able to deliver," he says. "In the end, investors should be able to access appropriate, quality products irrespective of the settlement chain or method of issuance."

Other protocols benefiting from this growing interest include WonderFi Technologies, Bit Digital, Bitfarms, Coinbase Global, and HIVE Blockchain Technologies.

TradFi: catching up

Traditional financial institutions are increasingly looking at leveraging blockchain technology to improve efficiency, increase transparency and reduce costs.

In the traditional finance (TradFi) world, Société Générale, a tier one player in the structured products market and a pioneer in the DeFi space, has been looking at blockchain DLT as an overarching subject for structured products over the last few years. The French bank launched SG Forge in 2018, an internal startup subsidiary designed to promote innovation.

“The concept ensures there is very clear information about any transaction - you can see who is doing what and where,” says Sohail Raja, head of execution platforms & UK chief digital officer at Société Générale CIB. “However, some of the issues with blockchain remain as there are challenges when applying it to the traditional finance framework.”

According to Raja, structured products pose several challenges as they involve different data types and structures, no consistency across all the banks, and lack of standards around pre- and post-trade platforms in terms of messaging and message types.

“We are trying to apply a blockchain on top of something which already exists but has not been fully solved (lack of standards),” he says. “Applying a new piece of technology to improve efficiency and to deal with the straight-through-processing [STP] side of things and help with the post trade and pre trade activities is our biggest challenge for structured products, but also in general across capital markets.”

According to Keith Bear, associate partner at consultancy Elixirr, who is also a member of the BoE Central Bank Digital Currency Technology Forum, Esma’s Consultative Working Group for financial innovation and the LME’s Technology and Operational Resilience Committee, there are already a number of tier one financial institutions in production on blockchain.

These include Morgan Stanley, Bank of China, and Goldman Sachs, who



“Challenges to apply blockchain to the traditional finance framework remain”

Sohail Raja, head of execution platforms & UK chief digital officer, Société Générale CIB

were early participants in the CLSNet networking for FX trade netting – an automated bilateral payment netting calculation service across 120 currencies for buy-side and sell-side institutions.

The London Stock Exchange has also deployed blockchain technology and DTCC applications for the replacement of the trade information warehouse for credit default swaps (CDS).

“We have moved on quite a lot in terms of where the current focus is,” he says.

Raja points at the benefits of standardisation across pricing and trading in the structured products market which could be incorporated onto the blockchain. “But you have got the challenge of reengineering your platform, ensuring your partners and people you are working with

are on the platform as well, and agreeing standards,” says Raja.

The French bank has been involved in several partnerships on the trade finance market which have been successful because the application of blockchain/DLT has brought efficiencies around a process very much focused on paper flow, emails, letters of credit etc.

“Conversations have also moved from blockchain to central bank digital currencies [CBDCs] and what that might look like and what that might mean going forward,” says Raja.

This includes switching from fiat to digital or doing everything on a digital currency, applications to new business models or new market models, changes to the relationship between investors, banks and central banks.

Adoption

Spectrum Markets CEO Nicky Maan says that from a market infrastructure perspective, the company has been developing its infrastructure to provide a venue that works for all coming digital assets. Some hurdles remain around the applications of these technology on a trading venue – the European MTF launched a range of long and short leveraged turbo certificates using bitcoin and ethereum as underlying assets.

“Although Blockchain has been discussed for a number of years, it is still mainly the expectation around future use cases of the technology that is driving valuations, rather than concrete business plans or company fundamentals,” he says.

“Most people still don’t really understand how blockchain works and the conversation moves on. DLT has great potential, but there are lots of projects in the blockchain world and it is important to identify which have a clear or differentiated use case, and which don’t.”

Spectrum is looking at how blockchain can be used in an MTF environment, but Maan stresses that there are questions around how much it costs to implement and how much effort it needs, as well as the maintenance and the impact on legacy systems.

“There is also an environmental angle, which is very important now,” says Maan. “Had you asked me this question 12 months ago, I would have been very confident that we would find a use for blockchain, but today I’m more 50/50 - either we are missing something which is possible or this is possibly heading down a dead end which would explain why these hundreds of millions of pounds worth of budgets haven’t yet produced anything.”

Leonteq’s head of crypto offering, Tino Wendisch notes, however, that a portion of the structured products market will eventually go on-chain if it results in efficiency improvements for issuers and investors.

“It is still in its infancy today since it requires often connection into legacy systems and you cannot easily trade on chain from a KYC/AML standpoint,” he says. “To me, structured products in security token format on blockchain are a new wrapper type like the fund or the note wrappers today. Each wrapper type has its own set of pros and cons. I believe blockchains and traditional issuing techniques will coexist for a long time.”

Changes, however, will not happen overnight. Umberto De Paoli, head of crypto sales, Marex Solutions, notes that the structured products market isn’t quite ready for pure trading on the blockchain because most of the wealth is still owned by traditional portfolios in fiat currencies through custodian banks and not traded via a wallet.

“It is all settled via Euroclear Clearstream and not on blockchains yet,” he says. “Issuing structured notes on the blockchain as a smart contract takes away the issuer credit risk entirely. Theoretically, an investor could buy the issuance of coins, add the credit risk of any entity and provide them with the funding. The possibilities are endless.”

Marex Solutions was the first issuer of structured products to use a blockchain through a partnership with the now defunct digital structured products multi-issuer platform (MIP) ResonanceX and fintech Nivaura to launch a fully automated equity-linked structured note cleared, settled and registered on a public blockchain.

Since then only a handful of transactions executed by traditional players via blockchain have materialised and reached investors.

BNP Paribas joined J.P. Morgan’s blockchain network Onyx for short-term fixed income trading earlier this year. In the summer the French bank launched its first native digital asset - the first renewable energy bond tokenisation on the project financing, issued on the public blockchain, as it allegedly prepares to enter the crypto custody space in partnership with crypto custody specialists Metaco and Fireblocks.

Blockchain benefits

Blockchain is expected to generate operational efficiencies in various ways: faster settlement, new and cost-efficient safekeeping functions, enhanced position reconciliation process and an easily accessible golden source for transactions monitoring. The end game will materialise over time with increased adoption and an institutional-grade representation of cash.

This new market infrastructure is truly transformational for financial markets. This is the reason why leading financial institutions have established dedicated teams and built technology platforms. Many business verticals are currently impacted such as financial product issuances, payment, collateral management (repo) and asset management. Some blockchain platforms have demonstrated compatibility with the cryptocurrency ecosystem opening the way to hybridation.

SG Forge performed its first deal in 2019 by transacting a security token on a public blockchain - the company was formally established in 2020 and it registered as an investment firm with the French regulator in 2021 to support financial products that can be registered on a blockchain as security tokens.

On the settlement side, we were also the first to perform the settlement of a digital bond with a CBDC in partnership with the Bank of France in 2020.

The subsidiary of SG completed its first bond transaction with the European Investment Bank (EIB) in April 2021 – the €100m trade was jointly syndicated by Santander, Goldman Sachs and Société Générale. Shortly after, it issued the first autocallable structure on the Tezos blockchain which was sold to an insurance company of the group.

SG Forge was also the first to settle a bond using a CBDC with the Bank of France in 2020.

Blockchain is expected to generate operational efficiencies in various ways: faster settlement, new and cost-efficient safekeeping functions, enhanced position reconciliation process and an easily accessible golden source for transactions monitoring,” says Damien Fontanille, institutional sales, SG Forge. “The end game will materialize over time with increased adoption and an institutional-grade representation of cash.

“We strongly believe that blockchain represents the next generation of market infrastructure,” says David Durouchoux, deputy CEO, Société Générale Forge. “It will bring new and better distribution capabilities. In a globalised world, we need global financial product distribution capabilities while the current market infrastructures remain heavily fragmented. Blockchain as a global ‘internet of value’ can enable a global security distribution within regulatory constraints.”

Despite the challenges ahead viable commercial applications of blockchain technology are slowly but surely emerging. Some players may be still reluctant to go with the flow but blockchain will be increasingly adopted as it will bring efficiencies across the value chain as it is fully automated (there is no error) and it’s cheaper, says Rupertus Rothenhauser, MD at Bitmex.

“I don’t know if bitcoin will survive, but I do know that blockchain will as it is the bigger part of the digital transformation,” he says.

Crypto ETPs: first port of call

The advent of cryptocurrencies and DeFi as an asset class has created a virtuous circle where the demand from investors to access digital assets fuels new product activity.

As the main vehicle to access the crypto market, ETPs drive most of the investing activity in the retail market. Crypto ETFs/ETPs listed globally increased by 38.7% from US\$6.02 billion at the end of June 2022 to US\$8.35 billion at the end of July 2022, according to data from research firm ETFGI.

Since the launch of the first Crypto ETP in 2015, the Bitcoin Tracker One-SEK, the number and diversity of products have increased steadily. There are more than 160 crypto ETFs/ETPs listed globally, with 486 listings, assets of US\$8.35 billion, from 32 providers listed on 18 exchanges in 14 countries at the end of July.

Crypto ETFs and ETPs listed globally gathered net inflows of US\$227 million during July, bringing year-to-date net inflows to US\$727 million, much lower than the US\$4.07 billion gathered at this point last year. However, total assets invested in crypto ETFs and ETPs increased 38.7% from at the end of June 2022 to US\$8.35 billion.

While the US has captured headlines for the limits and restrictions imposed by regulators, Europe has been leading the charge for some time now, and the so-called 'crypto winter' has only had an impact on the market cap as suggested by the level of activity seen in the market and capital inflows.

Crypto ETP providers have capitalised on being first movers to offer investment instruments to access cryptocurrencies in a regulated way and came to close the gap between traditional and digital finance with a recognised wrapper among the investment community already back in 2015, according to Marco Infuso, chief sales officer, Valour ETP and former 21Shares.



“ETPs provide one of the safest ways to access cryptocurrencies”

Marco Infuso, chief sales officer, Valour ETP

“If you want to invest in bitcoin or ethereum you need to have a wallet (an online crypto currency account) and transfer your money into a digital exchange which is then converted into US dollars or an stablecoin like USDT to buy a digital asset,” he says.

“This requires a lot of work and sophisticated knowledge - it is a route taken by some investors, but it is not suitable for the older generation which is used to call their bank or broker to buy shares.”

The ETP business jumped to fill that

gap and make possible investing in bitcoin and ethereum using a private banker or relationship manager.

“You do not have to have to open a wallet somewhere on the internet, you do not have to send money anywhere, you do not have to trust an unregulated crypto exchange – and on top: you do not have to take care about your keys either,” said Infuso.

“ETPs provide one of the safest ways to access cryptocurrencies. As an investment instrument, it is one of the most popular wrappers among European investors.”

European ETP player, 21Shares, has been joined recently by new crypto ETP players such as Valour ETP, ETC Group, and HanETF.

“There is now a plethora of vehicles and access routes for investing in crypto assets, demonstrating how far this asset class has come in just over a decade,” says Leonteq Securities’ head of crypto offering, Tino Wendisch.

“Aside from structured products, retail investors can trade crypto assets in the form of ETPs and ETFs. Crypto exchanges and digital banks are another way to invest in crypto assets. There are also many hedge funds available, but unlike in the previous cases, hedge funds are typically inaccessible to retail investors.”

According to Wendisch, it is important to avoid ETPs that are typically issued by unregulated issuers with virtually no capital base or track record.

“[Investors must understand] that ETPs may have varying criteria depending on the country in which they are headquartered,” he says. “To safeguard individual investors in Switzerland,

for example, ETP providers must be collateralised owing to a lack of substance of the ETP issuer.

“It is critical to understand how this collateral is secured, such as how frequently checks are made to ensure that collateral exists, by whom, and how collateral is liquidated for the benefit of ETP investors if there are discrepancies. Because ETP investors have no effective remedy against the ETP issuer, investors must check that collateral is not compromised or lost due to operational errors,” says Wendisch.

According to Bediss Sherif, head of product at crypto data and index provider Kaiko, most structured products tracking cryptos are pure ETPs with intrinsic tracking error due to very weak price formation and price discovery.

“It also means that those structured products launched and issued as delta one certificates have no transparency as of how they are hedged and backed - the price source being exposed to outliers and to problems of market manipulation - so you also face problems when hedging,” he says. “You cannot guarantee a 100% hedge.”

The main venues in Europe to access crypto ETPs are the SIX Swiss Exchange and Germany’s Deutsche Boerse which offer the most comprehensive catalogue of regulated crypto investment products from crypto



“ETPs are having net asset inflows”

Rupertus Rothenhaeuser, managing director, Bitmex

index funds to bitcoin and ethereum ETPs, autocallables and reverse convertibles.

Boerse Stuttgart, the second largest exchange in Germany, has also launched a trading venue for digital assets (Bison) indicating that a new blockchain based business model for exchanges is rapidly gaining momentum.

The evolution of digital assets as an asset class has been strongly correlated with the crypto market sentiment. Swiss company Crypto Finance has been very active in active managed certificates (AMCs) either as issuer or hedge provider for its clients.

There is growing demand for simple payoffs and flexible vehicle such as AMCs which can enable fund

managers to reshuffle the portfolio to obtain the maximum yield.

Crypto Finance is also working to issue new listed ETP’s on regulated exchanges to capitalise on the appetite of investors through a simple accessible product.

Rupertus Rothenhaeuser, managing director of Bitmex, notes that there are also a lot of initiatives developing on the back of the transfer of skills from investment banking to the crypto space.

“People that were involved in building click-and-trade platforms for structured products are replicating them in the crypto market,” he says. “Crypto ETP providers have been successful because by operating a security environment with an ISIN code they are able to tap into the liquidity and money pools of the traditional banks.

“Exchanges couldn’t care less if an investor buys a share of Daimler or a bitcoin ETN from 21Shares as long as it has an ISIN code.”

These providers are offering a hybrid model that continues to bring inflows.

“The AuM has shrunk substantially because the value of all the underlying has decreased, but in fact those products are having net asset inflows as they sell more than they lose,” he says. “This is a good sign. The appetite is still there.”



“There is now a plethora of vehicles to invest in crypto assets”

Tino Wendisch, head of crypto, Leonteq Securities

Digital assets: fuelling product innovation

In the structured products realm, the initial focus on bitcoin and ethereum trackers is giving way to a full ecosystem of products with many variations and a growing options market.

In the structured products realm, the initial focus on bitcoin and ethereum trackers is giving way to a full ecosystem of products with many variations and a growing options market.

Almost every major tier one financial institution is now at an advanced stage of development in digital asset capabilities, with those who have not yet launched capabilities working towards product launches.

Earlier this summer, Goldman Sachs (GS) executed its first crypto derivative transaction tied to ether (ETH) via an over-the-counter (OTC) non-deliverable forward (NDF) trade with Marex Solutions acting as counterparty.

The US bank is also working to offer synthetically long/short bitcoin-linked securities and exchange-traded notes (ETNs) to prime brokerage clients in Europe seeking exposure to the crypto market.

Spectrum, the pan-European trading platform for securitised derivatives, brought to market the first turbo warrants on bitcoin and Ethereum earlier this year, and several tier one investment banks have actioned plans to offer access to crypto investments.

Citigroup wealth management launched in the summer of 2021 a Digital Assets Group to capitalise on the demand for digital assets and help its richest clients gain exposure to cryptocurrencies and digital assets via a new dedicated team inside its wealth management business.

However, most of the product innovation is being driven by 'early moving' crypto native companies seeking to capitalise on the offer-demand gap.



“Index exposure takes the single name risk out of the decision making

Aaron Samsonoff, chief security officer and co-founder, InvestDEFY

“Originally, most digital asset structured products offered in the market were simple dual-currency investments, whether in the CeFi world or through DeFi Option Vaults,” says Zhiming Yang, co-founder at Orbit Markets. “We are now seeing many platforms looking to differentiate themselves by offering new products like snowballs, fixed coupon notes [FCNs], and twin-win structures. Leverage is very uncommon given the

high volatility of the underlying, and in the wake of the recent market volatility, we are seeing increasing demand for principal-protected products.”

According to Anchal Jain, founder and CEO at SynOption, the digital assets world has moved up the complexity chain more rapidly than other asset classes, with yield enhancement products already quite popular among professional investors.

“We started off with DAOs offerings based on simple vanilla options and are already moving towards more complex structures that are seen in traditional FX and equity markets,” says Jain. “With returns that are already attractive, complex structured products give the option of structuring trades with limited downside.”

Demand for new structured products has highlighted the need for a functioning derivatives markets for digital assets with some large crypto market-makers such as Genesis, Amber, GSR and QCP developing a vanilla options market while working to expand their product offering to exotics.

Orbit Markets is focusing on exotic options as it believes this will be the next frontier in the digital assets market.

“We believe we are the first to have built advanced quant models and risk systems that enable us to offer exotic payoffs such as American barrier options, basket options and structured products with those payoffs embedded,” says Orbit Market’s Yang.

As demand increases in the more sophisticated part of the market, several crypto companies are also looking to develop structured products for accredited investors - institutional investors, family offices, high-net-worth

individuals, bitcoin miners, and DeFi yield farmers, seeking lower risk with uncorrelated returns.

Canada's crypto firm InvestDEFY entered the market earlier this year with the launch of its D.A.T.A. platform and the firm's first two indexes - the Equal Weighted Decentralized Finance (DeFi) and Equal Weighted Metaverse + Web 3.0 NFT.

The offering was expanded recently with Sygma, a weekly yield harvest programme that uses a machine learning (ML) model powered through the firm's analytical platform which seeks to generate attractive yield alongside downside protection.

Aaron Samsonoff, crypto and DeFi expert, chief security officer and co-founder at InvestDEFY, believes the market is still underserved by structured products, but is slowly changing towards offering through either accredited or DeFi channels which are deploying new indexes and strategies such as market neutral yield - arbitrage; reduced volatility exposure; volatility speculation; yield on full exposure; and up to 2-3x leverage.

"Structured products are well positioned to carve their place in the market as term products providing a range of payoff profiles - rangebound market, higher market, volatility, principal protection, at risk," he says. "Most investors are best served with an investable passive thematic index vs. speculating on single names outside of BTC/ETH. However, most regulatory regimes make it extremely difficult to launch a true crypto index consisting of alt coins etc, due to custody requirements."

According to Samsonoff, thoughtful thematic indexes are a good choice for investors looking to wade back into the market without needing to do a deep dive on individual names.

"Index exposure takes the single name risk out of the decision making in place of a diversified basket of passive names," he says. "We are working on a novel investable index for speculating

on volatility in addition to our existing DeFi and Metaverse indexes. We'll be bringing to market actively managed indexes soon and will continue to add novel thematic indexes where applicable as well as design custom indexes for third party partners."

Investor appetite will drive demand for additional structured products, but the market must ensure the issuer has an identifiable business model, sound risk management practices and ensure beyond all else ability to make payoff with proven track record.

"We've seen too many instances where rehypothecation has driven notable collapses among issuers as well as new issuers with novel ideas / products that do not have the expertise to recognise maximum risk of loss in their design, operational risks, and tail event risk," he says.

Traditional players

Leonteq has pioneered the offering of structured products linked to the performance of crypto assets in Switzerland since 2017 and is behind several firsts in the structured products market including the world's first listed short tracker certificate on bitcoin, the first exchange-traded actively managed strategy linked to the Swissquote Multi Crypto Active Index, the world's first reverse convertible on bitcoin and the first publicly offered Ether-linked reverse convertible.

The Swiss structured products specialist offers the most comprehensive range of crypto structured products with a total of 30 crypto assets on its platform. Leonteq has also partnered with index sponsor Swissquote to develop new crypto underlying strategies that are being delivered via actively managed certificates (AMCs). This is also the route taken by a number of Swiss asset managers to offer access to investors to the crypto market.

Some of the strategies available via Leonteq tracker certificates include the Swissquote Metaverse index, Swissquote Decentralised Crypto Basket and Swissquote Smart Contract Platforms Crypto Basket.

"Investing in crypto assets through Leonteq structured products has numerous advantages, including the fact that investors do not need to manage cryptographic keys, and they benefit from a fully regulated issuer with an investment-grade rating and a strong capital base," says Tino Wendisch, head of crypto offering at Leonteq Securities. "Structured products can be tailored to client needs in a cost-effective and timely manner."

Marex's hedging and investment solutions arm, Marex Solutions, has also been ahead of the curve in crypto product development and has used structured products to respond to demand for crypto assets from institutional investors.

The UK-based non-banking issuer of structured products took the lead in 2021 with several market firsts in the institutional space including the first barrier reverse convertible in bitcoin in January, the first to quote in ethereum and the first and a cash & carry note linked to bitcoin and ethereum.

Most recently, Marex has entered a partnership with Compass Financial Technologies, a Swiss and French based EU regulated index provider, to develop digital asset investment solutions for institutional investors.

"Although the competitive landscape of cryptocurrencies has increasingly grown over the last couple of years, the number of active players in structured products is still low," says Joost Burgerhout, head of Marex Financial Products.

"Banks are actively looking into this asset class, [but] there is no clear indication that they will be issuing similar notes in the near future."

According to Burgerhout, structured products are well positioned to provide access to the crypto market not only because "they provide a means to get exposure to crypto, or even hold or exchange a crypto coin, but because they can also extract value from crypto as an asset class and take advantage of the high volatility to deliver exotic payoffs".

Change of direction: risk management in focus

The recent crash in the crypto market has brought attention to risk management and the need for broader market exposure to avoid the risk of overweighing on single names.

This indicates that the theme is no longer tracking single crypto assets but instead basket of crypto assets, according to crypto specialist Laurent Kssis, head of Europe at ETF provider HashDex and former MD at 21Shares.

“The market continues to have many gaps and institutional investors are incredibly badly served in that field,” he says. “There is scope to offer products linked to a basket of securities, just like an ETF does with a basket of stocks and shares, which resonate a lot more with institutional investors.”

According to Kssis, most of investors don't have fundamentals of all the crypto coins/tokens that are in existence and trying to decipher that alone can be challenging.

“By giving exposure using a basket of cryptocurrencies and a rule-based methodology, you mitigate the risks by having less concentrated exposure and more diversification from a single asset,” he says.

“Obviously some people have lost money in the last few months, but I think it's positive for the market as a whole because it has brought the attention to risk management which is a key factor in the structured products market,” says Nick Cogswell, head of sales, asset management at Egonex. “TradFi people involved in the crypto market know the risks because they have seen them before around other volatile underlyings.

“Things like uncollateralised lending for instance can add more risk to the market. We think the market can be managed better to ensure it is sustainable going forward.”

Index providers, traditional and new,



“We want to design and develop indices that can support more than just a specific wrapper”

Bediss Sherif, head of product, Kaiko

have been developing new benchmark strategies using crypto and digital assets for a while. S&P Dow Jones Indices was the first to develop a family of crypto indices.

The first S&P DJI cryptocurrency indices were launched in May 2021 - the S&P Bitcoin Index and S&P Ethereum Index. Shortly after, the

index provider released the S&P Cryptocurrency MegaCap Index, which is a market-weighted combination of the Bitcoin and Ethereum indices.

In July 2021, the index provider announced the launch of additional cryptocurrency indices to cover additional coins and broader-based indices such as large cap and broad market benchmarks including the S&P Cryptocurrency Broad Digital Market (BDM) Index which provides a wide performance snapshot of the cryptocurrency market and includes more than 240 coins at launch.

“Talking with clients, we realised that there was also demand for smaller indices, which led to the launch of the top five and top 10 equal weighted cryptocurrency indices,” says Sharon Liebowitz, senior director, innovation & strategy at S&P Dow Jones Indices, adding that two risk control indices on bitcoin and Ethereum have also been developed aimed at product providers seeking optimised underlyings.

The S&P Bitcoin Dynamic Rebalancing Risk Control 40% Index and the S&P Ethereum Dynamic Rebalancing Risk Control 40% Index, limit the volatility of the respective indices to a target level of 40% by adjusting the exposure to the underlying index and allocating to US dollars.

MSCI is also working on delivering crypto indexes as there is still appetite for digital assets, according to a senior executive.

“It's not necessarily a bad thing for the market to get rid of some of the tokens which were not the most robust,” he says. “We clearly see an interest and we are still positioning ourselves to produce such indexes. There is a long way to go in that process, but

efforts are being made to create those indexes and start delivering them in delta one format.”

MSCI launched recently a strategic collaboration with Menai Financial Group, a provider of institutional-grade digital asset investment products and trading services, to develop new tools for institutional investors seeking to capitalize on the growth of blockchain technology and digital assets.

From an index perspective, the offer remains very limited as the industry is lacking a more global perspective and serialised indices and rates, according to Kaiko’s Sherif.

“Everything being done in terms of indexing in the crypto market lacks standards,” he says. “Some indexes are built ad hoc to serve punctual structured products’ needs, there is no industry standard.”

In addition, even these indexes “are pretty much focused on listing very vanilla delta-one products to offer spot exposure but actually carry a significant level of risk and do not match the risk profile of the asset class”.

Kaiko, a cryptocurrency market data provider for institutional investors and enterprises, acquired Napoleon Index from digital asset investment firm CoinShares in June 2022 to launch a new business line providing a suite of regulated, single-asset and multi-asset crypto asset benchmarks for institutional investors.

The company also caught the attention of Deutsche Börse which entered into a cooperation agreement with the crypto market data provider to make their crypto data feed directly accessible to the exchange’s customers.

“We want to design and develop indices that can support more than just a specific wrapper in the structured products market,” says Sherif.

“Our goal is to develop new crypto indices with optimised price feeds that can meet the needs of structured

products investors and a more sophisticated approach, appropriate to the novel asset class.

“We think we can propose an alternative to existing offerings through solving the fair value and replicability problem. We don’t see traditional index providers as competitors. We think there is an opportunity to interact and work together to develop a more mature and sustainable ecosystem to increase value for market players and investors.”

Head of indexes at Coinmetrics, Bruce Traan notes that coming from the derivatives space, this is something the market saw in the early 2000s in the options space where “there was a lot of price fragmentation between options exchanges”.

“Price discovery only became more efficient when the National Best Bid and Offer (NBBO) was introduced alongside linkage and connectivity between the option exchanges,” he says.

“We are still in the early days of crypto and there’s a tremendous amount of price fragmentation within the market itself with 300+ exchanges trading spot crypto.

“Due to the large number of exchanges and markets available, there is going to be price deviations when you trade on one exchange versus the other – prices could deviate quite substantially and having a source of truth for what is a fair market value for crypto is extremely important.”

According to Traan, Coinmetrics solves this problem by providing a source of truth in calculating reference rates and indexes.

“By applying a Market Selection Framework - an amalgamation of different filters and criteria - we rank and monitor exchanges based on trade and market data quality, technical infrastructure, KYC, AML etc,” he says. “Those exchanges highest ranked make it into our exchange whitelist.”

By having an objective methodology

on how we calculate our reference rates and indexes, investors will have a tool to monitor price deviations and receive market feedback on what is being traded at a specific moment in time.

“Our real-time reference rates and indexes are a great proxy for that,” says Traan. “We also provide hourly calculations such that clients can use those values as an end of day close price or valuation metric for marking their portfolio’s NAV. There is a lot of work to be done to demystify this market but by providing transparent and objective methodologies, we aim to be that source of truth.”

Other providers of index strategies mainly to the ETF market include VanEck’s MV Index Solutions, which developed a series of digital assets indices designed to accurately track the performance of digital assets markets in partnership with London-based digital asset data provider CryptoCompare.

The series includes 12 single digital asset indices, including bitcoin, ether and ripple as well as four multiple digital asset indices

CryptoCompare also partnered with investment technology and advisory company Wilshire, in association with the Financial Times, to launch in September 2021 a new series of digital asset indexes with digital assets prices aggregated from seven of the most highly rated crypto exchanges.

The series is currently comprised of 32 single-asset, three multi-asset, and three themed indexes.

Most recently, ETF provider Hashdex partnered with Nasdaq to launch the Nasdaq Crypto Index Europe (NCIE), an index designed to measure the performance of the overall digital asset market while remaining reflective of the ETP listing standards at specified European exchanges – the index has been rolled out on the Hashdex Nasdaq Crypto Index Europe ETP, which is listed on the SIX Swiss Exchange.

Crypto structured products: shift from delta one to options-based structures

The transfer of skills from TradFi to DeFi is helping to create standards, accelerate the transition towards a more regulated space and provide a wider product choice. New entrants are making the institutional market the first stop in their roadmap.

Enhanced Digital Group (EDG), a wholesale crypto structured products provider, counts several executives with traditional finance backgrounds, either from equities or FX or both, and principally from the derivative side (options).

“We don’t face clients directly,” says Chris Bae, CEO and Founder of EDG. “We want to give our products to strategic partners that can leverage their franchise and customer base. That way we get to manage that risk, our partners get increased participation on their platforms, increased products to sell and their clients get access to our products.”

EDG wants to differentiate itself from other providers already offering crypto assets in the structured products market and go beyond autocalls and reverse convertibles.

“We want to have a more tailor-made approach, more tactical, in terms of trades and the partners we work with,” says Una Fogarty, global head of business development, EDG. “We want to bring the CeFi mindset to our day to day as we think this can add value to our offering.”

The ethos of the business is based on the understanding that EDG’s clients may have already built up extensive client platforms.

“We don’t want to supplant that,” says Bae. “That’s not what we’re good at. We’re good at structuring attractive and interesting products for a diverse client set.”

According to Bae, the current market environment bodes well with a shift from delta one to options-based structures.



“We want to bring the CeFi mindset to our day to day”

Una Fogarty, global head of business development, EDG

“In any market that matures there is the realisation that there is no one-size-fits-all approach to franchise to customers. We want to leverage our collective experience to provide a very bespoke offering to our partners to optimise their franchises and increase investor choice.

“As delta one and cash spreads decrease, you’re going to need more products and cater for different risk profiles. We are following the playbook

of traditional finance, 10 to 30 years ago, and want to deploy in the crypto market to make the user experience very bespoke,” says Bae.

Eqonex, another new crypto outfit, announced recently that it is folding up its crypto exchange because of tough market conditions, shifting its focus to its asset management and cryptocurrency custody business lines.

The company, which is laying the foundations to launch a crypto structured products unit ‘in the near future’ targeted at professional investors and institutions, hired Nick Cogswell as head of sales for its asset management business and Franklin Heng as head of asset management in Asia.

The two former bankers report to Eqonex’s head of investment solutions, Frank Copplestone, another former Jefferies and Morgan Stanley structured products executive.

“The crypto market is changing quickly with a lot of new and prospective players entering the market and others leaving as a result of the recent crash,” says Cogswell.

“We’ve been working on developing a range of structured products for a while as we build our business. Our plan is to offer very simple structures at a first stage and then move towards more bespoke structures as people begin to understand the underlying and where it sits in their portfolios.”

According to Cogswell, there is opportunity in the market as investors are looking for hedging structures and indices because of the recent market turbulence.

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“Investors are trying to find the right product and the right way to access the market,” he says.

Initially the business focus will be in the institutional market as the Eqonex issuance vehicle is a private placement SPV.

“That is not to say we won't target the retail market in the future,” says Cogswell. “There is a lot of uncertainty around retail distribution in the UK and other places, but we think eventually structured products will play a key role in providing access as they offer a great way to the kind of exposure investors want to receive. Structured products offer an incredibly powerful tool limit the risks that people want to take and offer good returns.”

After the sell-off, investors are turning to spot replacement kind of structures with the idea being that the market can still rally back to levels achieved in the past, although perhaps not in a straight move upward.

“It never feels good to go back exactly where you started with your portfolio so the idea is that if you do some smart combination of options, you can add some attractive convexity to your portfolio on the way up,” says Bae.

“There is an opportunity around very asymmetric options which might outperform if the assets recover in the short term.



“The market is changing quickly with new and prospective players”

Nick Cogswell, head of sales, asset management, Eqonex

As the market recovers, we believe investors will welcome new alternatives that provide better possible payouts than just holding spot were BTC to go back to 60,000.

“These are the kind of structures that we think could make sense in the current environment – structures that provide convexity on the way up,” says Fogarty

As the market evolves some members of the cryptocurrency community are concerned that inviting regulators and rules defeats the whole purpose of the unregulated nature of digital assets. However, the recent market crash provides the perfect use case for regulators to look at providing a framework which can increase transparency, investor protection and trust in the crypto market.

In a recent update to clients, Swiss private bank Julius Baer noted that it continues ‘to like the optionality offered by a small allocation to digital assets in a portfolio context’.

A recent study by the CFA Institute Research Foundation found an allocation of up to four percent to be appropriate for risk-sensitive investors. Using historical data, the CFA found that such an allocation would have left key portfolio risk metrics largely unchanged, whereas an allocation of more than four percent would have disproportionately affected them.

In summary, the fundamental case for the disintermediation enabled by blockchain technology and cryptocurrencies is far from dead – invest at your own risk.

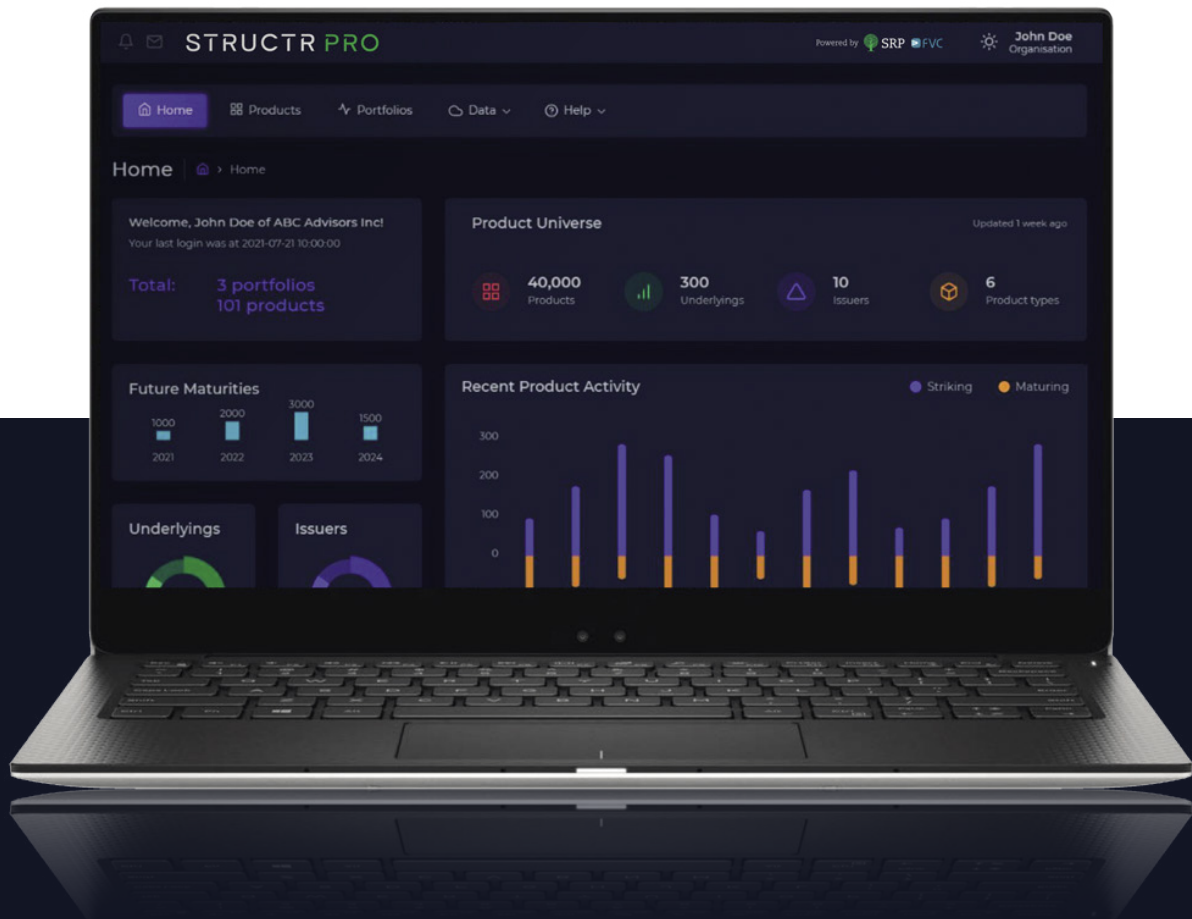


“There is no one-size-fits-all approach to franchise to customers”

Chris Bae, founder and CEO, Enhanced Digital Group (EDG)

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Regulating the unregulated – towards centralisation?

A number of law firms active in the structured products market space talk about regulating cryptos and digital asset questions from a regulatory perspective.

Digital assets regulation has been a controversial subject over the last few years as players in this market were playing in an uneven playing field with no tax, laws and capital controls.

The recent crypto crisis has triggered a shift towards regulation. But for issuers of structured products that want to commercialise cryptos as a new asset class, there are many hurdles to overcome.

One of the more significant hurdles is that of regulatory uncertainty. Questions abound as to whether certain digital assets are securities or commodities or both (as is often the case).

“The answer to that question is important, because it determines who will regulate the transaction—the US Security and Exchange Commission (SEC) or the Commodity Futures Trading Commission (CFTC), or both,” said Matt Kluchenek, partner at Mayer Brown in Chicago.

According to SEC chair Gary Gensler, of the nearly 10,000 tokens in the crypto market, the vast majority are securities, with offers and sales of these thousands of crypto security tokens covered by the securities laws.

“The nature of the current crypto market is that investors often trade and invest in both crypto security tokens and crypto non-security tokens, with crypto intermediaries generally handling both,” said Gensler, speaking on 8 September 2022.

“To the extent the CFTC needs greater authorities with which to oversee and regulate crypto non-security tokens and related intermediaries, I look forward to working with Congress to achieve that goal consistent with maintaining the regulation of crypto security tokens and related intermediaries at the SEC,” Gensler added.

Although progress has been made by the Administration and some of the regulatory agencies, much more clarity is necessary to meaningfully promote innovation in the space.

“While the CFTC has been clear about its jurisdictional scope with respect to derivatives on digital assets, and its desire for increased jurisdiction over spot digital asset transactions, certain other federal agencies are lagging,” said Kluchenek.

There is a major difference between a structured product being offered to retail investors in the US and other types of

cryptocurrency assets that are offered privately to institutions, such as through a derivative, or an institutional security offering or otherwise.

“The US structured products retail market has not seen any progress,” said Christopher Schell, partner derivatives & structured products at Davis Polk in New York.

“There appears demand both on the investor and on the issuer side, but any retail cryptocurrency security will require SEC approval,” said Schell.

According to Schell, the recent large decline in the crypto market in the last couple of months is two edged. “On the one hand, it shows that investors can suffer large losses in investing in crypto currencies and a regulator like the SEC will look at that and be more cautious before it would let them go to a retail investor base.

“At the same time, the fact that it did decline, and people have seen that this is not just an ever upwardly increasing asset class, has a slim silver lining as the regulators are perhaps even more nervous when an asset seems to ever increase upwards because they are worried about the crash. Well, the crash



“One of the more significant hurdles is regulatory uncertainty”

Matt Kluchenek, partner, Mayer Brown

has now happened,” said Schell.

Whether we will see crypto-linked structured products in the retail market anytime soon remains to be seen.

“For retail structured products, I think the SEC will want to review carefully how those deals are done. They will want to comment on the deal structure and disclosure before any issuer makes them available. That process will take a significant period of time,” said Schell.

There have been several crypto exchange-traded funds (ETFs) that have been approved by the SEC, but only after a long review period. In addition, the regulator started with ETFs that used a regulated market for pricing the underlying crypto asset.

“So, instead of using spot crypto prices, the first approved ETFs used the CME regulated futures market as the underlying pricing mechanism. There are certain drawbacks to using that market, but from the SEC perspective, the regulated price seemed quite important to them,” said Schell.

The idea that most of the crypto world is currently a wild west is not true, according to Schell, who believes regulation and compliance are a part of the ecosystem even today.

“I’ll give you one quick example, which is the AML sanctions. The people enforcing those rules are very focused on cryptocurrencies, because of the possibility that cryptocurrencies could be used to hide transactions or otherwise use them for criminal purposes, so any market participant will need to take those rules into account and find a way to be in compliance,” Schell said.

Over in Europe, in January 2021, the UK Financial Conduct Authority (FCA) banned the sale, marketing and distribution to retail consumers of any derivatives (i.e. contracts for difference – CFDs, options and futures) and exchange-traded notes (ETNs) that reference unregulated transferable crypto assets by firms acting in, or from the UK.

The UK watchdog considers these

products to be ill-suited for retail consumers due to the harm they pose with any firm offering these services ‘likely to be a scam’, according to the FCA.

With digital assets, there are two areas of risk, according to Andrew Sulston, partner at Allen & Overy in London. “One is the infrastructure part of it - what happens if the crypto exchange disappears, what happens if there’s fraud. The other side of it is crypto as an asset class - from a policy perspective, regulators want investors to understand and accept the risk factors for the asset.”

The Dutch Authority for the Financial Markets (AFM) has not gone as far (yet) as its UK counterpart, but it has made clear that the rise and popularity of crypto derivatives has its full attention.

“We see risks, such as lack of transparency, manipulation and other forms of criminal activity,” said Paul-Willem van Gerwen, head of capital markets and transparency supervision AFM, speaking on 12 May during the Amsterdam Proprietary Trading Managers’ Meeting, the annual event for the derivatives market.

“The volatility in the crypto derivatives markets also entails risks [...] in the event of major price changes, it is very questionable whether the parties can deliver on their promises,” added Van Gerwen.

In Belgium, meanwhile, from 1 May 2022, any legal person that wishes to offer exchange services between virtual and fiduciary currencies or services of custodian wallets on Belgian territory will have to register in advance with the Financial Services and Markets Authority (FSMA).

According to Tom Roberts, partner at Allen & Overy in London, as an asset class cryptos are seen in two spaces.

“One is the OTC derivative and structured products, and then you have the trading of derivatives in a DeFi environment,” he says.

“The OTC derivative space is an unusual area because there are some established market makers and the moat around them

is quite large, from a technology and market share perspective.

“I don’t really see traditional market making banks trying to become big market makers in flow crypto OTC at this point in time. It’s an interesting area, for more bespoke arrangements, and obviously they need to find hedging for crypto structured products,” said Roberts.

Whereas traditionally banks were structuring the more complex products and they would gradually flow from the more sophisticated area of the market into retail type products, here it is the complete opposite, according to Roberts.

“A lot of the innovation has happened in a kind of unregulated retail space, with some institutional transactions,” said Roberts.

The bulk of the activity is in a non-bank world, albeit some of those entities are regulated in various places as the market becomes more institutionalised.

“While that happens you need regulation, and a greater degree of sophistication around what people want in these products in terms of legal certainty, risk management, regulatory certainty, all of those,” said Roberts.

Right now, traditional financial institutions are launching products via subsidiaries to be able to operate in a regulated environment, however, whether that will be the direction the market is going remains to be seen.

“It depends on who you ask,” said Roberts. “If you asked crypto or DeFi natives, they would say this is an obvious reaction to the fact that people’s markets are being disrupted. They would say ‘you don’t need a bank, things work best decentralised, algorithmically’.

Schell believes the market has certainly been a bit divided between crypto natives and traditional finance. “Obviously, crypto natives have been highly engaged building out infrastructure and scale and compliance in order to comply with existing rules, but it’s a lot of work to do that it takes a lot of time and a lot of money to build



“There appears demand both on the investor and the issuer side”

Christopher Schell, partner derivatives & structured products, Davis Polk

out those kinds of systems. After all, traditional finance has been built over many decades, both from a compliance and regulatory perspective and from a systems and processing perspective,” he said.

Clearly the established players are reacting to market disruption and are trying to find what the appropriate niches for them to operate in are.

“In reality, a lot of investors and counterparties might need to face a regulated entity with all of the compliance and risk frameworks that goes around those products. We may see these concepts being brought into the mainstream but not fully decentralized as investors will continue to use the traditional places they have to access financial products,” said Roberts.

Martin Scharnke, partner at Allen & Overy’s Frankfurt office, sees traditional finance and DeFi moving closer together. “On the crypto side, investors are looking for traditional products linked to cryptos, which first started with new start-ups entering the market,” he said.

Scharnke cites Germany as an example, where the Frankfurt Stock Exchange has been quite innovative and accepted many of these regulated market listings.

“Now there are a dozen ETPs linked to cryptos,” said Scharnke, adding that shortly after the big ETF providers, the likes of Invesco, Fidelity and Wisdomtree, followed the trend. “It took them some time to catch up because ultimately, they have certain standards to meet for custody, etc, which the start-ups didn’t really had to comply with.

“Institutional players are setting the normal standards for these kinds of products which are not easy to meet in the crypto space for custody,” he said.

There’s a steep learning curve as the cross over continues.

“The launch of futures linked to cryptos is proof of that because if you have a future linked to crypto then it’s much easier to connect it to the traditional finance world.

“You can use them to hedge positions and offer structured products linked to futures which would be much easier to transact on an established futures exchange as opposed to on a crypto exchange that may fall overnight,” said Scharnke.

Schell does not believe retail structured products are going to happen in the US anytime soon, at least until there is an in-depth review process by the SEC to allow those products.

“Once you have that, then the litigation risk may very well be manageable because you are now in a regime or a regulatory scheme that is used to regulating the sale of complex products,” he said.

In Europe, big institutions have been very cautious, mainly due to the uncertainty as to how the regulatory framework is going to develop, but some are starting to move because they believe there is a business case.

“It would have been much quicker if there was more clarity from the regulators, ideally in an aligned way across the EU,” said Scharnke.

According to Sulston, the non-traditional players that were doing well in these markets are the ones that got licensed early. “They are actually very conservative. They are intentionally not invested in DeFi protocols and the like, because they want to have a clean balance sheet and be appealing to the right investor base,” he said.

“Clearly, unlike other products, cryptos can move outside of a regulated sphere because of its decentralised nature [...] from a regulatory perspective, what they want to do is try and encourage people to be within the existing framework as much as possible so that it can be controlled,” Sulston said.

A good example is the market for crypto ETPs, according to Scharnke. “Very early on the new entrants saw the benefit of getting their products listed on an EU regulated market and complying with new regulatory requirements. They do want to be regulated to showcase they meet the quality standards and win the trust of investors.”

Blockchain

As financial institutions, governments and companies move from research and development to deployment of distributed ledgers, blockchains, smart contracts, and investment products they need to consider carefully the risks posed when implementing these transformative technologies but most importantly the legal and regulatory implications as this represents a radical departure from traditional operating models.

As the market evolves, legal and regulatory analysis will be required as part of the risk assessment involved in



“Unlike other products, cryptos can move outside of a regulated sphere”

Andrew Sulston, partner, Allen & Overy

using these technologies as well as to ensure a sustainable framework and increased adoption.

Sulston believes that Blockchain is a technology which has an application in financial markets and is “here to stay”.

“It has a transformative edge in the capital markets and that might take longer than everyone thinks or longer than people have suggested it might take, but it is only going to carry on because it brings efficiency,” he said.

“There’s significant excitement in that area,” agrees Schell, who believes there’s huge potential for the blockchain to provide a robust and less costly way of transferring money around the US economy.

However, it is early days, and no one knows yet what the regulatory regime is going to look like.

“The current traditional financial model is highly regulated,” said Schell. “Money transmitters, custodians and payment systems are each highly regulated. I would have thought that for a blockchain type of payment system to win trust from everyone, including from the regulators and from the users, that it is going to probably need to be regulated too.”

The current regulatory framework, which is based on old asset classes and old technology, does not seem fit for the new world, according to Roberts. “Regulators must figure out what tools they will need to regulate this new world.

“Part of that is giving people the clarity of who regulates what and how. In my mind this is more about what are the characteristics of the asset, how will it perform, what are the terms therefore I need or what protections might I need in my documents,” he said.

There are some great upsides. Blockchain is fully transparent, and the data is significantly better - from the on-chain data everyone can see what is happening from an AML and KYC perspective, and can trace transactions.

“How much would regulators have liked to have had the transparent market data ahead of 2007-2008?,” asks Roberts. “It is a different world but, certainly for institutional type clients, the lack of clarity around the regulatory landscape is making people extremely cautious because they don’t want to invest heavily on an unregulated asset class.

“From a product provider perspective, they don’t want to start a business which then they have to unwind very quickly because of the regulatory framework changes,” he said.

According to Sulston, blockchain is the same market with different piping, but the piping is “much cheaper and much more efficient and is capable of keeping pace with the actual world of commerce these days.

“I think the businesses will adapt,” Sulston said.

The difficult part is the piping, how to connect as many people as possible on

to your platform or different platforms together, adds Scharnke.

“You do have the connections to be able to trade as a German investor on the stock exchange in New York or in London, and it works.”

To be able to have all the connections in a decentralised world, on a blockchain, all those connections will need to be built and that’s where market players are struggling at the moment.

“Ultimately you could have a lot of competing platforms, but they need to speak to each other and that’s where it really gets complicated and very interesting as well. This will be more in the medium- to long term before we see significant changes,” said Scharnke.

According to Kluchenek, the roles and confluence of DeFi and centralisation are continuing to evolve. “Not all market participants believe that centralisation needs to be a critical component of a blockchain solution, but many are finding that centralisation promotes implementation/adoption and efficiency in managing the blockchain,” he said.

A key challenge to deploy blockchain technology is to increase institutional participation. “Participation is driven, in large part, by incentives, risks and regulatory clarity,” said Kluchenek. “Finding the right mix will likely lead to greater institutional participation. In addition, there often needs to be a willingness to assume the risks inherent in adopting a technology that disrupts the status quo.”



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SG Forge – the blockchain pioneer



David Durouchoux, Deputy CEO,
Société Générale FORGE



Damien Fontanille, Institutional sales,
Société Générale FORGE

SG Forge – the offering

David: SG Forge provides issuers, investors and their agents with access to the blockchain infrastructure to issue, manage and invest in securities. These securities are also known as “security tokens”.

As a regulated subsidiary of Société Générale, we offer bank-grade level of financial services in compliance with securities regulation and market practice. The company originated from a Société Générale internal start-up call for innovation in 2018. We completed our first deal in 2019. The company was registered as an investment firm in 2021. Headquartered in Paris, SG Forge built a presence in the US in July.

What are the main challenges product providers are facing when deploying blockchain technology?

David: Central banks and financial institutions are looking at ways to create Central Bank Digital Currencies (CBDC) and stablecoins as a digital representation of cash on the blockchain. This is key to release the full potential of this infrastructure with securities and cash exchanged on the same infrastructure.

Regulation for security tokens is key for adoption by institutional stakeholders. Some countries in the European Union have already established regulatory frameworks enabling the issuance and transfer of security tokens. The regulatory framework around digital assets and security tokens is being progressively harmonised across the EU with MiCA (Markets in Crypto-assets) regulation

and the Pilot Regime for security token entering into force in 2023.

As for any infrastructure project, it takes time to be built and reach . This is not just about the next deal to be closed. It is a fundamental change.

Our focus has been to facilitate user integration with a proprietary platform not requesting user IT development to connect to the blockchain. Issuers, dealers, investors and asset servicers can now operate on this new market infrastructure and connect their legacy systems.

Several French banks made recent announcements regarding the deployment of blockchain capabilities for security tokens issuance and safekeeping. We view this as a positive sign for the development of security token market.

To facilitate adoption, SG Forge has published an open-source operational and technical model in which security token can be issued and managed in a compliant manner with capital markets regulation (“CAST” framework – “Compliant Architecture for Security Token”).

Will blockchain take over traditional finance?

David: It will coexist for many years during a transition phase because of the legacy systems already in place with large outstanding volumes and long maturities. Our platform is compatible with the two systems (traditional/centralised infrastructures vs decentralised infrastructures) in order to serve our client needs.

The current set up for capital markets is based on private infrastructures with fixed costs while public blockchains are based on a global pay-per-use network.

Our platform allows us to be able to manage both securities as well as cryptocurrencies if SG Forge were to offer crypto services in the future.

Is blockchain accelerating disintermediation and widening the access to security tokens?

Damien: We see disintermediation happening with security token. For example, in French law, Central Securities Depositories (CSD) are no longer required for issuance with security tokens.

The safekeeping of securities is also being redefined. The post-trade industry is evolving to integrate this new infrastructure. With a golden source of transactions and positions publicly accessible globally and on a 24/7 basis, the securities life-cycle management is enhanced.

We have already completed several deals with institutional investors. We can now provide exposure to structured product in security token format to retail investors through life insurance contracts in France.

Does blockchain represent the last innovation applicable to the structured products market?

Damien: For over 30 years, many innovations were brought to the structured products in terms of investable asset classes, customised underlyings, sophisticated payoffs and regulatory-efficient wrappers. The new frontier could be the infrastructure itself. Security token could reshape the industry by delivering operational efficiencies, opening new distribution channels to digital-native investors and new investment themes.

Investing or issuing a security token is perceived by our clients as a key step in their digital transformation. Many C-level executives understand the strategic need to engage their institutions and teams with blockchain technology through real transactions.

Blockchain efficiencies – benefits of transacting products via blockchain



Keith Bear
Elixir

Generally speaking, we have been able to reduce or remove reconciliation processes, and that is one of the big drivers associated with any financial product. Multiple participants in a business network having complete confidence and sharing the same version of the truth rather than having different versions of the truth can reconcile their positions more efficiently, reduce the time associated in the lifecycle and eliminate errors.

In the securities world, we have T+2 in the equities market in most places, but SDX in Switzerland can settle on the same day, removing the need for central counterparties and the settlement risk. That gives you a more extreme view in terms of where more transformational benefits can come from.

Nasdaq, Deutsche Borse and others are going down a similar route either upgrading the main exchange or building a parallel digital exchange to sit along the conventional venue.



Bediss Cherif
Kaiko

The current focus is on how pure traditional assets, including structured products - can be operated/transacted on a blockchain and post trade efficiency. At the moment, issuers bring to market thousands of warrants on a daily basis which is the equivalent of issuing thousands of individual securities every day.

This approach is extremely inefficient because out of those warrants issued, you'll barely see a couple of trades on a handful of them. Because of the issuance costs and post trade costs of the global warrants market, the whole business has become almost unsustainable.

We think blockchain technology can address those inefficiencies. With a public blockchain infrastructure coupled to a permission environment, issuers will not have to pay anyone for the cost of the infrastructure to operate their enterprise - users individually will pay for the infrastructure with their transactions.

This approach works like the cloud and it makes more sense for issuers. Whether public or private blockchains a permissioned environment is possible and with that set up you can then build smart contracts which essentially will enable full automation of the warrants business – issuance, pay offs, barriers, margin calls.



Joost Burgerhout
Marex Financial Products

Transacting on the blockchain, creates a code from day one as a smart contract. This means that no adjustments can be made thereafter, nor is there room for misinterpretations. There is one code and that is the truth, being the main advantage of blockchain.

These events will then automatically be triggered as they happen. Rather than having a core protection department, interpreting market movements, verifying them and making a manual payment through a paying agent, through the clearing system, to the custodian bank and then to the person's account. On the blockchain all this is done at once.



Aaron Samsonoff
InvestDEFY

Structured products distributed through DeFi channels democratizes access to novel products that are normally inaccessible for many worldwide investors due to regulatory considerations or accredited status. Regulatory agencies and frameworks will need to adapt to this technological innovation or risk stifling growth and the ensuing taxation of Web 3.0.

Structured products are ideally suited for incorporating blockchain technology ensuring reduction in credit and counterparty risk, settlements, subscriptions and redemptions all on the blockchain. Especially noted on the back end where issuers may be back to back with other counterparties in order to lay off risk.

The blockchain has benefits in transparency around collateral and mitigates rehypothecation that has led to counterparty contagion. Throughout this crypto crisis DeFi credit markets have continued to function seamlessly.

VOX POP – BLOCKCHAIN



Nick Cogswell
Eqonex

Blockchain is bringing increased transparency to many parts of the market which will help to build credibility and trust, but more genuinely is going to fundamentally change finance and the way we transact and operate. We're seeing it already in many different areas where blockchain is making a difference and bringing efficiencies around execution and post-trade.

I think over the next five years blockchain is going to change the way that traditional finance works in a good way. Things will not change overnight but the benefits are transformational so the adoption of blockchain technology at many different levels in the capital markets is only a question of time.



Umberto De Paoli
Marex Financial Products

We've always kept a close eye on the evolution of blockchain technology. A few years ago, this led us to pioneer the first product transacted on a blockchain with Resonance. Since then, we tested a reverse convertible we issued on Tesla with a maturity of a few minutes. Issuing a structured note as a smart contract works perfectly well on the blockchain. This solves a lot of problems when issuing structured notes in a more traditional manner – it's quicker to execute, it's a lot cheaper, and a lot more flexible.



Marco Infuso
Valour ETP

Blockchain goes beyond financial markets and is already visible in many day to day activities such as renting a flat or submitting a reference. The power of blockchain is that there is a record which is traceable all the time – you cannot fake documentation or replace/alter documents because everything is registered and accessible for everyone on the blockchain.

Blockchain is here to stay because it provides a safe environment with reliable proof of activity where you don't have to trust the counterparty – once you put something on the blockchain you cannot modify it, or alter it. You cannot cheat. And you do not have to appoint a third party to take over the control – the participants in the blockchain are their own control institution.



Daniel Kukan
Crypto Finance

Tokenising a product is not dependent on the payoff structure. Anything can be tokenised and be made a kind of bankable.

The synergies are gigantic once the financial products are transacted on a blockchain. All the surrounding processes around it will benefit from these enhancements.

Custody of digital assets is the most important part of the entire game. The assets need to be stored and accessed in a safe way. The asset owner needs to decide what level of security he wants or needs to apply for his digital assets. It is recommendable to have a variety of storage solution, a safe and maybe less flexible for the major safe keeping of your digital wealth and a less safe and more flexible one for your daily interactions with exchanges, customers and so on. The trade-off is always between speed and security.

The entire lifecycle of a structured product from an issuance, redemption and settlement point of view can be managed over the blockchain. Any corporate action, such as payments or changes in the overall constituent can be easily digitalized. The most crucial part for me are the oracles which must be always trustworthy and reliable. Basically, all events can be packed in a smart contract just waiting to be executed and distributed over the blockchain.



Nick Donovan
Amber Group

We believe there is scope to incorporate blockchain to the structured product market at wider scale. This is evident when we compare the number of parties involved in TradFi vs on chain delivery of products, as well as instances of settlement lags, etc. Benefits for on chain products are readily apparent.



Zhiming Yang
Orbit Markets

We see on-chain issuances by DeFi protocols as a new and innovative distribution channel. Currently, there is probably a larger upfront cost in releasing a product on the blockchain as opposed to the traditional OTC or securitised trades, as the

industry is in a nascent stage and new protocols require lots of testing. However, given the low entry barrier and high scalability of the business model, it is likely that this new channel will eventually be more cost-effective than the traditional one.

Hedging on-chain is still challenging as on-chain option liquidity is still poor for a mix of reasons: (1) inefficient capital usage (2) lack of reliable oracles and high gas fees for margin calculations (3) poor design of AMM protocols.



Arisa Toyosaki
Cega

On-chain contracts help resolve the issue of operational cost and accesibility. Due to the requirement for paper trail, traditional structured products require a longer time to settle with costly middle office and back-office operations. On-chain contracts help alleviate the cost, which makes the product available from smaller ticket sizes and in more jurisdictions.

Efficiencies in post-trade are among the drivers of blockchain adoption in OTC markets since operations, settlements and reconciliations represent huge costs and burden for traditional finance actors that are addressed by blockchains. Trades contractualization and settlements were the first use cases for blockchain initiative in the traditional interbank markets.

A/J: Downstream interactions between Issuer and hedging vehicles/venues should definitely be impacted. Tokens custody is now being addressed by large traditional custody institutions.



Dimitris Karyampas
Amber Group

Transacting on blockchain has certain distinct benefits. You can easily identify this when you compare the number of parties involved in settling a structured product on traditional finance rails versus that on blockchain. With greater clarity on regulator frameworks for on chain products the more we shall see people moving towards this. You have countries that have already seen a lot of progress in this regard, such as Luxembourg, or Germany for instance with eWpG. Digital securities offer an effective way to create products with a solid legal framework, that of traditional securities, but with on chain issuance and settlement. We would welcome digital products on crypto with 24/7 secondary markets, as opposed to five business days as in the case of ETPs.

Automating the life cycle management of structured products is what global investment banks have been

focusing on for years. Here the new technology offers certain advantages, for execution of events to reporting and reconciliations.

[Blockchain technology] raises a great point around custody, which points to the fact that self-custody of such digital securities is even possible. You can imagine what sort of implications this might have on the custody fees currently applicable for structured products booked with TradFi custodian banks.

Blockchain also provides a great settlement engine for both the primary and secondary market transactions. Coupon payments to structured product holders and any other lifecycle management event can be conducted directly on-chain, similar to the function of a paying agent today when it comes to traditional clearable notes. Moving towards digital securities would essentially enable participants to benefit from fast and seamless transactions – advantages that blockchain technology offers.



Anshuman Asthana
Marketnode

Blockchain and distributed ledger technology will create massive efficiencies. Elimination of multiple intermediaries and elimination of the need to reconcile data before passing it to the next participant in the value chain create these efficiencies and lowers costs. With data available on the ledger and accessible via permissions to only trusted parties costs around verification and validation will also go down.



Rupertus Rothenhaeuser
Bitmex

You can now issue structured products in a tokenised format via a blockchain. This approach is going to bring efficiencies across the value chain as it is fully automatic, there is no error. And it's cheaper. This is mainly driven by niche players creating a market but we will see the big players come in.

Blockchain is independent from crypto as an asset class. It is a technology that will replace core banking systems and some banks and exchanges are already ahead of their competitors and setting standards.

Bonds seem to be the first and most favourable asset class for using tokenisation and smart contracts because they are very simple to manage – issue, coupon payments, expiry and re issuance – and automate.

Blockchain hurdles, adoption barriers



Sohail Raja
Société Générale CIB

From a market perspective, all parties involved in a transaction need to agree that there is a benefit to using Blockchain and then also agree that there is a way to bring efficiencies to the market.

Looking at it from a multi distribution platform perspective, it is already difficult to get clients onboarded, and then have all the systems talking the same language, using the same messages, and using the same standards.

Standardisation really does need an industry acceptance - it is not a technology problem, but an operational process mindset change to make that happen. We also must accept that we need to have more efficiencies and reduce cost as this will provide more market opportunities and accelerate growth.

Blockchain may not be the absolute solution, but it could be a solution to enable the interaction of clients and issuers in a faster and more efficient way - and everything else that goes with it such as the data that can be shared and deployed to deliver product innovation such as new structures and product ideas.

The challenge is getting all the participants on board and the blessing from regulators as all parties need to be comfortable with the structures and the platforms that have been put in place to support that.

There are several blockchain providers trying to move away from a centralised way of doing things which has some implications from a regulation perspective but also from a corporation perspective to understand that things are going to be done differently. That takes us back to the challenges of implementing a blockchain from an integration perspective.



Bediss Cherif
Kaiko

HSBC and Wells Fargo announced in Q2 22 that they have cleared their equity derivatives trades for a full quarter using blockchain technology bypassing the physical settlement system in the US.

These are very large use cases proving that this approach is more efficient than using market infrastructure from the

traditional finance space. Blockchains as they are today can handle sufficient volume and are technically good enough to revamp the warrants market. It is difficult to say which products or instruments will be first to move to blockchains but there are obvious applications and opportunity in the structured products market, especially in the warrants market because of the disparity between issuance and traded volumes.

Some market players claim that regulation is too restrictive, but we believe there are questions around cryptos and digital assets that need to be tackled with new rules. Self-regulation will not work in a market that needs to build trust. Entity Regulation (ER) models reach their limitation in decentralised ecosystem. Activity Regulation (AR) models may rise as the future's reference.

The adoption curve of Blockchain from a workflow perspective continues to increase as capital markets saw the value of blockchain from the very beginning. In July 2017, BNP, Caceis Euroclear, Euronext and others officially launched Liquidshare - initially a blockchain based CSD initiative. Ethereum was barely two years old. So practically speaking it has been tested and it works, and there are other ventures out there.

ING also joined forces with other global banks such as UBS in 2019 to create a digital coin that can be used to settle international money transfers instantly, cutting out intermediaries and lowering transaction costs.

If you look for further evidence you can look at J.P. Morgan which has built Onyx - the world's first bank-led blockchain platform for the exchange of value, information and digital assets in the capital markets.

Traditional financial institutions are adopting blockchains as they know they will be disrupted by them otherwise if they don't adopt them fast enough. These institutions are also closely monitoring the adoption phase of Web 3 so that they can catch up at their end. This is very natural : when you know, ahead of time, that you're going to get disrupted by something you have to move fast to align yourself and slow anything that might put you on the back foot.



Marco Infuso
Valour ETP

A few years ago, every village had four or five banks where you could keep your money and you had to go to a branch to access it. With the involvement of the internet, younger people may not have been in a bank branch in their entire lives so

far - everything is online. I think blockchain will have a similar impact on radical life changes and perhaps even faster: the growing rate on the internet was 20% year-by-year. on the crypto side it's a 40% yearly growth rate already.

Everybody's working on it behind the scenes, even if they haven't gone public or pretend of not doing so. We know of a number of banks that have implemented dedicated research teams to analyse the digital assets market and their applications – open job position at traditional banks tell you a lot about their next moves!

Blackrock's recent partnership with Coinbase also underlines the point, that the biggest and largest wealth managers in the world are looking to take their seats in the crypto space as soon as possible – a nice final fact to position valour in that environment once again: the bridge to connect digital assets with investors traditional portfolio; or in other words: crypto made easy!



Lucas Kiely
Yield App

The biggest issue is trust. At the end of the day, financial products you buy from someone is about do you trust the person you're with or do you trust the bank, do you trust your financial advisor, etc? I've been issuing structured products for 20 years and for me a lot of that distribution happens still in a very centralized fashion. I want to just get onto a structured products marketplace, and I'll just go buy this or buy that.

You see it a lot in Switzerland and Germany but ultimately the infrastructure is just not there supporting it right now. It doesn't mean it's not being built and happening in lots of different projects, but it just needs kind of institutional mainstream adoption because ultimately the guarantees that are providing the structured products always tend to be guaranteed by banks themselves and I'm not sure people are really quite there being guaranteed by a DeFi pool or an earn product company.

Investment banks already do have the technology. Some of the biggest players in crypto are actually the biggest investment banks in the world, J.P. Morgan, Goldman Sachs, Credit Suisse manages a small amount of crypto. We've seen a lot of the big players already in this space, be it through investments they've made or markets that they make.

People don't realize that traditional finance houses, once they decide to do something, they can throw a lot of scale at the problem to solve it. If we see mass adoption of structured products on-chain then I guarantee you that with that the banks will come as well. I don't believe there's much difference

between a bank issued note and a bank issued stablecoin. The minute banks start issuing stablecoins saying 'I'll issue you the stablecoin and it's going to pay you an accreting interest rate over time yield', that's a zero-coupon bond.

It's just done in a token. If I didn't say, well I'm going to package that zero-coupon bond or zero-coupon token and a call option on some underlying payoff. They already do that. That's what a note is and to issue that structured note, that's a bond plus a call. Doing it as a token is just way more efficient. It's the same thing, it's just a different name.

It is happening and people are trying to replicate through smart contracts and blockchain technologies the things that traditional finance has done over the years. The biggest issue is we need to have consistent regulation globally that helps people get peace of mind in this space.



Michele Curtioni
SIX

In theory the DLT, which is the base of any blockchain, may add value along the entire value chain of digital assets covering pre-issuance, issuance, trading & settlement, custody and asset servicing. One of the key elements would be that there is a single source of truth of information that a dedicated group of participants of a network can make use of it. In the SDX context this holds true for the regulated central securities depositories (CSD) that runs on a DLT covering issuance, settlement, custody, and asset servicing. The integrated trading & settlement capabilities unleashes even more benefits.

Trading on an exchange that is directly linked with a CSD on DLT allows for atomic settlement of trades. This means that counterparty risk is eliminated, and a central counterparty (CCP) is no longer needed. On top of that one could think of expanding / integrating additional third-party solutions that run on the same technology to automate certain processes in the future even more. Imagine adding applications to your smartphone that give you a seamless experience in your everyday life.

OTC markets act on bilateral settlement, taking full counterparty risk, while blockchain based systems bring about atomic settlement reducing that risk. Custody with the point of view of SDX that runs a regulated CSD on a DLT is less disruptive but more setting the standards when it comes to a very secure storage of digital securities such as bonds and equities (and many others to come).

A central securities depository run on decentralized technology ensures secure registration and track of ownership of assets within the network and the respective participants. Banks as participants of a CSD DLT network

could segregate their client accounts at CSD level and therefore can unleash further potential of such a network and the transactions that can be executed in an automated way within such.



Daniel Kukan
Crypto Finance

So far, the business has been run traditionally, it is just the assets of the underlying product which are handled over the blockchain. The entire issuance on a blockchain requires a complete tokenisation of the structured product.

The adoption of institutional clients has definitively taken place and is growing substantially. More and more traditional institutions are looking for custody solutions enabling them to store digital assets in a safe way. The gateway for traditional players had already existing since a while back.

Access to the markets were available through several exchanges and brokers since years. The digital asset market is primarily driven by the retail market however with the development of new regulatory frameworks, we are seeing greater involvement and restrictions by many countries to restrict retail access in digital assets as a form of consumer protection in this highly volatile space. Despite this, there are several exchanges, mobile apps where retailers can onboard and participate in the digital markets.



Nick Donovan
Amber Group

Once issues around custody and security topics are well addressed by global investment banks, we should expect structured products and OTC business to move on-chain. We estimate that this could take another year for traditional and larger players to materially enter the space for such products.



Dimitris Karyampas
Amber Group

At present, the key barriers to adoption at this stage are twofold. First, there is a lack of education, which leads to the second point, the reality that the technology is still

arguably nascent at this point in time. With this said, the two barriers are slowly being lifted as we speak. As with large organizations which undergo technical upheaval, the technology integration, internal processes, and risk controls etc all need to be adapted to facilitate the new operating model. We have already seen cash settled OTC transactions on Bitcoin this year, after all. We expect 2023 to be the year for more interesting product adoption.



Arisa Toyosaki
Cega

Large institutions (buy and sell side) have tried to approach crypto investments via fiat based, centrally traded derivatives and are slowly investing towards real crypto initiatives through the creation of special purpose vehicles independent from their legacy entities. This will probably prove to be a long and costly process.

Adoption by individuals outside the crypto community is growing as safer/easier wallet handling makes it more user friendly. Adoption by institutions is only waiting for answers regarding credit worthiness and on-chain reputation, which we are answering at Cega with collaborations with the likes of Credora for instance.



Anshuman Asthana
Marketnode

Entitlements recorded digitally on a distributed ledger is still not recognized as a legal tender in most parts of the world. That effectively means that any structured products issuer still has to create a paper footprint and lodge it with a depository. Similarly digital entitlement of subscribers to such a token is being governed by bilateral agreement since a common law allowing such an ownership is under review in most of the markets.

The key reasons for slow movement to a digital issuance and distribution of SP has been lack of a regulatory regime forcing issuers and subscribers to have both traditional and digital rails.

Unlock the potential of digital assets

Marex Financial Products provide investment solutions to private banking, corporate treasury management, asset management, native and non-native Institutional clients in the bitcoin mining industry. We build products around our clients' needs.

Our products are issued by Marex Financial, Marex Group's primary operating company and acts as principal. Marex Financial is an entity regulated by the FCA and rated by S&P Global (BBB with a stable outlook*).

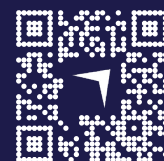
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Marex: leading the pack

Marex Financial Products, a specialist producer of structured products at Marex Solutions, a division of Marex Group, has been at the forefront of developments in the digital assets space. Marex Financial is the issuer of crypto structured products, Marex Group's primary operating company and acting as principal.

Their Bitcoin Cash & Carry Certificate was recognised as the most innovative product in this year's SRP Europe awards after a stellar 2021 which saw the UK based non-banking issuer of structured products launching several market firsts including the first Barrier Reverse Convertible in bitcoin in January, and the first to quote in ethereum.

In 2022, the non-banking issuer executed the first over-the-counter (OTC) non-deliverable forward (NDF) crypto trade on ethereum (ETH) with Goldman Sachs as counterparty, and partnered with Compass Financial Technologies, a Swiss and French based EU regulated index provider, to develop digital asset investment solutions for institutional investors.

Joost Burgerhout, head of Marex Financial Products and Umberto De Paoli (pictured), head of crypto sales, Marex Financial Products, talk about the company's plans and offering, and the positive outlook for the new asset class despite the impact of the crypto winter.

Are you planning to grow Marex's capabilities to continue serving clients seeking access to crypto products?

Joost Burgerhout: Despite the recent correction, we are pursuing our efforts to develop our crypto offering. From this year, we have added a dedicated crypto team focussing on providing structured products on crypto as an asset class to investors.

This team is also reaching crypto native investors such as hedge funds or miners to offer investment solutions. And this is just the beginning. We continue to explore different types of clients, as well as our internal trading capacity.

How are you looking to develop your crypto offering?

Umberto De Paoli: We are already in discussions with some new players to



explore less traditional derivative-based structures with exotic derivative payoffs. We believe this will be a great way to distinguish ourselves from others by providing a more diverse client offering.

The crypto world is a community where people work together rather than against each other. They have a common goal which is to increase the adoption of crypto through education.

Do you think that the development of crypto indices will make accessing this market more appealing to investors?

Umberto De Paoli: Definitely. We are seeing a bigger appetite for coins beyond bitcoin and ethereum only, with investors seeking exposure to the wider crypto market by means of a top five or top 10 coins with project-weighted or theme-weighted structures.

The first point of entry for any crypto investor still tends to be bitcoin and ethereum. However, those with a deeper understanding of the market show interest in thematic looking for access into De-Fi. We can build baskets around particular themes.

Do you think the pricing of digital assets is problematic to develop new indices?

Umberto De Paoli: Bitcoin and ethereum have rather liquid option markets. Essentially, we are doing the same as with traditional equity underlyings – converting

vanilla options into more exotic options and retaining the risk ourselves. This we can apply to major cryptos.

When providing structures on smaller coins or De-Fi projects, exotic payoffs become more challenging. If there is a doubt around being able to hedge the risk, we will not offer products on those assets.

Given the current environment, is there scope to offer capital protection to investors in crypto products?

Joost Burgerhout: We offer this to our risk averse clients looking to gain exposure to the market. With the rate hikes from this year, we've offered products with capital protection referencing Bitcoin. There is still high volatility in the crypto market, therefore these products are not the most suited for one-to-one comparison with index-linked notes, albeit possible.

There is more demand for yield enhancement however – call spreads, bonus certificate structures – as well as different payoffs to meet different investment goals. These clients with cash seek yield and don't expect the market to fall or rise below a certain level.

How do you see the market evolving?

Joost Burgerhout: Keeping all parties satisfied is a balancing act. We relentlessly ensure that the product we are structuring is in line with the target market and regulations and we are in constant contact with the regulators when issuing new types of products or underlyings. We keep them informed of what we are doing and whom we are offering these products to.

The market is certainly evolving. We've seen bigger banks requesting Marex as counterparty. Investment banks such as Goldman Sachs are looking further into cryptos. We recently executed the first OTC NDF on Ethereum as their counterparty and we expect that trend to continue.

Crypto assets – demand and offerings



Dimitris Karyampas
Amber Group

During the last year we have been working to deliver the appropriate pipes for clients who subscribe to our products. Clients today can execute flow structured products via click-and-trade functionality available directly in our digital platform, WhaleFin.

For instance, they can trade a dual currency product with an extensive offering across pairs and maturities. Bespoke structured products can be offered as digital securities or traditional clearable notes, similar to what clients are used to from the TradFi world. Our goal has been to build business across Crypto and TradFi rails, and let the client decide what suits them best. We have built internal capabilities to manufacture such products for crypto native clients and non-native ones.

The demand we have seen so far is for traditional reverse convertibles and capital protected payoffs on crypto. Beyond this, taking crypto yield ('earn' products) and wrapping into traditional products has also gained traction within our client requests. We have seen AMC becoming an important wrapper for clients, although in our case most clients still prefer to book crypto strategies directly via our API into an Amber account. The future may see more such AMC requests, for which we are able to deliver both the product wrapper as well as the even automated execution component.

Bitcoin, Ethereum and Solana still dominate most of our non-stablecoin yield requests. Indices have started to enter the OTC offering, as well as thematic baskets of tokens, and most likely would be relevant for SPs too. Trackers on indices, vol target strategies, etc is something we are currently brainstorming on.



Zhiming Yang
Orbit Markets

Structured products in crypto are still at a nascent stage with the market dominated by simple DCIs. We want to bring new payoffs and structures to meet growing demand for more sophisticated investment and yield-enhancement solutions.

Bitcoin, Ethereum, Solana, Avalanche and Polygon are some

of the more popular underlyings we see. We have managed SP linked to single assets as well as a basket of assets. We'd be very open to quoting structured products linked to an index representing the broader crypto market, we like the idea.



Arisa Toyosaki
Cega

DeFi derivatives is still a very nascent market with roughly US\$3 billion to US\$4 billion in total volume. Within that, Cega has been the first protocol to ever roll out on-chain contracts that handles DeFi exotic derivatives. We estimate DeFi exotic derivatives to be around US\$50M in total volume, growing everyday. Given the global traditional financial market, we expect there to be double digit trillions in total addressable market in the future.

Structured products available through Cega are fixed coupon notes (FCNs), which has seen strong interest in the market. So far, we have not seen other types of structured products being rolled out except for vanilla options advertised as structured products. The type of FCN payoff Cega provides (fully-funded put selling with KI/KO) is a large portion of traditional financial structured products demand. We expect the DeFi structured products demand to closely replicate the traditional markets.

The most popular underliers are Bitcoin, Ethereum and Solana. Index-linked structural products market will be lucrative and burgeoning once a market-recognised index is established.



Daniel Kukan
Crypto Finance

The initial demand started in non-leverage products, but with growing derivatives market like Deribit, the appetite for more complex structures has increased. In these complex structures, plain vanilla options play an important role. Before the market correction we have seen a rising interest in leverage and yield products, but this demand has tapered significantly now. As crypto derivatives are still not regulated only a few players participate in the issuance of nonlinear products. Capital protected products demand is in a highly volatile asset class and especially in a low interest rate environment are not very attractive. This will definitively shift as the asset class matures and rates begin to normalise.

So far, the majority product issuance is concentrated on Bitcoin and Ethereum, this was actually the starting point as both crypto currencies provide enough liquidity to hedge delta positions including option risk parameters.

During the DeFi hype in 2020 more and more Altcoins were reclassified to being deemed as attractive product offerings of the industry. Not only single asset was issued but a combination of crypto assets was used to structure a profitable baskets or index products. Besides the constituents within the DeFi space the overall activity of staking found place in structures guaranteeing an attractive yield. DeFi based structured products solutions are designed to generate attractive ongoing returns from yield generating strategies in the entire DeFi market.



Ayush Kohli
Bastion Trading

We began to trade structured products this year. The traded notional is tens of millions US dollars a month with a goal to hit US\$100m. We've developed an in-house quantitative library for pricing these products that mirror what we see being done in global banks – for both vanilla and path dependent exotics that require PDE or Montecarlo pricing.

A risk management system is in place for booking and tracking the risks of various derivatives. We are continuing to invest in a more sophisticated options trading technology. Trading, risk management and pricing are the three major infrastructure pillars needed for managing such products.



Bediss Cherif
Kaiko

From a structured products perspective, the choice is still limited – mainly tracker certificates or ETPs. There are a few actors in the market today, such as Valour, 21Shares, ETC Group. These ETPs are listed on major exchanges like any other ETP but if you look at the very details of the products' fact sheets, they don't always match the industry standards.

For instance, issues may reveal when comparing their net asset value (NAV) model vs a robust fair value of the underlying assets. They often rely on an arithmetic mean from less than a handful of exchanges like BitFinance, Coinbase and Kraken, which cannot represent the very fragmented markets, and can be locally subject to price manipulation schemes that can be mitigated only by robust methodologies standard like IOSCO and price sources diversification. This brings us to the question of the underlying indices.



Joost Burgerhout
Marex Financial Products

We offer capital protection to our risk-averse clients looking to gain exposure to the market. With the rates hikes from this year, we've offered products with capital protection referencing Bitcoin. There is still high volatility in the crypto market, therefore these products are not the most suited for one-to-one comparison with index-linked notes, albeit possible. There is more demand for yield enhancement however – call spreads, bonus certificate structures – as well as different payoffs to meet different investment goals. These clients with cash seek yield and don't expect the market to fall or rise below a certain level.



Anchal Jain
SynOption

With returns that are already attractive, complex structured products give the option of structuring trades with limited downside. Market makers are attracted to this due to higher spreads, however what one needs to be aware of is that as markets mature, volatility comes down and spread compress, and at that time the ability to effectively manage such risk is driven by good risk management systems and good distribution systems. We fully expect that as markets mature, this is where the investment needs to come, and have built out of the box solutions for firms to get up and running in this space.



Eugene Lim
Matrixport

As one of the world's largest digital assets financial services, Matrixport provides structured products embed options strategies to control volatility and provide downside protection while offering more predictable returns. Built with underlying assets of Bitcoin or Ether, Matrixport offers investors access to derivatives through a diverse range of structured products designed to suit a wide range of investor needs - from products offering steady returns to products which are able to generate higher yields. The 'dual currency product' which was the first-of-its-kind in the market when launched in 2019, has continued to be one of our most popular products. Other products we have introduced include range accrual, no touch, sharkfin, smart trend, best-buyfund and range sniper.

Crypto assets – challenges



Nick Donovan
Amber Group

Moving into exotics has been a challenge so far, in addition to the lack of liquidity depth in the alt-coin options markets beyond the "blue chip" majors. The more that the option market matures, the greater the ability of the structured product providers to deliver quality products beyond the current scope.



Wiston Zhang
Cega

The main issue is awareness and education. Advertisement and distribution channels are still limited, so it's hard to spread the word. DeFi is still a nascent industry and many interested users still lack the understanding of how to get into it in the first place. We try to teach users basics on bridging and staking. On top of that, the product positions are something we try to help educate our users regularly.



Daniel Kukan
Crypto Finance

There are traditional issuers listing delta one products in form of trackers in Switzerland and Germany with lots of success. Besides that, several Swiss and European issuers with exchange-traded products have also managed to sell a decent amount and manage a significant Asset under Management by now.



Zhiming Yang
Orbit Markets

Major traditional private banks, one of the most important links in the structured product industry, are still missing in the ecosystem. Without their participation, main investors of

structured product such as HNWI and family offices can't easily access crypto-linked structured products through existing setup and workflow.

In terms of underlying, we expect to see more demand for altcoins, basket of assets and index-linked structures. We have also seen demand for hybrid products across digital and traditional assets such as equity and FX. In terms of payoff, the market will continue to diversify away from simple DCIs into more exotic payoffs.



Chris Bae
Enhanced Digital Group

From our side, the first challenge is the lack of derivatives knowledge from some of the crypto investor base. Hedging is second nature to trading in CeFi, but that doesn't seem to be the mindset in the crypto market as many early investors experienced tremendous returns on the way up. Investors need to understand what they are buying and the importance of downside risk.

The second challenge to overcome is the sophistication in terms of setup within crypto markets with respect regulations, documentation and credit mitigation such as margin to enhance the message that products using derivatives can be accretive and essentially optimise investment portfolios when used with the proper controls and framework.



Bediss Cherif
Kaiko

In the traditional finance world, collateral can be used as leverage to generate inflow by centralised entities. This also applies to digital asset players. Yet, traditional banks must comply to rules and regulatorily enforced risk frameworks designed to protect consumers. Digital finance is facing similar guarantees and insurances challenges: Celsius - centralised platform, or hacked protocols - decentralised. As in the traditional financial markets, every party involved must be accountable, hence regulated or offering a trustless service to build reliability.

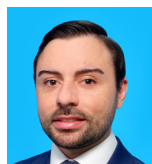
However traditional finance markets reliability has been built at the cost of global accessibility. The ethos of cryptos and digital

assets comes from the fact that they started almost cut off from the traditional financial markets to provide access to financial services to all. And that movement is not just for cryptos. In the past four years we've seen the rise of new trading platforms like Robinhood in the US or eToro in Europe which are providing access to financial markets to retail investors and bypassing exchanges.



Una Fogarty
Enhanced Digital Group

With the crypto native partners, a growing risk management culture is materializing in the market. For example, as Bitcoin miners mature financially and seek to lower their cost of capital with debt financing they are increasingly compelled to consider risk management as a holistic element of their financing strategy. This is common in CeFi and growing as a topic in DeFi.



Dario Capodici
HexTrust

Banks have instruments, mostly derivatives and can price them against their funding. The issue is how we price funding in crypto and hedge. There is still not an efficient way to price credit risk, neither there is enough liquidity to efficiently hedge payoffs with more than 3 months tenor. Also investors need to post assets as a collateral when they want to be leverage. When derivatives bankers came to this space and saw the extreme volatility, they thought they could take advantage of it selling short volatility products. But at the end of the day, most of them are doing carry trade – buying spots and selling future.



Nicky Maan
Spectrum Markets

Crypto as an asset class is more volatile than other asset classes which lends itself to trading but people need to understand how the product works, what the product will do in certain scenarios.

The performance of many crypto-assets and the fear of many to miss out on that performance has left investors prepared to buy a significantly volatile asset class. People invest in something very risky and trade on unregulated venues, offered by unregulated providers, but they don't know that you can access these assets in a more secure and regulated

way. We want to offer investors a more legitimate alternative to direct exposure to cryptos. We need to provide a robust trading infrastructure and a trading venue that works for digital assets for end retail clients and provides an optimal and very transparent trading experience. Risk disclosure and liquidity will be required by those assets to really become mainstream in the next 10 years.



Marco Infuso
Valour ETP

The price of ETPs is extremely close to the real underlying price because there is a constant mark to market taking place. There's demand and there's supply and the spread in between, at least for our products, is in normal markets about 25 to 32 basis points, meaning you have to pay 0.32% of the amount you're going to invest. This is quite reasonable if you look back at the early times of mutual funds business where entry fees were charged up to five percent.



Gary Tiu
OSL

Regulation remains a key challenge. Some tier-1 financial markets, such as Hong Kong, were early movers and have created comprehensive frameworks for digital asset regulation. However other parts of the world are at different stages which can create some ambiguities or nuances for different regions.

In Australia, for example, a very proactive and potentially accommodative framework is under consideration after the earlier Treasury consultation papers - something that OSL also responded to. However it is OSL's view that some of these new initiatives must be enacted and implemented before significant changes can happen in the institutional market.



Umberto De Paoli
Marex Financial Products

Bitcoin and Ethereum have rather liquid option markets. Essentially, we are doing the same as with traditional equity underlyings – converting vanilla options into more exotic options and retaining the risk ourselves, which we can apply to major cryptos. When providing structures on smaller coins or De-Fi projects, exotic payoffs become more challenging. If there is a doubt around being able to hedge the risk, we will rather not offer products on those assets.

WE UNLOCK THE POTENTIAL OF CRYPTO ASSETS

As a leading provider of innovative investment solutions Leonteq is also a pioneer in the offering of exchange traded investment products based on the major crypto assets. Leonteq offers 30 crypto assets, including Bitcoin, Ethereum, Solana and Polkadot among others as underlying assets.

Certificates on these crypto assets can be traded simply and easily on various stock exchanges.



ADVANTAGES OF CRYPTO INVESTMENTS VIA LEONTEQ INVESTMENT SOLUTIONS



Transaction partner

The issuer Leonteq is FINMA-regulated, has a strong capital base of approx. CHF 890 million and an investment grade rating from Fitch Ratings.



Custody

Certificates allow you to invest in crypto assets via CH-ISIN through a traditional custodian, which are conveniently accessible via a regulated exchange such as SIX Swiss Exchange, BX Swiss or the Frankfurt Stock Exchange.



Security

Investors do not need to manage public and private keys.



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CRYPTO ASSETS

sp.leonteq.com/crypto-assets

Investments in products referencing one or more cryptocurrencies or indices of cryptocurrencies are subject to increased volatility compared to investments in traditional assets and to specific risks which can negatively impact the value, tradability, liquidity and/or security of such investments. Potential Investors are encouraged to inform themselves about these specific risks when considering an investment in products referencing one or more cryptocurrencies or indices of cryptocurrencies. A summary of key risks relating to products referencing one or more cryptocurrencies or indices of cryptocurrencies can be found in <https://structuredproducts-ch.leonteq.com/crypto-assets>

Leonteq: ahead of the curve

Leonteq is the only provider of structured products linked to crypto assets in the retail market and has pioneered product innovation on crypto assets in Switzerland for over five years.

Leonteq offered its clients the world's first short tracker certificate on Bitcoin in 2017, the first exchange traded actively managed strategy on crypto assets in 2018 as well as the world's first reverse convertible on Bitcoin in 2019 - The Swiss structured products specialist provider offers now a total of 30 crypto assets on its LynQs platform. Tino Wendisch, the company's head of crypto offering, talks about the company's offering, market dynamics and product development opportunities.



How would you describe Leonteq's offering in the crypto market?

Unique - we are the largest provider of crypto-related products with over 250 structured products listed on SIX Swiss Exchange, BX Swiss, Börse Frankfurt (Open Market) or offered as private placements in many countries worldwide.

When it comes to crypto assets, Leonteq offers one of the largest universes that can be securitized – representing close to 80% in terms of capitalisation of the entire crypto asset market (excluding stable coins). As a fully regulated issuer with an investment-grade rating and a strong capital base we offer a comprehensive range of investment solutions across three product lines: delta 1 certificates, actively managed certificates and non-linear payouts in a secure way.

Crypto assets are a promising new asset class with increasing adoption in the asset management world. While the high volatility of crypto assets comes with increased risks, it also offers unprecedented opportunities to investors.

Do you think the recent correction will help investors understand the risks of investing in crypto assets and lead to new product offerings?

The current market drop is a stark reminder that the crypto market is not a one-way street. The downturn is exactly the type of event that will shape investor

awareness but also the market itself by forcing product providers like us to develop new solutions addressing investor's needs. As investors become more familiar and experienced with a particular asset class and aware of the risks associated with it, the demand for alternative risk profiles will increase.

Any new asset class, in my opinion, passes through several stages of product diversification. As trading access may be limited, the first stage focuses on enabling access and adoption using basic passive structures. As the market progresses – also through painful events as we experienced in recent months, quantitative and discretionary techniques are incorporated until exotics emerge, which opens the door to increasingly complex payoffs. That is not a crypto-specific finding, but rather a general observation across all asset classes.

Can structured products serve the needs to investors with a risk averse profile seeking to invest in cryptos?

I do think this is a major advantage of structured products - also compared to crypto ETPs. Structured products can be easily tailored to meet specific client requirements – beyond long exposure – and even if crypto derivatives are still in its infancy. For example, we have just created a Bitcoin-linked quantitative investment strategy that limits the achievable drawdown over a one-year

period. We know that investing in Bitcoin has historically delivered annual returns of over 100%, but the reality is most investors can't withstand short-term setbacks of -50% and more. If the crypto market falls sharply, investors get nervous, may take selling actions and probably get out of this asset class for a few years as they have lost money and confidence. With quantitative strategies we can lessen some of the pain points.

Are single names too risky? Do you think indices can help to offer a broader, more diversified exposure to this market?

I believe that diversifying into indices is a sensible next step for an emerging asset class. But because the market does not move in a predictable manner, there is no one-size-fits-all answer, and we strive to give investing options for every single customer request. There are investors who like to have broad market exposure while others develop precise investment theses on single crypto assets. As trading access to the crypto market expands, new niches may emerge naturally (e.g. thematic investing with a broader crypto asset offering). Among our clients, we are seeing a shift toward a more personalised and tailored approach reflected in increasing demand for quantitative and discretionarily managed indices.

Are actively managed certificates a popular investment vehicle in the crypto market?

Among our asset management clients, AMC's become increasingly the wrapper of choice. By using an AMC, asset managers can offer their discretionary and proprietary strategies to a wider investor audience while also having more flexibility to address market events as we have seen in recent months. Another advantage: AMC's provide the opportunity to dynamically combine crypto assets (e.g. metaverse crypto assets) with traditional asset classes (e.g., listed shares focusing on the metaverse) in a single product.

Crypto indexes – from single names to broad market exposure

In recent years, the gap between traditional financial markets and digital assets has begun to shrink.

Bitcoin has slowly paved the way for other digital assets and accompanying protocol networks while cryptocurrencies have created a niche as a popular asset class among retail investors and professional investors alike.

While cryptocurrencies remain exposed to high price volatility and regulatory uncertainty, there is a shift towards risk management strategies and indices that will enable broader exposure to cryptocurrencies, transparency and standardisation.

Below we list the top cryptocurrency indices launched by prominent market players which can help achieve this objective.

BITPANDA CRYPTO INDICES

The Austrian crypto firm has launched a series of indices including Metaverse, Infrastructure, Smart Contracts and Decentralised Finance (DeFi) to offer tailored and diversified crypto exposure. The Bitpanda suite of indices is calculated and administered by MarketVector Indexes (MVIS).

The four new indices include the **Infrastructure Leaders index** – tracking projects supporting decentralised programmes designed to perform specific tasks; the **Media & Entertainment Leaders index** – tracking projects related to games and social media; the **Smart Contract Leaders index** – tracking projects supporting blockchain protocols that allow the hosting of self-developed and third-party apps; and the **DeFi leaders index** – which tracks projects related to financial services built on top of decentralised networks with no central intermediaries.

The Bitpanda crypto indices are rebalanced monthly based on market size and liquidity, while the underlying assets are purchased directly from Bitpanda and safely kept in cold storage to ensure extra security.

BLOOMBERG

Bloomberg's family of digital asset indices includes the flagship **Bloomberg Galaxy Crypto Indices** and the **Bloomberg Galaxy Defi Indices**, as well as myriad sub-indices.

The Bloomberg Galaxy Crypto Index (BGCI) is a capped market capitalisation-weighted index designed to measure the performance of the largest digital assets traded in USD. Eligible index constituents are diversified across different categories, including stores of value, mediums of exchange, smart contract protocols and privacy assets. The family's Bitcoin (BTC) and Ethereum (ETH) indices are designed to measure the performance of a single digital assets traded in USD.

The Bloomberg Galaxy Defi Index (DEFI) is a capped market capitalisation-weighted index targeting the rapidly expanding universe of decentralised finance. This universe consists of digital assets offering decentralised alternatives to traditionally centralised financial services. The capabilities of the underlying protocols include market-making, lending, borrowing, and liquidity and yield aggregation. Asset prices are assessed in USD.

COINMARKETCAP INDICES

The CoinMarketCap Indices are a suite of benchmark indices designed to offer a comprehensive coverage of the crypto market, measuring the performance of the top 200 cryptocurrencies by market capitalisation traded in USD.

The indices are powered by CoinMarketCap's data and calculated and administered by Solactive which is fully compliant with Iosco Principles for Financial Benchmarks.

Crypto200 Index - This headline cryptocurrency index comprises the volume-weighted average price (VWAP) on the top 200 cryptocurrencies except for Bitcoin and stablecoins, by market capitalisation, in USD. The index provides exposure to the broader cryptocurrency market by incorporating the cryptocurrencies that represent the global cryptocurrency market without the influence of Bitcoin, a cryptocurrency dominating ~51% of total market capitalisation at the time of writing. Pricing data for the index is provided by CoinMarketCap.

Crypto200 ex BTC Index - This headline cryptocurrency index comprises the volume-weighted average price (VWAP) on the top 200 cryptocurrencies except for Bitcoin and stablecoins, by market capitalisation, in USD. The index provides exposure to the broader cryptocurrency market by incorporating the cryptocurrencies that represent the global

cryptocurrency market without the influence of Bitcoin, a cryptocurrency dominating ~51% of total market capitalisation at the time of writing. Pricing data for the index is provided by CoinMarketCap.

CMC MARKETS

CMC Markets' All Crypto Index, Major Crypto Index and Emerging Crypto Index were designed for investors seeking to spread bet or trade CFDs on baskets of cryptocurrencies.

The CMC crypto indices offer 'a unique, cost-effective way to trade on the wider cryptocurrency market without having to trade multiple, individual coins'.

FTSE RUSSELL

FTSE Russell entered the cryptocurrency space with triple index launch. The FTSE Russell suite tracks the performance of the world's first, second and fifth largest cryptocurrencies - bitcoin, ethereum and cardano.

The **FTSE Digital Assets index** series is comprised of the FTSE Bitcoin index, FTSE Ethereum index and FTSE Cardano index. Launched in partnership with Digital Asset Research (DAR), FTSE Russell suite includes mechanisms to determine exchange and asset level eligibility, which it said is crucial for reliable price and index data.

Previously, FTSE Russell and DAR partnered on a series of live, ticking indicative digital asset indices as a proof of concept in 2018.

FTSE Russell has also launched a crypto index containing 43 digital assets. The FTSE Digital Asset Index Series provides index coverage of cryptographically secured digital instruments in the market. The indices were developed in response to investor demand for benchmarks to accurately and methodically capture performance of digital assets, allowing for the more seamless integration into traditional portfolio analysis and processes.

The FTSE Digital Asset Index Series leverages the FTSE DAR Reference Price – Benchmark Assets price data. This underlying pricing employs a methodology designed to capture data from vetted exchanges to meet the requirements of EU Benchmarks. In addition, fundamental to the index methodology, ongoing monitoring of exchanges and assets is provided by the experts at Digital Asset Research.

The FTSE Digital Asset Index Series can be used as performance benchmarks, or as the basis for index-linked products such as derivatives and ETFs.

INDEX COOP

Interest Compounding ETH Index - The Interest Compounding ETH Index enhances staking returns with a leveraged liquid staking strategy.

DeFi Pulse Index - The DeFi Pulse Index is a capitalisation-weighted index that tracks the performance of decentralised financial assets across the market.

ETH 2x FLI - The Ethereum 2x Flexible Leverage Index lets you leverage a collateralized debt position in a safe and efficient index product.

Metaverse Index - The Metaverse Index is designed to capture the trend of entertainment, sports and business shifting to a virtual environment.

Data Economy Index - The Data Economy Index is an ecosystem of data-based products and services. Disrupting the data monopolies built in Big Tech over the past 20 years.

Bankless DeFi Innovation Index - The Bankless DeFi Innovation Index focuses on high growth, early stage DeFi projects.

KAIKO

Kaiko finalised an agreement to purchase Napoleon Index from Coinshares, Europe's largest and longest standing digital asset investment firm, in June 2022.

The crypto data firm also launched **Kaiko Indices**, providing a comprehensive suite of regulated, single-asset and multi-asset crypto asset benchmarks for institutional investors. Kaiko received clearance from the *Autorité des marchés financiers* (AMF) to launch Kaiko Indices and conduct benchmark administration under the EU Benchmark Regulation (BMR).

MARKET VECTOR INDEX SOLUTIONS (MVIS)

MarketVector Indexes develops, monitors and markets the MarketVector Indexes, a selection of pure-play, investable benchmark indexes. The introduction of MarketVector Indexes has expanded VanEck's successful brand from exchange-traded products to indexes, and the current portfolio of indexes reflects the company's in-depth expertise related to emerging markets, hard assets and special asset classes.

Mvis' crypto indices include the **MarketVector Centralized Exchanges**, **MarketVector Coinbase Bitcoin Benchmark Rate**, and **MarketVector Coinbase Ethereum Benchmark Rate**.

TOP INDICES

MarketVector Indexes also partnered with CryptoCompare, to launch a series of digital asset indices since 2017 designed to most accurately track the performance of the otherwise fragmented global digital asset market.

The MVIS CryptoCompare Indices were the first to meet investment industry benchmarking standards by providing a public rulebook for fork treatments and other events, industry-wide data distribution, proper identifiers and further index governance requirements that are expected from a regulated, unaffiliated, major benchmark provider.

The MVIS CryptoCompare suite of crypto indices comprises more than 40 strategies.

NASDAQ

Launched in February 2021, the **Nasdaq Crypto Index** is designed to measure the performance of a diversified pool of digital assets. The Nasdaq Crypto Index currently has eight cryptocurrencies as its constituents; as of June 1, 2021, Bitcoin and Ethereum (ETH) together add to around 94% weightage, while the remaining is spread across Litecoin (LTC), Chainlink (LINK), Bitcoin Cash (BCH), Uniswap (UNI), Stellar Lumens (XLM) and Filecoin (FIL). The index is rebalanced and reconstituted on a quarterly basis.

The Nasdaq Crypto Index serves as the underlying of the Hashdex Crypto ETF which was listed on the Bermuda Stock Exchange (BSX) in 2021. Nasdaq has also launched separate Bitcoin (NQBTC) and Ethereum (NQETH) reference price Indexes on June 9, 2021.

NYSE

The New York Stock Exchange Bitcoin Index (NYXBT) was launched in May 2015. The first exchange-calculated and disseminated bitcoin index has been launched by the New York Stock Exchange (NYSE).

Entitled the **NYSE Bitcoin Index (NYXBT)**, the index will represent the US dollar value of one bitcoin unit based upon actual transactions occurring on select bitcoin exchanges that have been evaluated and meet NYSE's quality standards.

NYXBT makes use of a unique methodology that relies on rules-based logic to analyse a dataset of matched transactions and verify the integrity of the data to ultimately produce an objective and fair daily value for one bitcoin in US dollars as of 4pm London time. The index will be published within a short period of that time via the widely distributed NYSE Global Index Feed as well as made publicly available for an initial period on the NYSE index page.

The NYSE Bitcoin Index will initially feature data from transactions from Coinbase Exchange, the leading US-based bitcoin exchange in which NYSE holds a minority investment. NYSE's Index Committee will oversee the rules and methodology behind the benchmark, working to ensure that it continuously reflects the current nature of the evolving bitcoin market.

QONTIGO

Deutsche Börse Group's index provider Qontigo partnered with Yewno, a leading provider of Artificial Intelligence solutions, in 2018 to launch the STOXX AI Global Artificial Intelligence Index and the iSTOXX Yewno Developed Markets Blockchain Index.

The **iSTOXX Yewno Developed Markets Blockchain Index** methodology involves an underlying dynamic knowledge graph which aggregates a large volume of structured and unstructured data in order to find companies that are exposed to Blockchain technology and research. The selection of companies can span multiple sectors and industries, and each component is selected based on the highest exposure to the target theme. The approach leverages advanced techniques typically applied within the fields of complex systems, computational linguistics and artificial intelligence.

This particular index includes companies selected from the STOXX Developed Markets Total Market Index which are found to have exposure to Blockchain. The Index was deployed as underlying strategy for an ETF listed on the Canadian market

SIX EXCHANGE

SIX Crypto Market Index 10 - The objective of the SIX Crypto Market Index 10 is to reliably measure the performance of the largest and most liquid crypto assets and tokens and provide an investable benchmark for this asset class. The prices for the crypto assets and tokens are obtained from multiple exchanges. The SIX Crypto Market Index 10 was standardised at 1000 points on 30 December 2016, and has been calculated on an ongoing basis since 09 January 2018.

SDX Crypto Indices - The objective of the SDX Crypto Indices is to measure the performance of currently two large and widely known crypto assets, namely Bitcoin (BTC) and Ether (ETH). To reduce the volatility of trading prices and present a more stable price point, the SDX BTC and SDX ETH indices calculate the volume weighted median price over a one hour time window. Trading prices and volumes, which are used as input data for the indices, are obtained from multiple exchanges.

In addition to SDX BTC and SDX ETH which use a single crypto asset as input data, a combined index is also available. The combined index - the **SDX Bi-Cap Index** - is a market cap weighted index, which uses the volume weighted median prices of SDX BTC and SDX ETH as input prices. The SDX Bi-Cap Index was standardised at 1000 points on 2 August 2019 and has been calculated on an ongoing basis since 13 September 2021.

S&P DOW JONES (S&P DJI)

S&P Dow Jones entered the crypto world in May 2021 with the launch of the S&P Digital Market Indices, a new series of digital asset benchmarks.

The **S&P Bitcoin Index (SPBTC)** which is designed to track the performance of Bitcoin. The index has set its first value data and base date set as January 1, 2014, with a base value of 100.

The second is the **S&P Ethereum Index (SPETH)**; Ethereum is the second largest cryptocurrency in terms of market capitalisation. The first value data and base date for the index is set as January 1, 2016, with a base value of 100.

S&P Cryptocurrency MegaCap (SPCMC) is the third index launched by S&P. It tracks the performance of Bitcoin and Ethereum weighted by market capitalisation. The first value

data and base date for the index is set as 1 January 2021, with a base value of 100.

The new indices being added include the following:

S&P Cryptocurrency Broad Digital Market (BDM) Index – This index is designed to track the performance of digital assets listed on recognized open digital exchanges that meet minimum liquidity and market capitalisation criteria that are covered by our price provider Lukka. The index is meant to reflect a broad investable universe.

S&P Cryptocurrency LargeCap Index – a subset of the BDM that measures the performance of the constituents with the largest market capitalisation.

S&P Cryptocurrency BDM Ex-MegaCap Index – a subset of the BDM that excludes the constituents of the S&P Cryptocurrency MegaCap Index (Bitcoin and Ethereum).

S&P Cryptocurrency BDM Ex-LargeCap Index – a subset of the BDM that excludes constituents of the S&P Cryptocurrency LargeCap Index.

S&P Cryptocurrency LargeCap Ex-MegaCap Index – a subset of the BDM that measures the performance of the constituents of the S&P Cryptocurrency LargeCap Index, excluding the constituents of the S&P Cryptocurrency MegaCap Index.

The pricing and reference data related to cryptocurrencies for these indices is provided by Lukka.



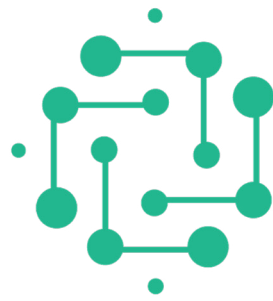
A custodian's perspective

by Alessio Quaglino, Hex Trust CEO

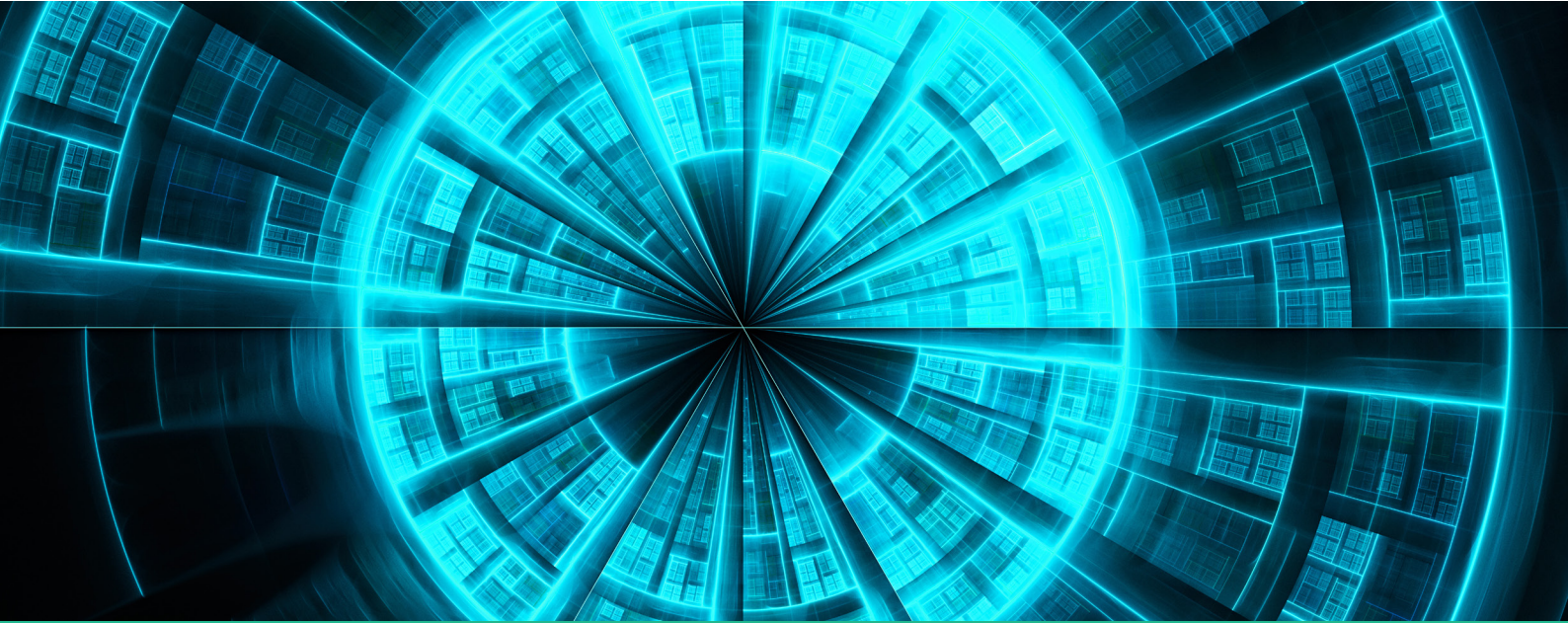
Hex Capital Group has three business pillars – custody, market-making and investment solutions, which account for roughly 40%, 30% and 30% of the revenue, respectively. The assets under custody is currently around US\$3 billion after hitting US\$6 billion at peak.

In TradFi every structured product is characterized by the issuer's credit risk. Considering the lack of regulation and auditing practices within crypto, investors are not comfortable to take counterparty exposure. They would instead prefer to hold directly the various components that are used together to build the payoff. To address the lack of a market for Credit, Hex Trust supported the initiative to create a new DeFi protocol called, Clearpool Finance where issuers can raise funds in the form of tokenized unsecured debentures, for the time being, at overnight funding levels. These tokenized debentures appreciates in value every block - roughly 10 seconds - based on the interest that's accruing and the all mechanism is managed by algorithms. Therefore structured products can be built based on the securitization of funding levels. As of today, the firm has US\$140m outstanding issued by borrowers, one of which is Jane Street.

In the crypto structured product space, the custodian's role is critical. Because the industry needs to provide custody and hold the private keys for the very specific type of assets (primitives) that together will be built as a payoff Furthermore the custodian will also be in charge to interact with either the blockchain or the smart contract as necessary during the life of the structured product.



EDG
ENHANCED DIGITAL GROUP



Crypto markets are unpredictable

But your investment doesn't have to be

As digital asset marketplaces increase in sophistication, so should your trading strategies. Enhanced Digital Group, Inc. was formed by a group of experienced derivative traders and is a first-of-its-kind company delivering wholesale structured products to institutions.



Tailored structured products



Meet suitability characteristics of a diverse crypto client base



Structure leveraged and unlevered products to match client strategy



Ability to restructure to meet clients needs

For more information visit www.enhanceddigital.group or email: info@enhanceddigital.group

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EDG: customising crypto structured products and derivative trading solutions

Enhanced Digital Group (EDG) is developing structured products that will allow investors to gain access to crypto-linked payouts in familiar USD-denominated formats.

The US-based crypto company is seeking to enable greater sophistication of crypto derivative trading solutions in a turnkey package by enhancing the product development of both traditional financial services and crypto-native firms - including private banks, family offices, asset managers, exchanges, custodians, trading firms, corporates and broker dealers. Chris Bae, founder and CEO, talks about the market as well as the products and services EDG will be deploying to fill the demand gap.

How has 2022's "crypto winter" impacted your clients and EDG's business?

Anyone who has traded through a crisis knows you come out stronger with some semblance of a plan at the onset. Crypto winter was undoubtedly an 'ah-ha' moment, as many crypto investors and digital asset holders realised they were ill-prepared to hedge against the market downturn.

We are seeing a lasting impact across the industry – from miners facing selling pressure, to exchange volumes being significantly down from the peak. These impacts have shown it's necessary to have structured product packages to deal with the volatility of such an asset class and be better prepared for future events. For EDG, the volume of inbound enquiries from all over the world has grown remarkably as crypto valuations have fallen and volatility has increased.

What trends are you seeing emerge in the digital asset sector?

Right now, we're seeing a lack of differentiated crypto trading strategies or products. Most investors seeking to monetize from large price swings are extremely limited in what they can do. Market structure is evolving to become



more sophisticated as institutional capital and traders flow into the system. At the same time, investors coming from the TradFi world are getting more comfortable and familiar with the asset class. This enables greater long-term financial planning and satisfies investors' concerns over proper risk management in extremely volatile markets. Longer term, these cycles can provide the needed experience to evolve the marketplace.

EDG was formed by a group of ex-derivatives traders from the traditional finance sector. How does working in crypto differ?

People often think crypto is much different than other asset classes. From a market structure perspective, we view crypto as similar in structure and functionality as most frontier markets. Frontier markets are attractive due to high current and projected growth rates, but capital starves due to structural barriers to entry. Crypto looks similar, and we can apply the same strategies to help institutions understand their risks and opportunities.

What challenges is the industry facing to expand investor choice and serve the different needs of investors in digital assets?

From our side, the first challenge is a lack of derivatives experience in the crypto market.

Hedging is second nature to trading in TradFi, but that doesn't seem to be the mindset in the crypto market as many people that invested in the early days only saw the market going up. Investors need to understand what they are buying and the importance of downside risk.

The second challenge is to overcome the sophistication in terms of setup within crypto markets to get across the message that products using derivatives can be accretive to optimise investment portfolios.

How do you see crypto markets evolving over time?

The market structure for digital assets is still evolving. In crypto markets, it's nearly impossible to predict what will happen next, but as the asset class matures through greater diversification and sophistication of market participants, then so will the market's abilities to stand the bouts of volatility and sell offs, much like traditional markets.

Over time, sudden market shocks, technological improvements and a maturing futures market will all contribute to the greater use of and need for structured products and derivatives products.

As these elements evolve, we believe that crypto markets will move closer to how we see traditional markets behaving. But to do so there needs to be continued innovation, investment and advancement of the trading infrastructure ecosystem, which EDG encourages and is eager to see happen. Financial engineering never stops, it only evolves, and we think the crypto marketplace is ripe for further development.

Landscape directory

DEFI PROTOCOLS

SG FORGE

Company: Société Générale Forge

Launch date: 2018

Management: Jean-Marc Stenger - CEO, David Durouchoux - Deputy CEO

Headquarters: Puteaux, Ile-de-France, France

Business: SG Forge is a subsidiary of Société Générale Group, regulated as investment firm under EU MiFID2 regulation. It offers issuers and investors, either corporates or financial institutions, with end-to-end services to issue and manage digital-native financial products registered on the blockchain (security token).

RIBBON FINANCE

Company: Ribbon Finance

Launch date: April 2021

Management: Ken Chan - Founder and CEO

Headquarters: Singapore

Business: Ribbon Finance is a protocol that helps users access crypto structured products for DeFi, which combines options, futures, and fixed income. It offers structured products on ETH, AVAX, USDC, and SOL which generates yield through automated covered-call or put-selling option strategies.

DELTA ONE

Company: Delta One

Founded date: 2021

Management: Paul Sengh and Pankaj Balani - CEOs & Co-Founders

Headquarters: Singapore

Business: Delta One is a yield generation protocol on Solana that offers delta-neutral and impermanent loss-free farming markets. Its mission is to create novel, easy-to-use Defi primitives that democratize the best risk-adjusted yield opportunities to achieve mass adoption of crypto investing.

CEGA

Company: Cega

Management: Arisa Toyosaki, Winston Zhang, Victor Zhang, Felicia Cheng - Founders

Founded date: January 2022

Headquarters: Singapore

Mission: Cega is a decentralized exotic derivatives protocol building exotic options structured products for investors that generate superior yield and offer built-in protection against market downturns. It's developing capabilities in tech, token contracts and data modelling that will enable the next evolution of DeFi derivatives.

AVALABS

Company: Avalabs

Founded date: 2018

Management: Emin Gün Sirer – CEO

Headquarters: Brooklyn, New York

Business: Ava Labs offers decentralized finance applications on Avalanche, a smart contracts platform in the blockchain industry. It aims at digitizing all the world's assets on one open, programmable blockchain platform.

DATA/INDEX PROVIDERS

S&P DIGITAL MARKET INDICES

Company: S&P Digital Market Indices

Founded date: 2012

Management: Dan Draper, CEO of S&P Dow Jones Indices

Headquarters: New York

Business: S&P Digital Market Indices measures the performance of digital assets listed on trading facilities. The index series includes, among others, S&P Bitcoin Index, S&P Ethereum Index, S&P Cryptocurrency MegaCap Index, S&P Cryptocurrency Broad Digital Market (BDM) Index

QONTIGO

Company: Qontigo

Founded date: 2019

Management: Sebastian Ceria - CEO

Headquarters: Eschborn, Germany

Business: Qontigo is Deutsche Boerse Group's index and analytics business and a joint venture of Axioma, Dax and Stoxx.

MSCI

Company: MSCI

Founded date: 1969

Management: Henry Fernandez – Chairman & CEO
Headquarters: New York
Business: MSCI is a global provider of equity, fixed income, real estate indexes, multi-asset portfolio analysis tools, ESG and climate products. It operates the MSCI World, MSCI All Country World Index, MSCI Emerging Markets Indexes.

MARKETVECTOR INDEXES

Company: MarketVector Indexes (formerly known as MV Index Solutions)
Founded date: 2011
Management: Steven Schoenfeld - CEO
Headquarters: Frankfurt, Germany
Business: MarketVector Indexes is the index business of Van Eck, a US-based investment management firm and provider of the Van Eck Vectors ETFs. The company develops, monitors and markets indices.

NASDAQ

Company: Nasdaq
Founded date: February 1971
Management: Adena Friedman - CEO
Headquarters: New York
Business: Nasdaq is a multinational financial services corporation that owns and operates three stock exchanges in the US: Nasdaq stock exchange, the Philadelphia Stock Exchange, the Boston Stock Exchange and seven European stock exchanges: Nasdaq Copenhagen, Nasdaq Helsinki, Nasdaq Iceland, Nasdaq Riga, Nasdaq Stockholm, Nasdaq Tallinn, and Nasdaq Vilnius.

COIN METRICS

Company: Coin Metrics
Founded date: 2017
Management: Nic Carter – Co-Founder & Board chairman, Tim Rice – Co-Founder & CEO
Headquarters: Boston
Business: Coin Metrics is an open-source project to determine the economic significance of public blockchains. Its software provides real-time reporting and data analysis on crypto assets.

KAIKO

Company: Kaiko
Founded date: 2014
Management: Ambre Soubiran - Founder & CEO
Headquarters: Paris
Business: Kaiko is a cryptocurrency market data provider for institutional investors and enterprises with an aim to be the foundation of the new digital finance economy by serving as a single source for market information.

LUKKA

Company: Lukka
Founded date: 2014
Management: Jake Benson - Founder, Robert Materazzi - CEO
Headquarters: New York
Business: Lukka provides institutional-grade solutions that deliver transparency, clarity, and insights into financial data. It aims to solve the most complex data challenges to support and accelerate innovation in its financial system and global commerce.

COMPASS

Company: Compass
Founded date: 2017
Management: Guillaume Le Fur, Partner – CEO
Headquarters: Switzerland
Business: Compass focuses on the design, calculation and publication of market benchmarks, financial indices and tailor-made quantitative investment strategies.

EXCHANGES

CRYPTO FINANCE

Company: Crypto Finance
Founded date: 2017
Management: Jan Brzezek – Founder & CEO
Headquarters: Zurich
Business: As part of Deutsche Borse, Crypto Finance offers crypto and blockchain services to institutional and professional clients through an integrated platform to invest in, manage, trade, and store digital assets.

SIX DIGITAL EXCHANGE

Company: SIX Digital Exchange (SDX)
Founded date: Nov 2021
Management: David Newns - CEO
Headquarters: Zurich
Business: SIX Digital Exchange offers a regulated market infrastructure that fully integrates end to end trading, settlement and custody service for digital assets.

ADDX

Company: ADDX
Founded date: November 2017
Management: Danny Toe – Founder & Group CEO; Oi-Yee Choo - CEO

Headquarters: Singapore

Business: ADDX is Asia's largest private market exchange on a mission to make private market investing fairer. Backed by Singapore Exchange, ADDX uses blockchain technology to fractionalise multi-asset securities, including private equity, hedge funds, bonds and structured products.

DERIBIT

Company: Deribit

Founded date: June 2016

Management: John Jansen – Co-Founder & CEO

Headquarters: Panama

Business: Deribit is cryptocurrency futures and options exchange. It's among the top exchanges providing crypto futures and perpetual contract trading and is a leading exchange offering European style cash-settled crypto options.

BYBIT

Company: Bybit

Founded date: March 2018

Management: Ben Zhou – Founder & CEO

Headquarters: Dubai

Business: Bybit is a cryptocurrency exchange that provides online spot and derivatives trading services, mining and staking products, as well as API support, to retail and institutional clients.

COINBASE

Company: Coinbase Global

Founded date: June 2012

Management: Brian Armstrong and Fred Ehrsam – Co-Founders

Business: Coinbase is a US listed company that operates a cryptocurrency exchange. All employees operate via remote work.

BINANCE

Company: Binance

Founded date: July 2017

Management: Changpeng Zhao – Founder & CEO

Business: Binance is a blockchain company comprised of the Binance Cryptocurrency Exchange, Binance Info, Binance Labs, Binance Launchpad and various other cryptocurrency-related functions.

KRAKEN

Company: Kraken

Founded date: 2011

Management: Jesse Powell and Thanh Luu – Co-Founders

Headquarters: San Francisco

Business: Kraken is a US cryptocurrency exchange. It was one of the first bitcoin exchanges to be listed on Bloomberg Terminal and is reportedly valued at US\$11 billion as of mid-summer 2022

ETP PROVIDERS

21SHARES

Company: 21Shares

Founded date: In March 2020 ETP line was rebranded to 21Shares

Management: Ophelia Snyder - Co-Founder & President, Hany Rashwan - Co-Founder & CEO

Headquarters: Zug, Switzerland

Business: 21Shares aims to make investing in crypto assets as easy as buying shares using its conventional broker or bank. Investors can invest in cryptocurrencies using a conventional ETP structure or tracker.

VALOUR ETP

Company: Valour ETP

Founded date: 2019

Management: Johan Wattenstrom – Founder, Russell Starr - Executive chairman & CEO

Headquarters: Zug, Switzerland

Business: Valour ETP offers exchange-traded products that enable individuals and institutions to invest in digital assets simply and securely.

PRODUCT PROVIDERS

ENHANCED DIGITAL GROUP

Company: Enhanced Digital Group

Founded date: 2021

Management: Chris Bae - Founder and CEO

Headquarters: New York

Business: EDG provides wholesale, customized structured products and derivative trading solutions to expand access to tailored financial exposure of digital assets. It aims to enhance the product development of both traditional financial services and crypto-native firms – including exchanges, wallets, custodians, trading firms, asset managers, corporates and broker-dealers.

INVESTDEFY

Company: InvestDEFY Technologies

Founded date: 2018

Management: James Niosi - CEO & Co-Founder, Aaron Samsonoff - CSO & Co-Founder

Headquarters: Toronto

Business: A merger of TradFi, Crypto and DeFi, InvestDEFY provides quantitative trading, digital assets, technology, AI, risk management, derivatives, global equities, regulatory compliance and investment banking. It engineers structured products powered by its proprietary technology platform featuring big data and AI.

EQONEX

Company: Eqonex

Founded date: May 2020

Management: Miles Pelham - Chairman & Founder

Headquarters: Singapore

Business: EQONEX combines financial technology and traditional finance features to provide a platform in which investors can access cryptocurrencies. It provides digital asset custody that integrates physical and virtual security.

FLYNT FINANCE

Company: Flynt Finance

Founded date: 2019

Management: David Seo, CEO

Headquarters: Singapore

Business: Flynt is a one stop portfolio management hub which helps users hop in and out of asset management strategies according to market conditions and their risk tolerance. The platform provides structured products on cryptocurrencies including the "Bitcoin Covered Call 5x".

YIELD APP

Company: Yield App

Founded date: August 2020

Management: Tim Frost - CEO

Headquarters: Tallinn, Estonia

Business: Yield App is a fintech company and digital wealth platform managed by capital markets, fintech, cybersecurity and digital asset professionals operating under a European cryptocurrency license that governs in-app digital asset activities.

MAREX

Company: Marex

Founded date: 2005

Management: Ian Lowitt - CEO

Headquarters: London

Business: Marex is a global financial services platform, providing essential liquidity, market access and infrastructure services to clients in the energy, commodities and financial markets.

LEONTEQ

Company: Leonteq

Founded date: September 2007

Management: Lukas Rufin, Jan Schoch, Sandro Dorigo, Michael Hartweg – Co-Founders

Headquarters: Zurich

Business: Leonteq is a fintech company with a marketplace for structured investment solutions. Based on proprietary modern technology, it offers derivative investment products and services and acts as both a direct issuer of its own products and as a partner to other financial institutions

VONTOBEL

Company: Vontobel Group

Founded date: 1924

Management: Zeno Staub - CEO

Headquarters: Zurich

Business: Vontobel is a global active investment management firm specialized in wealth management, active asset management and investment solutions.

SWISSQUOTE

Company: Swissquote

Founded date: 2000

Management: Marc Bürki – Co-Founder & CEO

Headquarters: Gland, Switzerland

Business: Swissquote is a banking group specialising in the provision of online financial and trading services.

TAVIS CAPITAL

Company: Tavis Capital

Founded date: 2014

Management: Bernhard Vogeli

Headquarters: Zurich

Business: Tavis Capital is an independent Finma-regulated asset manager of collective investment schemes. It specialises in the asset management of credit portfolios and currently manage over CHF1 billion institutional clients assets.

ENIGMA SECURITIES

Company: Enigma Securities

Founded date: 2017

Management: Michael Halimi, Avi Bouhadana – Co-Founders & Co-CEOs

Headquarters: London

Business: Enigma is regulated facilitator for cryptocurrency liquidity, banking relations and custody solutions. It offers solutions for bespoke liquidity products and services using its proprietary electronic trading platform and API access.

PLATFORMS

MATRIXPORT

Company: Matrixport
Founded date: 2019
Management: Jihan Wu – Co-Founder & Chairman; John Ge – Co-Founder & CEO
Headquarters: Singapore
Business: Matrixport is a digital assets financial services company providing one-stop crypto financial services including Cactus Custody™, spot OTC, fixed income, structured products, lending and asset management.

BITMEX

Company: BitMEX
Founded date: 2014
Management: Arthur Hayes, Benjamin Delo, and Samuel Reed – Co-founders
Headquarters: Seychelles
Business: BitMEX is a P2P trading platform that offers access to crypto products in the global digital asset financial markets.

MARKETNODE

Company: Marketnode
Founded date: January 2021
Management: Martin Pickrodt - CEO
Headquarters: Singapore
Business: Marketnode, an SGX Group and Temasek joint venture, builds end-to-end digital markets infrastructure. The Marketnode platform provides an issuance gateway that connects into a post-trade digital asset depository. It recently launched an investment funds utility Fundnote built through distributed ledger technology.

OSL

Company: OSL
Founded date: 2019
Management: Hugh Madden – Group CEO
Headquarters: Hong Kong
Business: As part of BC Technology Group, OSL is the first insured and SFC-licensed digital asset platform, providing prime brokerage, custody, exchange and SaaS services for institutional clients and professional investors.

Q9 CAPITAL

Company: Q9 Capital
Founded date: 2020
Management: James Quinn – Managing Partner
Headquarters: Hong Kong

Business: Q9 is a crypto platform for individual and institutional investors. It delivers solutions for crypto investing, providing investors with the platform and tools.

TALOS

Company: Talos
Founded date: 2018
Management: Anton Katz, founder and CEO
Headquarters: New York
Business: Talos offers an institutional-grade infrastructure technology supports the full lifecycle of digital asset trading, from price discovery to execution through to settlement.

TDX STRATEGIES

Company: TDX Strategies
Founded date: 2019
Management: Dick Lo – Founder & CEO
Headquarters: Hong Kong
Business: TDX Strategies is an institutional digital asset derivatives platform which provides investment banking and wealth management solutions to assist investors construct, manage and grow digital asset wealth.

SYNOPTION

Company: SynOption
Founded date: 2022
Management: Anchal Jain - CEO
Headquarters: Singapore
Business: SynOption provides institutional solutions for analytics, trade execution and post trade analytics in FX options with a recognized market operator (RMO) license from the Monetary Authority of Singapore (MAS).

LIQUIDITY PROVIDERS

MAKO

Company: Mako
Founded date: 1999
Management: Trystan Morgan Schauer - CEO
Headquarters: London
Business: Mako provides liquidity to global derivatives markets, primarily through options market making on the back of its proprietary technology that's developed over the last two decades.

GSR

Company: GSR
Founded date: 2013
Management: Jakob Palmstierna – CEO; Richard

Rosenblum – Co-Founder & President

Headquarters: London

Business: GSR specializes in providing liquidity, risk management strategies and structured products to sophisticated global investors in the digital assets industry

GALAXY

Company: Galaxy

Founded date: 2013

Management: Jakob Palmstierna – CEO; Richard Rosenblum – Co-Founder & President

Headquarters: London

Business: Galaxy is a technology-driven financial services firm that provides institutions and direct clients with solutions spanning the digital assets ecosystem. Galaxy Digital operates five synergistic business lines: trading, asset management, principal investments, investment banking, and mining.

FLOW TRADERS

Company: Flow Traders

Founded date: 2004

Management: Dennis Dijkstra CEO, Britta Achmann CRO, Folkert Joling CTO, Mike Kuehnel CFO

Headquarters: Amsterdam

Business: FlowTraders is a global market maker and proprietary trading firm by using high frequency and quantitative trading strategies and specialises in exchange traded products.

ORBIT MARKETS

Company: Orbit Markets

Founded date: 2021

Management: Caronline Mauron, Zhiming Yang, Tianjiao Sun – Co-Founders

Headquarters: Singapore

Business: Orbit Markets is an institutional liquidity provider of options and structured products in digital assets with an aim to replicate the 'sales and trading' business model.

AMBER

Company: Amber Group

Founded date: 2017

Management: Michael Wu – Co-Founder & CEO

Headquarters: Singapore

Business: Amber Group provides digital asset services spanning investing, financing, trading, and spending. It works with companies ranging from token issuers, banks and fintech firms, to sports teams, game developers, brands and creators.

BASTION TRADING

Company: Bastion Trading

Founded date: 2014

Management: Wei Zhu, Ningxiang Zhang – Co-Founders

Headquarters: Hong Kong

Business: Bastion Trading offers derivatives, options market making, DeFi and various AI & data-driven systematic strategies. It transitioned into cryptocurrency trading in 2017 to take advantage of arbitrage opportunities across exchanges.

DIGITAL BANKS/CUSTODIANS

HEX TRUST

Company: Hex Trust

Founded date: 2018

Management: Alessio Quaglini – Co-Founder & CEO

Headquarters: Hong Kong

Business: Hex Trust is an insured provider of custody for digital assets. Through its proprietary platform Hex Safe™, it delivers custody, DeFi, brokerage, and financing solutions for financial institutions, digital asset organizations, corporate and private clients.

SEBA Bank

Company: Seba Crypto AG

Founded date: 2018

Management: Franz M. Bergmüller, chief executive officer

Headquarters: London

Business: Seba Bank is a Swiss digital bank providing a secure, institutional-grade, universal suite of regulated banking services for the new digital economy. In August 2019, Seba Bank received a Swiss banking and securities dealer licence – the first time a reputed, regulatory authority such as FINMA has granted a licence to a financial services provider with a core capability in digital assets.

SYGNUM

Company: Sygnum

Founded date: 2017

Management: Luka Müller, co-founder & chairman, Manuel Krieger, co-founder & director

Headquarters: Zurich / Singapore

Business: Sygnum is a digital asset specialist with both a Swiss banking licence and a Singapore asset management licence. The company harnesses the power of Distributed Ledger Technology (DLT) to embed digital assets into regulated banking.



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We are proud to continue our track record of innovating to provide A Better Way for Europe's retail investors, and this product responds to very strong demand for versatile exposure to cryptocurrencies.”

-

Nicky Maan, CEO, Spectrum Markets.

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Wide angle: towards yield optimised products

Adoption of crypto assets remains slow mainly because many banks from the traditional finance world are avoiding this asset class and the pressure from private banks and high net worth individuals is not strong enough to force the shift

Banks must go through a technological uplift as with the current set up they cannot operate in the crypto market - create and monitor wallets, or implement KYC and AML processes. This is an emerging new asset class and is there to stay. There is very little engagement from banks – the crypto space is very much driven by retail investors.

Structured products remain well-positioned to capitalise on investment demand as they can tailor the exposure and use alternative payoff structures to increase protection, reduce downside risk, or have leverage.

The ongoing debate is around when the crypto market will move to the next level and the next level is regulation. Banks will only transact with regulated entities. It is very simple.

A number of brokers like Trade Republic and Revolute have created a banking layer and are leveraging the technology to add additional services. They work with partners who provide management and custody services and use different market makers in the background to provide liquidity on their platform so that they can focus on providing different products to access cryptos.

On the other hand, there are a lot of initiatives developing on the back of the transfer of skills from investment banking to the crypto space. People that were involved in building click and trade platforms for structured products are replicating them in the crypto market. Crypto ETP providers have been successful because by operating a security environment with an ISIN code they are able to tap into the liquidity and money pools of the traditional banks.

Exchanges couldn't care less if an investor buys a share of Daimler or a bitcoin ETN



Rupertus Rothenhaeuser, chief commercial officer, **Bitmex**

from 21Shares as long as it has an ISIN code. They are offering a hybrid model that continues to bring inflows – the AUM has shrunk substantially because the value of all the underlying have decreased, but in fact those products are having net asset inflows as they sell more than they lose, which is a good sign. The appetite is still there.

Market correction

We have long enough in the business to remember similar events around other asset classes that reached historical high levels. The crash has coincided with other factors that have exacerbated the sell-off including inflation which has forced many investors to liquidate. I think we are in a global asset liquidation situation that doesn't necessarily mean everything is bad.

Volatility in markets has come down reasonably, but there will be further damage and those crypto players without sound business plans could be out of business by the end of the year. The same thing happened with the internet bubble in 2003 – many dot.com companies became unicorns without business model, without risk management control functions, without a proper plan and budget. These companies were pumped with money from VC funds and other investors, but never really had a proper business model.

However, as we saw with the dot.com crash many internet stocks failed but there were many survivors (Sun Microsystems, Oracle) which had remained highly competitive and introduced e-commerce, social media, online streaming, and cloud computing. The rest is history.

Our clients include some of the biggest hedge funds and algo traders in the planet but we also have affiliate partners using our referral program to provide access to the retail audience. The price reference is lower and that has an impact as it has forced many companies to manage their cost base adequately – if you are paid in crypto the commission you get if BTC is at 20,000 is lower than if it is at 60,000. Some companies have lost two thirds of their revenues by a simple price correction but doesn't make your offering or business model less valid. Those firm navigating the current environment will come out stronger.

Lack of choice

The crypto market is starved of derivative options which are needed to build yield optimized products. Once there is a fully developed crypto options market you will have the full range of bonus certificates, capital protected notes, reverse convertibles, leverage up and down, and barriers. The correction is also going to bring focus to capital protection.

There are products out there with interesting structures such as Cash and Carry notes playing arbitrage on the future spot and dual currency notes but these are mostly OTC trades for professional investors. The crypto market has a lot to learn from the structured products business and build a functioning secondary market to increase liquidity. Crypto banks and options exchanges play a very important role because they are channelling activity from issuers and market makers.

Structured products linked to cryptocurrencies

As of 6 September 2022, there were 2,572 structured products linked to cryptocurrencies listed on the SRP database. Of these, more than 98% were leverage products with the remaining structures mainly trackers and reverse convertibles.

The highest issuance, at 1,675 products, was seen in 2020 followed by 2019 (759 products) and 2021 (104).

The leverage products were listed in Germany while the majority of the non-flow structures were available to investors in Switzerland.

Leonteq's Capital Protection Certificate on Bitcoin (CH1171818771) was the sole product offering (partial) capital protection. The nine-month certificate participates 200% in the performance of Bitcoin, capped at 10%. The overall minimum capital return is 90%.

By issuance, Ethereum (ETH) was the most popular digital asset, linked to 898 products in total. Of these, 889 were leverage certificates listed in Germany and exclusively issued via Vontobel. In Switzerland there were seven reverse convertibles issued on the paper of Leonteq including one (CH1111687534) which sold CHF1m at inception and offered a potential annual coupon of 20%.

There were also trackers in Denmark and Sweden that were issued via Vontobel and XBT Provider, respectively.

Some 719 products were linked to Bitcoin (XBT), including seven

that were issued in 2022 to date. Apart from the aforementioned Capital Protection Certificate, they were reverse convertibles with potential annual coupons of between 31 and 47%.

The 521 products linked to Litecoin (LTC) were all issued in 2019 and 2020, as were the 427 structures on Ripple (XRP).

Bitcoin Cash (BCH), a fork of Bitcoin, was sporadically seen, first in 2017 when it was created.

Leverage products on crypto-related companies

Since 2021, there has also been considerable issuance of leverage products linked to crypto-related companies. Below we highlight the most popular ones, according to the SRP database.

Coinbase is an American publicly traded company that operates a cryptocurrency exchange platform. Coinbase is a distributed company; all employees operate via remote work and the company lacks a physical headquarters.

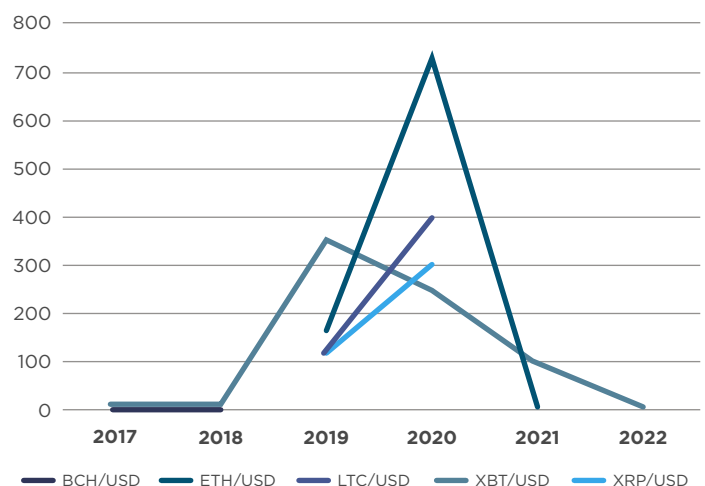
Some 4,053 leverage products on the share of Coinbase Global have been issued in 2022 to date (up to and including 15 September) – an increase of 32% year-on-year (YoY). Once again, the vast majority was listed in Germany, but there were also products available to investors in Belgium, France and the Netherlands.

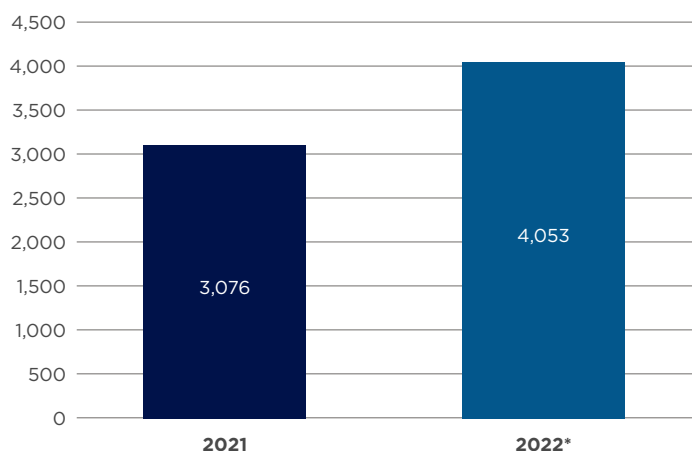
Nine issuers were responsible for the products, of which Vontobel was the most active (1,388 products), followed by Société Générale (627), DZ Bank (606), HSBC (506) and Citi (494).

Structured products linked to crypto currencies by issuance

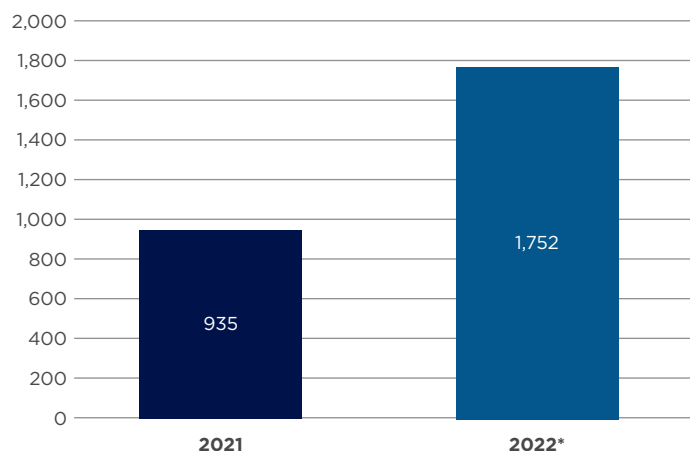
Underlying	2017	2018	2019	2020	2021	2022
BCH/USD	2	1		2		
ETH/USD	1		163	727	7	
LTC/USD			125	396		
XBT/USD	12	9	349	245	97	7
XRP/USD			122	305		
Grand total	15	10	759	1,675	104	7

Source: StructuredRetailProducts.com



Leverage products linked to Coinbase Global by issuance


As of 15 September 2022
Source: StructuredRetailProducts.com

Leverage products linked to Robinhood Markets by issuance


As of 15 September 2022
Source: StructuredRetailProducts.com

Robinhood Markets is an American financial services company headquartered in Menlo Park, California, that facilitates commission-free trades of stocks, exchange-traded funds and cryptocurrencies via a mobile app. Issuance of turbos linked to Robinhood Markets increased by 87% YoY. They were available to investors in Germany and to a lesser extend Belgium and the Netherlands. Goldman Sachs was the main issuer (687 products) followed by Unicredit (460) and Société Générale (374).

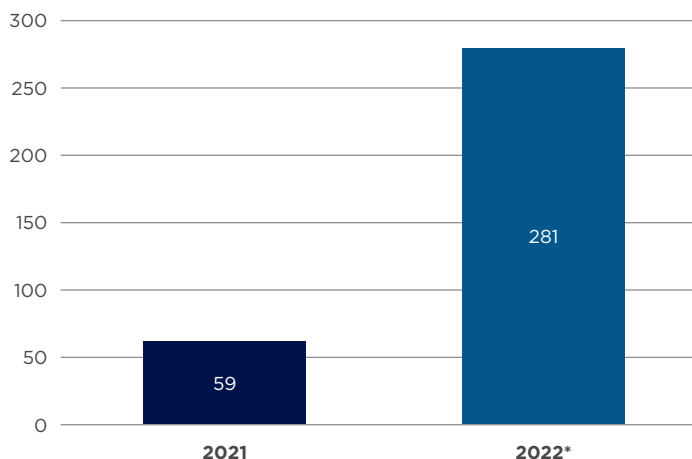
Holdings increased 3.75-fold in 2022. Again, they were available to investors in Germany, Belgium, the Netherlands and this time also France. Issuance came from three manufacturers, of which J.P. Morgan was the main issuer followed by SG and Morgan Stanley.

Marathon Digital Holdings is a digital asset technology company, which engages in mining cryptocurrencies, with a focus on the blockchain ecosystem and the generation of digital assets.

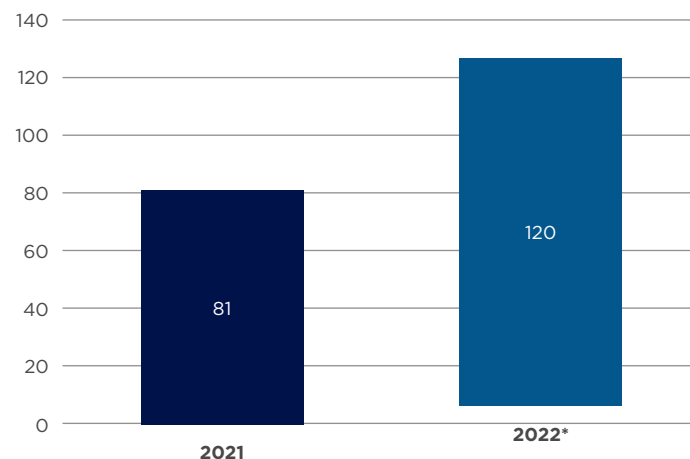
Riot Blockchain is a Bitcoin mining company, supporting the Bitcoin blockchain through rapidly expanding large-scale mining in the United States.

Issuance of leverage products tied to Marathon Digital

Issuance of products linked to Riot Blockchain was up almost 50% YoY. Again, they were available in the usual countries, although more evenly spread: Germany (78), France (23), Belgium and the Netherlands (22 each). Lang und Swarz was the main issuer (58 products) followed by SG (43) and J.P. Morgan (20)

Leverage products linked to Marathon Digital Holdings by issuance


As of 15 September 2022
Source: StructuredRetailProducts.com

Leverage products linked to Riot Blockchain by issuance


As of 15 September 2022
Source: StructuredRetailProducts.com



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