SECTION IX

DERIVATIVES

CRYPTO-DERIVATIVES

The traditional derivatives market is said to be over $1 quadrillion dollars on the high end, but some analysts say the market is grossly overestimated. The higher end of the estimates includes the notional value of derivative contracts.[208]

The rise of cryptocurrency derivative products in the current financial market brought with it lots of questions and concerns. The crypto-derivatives market has now overtaken the crypto spot market by trading volume as it continuously expands with new products. Although crypto derivatives represent a new set of tradeable products, they have many of the same characteristics as traditional crypto-derivatives. You can access the full crypto-derivatives report here.

> Crypto-derivatives are "secondary contracts or financial tools that derive their value from a primary underlying asset. A primary underlying asset could be a cryptocurrency such as Bitcoin".[209]

These derivatives can be traded OTC, over centralized exchanges, and even over decentralized exchanges because of blockchain technology. There are many different types of crypto-derivative and structured products on the market. We can categorize these products into three main categories: crypto futures, crypto options, and perpetual contracts.

CRYPTO FUTURES

Crypto Futures are structured the same as traditional futures contracts but the underlying asset is a cryptocurrency. Within the crypto space, there are two different types of futures, inverse futures and non-inverse futures, also referred to as vanilla futures. Vanilla futures work in exactly the same way as we are used to in traditional finance – the P&L is linear and paid out in the quote currency, such as USD or a USD-based stablecoin when trading a pair like BTC/USD or ETH/USD.

Inverse futures were designed to eliminate the need to hold any fiat or stablecoin on a platform. For those contracts the margining and P&L are calculated in the base currency of the contract, for example in BTC when trading BTC/USD futures. As a result, the P&L calculation is non-linear.

CRYPTO OPTIONS

Crypto options share the same structure as its traditional counterpart but the underlying asset is a cryptocurrency. Crypto options are relatively nascent and simple at this stage of development. Over the coming years, exotic crypto options with more complex structures as well as embedded option structures may emerge for multiple purposes including for hedging, synthetic exposure, and speculation.

‘CRYPTO’ PERPETUAL CONTRACTS OR SWAPS

Crypto Perpetual Contracts, which are sometimes referred to as Perpetual Swaps and other times referred to as Perpetual Futures, but generally referring to the same concept, were originally invented by BitMEX. When cryptocurrencies grew in popularity and started attracting more and more retail traders, these traders kept complaining that their positions ‘disappeared’ when in reality they were trading dated futures which had expired. To solve for this, BitMEX came up with the Perpetual Contract. Unlike the other futures and options, perpetual contracts are unique to cryptocurrencies.

Perpetual contracts are the most popular derivative in the current crypto market. A perpetual contract can be thought of as a futures contract that never expires. Traders are able to keep their positions open for as long as they want under certain conditions. One of these is that the account must contain a minimum amount of BTC, or other crypto, (margin). Another distinct factor to consider is the funding rate. This is a unique mechanism that helps tether the price of the perpetual contract to that of Bitcoin, or other crypto. Because of its dated expiry, the price of a futures contract will always converge with the price of the underlying asset at expiration. Since perpetual contracts do not expire, its price can start deviating significantly from the spot price. A solution to this problem is to have one side of traders pay the opposing side.[210]

Perpetual futures are futures contracts with no maturity, as opposed to dated futures, which expire at a pre-set date and time such as every month or every quarter. Any position in a perpetual futures stays open until the trader decides to close the trade by executing an offsetting trade, or until the trade gets liquidated.[211]

As perpetual futures have no set expiry they are, in a way, akin to spot exposure. To ensure that perpetual prices are kept in line with the spot market, the contracts have an exchange of payment between buyers and sellers depending on where the future price is trading relative to the underlying spot price. The spread between spot and perpetual futures prices is commonly known as ‘basis’ in traditional finance, but in crypto is often referred to as ‘funding’. The resulting payment that is exchanged between long and short holders of the contract is mostly referred to as the funding payment.[212]

The MTM (‘mark-to-market’) of perpetual contracts is determined by the ‘Funding Rate’. The funding rate is the mechanism that ties the perpetual contracts price to the underlying spot price. Depending on how often the exchange processes the funding rate, the spread between the perpetual contracts and spot prices is generally smaller than the spread between the perpetual contracts and dated futures (exception being when approaching expiry date).

To date, perpetual contracts are the most popular product in the current crypto market.

CRYPTO ETFS

Exchange Traded Funds (ETFs) are not derivatives, rather it is synthetic exposure to an underlying asset like stock shares.

A Bitcoin ETF tracks Bitcoin’s value and trades on regular exchanges (rather than on dedicated crypto exchanges). Investments in them give investors the opportunity to get exposure to bitcoin’s price changes without having to buy the underlying asset on cryptocurrency exchanges, while also offering price leverage.

A Bitcoin ETF listed on major stock exchanges decreases the barrier to entry, allowing a larger demography of investors to participate. Bitcoin ETF proposals in the US have been circulating since 2013, and only recently, Bitcoin ETF on CME Futures have been approved. On October 19, 2021, ProShares BTC ETF (ticker: BITO) launched and within days, broke ETF records for investment inflows (over $1bn in two days at the time of publication).[213] Other cryptocurrency ETFs trade on the Toronto

Stock Exchange (TSX), on Europe's Euronext, XETRA, and B3 in Brazil. Currently, European regulated markets only offer ETNs on digital assets or digital assets proxies.

EVOLUTION OF TRADING ACTIVITY OF DERIVATIVES ON DIGITAL ASSETS

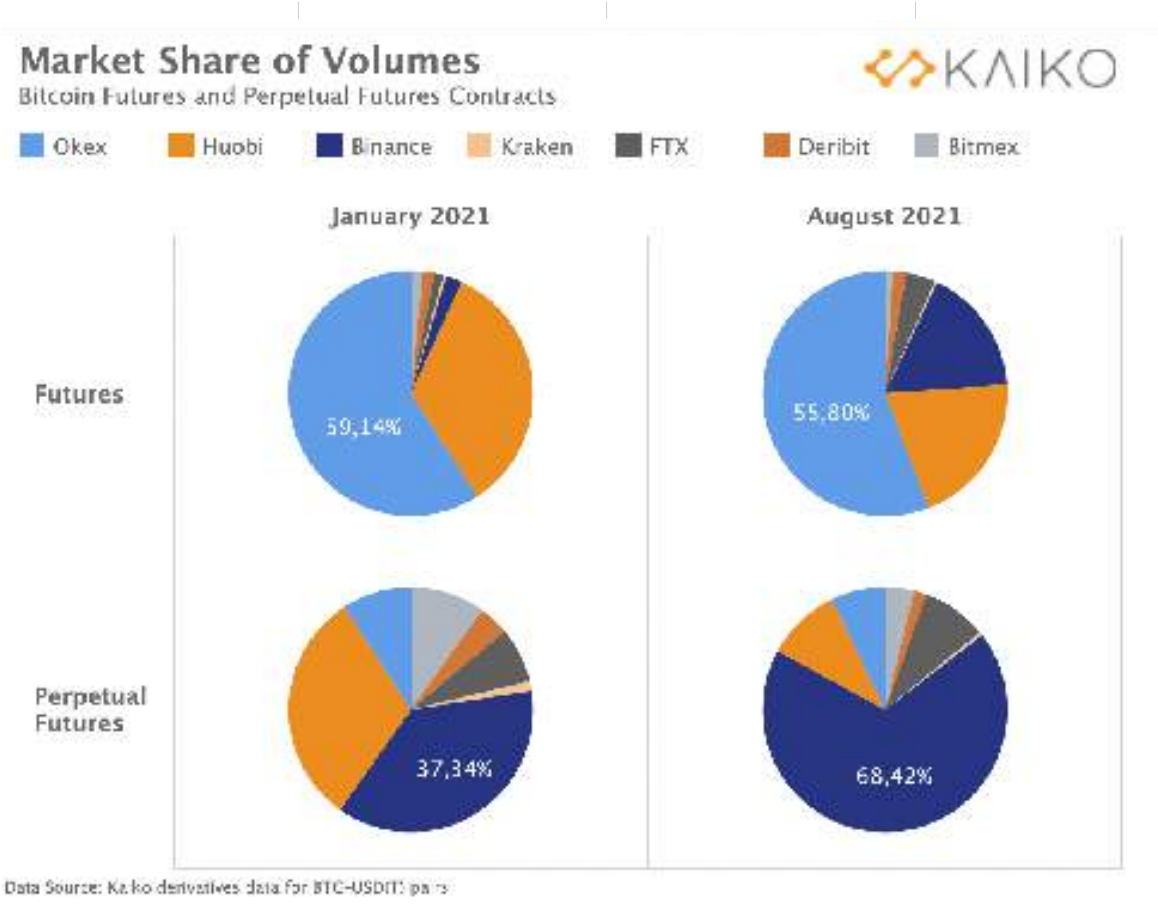
Over the past few years, the ever-growing volume, coverage, and diversity of contracts has transformed the derivatives industry into a structurally critical force in cryptocurrency markets.

EXCHANGE MARKET SHARE

The vast majority of cryptocurrency derivatives trade volume occurs on unregulated exchanges. The top unregulated exchanges are: Binance, Okex, Huobi, FTX, Bybit, Bitmex, and Deribit. Kraken, Bitfinex, and Bitflyer also offer derivatives, but their volumes are lower than top-tier unregulated markets. The Chicago Mercantile Exchange (CME) is one of the only regulated cryptocurrency exchanges that offers futures on Bitcoin and Ethereum. There are several other smaller regulated exchanges such as LedgerX, Bakkt, and ErisX, although volumes remain low.

All unregulated exchanges offer both perpetual futures and dated futures, but only a few exchanges– Deribit, Okex, and Huobi – offer options on cryptocurrencies. For options, Deribit accounts for the vast majority of market share.

TRADE VOLUME



Data Source: Kaiko derivatives data for BTC-USDT pairs

Since the start of 2021, exchange market share of trade volume has changed drastically for dated futures and perpetual futures. Since January, Binance went from accounting for just 2% of dated futures volume and 37% of perpetual futures volume to 16% and 68% of volume, respectively. For futures, Binance's market share grew by more than 8x and for perpetual futures Binance's market share now accounts for a majority of all volume.

Okex still accounts for the majority of dated futures volume, although its market share fell 4% since January.

FTX also slightly gained market share since the start of the year, growing from 1% to 3% of futures volumes and 7% to 8% of perpetual market share. Huobi has lost the most market share since the start of the year, losing more than half for both futures and perpetual futures.

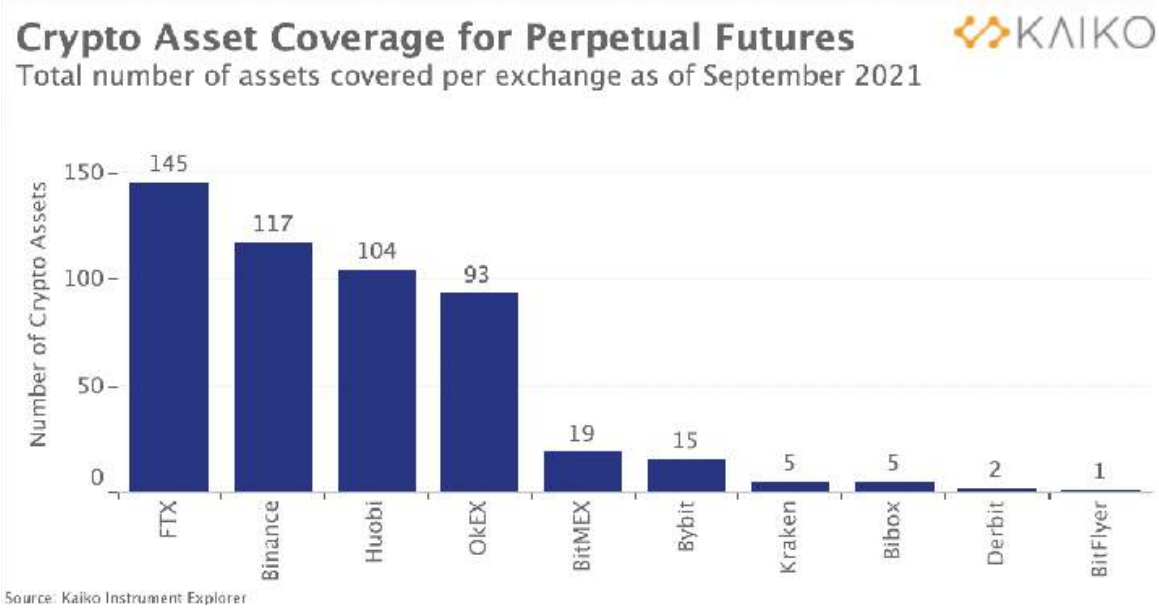
EXCHANGE COVERAGE BY CONTRACT TYPE

Cryptocurrency derivatives markets have undergone massive growth over the past couple of years, but nothing has been as impressive as the soaring popularity of perpetual futures. Almost every cryptocurrency derivatives exchange offers perpetual futures, and most offer both USD and USDT denominated contracts. Perpetual futures contracts cover the widest range of crypto assets, more so than dated futures.

Only a handful of exchanges offer options contracts, and only on Bitcoin and Ethereum.

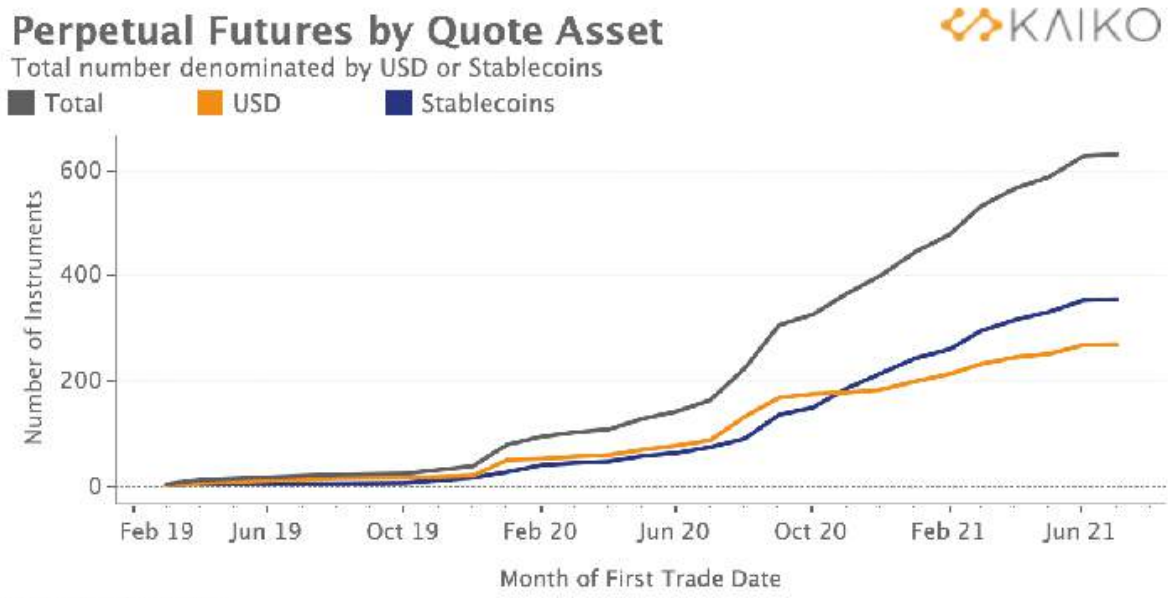
PERPETUAL FUTURES

The chart below shows the number of crypto assets covered by each exchange as of September 2021.



Today, FTX leads the market for perpetual futures with the largest number of contracts on crypto assets. FTX is known for rapidly listing contracts on new crypto assets and offers the widest variety of both blue-chip (BTC/ETH) and altcoin derivatives. FTX is a relative newcomer to the derivatives space–launching their first contract in 2019–but has rapidly gained market share and relevance due to their fast paced listing strategy.

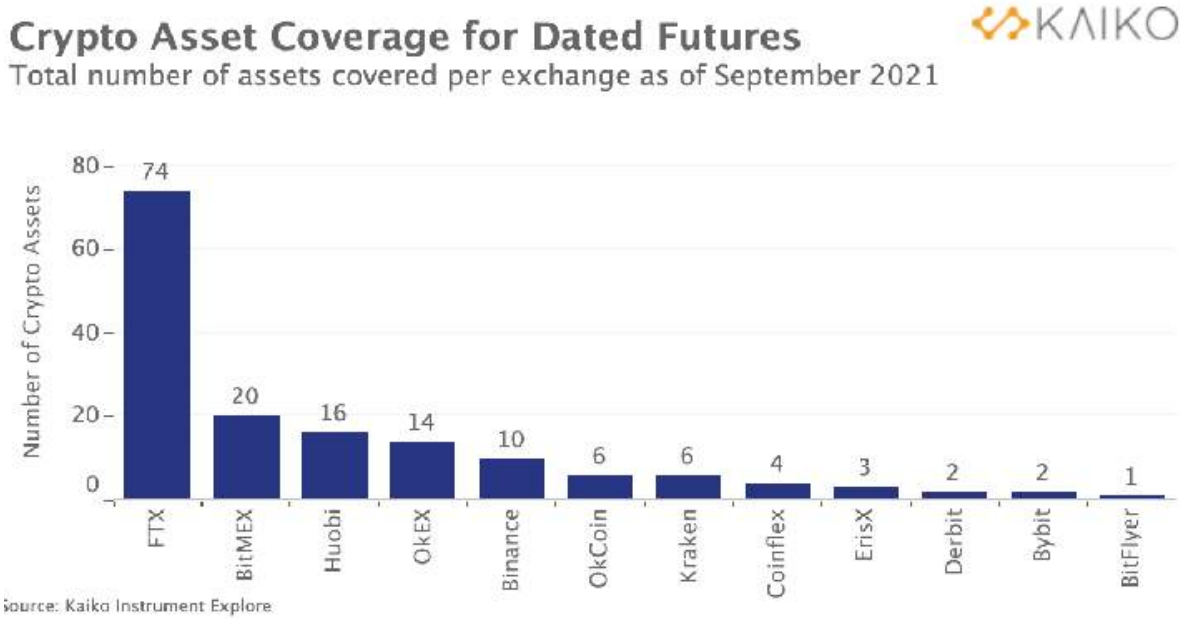
We can observe that the quantity of perpetual futures has increased sharply since 2019. Today, there are more than 600 total contracts. Around 400 are denominated in stablecoins (USDT-margined) and 200 in USD (coin-margined).



Source: Kaiko reference data

DATED FUTURES

For standard dated futures contracts, most exchanges offer only a fraction of the coverage compared with perpetual futures. Most exchanges offer futures contracts with expiries ranging from weekly to quarterly, although the quantity of dated futures varies by exchange. For example, Binance only offers a quarterly contract while FTX offers monthly, quarterly, and biannual contracts. Huobi offers weekly, bi-weekly and quarterly contracts.



Source: Kaiko Instrument Explore

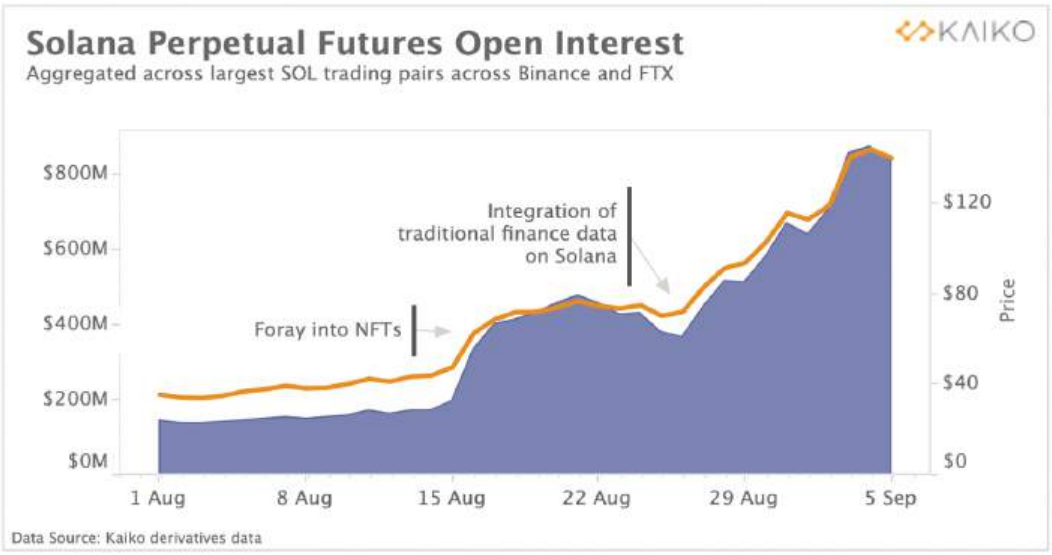
OPTIONS

Okex, Huobi and Deribit are the only unregulated exchanges to offer these contracts and all three only offer options on Bitcoin and Ethereum. Options markets are far more complex than futures which has prevented them from gaining widespread popularity, although volumes have increased over the past couple of years. Today, Deribit accounts for 90+% of total market share of options volume.

BTC VS. ALTCOINS

Derivatives are offered on 150+ altcoins, creating a highly varied trading environment. Bitcoin still dominates derivatives trading volume, but the ever-increasing range of altcoin derivatives contracts suggests growing trader interest. Bitcoin's market share of futures volume vs. Ethereum is charted below, and shows that Ethereum derivatives volume accounts for approximately 40% of total. This share has increased since March of 2021 and suggests altcoin bull runs have a direct effect on the breakdown of derivatives volumes.

Altcoin derivatives beyond Ethereum have also seen surging interest among traders. For example, open interest for the altcoin Solana recently broke all-time highs at more than $800 million, compared with just $200 million at the start of August 2021.



INITIAL CRYPTO-DERIVATIVES LEGAL & REGULATORY MAPPING

The GSMI 2.0 Derivatives Working Group also researched and mapped a subset of twelve key jurisdictions: USA, Canada, United Kingdom, European Union – Germany, France, Italy, Spain, Switzerland, Singapore, Japan, Hong Kong, South Korea which are paving the way for the development and growth of crypto-derivatives. The European Union and Singapore are highlighted here. Click here to access the full report for all twelve.

THE EUROPEAN UNION

In the European Union, regulators have framed their approach to the regulation of crypto derivatives based upon the complexity of crypto-derivative products as well as investors' lack of understanding regarding the risks that come with these products. The E.U., through several of its regulatory bodies, has issued guidelines and calls for evidence to better regulate this issue. But individual E.U. member countries have also developed their own approaches.[214]

A. ESMA & MARKET SUPERVISION IN THE EUROPEAN UNION

The European System of Financial Supervision (ESFS), the framework for financial supervision in the European Union, is made up of the European Supervisory Authorities (ESAs), the European Systemic Risk Board, the Joint Committee of the European Supervisory Authorities, and the national supervisory authorities of E.U. member states.[215]

Within the ESFS, there are three European Supervisory Authorities, who are directly responsible for supervision of the European Financial Markets: The European Banking Authority (EBA); the European Securities and Markets Authority (ESMA); and The European Insurance and Occupational Pensions Authority (EIOPA).[217] Each of the three ESAs has the power to issue non-legally binding Guidelines as tools to promote the consistent application of E.U. law across E.U. member states.[217]

ESMA is the independent market supervisory and enforcement authority within the E.U. responsible for promoting "consistent application of market rules".[218] ESMA has three objectives; to protect investors, maintain orderly markets, and uphold financial stability within the European financial markets.[219]

B. ESMA'S VIEW OF CRYPTOCURRENCY AND CRYPTO-DERIVATIVES

Most prominently as it pertains to cryptocurrency, crypto derivatives, virtual currencies and new financial instruments, EMSA has been granted specific product intervention powers to temporarily prohibit or restrict the marketing, distribution or sale of a financial instrument or a type of financial activity or practice when certain conditions are met.[220]

- **MiFID and MiFir**
  On October 20, 2011, the European Commission adopted a legislative proposal for the revision of MiFID which took the form of a revised Directive and a new Regulation.[221] After more than two years of debate, the Directive on Markets in Financial Instruments repealed Directive 2004/39/EC and the Regulation on Markets in Financial Instruments, commonly referred to as MiFID II and MiFIR, were adopted by the European Parliament and the Council of the European Union.[222]

MiFID stands for the Markets in Financial Instruments Directive; It has been applicable

across the European Union since November 2007.[223] It is a cornerstone of the E.U.'s regulation of financial markets seeking to improve their competitiveness by creating a single market for investment services and activities and to ensure a high degree of harmonized protection for investors in financial instruments.[224] MiFID II/MiFIR entered into force on January 3, 2018.[225] ESMA created this new legislative framework to strengthen investor protection and improve the functioning of financial markets, making them more efficient, resilient and transparent.

Within it, MiFID outlines the: (1) conduct of business and organizational requirements for investment firms; (2) authorization requirements for regulated markets; (4) regulatory reporting to avoid market abuse; (5) trade transparency obligation for shares; and (6) rules on the admission of financial instruments to trading.[226]

ESMA Regulation of Cryptocurrency & Crypto-derivatives

ESMA first stepped into the world of cryptocurrency when it expressed its view on token sales, also known as ICOs, in November 2017.[227] Although ESMA's proclamation was vague and did little more than acknowledge the existence of cryptocurrencies and ICO's, later, in the Call for Evidence Report issued in January 2018, the ESMA announced that crypto-derivatives, in the form of CFDs and BOs, should be subject to strict legal scrutiny. ESMA defines CFDs or "Contracts for Difference" as:[228]

> "a derivative other than an option, future, swap, or forward rate agreement, the purpose of which is to give the holder a long or short exposure to fluctuations in the price, level or value of an underlying, irrespective of whether it is traded on a trading venue, and that must be settled in cash at the option of one of the parties other than by reason of default or other terminational event."

BO's, or Binary options, are defined as:[229]

> "a derivative that meets the following conditions: (a) it must be settled in cash or may be settled in cash at the option of one of the parties other than by reason of default or other terminational event; (b) it only provides for payment at its close-out or expiry; (c) its payment is limited to: (i) a predetermined fixed amount if the underlying of the derivative meets one or more predetermined conditions; and (ii) zero or another predetermined fixed amount if the underlying of the derivative does not meet one of more predetermined conditions."

ESMA suggested that these derivatives products are speculative and volatile, exposing investors to potentially significant monetary loss.[230] As a result of its findings, ESMA called for responses from market participants regarding crypto-derivatives and adopted several restrictive product invention measures, stemming from its power under Art. 40 of MiFIR.[231]

The intervention measures included (1) a prohibition on the marketing, distribution, or sale of BOs and (2) a restriction on the marketing, distribution, or sale of CFDs to retail investors.[232] In adopting these restrictive measures, the ESMA is quoted as saying:[233]

> "CFDs are complex products. The pricing, trading terms, and settlement of such products is not standardized, impairing retail investors' ability to understand the terms of product…Retail investors find it difficult to understand and assess the expected performance of a CFD… Furthermore, the offer of CFDs to retail investors has increasingly featured aggressive marketing practices as well as misleading communications…"

Separately, it also noted that cryptocurrency is an immature asset class that poses "separate and significant concerns."[234]

SINGAPORE

Introduction

In Singapore, the relevant regulator for crypto-derivatives is the Monetary Authority of Singapore ("MAS"), which is Singapore's central bank and integrated financial regulator. The MAS is responsible for administering and supervising the securities, financial advisory services, and payments regimes in Singapore, under the Securities and Futures Act ("SFA"), Financial Advisers Act ("FAA") and Payment Services Act 2019 ("PSA"), respectively. Entities and individuals that intend to conduct activities relating to crypto-derivatives, are required to comply with the MAS' rules under the aforementioned regimes.

While crypto-derivatives are not prohibited in Singapore, the MAS has indicated that it does not consider crypto-derivative products to be suitable for most retail investors.[235]

ASSESSING WHETHER A CRYPTO-DERIVATIVE IS REGULATED

The primary factor determining the regulatory treatment of a crypto-derivative product is the nature of the token that the product references.

Depending on the nature of the token, the product will be regulated in Singapore if: (i) it falls within the definition of a "capital markets product" under the SFA; or (ii) references a payment token (a "payment token derivative"), and is offered or listed on an approved exchange.

1. CAPITAL MARKETS PRODUCTS

Under the SFA, "capital markets products" include securities, units in a collective investment scheme ("CIS"), derivatives contracts, spot foreign exchange contracts for the purposes of leveraged foreign exchange trading, as well as any other products the MAS has prescribed as a capital markets product. Of these categories, a crypto-derivative product is most likely to fall within the definition of a "derivatives contract", since the SFA defines a "derivatives contract" as a contract or arrangement under which:

- one of the parties is required to discharge all or any of its obligations at some future time; and
- the value of the contract or arrangement is determined by reference to the value or amount of one or more "underlying things".

According to the MAS' FAQs on product definitions, the following would be considered "derivatives contracts": (i) futures swaps (i.e., a swap on a futures contract), or any other swaps; and (ii) contracts for differences referencing an "underlying thing".[2346]

An "underlying thing" includes: a security, a unit in a CIS, a currency or currency index, an interest rate, a commodity, or the credit of any person. If the reference token of the product is within the definition of an "underlying thing", the product is likely to be a "derivatives contract" and thus regulated as a "capital markets product".

The next few sections summarize some of the relevant licensing requirements that could apply to a crypto-derivative product that is considered a "capital markets product" under the legislation administered by the MAS.

CMS License

An entity that carries on a business in any regulated activity under the SFA, will be required to hold a capital markets services ("CMS") license for such regulated activity. Regulated activities under the SFA include: (a) dealing in capital markets products; (b) advising on corporate finance; (c) fund management; (d) real estate investment trust management; (e) product financing; (f) providing credit rating services; and (g) providing custodial services.

Financial Advisers' License

Any person that acts as a financial adviser in Singapore in respect of any financial advisory services, is required under the FAA to either hold a financial adviser's license or be an exempt financial advisor. A financial advisory service includes advising others in respect

of any "investment products" (which includes capital markets products).

Markets where derivatives contracts are listed Entities and exchanges that provide a place or facility (whether electronic or otherwise) where, offers or invitations to exchange, sell or purchase derivatives contracts are regularly made on a centralized basis, may require approval or recognition from the MAS as either (i) an approved exchange or (ii) a recognized market operator.

2. PAYMENT TOKEN DERIVATIVES

Approved Exchanges

A crypto-derivative product will be regulated if it references a payment token and is listed on an approved exchange.
As of September 2021, there are only four approved exchanges in Singapore: Asia Pacific Exchange Pte. Ltd.; ICE Futures Singapore Pte. Ltd., Singapore Exchange Derivatives Trading Limited; and Singapore Exchange Securities Trading Limited.

Based on public media comments by the MAS, the MAS considers Bitcoin and Ether to be payment tokens. Derivatives that reference Bitcoin and Ether would therefore be payment token derivatives and would be regulated if listed on these approved exchanges.

If payment token custody services are provided in relation to payment token derivatives offered on an approved exchange, the MAS will require the approved exchange to be responsible for the appointment of the custodian. The custodian will also be subject to similar regulation that a custodian of securities or other capital markets products is subject to.

ADDITIONAL MEASURES FOR RETAIL INVESTORS

The MAS has also introduced additional measures for retail investors who trade in payment token derivatives with financial institutions regulated by the MAS. Such financial institutions are required to collect from retail investors 1.5 times the standard amount of margin required by approved exchanges for a comparable contract. This is subject to a floor of 50% and a cap of 100% of the notional value of the payment token derivatives contract. These margin requirements must be supplemented with other measures such as tailored risk warnings and restrictions on advertising.

NEXT STEPS

We are witnessing the first steps of the derivatives industry in the digital assets and we believe this product area will significantly expand and diversify its offering to adapt to the needs of the users. Firstly, the regulated market offering is at its infancy with just a few traditional regulated exchange offering products on digital assets.

Those products are mostly on single tokens but the index industry is developing tools that will offer a better representation of the overall digital asset offering. Then, as the trading activity and exposure of the actual underlying assets grow and diversify, one can expect innovation from a product standpoint. 2021 seems to be a milestone year for the entry of institutional investors in this asset class and further development will most certainly bring new needs and consequently new products to the market in the coming years.