

April 14

2021



REPORT TRIMESTRALE

2021 Q1

Digital Gold Institute: Vision

R&D center of excellence focused on teaching, training, consulting, and advising about scarcity in digital domain (bitcoin and crypto-assets) and the underlying blockchain technology



Bitcoin: Digital Gold

The most successful attempt at creating *scarcity in the digital realm* without a trusted third party. *Bitcoin is the digital equivalent of gold, disruptive for our current digital civilization and the future of money and finance.* More a crypto-commodity than a crypto-currency, Bitcoin aims to be world reserve asset.



Blockchain: Hype or Reality?

Blockchain requires an intrinsic native digital asset to provide the economic incentives for the blockchain maintainers to be honest. Without the seigniorage revenues associated to its native asset, a blockchain system would need to select and appoint its maintainers, ultimately resorting to central governance.



Beyond Bitcoin: Timestamping

A timestamp demonstrates that a document existed in a specific status prior to a given point in time. Digital data can be securely timestamped though the attestation of its hash value in a blockchain transaction. *What jewellery is for gold, Timestamping could be for bitcoin: not essential but effective at leveraging its beauty.*



Financial Services for Crypto

The most promising field, instead of technological applications of blockchain, is the development of financial services for crypto assets: those tools, practices, and facilities needed by institutional investors and high net worth individuals. *Finance might not need blockchain, but the blockchain economy needs new financial services.*

Digital Gold Institute: Activities

R&D center of excellence focused on teaching, training, consulting, and advising about scarcity in digital domain (bitcoin and crypto-assets) and the underlying blockchain technology



Consulting

Becoming one of our [partners](#) means empowering your business with a proper understanding of Bitcoin, crypto assets, and blockchain technology. It is a strategic choice that will allow you to leverage unique opportunities while avoiding the irrational hype that pollutes these topics.



Training

We offer training and education about Bitcoin, crypto assets, blockchain, distributed ledger, smart contracts, and cryptography: the program is based on the [Bitcoin and Blockchain Technology](#) course taught at Milano-Bicocca and other universities.



Research

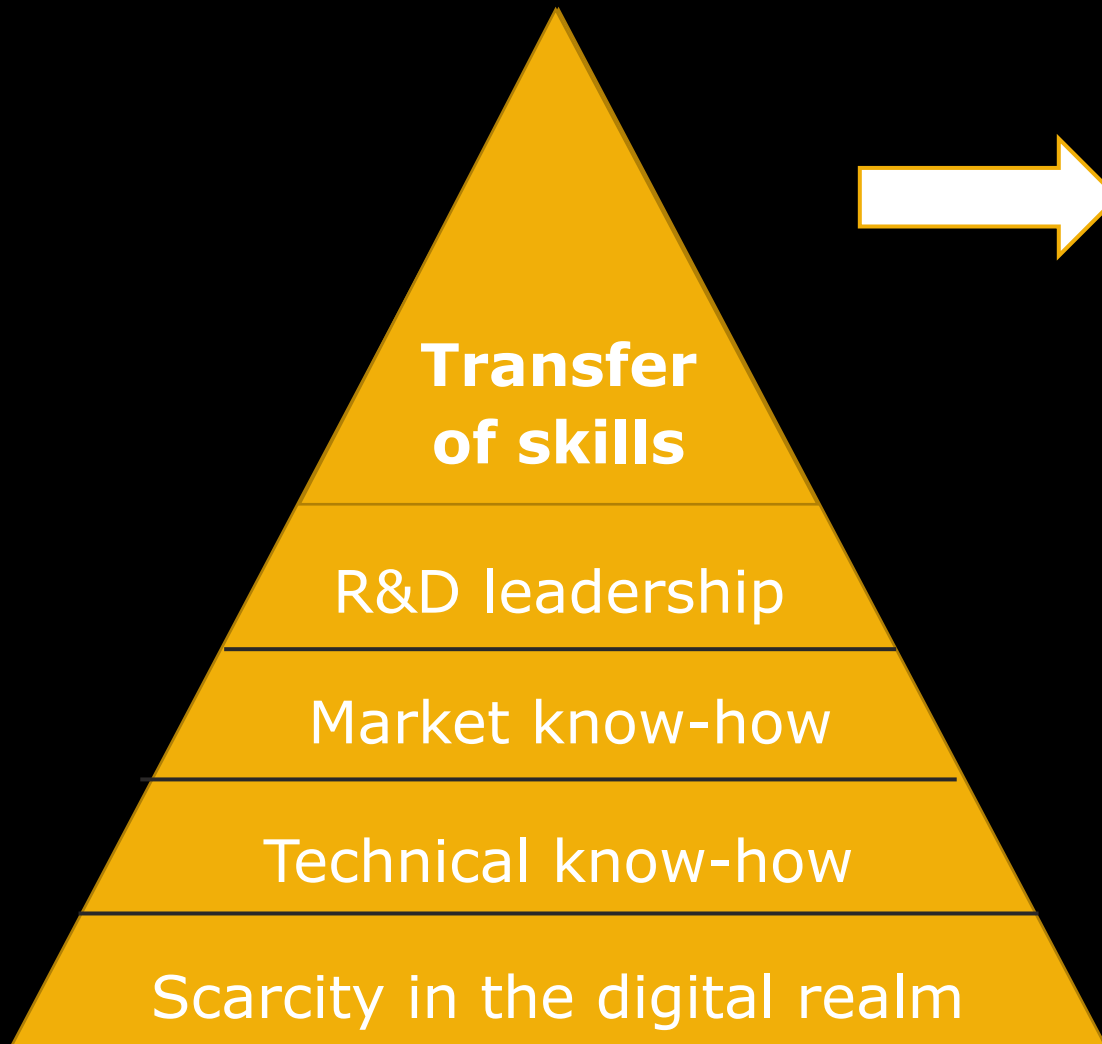
Our research activity includes quarterly [reports](#) on the bitcoin and blockchain ecosystem and the thesis works of our [students](#). Anyway, the bulk of the activity is happening at the [Crypto Asset Lab](#) (CAL), a joint research initiative with the University of Milano-Bicocca.



Development

We [write code](#) and love to get our hands dirty in programming and technology. Check out our [OpenTimestamps calendar](#) free facility and [btclib](#), an open-source Python library intended for teaching/learning/using bitcoin, its blockchain, and the associated elliptic curve cryptography.

Consulting and Training for Our Partners



Go-to-Market



Consulting

Education Partners



Harvard
Extension Student Environmental Club



Agenda

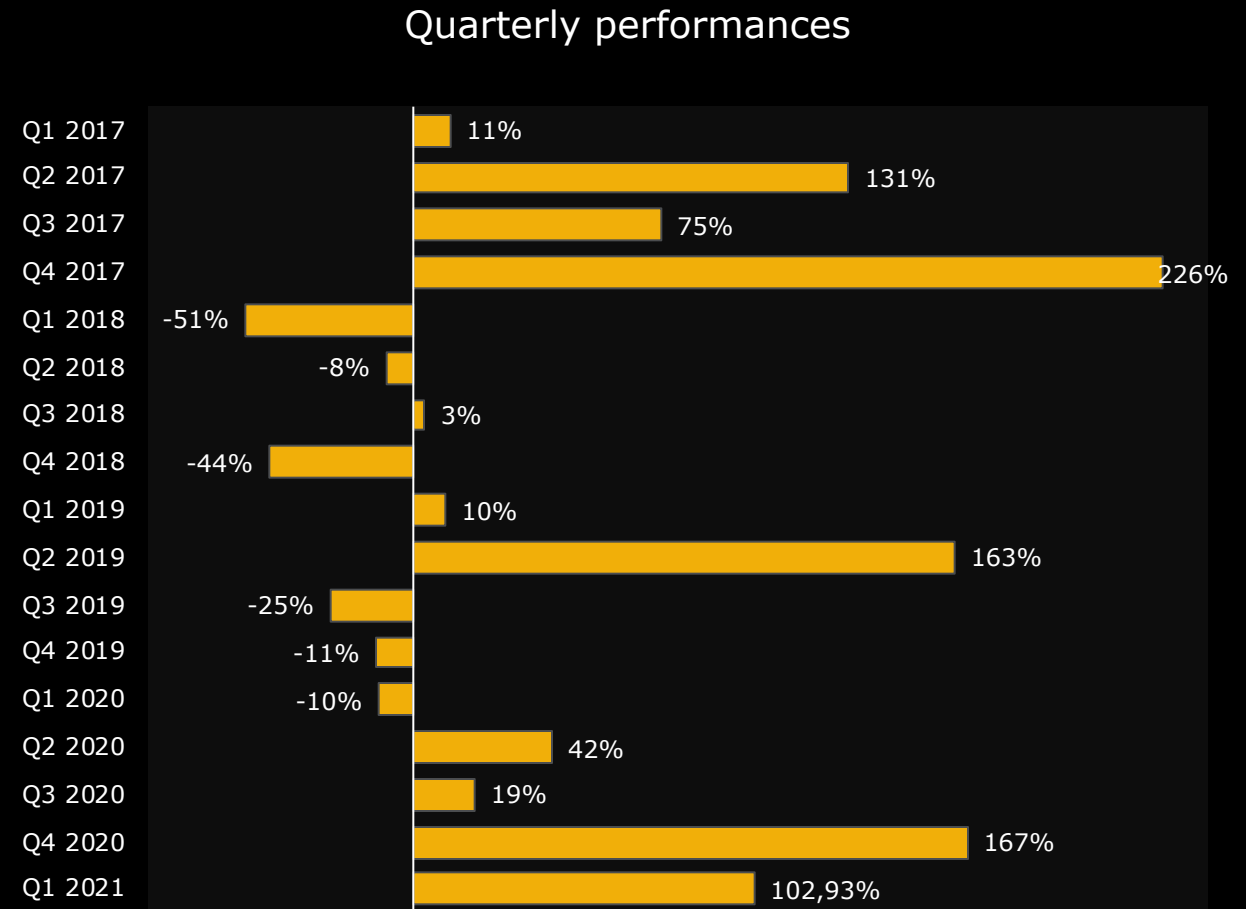
1. **Market**
2. **Ecosystem**
3. **Technology**
4. **Regulation**
Invited Speaker: Filippo Annunziata
5. **The Institute**





MARKET

Bitcoin Performance (2021 Q1)



Bitcoin Performance



Price dynamic is the discovery process of value: volatility is physiologic when it comes to assess the fair value of something so controversial as the digital equivalent of gold

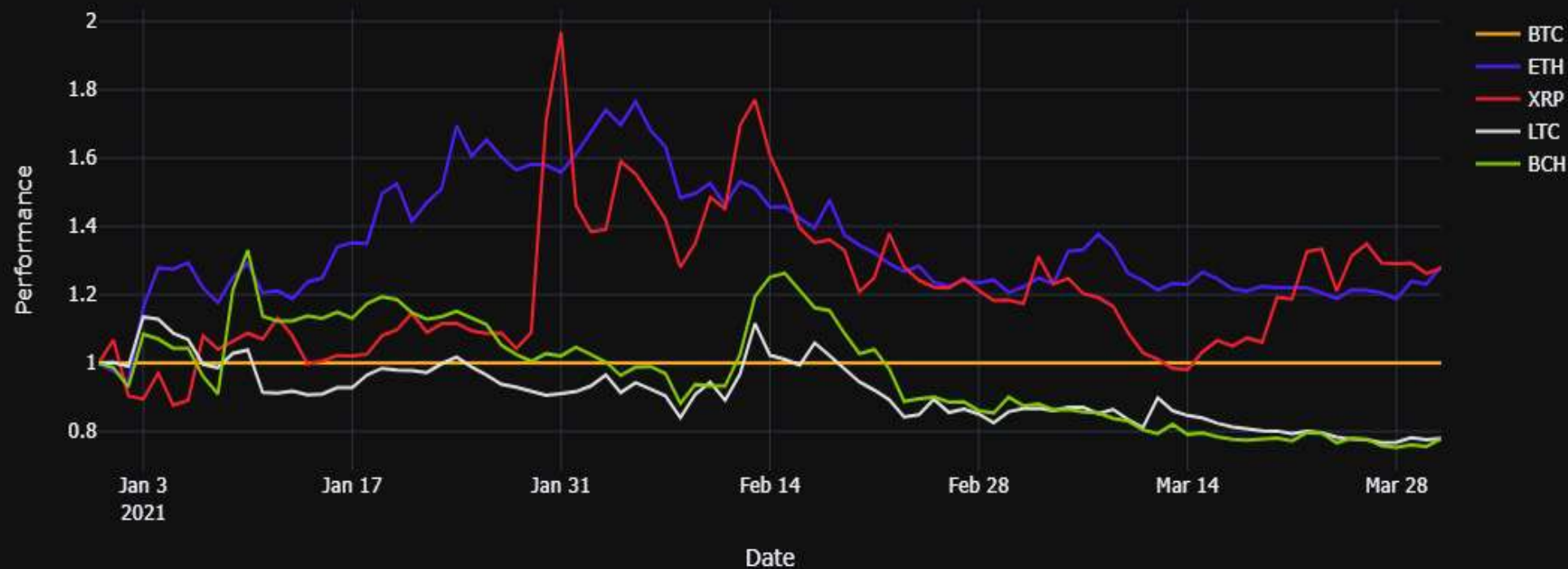
Date	Price	Yearly performance
31 Dec 11	5.00 \$	
31 Dec 12	13.59 \$	172%
31 Dec 13	739.10 \$	5339%
31 Dec 14	320.19 \$	-57%
31 Dec 15	430.57 \$	34%
31 Dec 16	963.74 \$	124%
31 Dec 17	14,156.40 \$	1369%
31 Dec 18	3,742.70 \$	-74%
31 Dec 19	7,193.60 \$	92%
31 Dec 20	28,946.00 \$	303%
31 Mar 21	58,776.93 \$	103%

Bitcoin Performance (Log Scale)



Altcoins vs Bitcoin (2021 Q1)

Crypto-Assets: BTC denominated performances



Altcoin	Quarterly Performance
ETH	28.00%
XRP	27.02%
LTC	-22.21%
BCH	-22.13%

Altcoins vs Bitcoin (1Y)

Crypto-Assets: BTC denominated performances



Altcoin	Quarterly Performance
ETH	57.40%
XRP	-64.30%
LTC	-45.30%
BCH	-73.03%

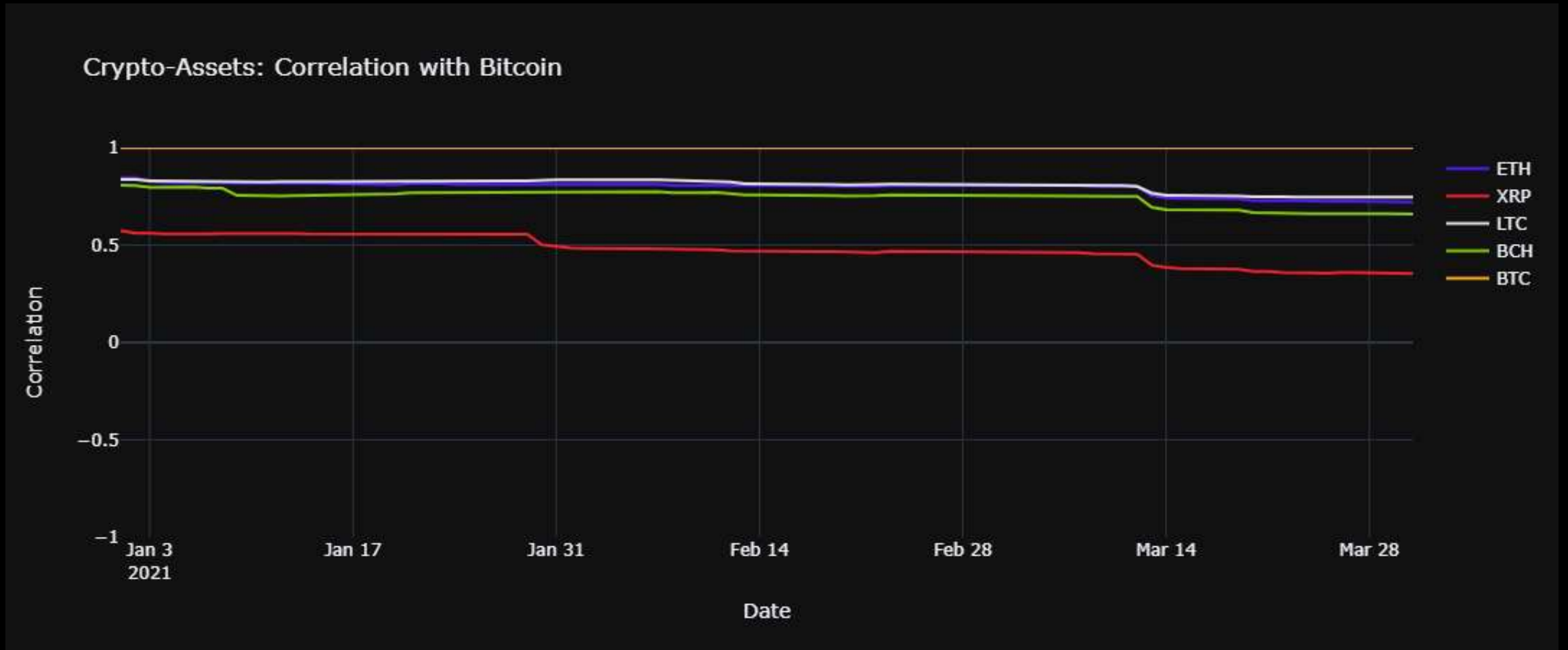
Altcoins vs Bitcoin (3Y)

Crypto-Assets: BTC denominated performances



Altcoin	Quarterly Performance
ETH	-42.6%
XRP	-86.60%
LTC	-80.10%
BCH	-90.66%

Correlation With Bitcoin: 1Y Rolling Window



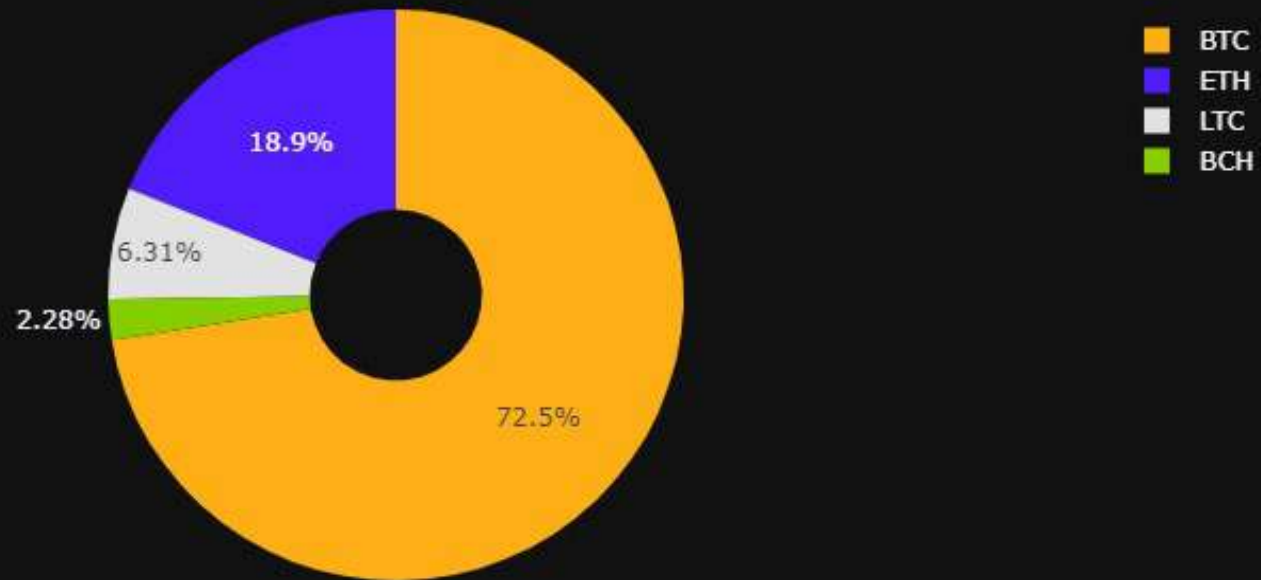
DGI Crypto Index



DGI Crypto Index Weights (Jan 1st, 2021)

Index Weights

- **Weighted by trading volume**, Bitcoin accounts for about the 72.5% of the index composition
- Exchange considered: Coinbase-pro, Kraken, Poloniex, Bitflyer, Gemini, Itbit, Bittrex, Bitstamp



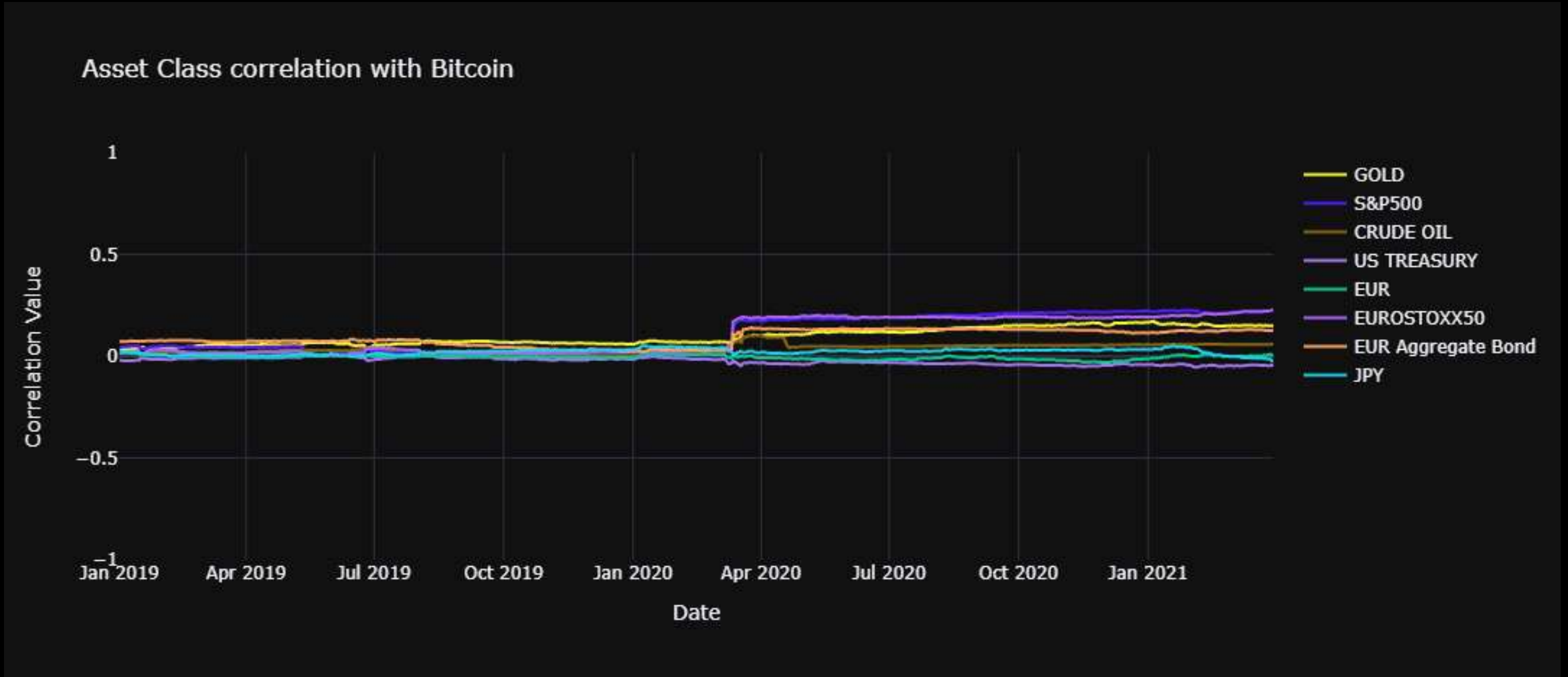
Corr = 1

Corr = -1

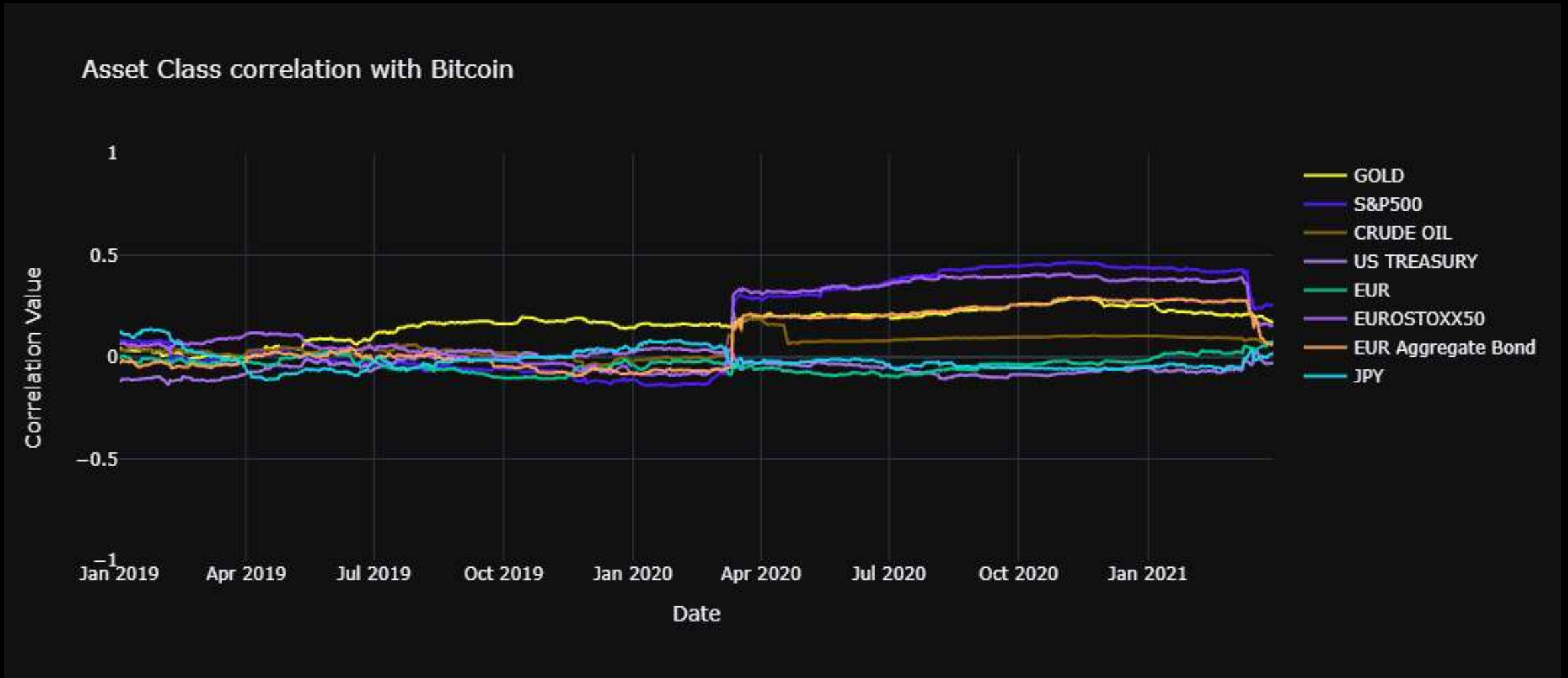
Corr = 1

Corr = -1

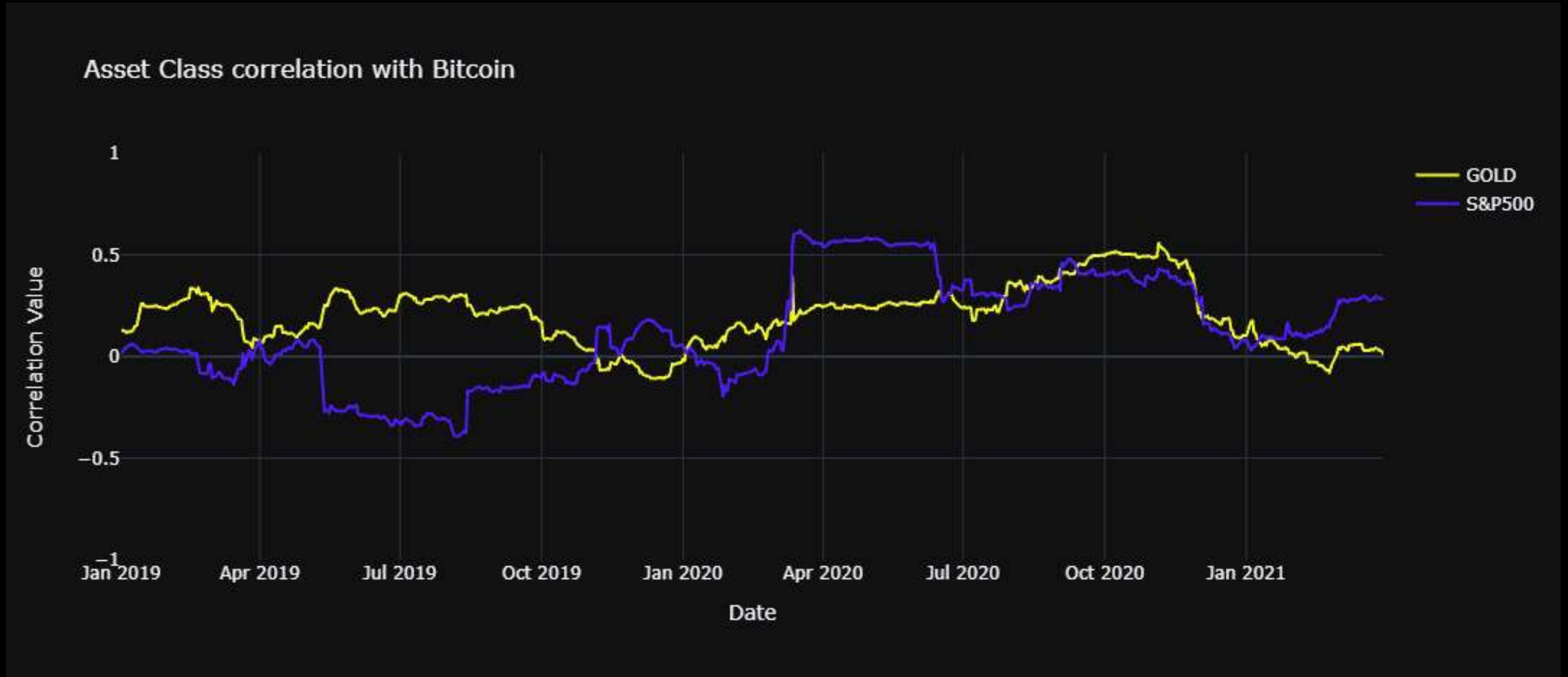
Correlation With Bitcoin: 3Y Rolling Window



Correlation With Bitcoin: 1Y Rolling Window



Correlation With Bitcoin: 1Q Rolling Window



Performance of Best Performing Assets

Best Performing Asset: USD denominated performances

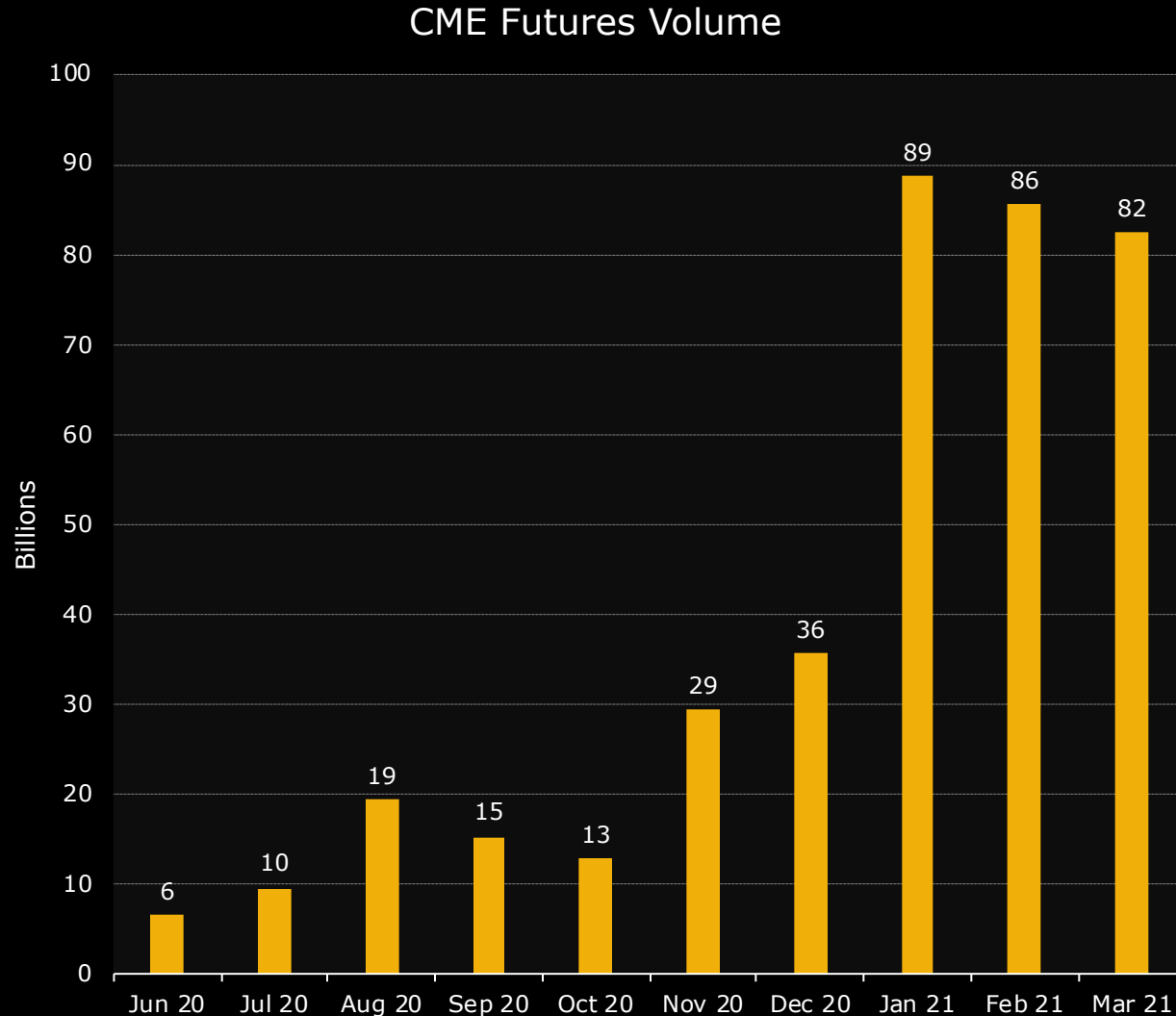


Volatility of Best Performing Assets

252 days rolling volatility

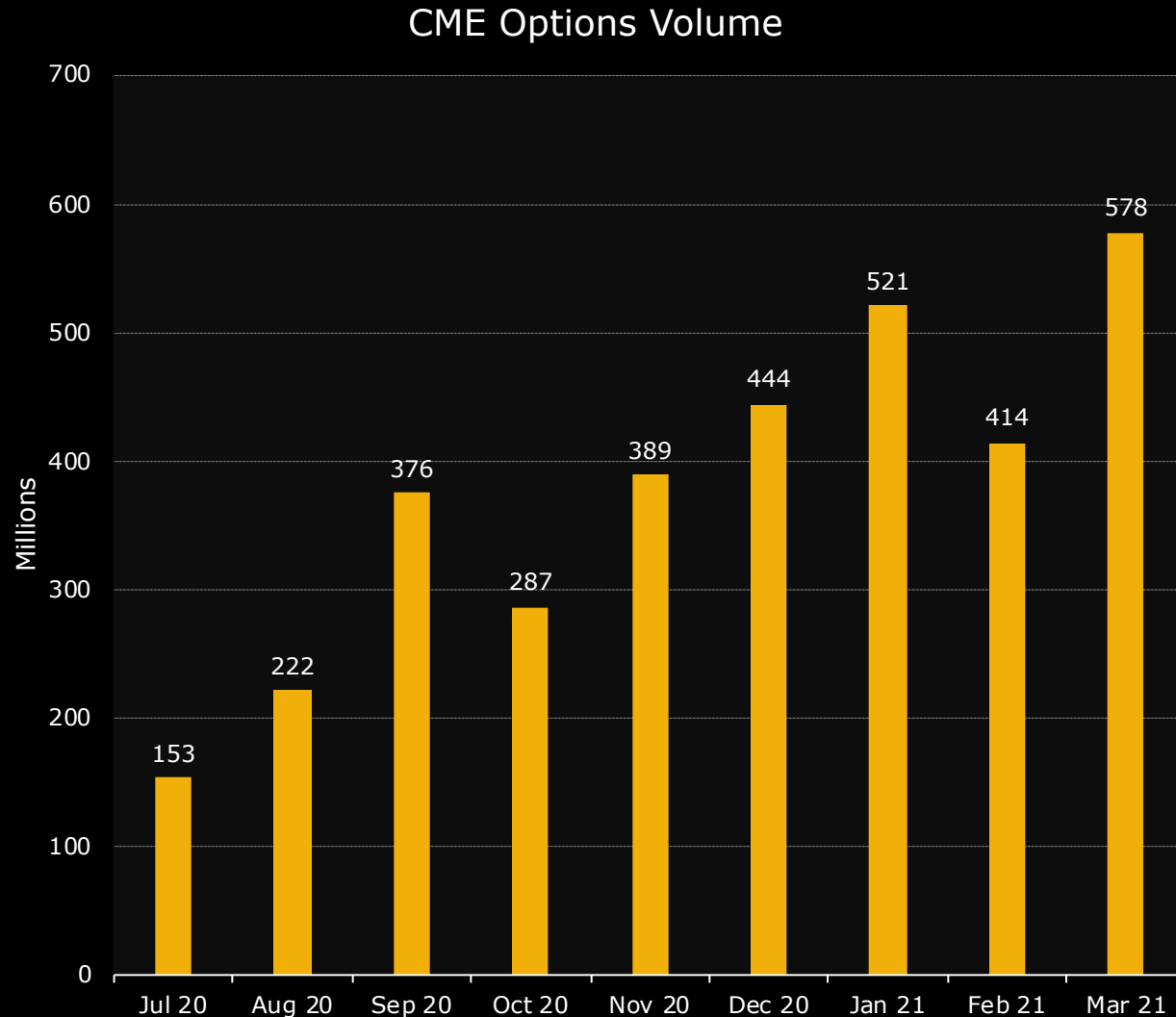


Bitcoin Listed Futures



- 2021 Q1 confirmed the **growth trend** in the regulated futures market
- 2021 Q1 has been a record quarter for CME
- CME to Launch Micro Bitcoin Futures on May 3
- CME has launched Ether futures on February 7

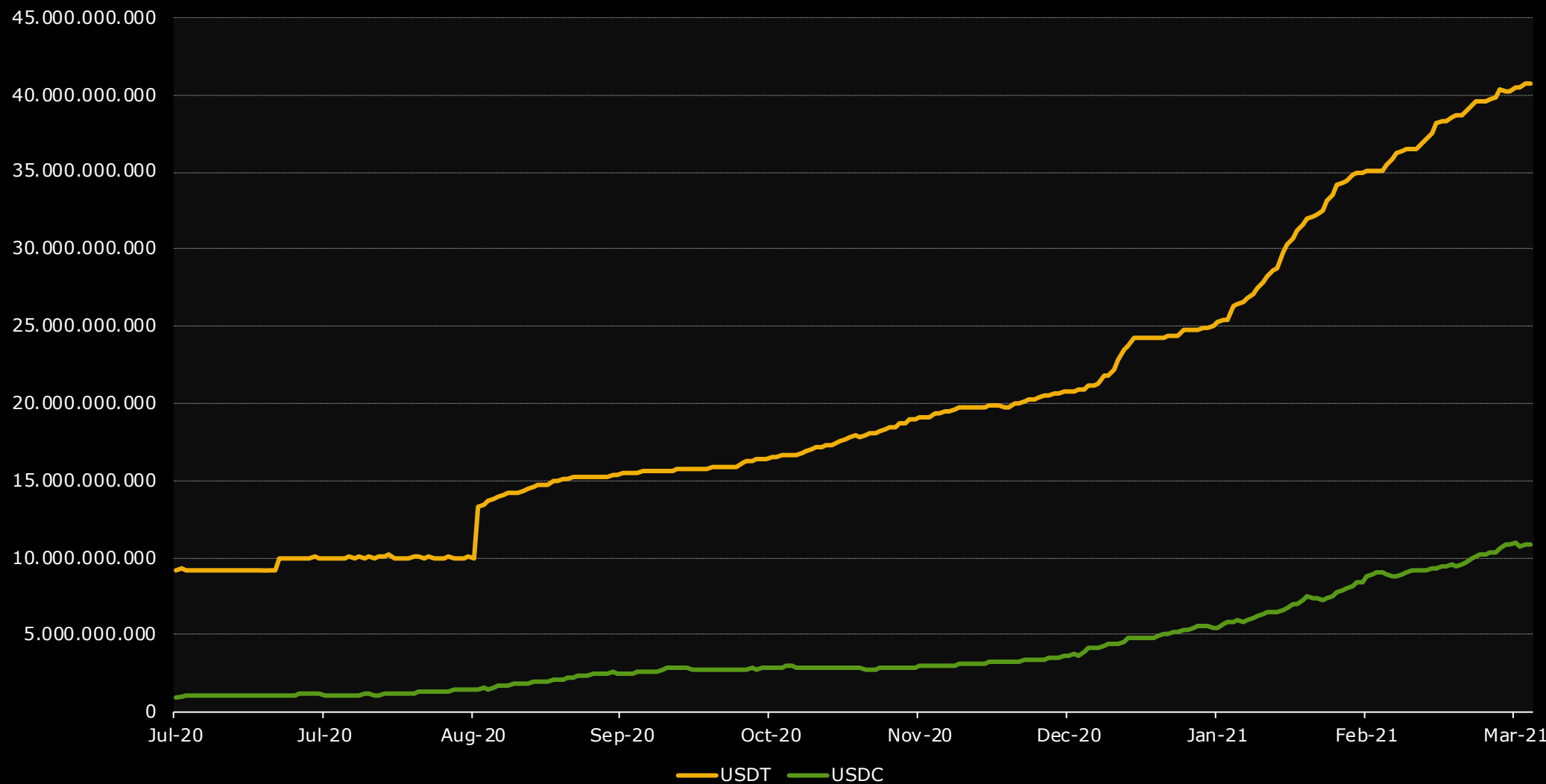
Bitcoin Listed Option



- 2021 Q1 confirmed the growth trend in the regulated option market
- CME, which is considered synonymous with institutional activity, **accounted for around 10%** of the total open positions in options market, which also included not regulated options



Stablecoin: New Records for USDT and USDC

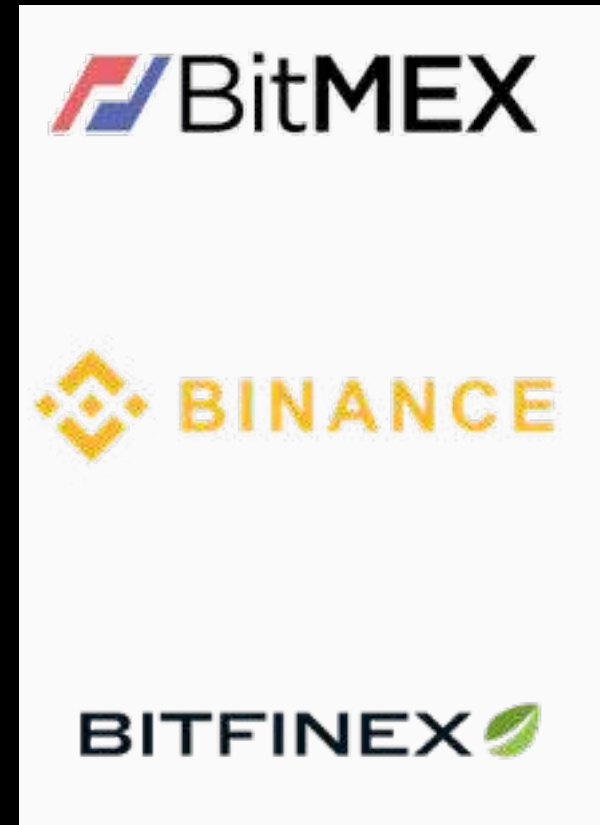


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ECOSYSTEM

Exchanges: Troubled Times

- BitMEX's Arthur Hayes surrenders to U.S. authorities
- Binance hires a former Senator and Two Former FATF Executives
- Bitfinex Settles New York Probe Into Tether



Exchanges: IPO Times

The Coinbase logo, featuring the word "coinbase" in a blue, lowercase, sans-serif font.The Kraken logo, featuring a blue octopus icon followed by the word "kraken" in a blue, lowercase, sans-serif font.

- Coinbase valued above \$100 billion, ahead of direct listing
- Coinbase's COIN Stock to Go Live on Nasdaq April 14
- Kraken CEO Says He'd Only Want to Go Public at a Valuation Above \$10B

Grayscale: Negative Premium

- Grayscale growth continues
- They added new products on different altcoins
- Grayscale bitcoin premium flips negative for the first time since inception because of new EFT products
- Grayscale Says It's '100% Committed to Converting GBTC Into an ETF'

Trust	AUM
Bitcoin	\$ 40.5 Billion
Ethereum	\$ 7.1 Billion



2021: The ETF Strikes Back

- The Canadian Ontario Securities Commission (OSC) on Feb 12 approved the first Bitcoin, issued by Purpose Investments. In its first trading day, more than \$165 million worth of shares were exchanged
- Evolve ETFs launched the second Canadian bitcoin ETF, traded on TSX
- WisdomTree Files for a Bitcoin ETF
- Fidelity files for a bitcoin ETF
- Arca is latest crypto fund to launch a bitcoin trust
- Canada's CI global files for what would be world's first ether ETF

Purpose
INVESTMENTS


Evolve ETFs


WISDOMTREE®

Tesla, Microstrategy, and Square

- **Tesla buys \$1,5 billion** in Bitcoin and starts accepting it as payment
- **Elon Musk: "BTC & ETH do seem high, lol"**
- **Elon Musk, Bitcoin Advocates Have #LaserRayUntil100K on Twitter**
- **Square Buys Another \$170M in Bitcoin**
- **MicroStrategy Bets Another \$1B on Bitcoin**



Il Sole 24 ORE

Fondato nel 1865
Quotidiano
Politico Economico Finanziario Normativo

FTSE MIB 23425.92 **+1,48%** | SPREAD BUND 10Y 96,60 **-1,30** | €/€ 1.2025 **+0,35%** | BRENTOTD 60,80 **+1,05%** | [IndiciNumeri](#) → PAGINE 34-37

Tesla accende il Bitcoin dei record

I MERCATI

Elon Musk annuncia investimento da 1,5 miliardi nella criptovaluta

La società per la prima volta accetta la moneta per l'acquisto di auto

Altezza: chiavi in mano alle 22

Tesla ha annunciato di aver acquistato Bitcoin per un valore di 1,5 miliardi di dollari. Nella comunicazione, Musk ha spiegato che il motivo di questa scelta è la volontà di diversificare gli investimenti e di supportare lo sviluppo della criptovaluta. La società di Elon Musk ha anche annunciato che ha iniziato ad accettare Bitcoin come mezzo di pagamento per l'acquisto delle sue vetture. Musk ha anche scritto su Twitter: "BTC & ETH do seem high, lol".

Il CEO di Tesla ha anche annunciato che la sua azienda ha iniziato ad accettare Bitcoin come mezzo di pagamento per l'acquisto delle sue vetture. Musk ha anche scritto su Twitter: "BTC & ETH do seem high, lol".

Draghi, obiettivo riforme: Giustizia, Fisco, Pa e un nuovo Recovery

VERSO IL GOVERNO

Le indicazioni a settembre: evitare cattive vacanti. Accelerare sui vaccini

Governo deve accelerare su tutti i fronti, che siano riforme o investimenti. Il governo deve accelerare su tutti i fronti, che siano riforme o investimenti. Il governo deve accelerare su tutti i fronti, che siano riforme o investimenti.

LE SCADENZE

Ristori e Dpcm Covid tra i 10 dossier più urgenti

I dossier più urgenti da affrontare sono i ristori e i Dpcm Covid. I dossier più urgenti da affrontare sono i ristori e i Dpcm Covid. I dossier più urgenti da affrontare sono i ristori e i Dpcm Covid.

CORTE DEI CONTI IN AUDIZIONE

«Arduo rientrare dal debito al 160% del Pil»

Columbo e Treciotti — **2** pag. 3

INTESA-PROMETEA

Industria, persi 132 miliardi. Ma da agosto è in recupero

Risultati del quarto trimestre: industria, persi 132 miliardi. Ma da agosto è in recupero. Risultati del quarto trimestre: industria, persi 132 miliardi. Ma da agosto è in recupero.

INFRASTRUTTURE

Snam spinge sulla Grecia: piano al 2025 da 500 milioni

Snam spinge sulla Grecia: piano al 2025 da 500 milioni. Snam spinge sulla Grecia: piano al 2025 da 500 milioni.

Antiquorum
Antiquorum ha l'onore di essere il rivenditore esclusivo di orologi di lusso in Italia. Antiquorum ha l'onore di essere il rivenditore esclusivo di orologi di lusso in Italia.

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Banche, 10mila assunzioni Boom per le lauree scientifiche

CREDITO

La trasformazione digitale in atto spinge la domanda di profili tecnici

Il settore bancario sta vivendo una trasformazione digitale in atto. La trasformazione digitale in atto spinge la domanda di profili tecnici. Il settore bancario sta vivendo una trasformazione digitale in atto.

Banca Sella
Obiettivo: raddoppiare i clienti. Banca Sella ha l'obiettivo di raddoppiare i clienti. Banca Sella ha l'obiettivo di raddoppiare i clienti.

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FISCO E COSTITUZIONE

PER IL PROCESSO TRIBUTARIO UN RIORDINO DAFARE SUBITO

La riforma del processo tributario è un obiettivo che deve essere perseguito. La riforma del processo tributario è un obiettivo che deve essere perseguito.

MD
Buona Spesa Italia! MD ha l'obiettivo di essere il rivenditore esclusivo di orologi di lusso in Italia.

PANORAMA

MISURE ANTICORONAVIRUS

Siero AstraZeneca ancora sotto tiro. Vaccini, le Regioni in ordine sparso

Il siero AstraZeneca è ancora sotto tiro. I vaccini, le Regioni in ordine sparso. Il siero AstraZeneca è ancora sotto tiro. I vaccini, le Regioni in ordine sparso.



TRASPORTO SU STRADA
L'autostrada A1 è chiusa. Il traffico è bloccato.

L'autostrada A1 è chiusa. Il traffico è bloccato. L'autostrada A1 è chiusa. Il traffico è bloccato.

MOBILITÀ DIGITALE
I monopattini elettrici: verso la quotazione al Nasdaq

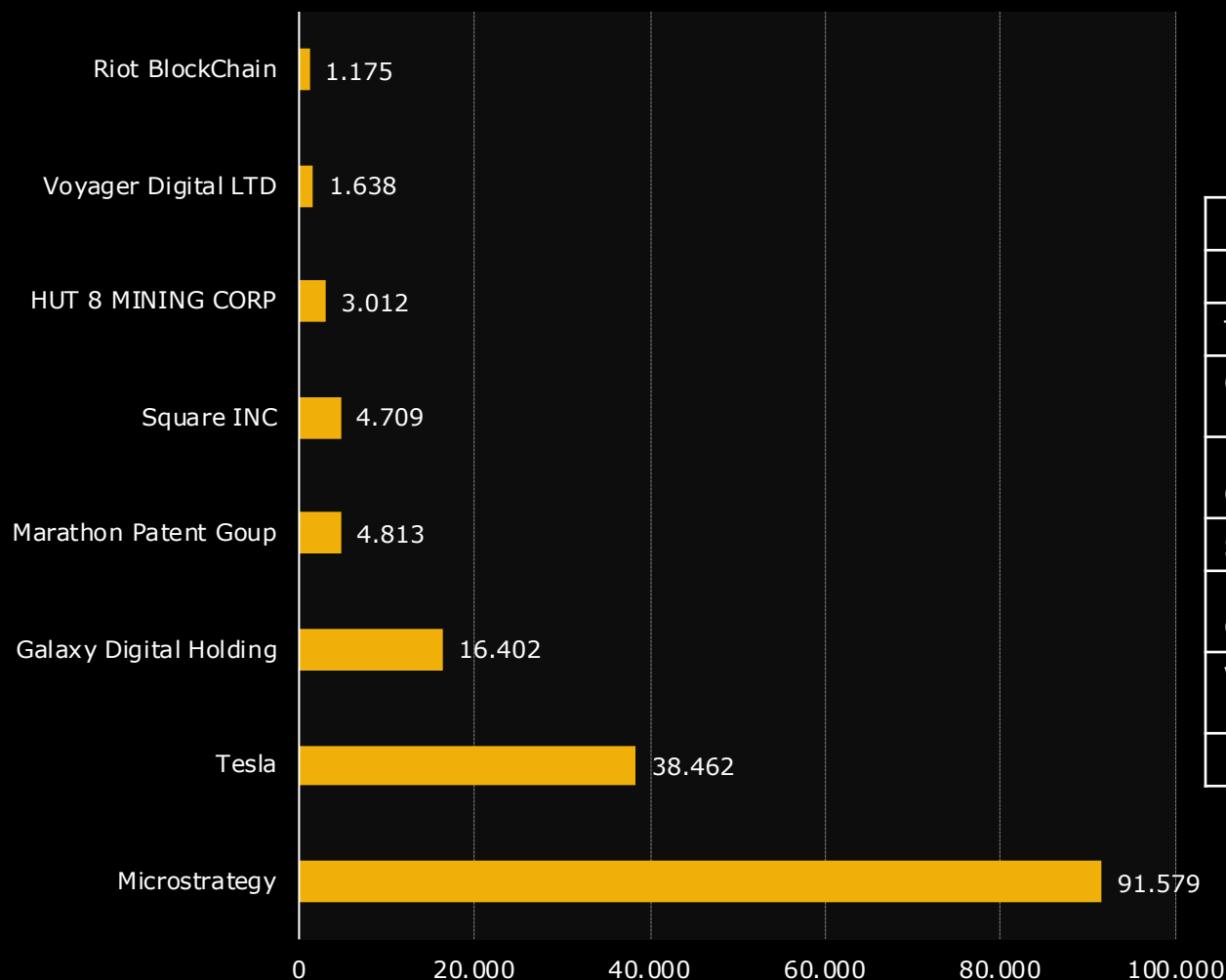
I monopattini elettrici: verso la quotazione al Nasdaq. I monopattini elettrici: verso la quotazione al Nasdaq.

Moda Uomo
La ripartenza cerca un abito tecnologico. Moda Uomo ha l'obiettivo di essere il rivenditore esclusivo di orologi di lusso in Italia.

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La ripartenza cerca un abito tecnologico. Moda Uomo ha l'obiettivo di essere il rivenditore esclusivo di orologi di lusso in Italia.

salute
Il Covid ha tagliato una diagnosi su 10. salute ha l'obiettivo di essere il rivenditore esclusivo di orologi di lusso in Italia.

Bitcoin holds by company



Company Name	Total Investment	BTC	AVG Price	Today's Value
Microstrategy	2,226,344,639	91,579	24,311	5,823,366,024
Tesla	1,500,000,000	38,462	39,000	2,445,700,000
Galaxy Digital Holding	134,000,000	16,402	8,170	1,042,973,656
Marathon Patent Goup	150,000,000	4,813	31,168	306,028,387
Square INC	220,000,000	4,709	46,719	299,436,834
HUT 8 MINING CORP	147,870,000	3,012		191,527,658
Voyager Digital LTD	6,024,658	1,638	3,678	104,157,472
Riot BlockChain	7,200,000	1,175	6,128	74,716,135

Custodian



- PayPal acquires crypto security firm Curv for nearly \$200M
- BNY Mellon announces that by the end of the year it will provide custody services for digital assets
- BNY Mellon hires Fireblocks for bitcoin custody service
- BNY Mellon joins \$133 million in series C in bitcoin custodian Fireblocks
- Bitcoin custody firm Bakkt receives BitLicense in New York

US/Global Financial Players

J.P.Morgan

tells private wealth clients that bitcoin can be a portfolio diversifier 'if sized correctly' and launches a 'Cryptocurrency Exposure Basket' of Bitcoin Proxy Stocks

Goldman Sachs

- plans suite of bitcoin products for Q2 to be offered to wealth management clients
- restarts cryptocurrency desk amid bitcoin boom: 40% of its clients reported exposure to crypto

Morgan Stanley

registers funds with up to 25% bitcoin allocation

BlackRock®

has begun trading bitcoin futures

Largest Venture Rounds

- **BlockFi: \$350 million**
 - Deal date: March 11, 2021
 - Notable investors: Bain Capital Ventures, partners of DST Global, Pomp Investments, Tiger Global, Susquehanna Government Products
- **Dapper Labs: \$305 million**
 - Deal date: March 30, 2021
 - Notable investors: Coatue Management, Andreessen Horowitz, Michael Jordan, Kevin Durant
- **Blockchain.com: \$300 million**
 - Deal date: March 24, 2021
 - Notable investors: partners of DST Global, Lightspeed Venture Partners, VY Capital



Non-Fungible-Token (NFT)

- Beeple NFT Sold for Record-Setting \$69.3M at Christie's Auction
- Jack Dorsey's First Tweet Fetched \$2.9 Million In NFT Sale—And He Donated Proceeds To Charity
- TIME Magazine Sells 'Is Fiat Dead?' NFT Cover for \$130,000
- The New York Times just turned one of its columns into an NFT
- Hackers stole NFTs from Nifty Gateway users
- What is an NFT?

Non-Fungible-Token (NFT)

Art-image



Token Creation

Hash
function



unique identifier

Hash value

610b0a4b2769...4be49d9a8b63dc2

Metadata

Hash value of metadata



Smart Contract



Blockchain

Non-fungible tokens are digital assets that contain identifying information recorded in smart contracts

The information inside each NFT is supposed to be unique

Token Auction

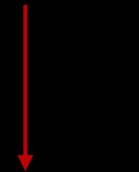


Auction



Winner of the
Auction

ETH



NFT



Blockchain



TECHNOLOGY

DeFi on Ethereum or CeFi on Binance ?

- DeFi on Ethereum is suffering because of high fees
- Binance Smart Chain is stealing the thunder
- DeFi on Ethereum or CeFi on Binance Smart Chain ?



Ethereum / Cardano / Polkadot

- Ethereum Foundation announces Berlin Hardfork
- Ethereum: EIP 1569
- The MEV Crisis: Ethermine Adds Front-Running Software to Help Miners Offset EIP 1569 Revenue Losses
- Cardano Becomes Multi-Asset Blockchain Following Mary Protocol Update
- Polkadot could become the next Ethereum?



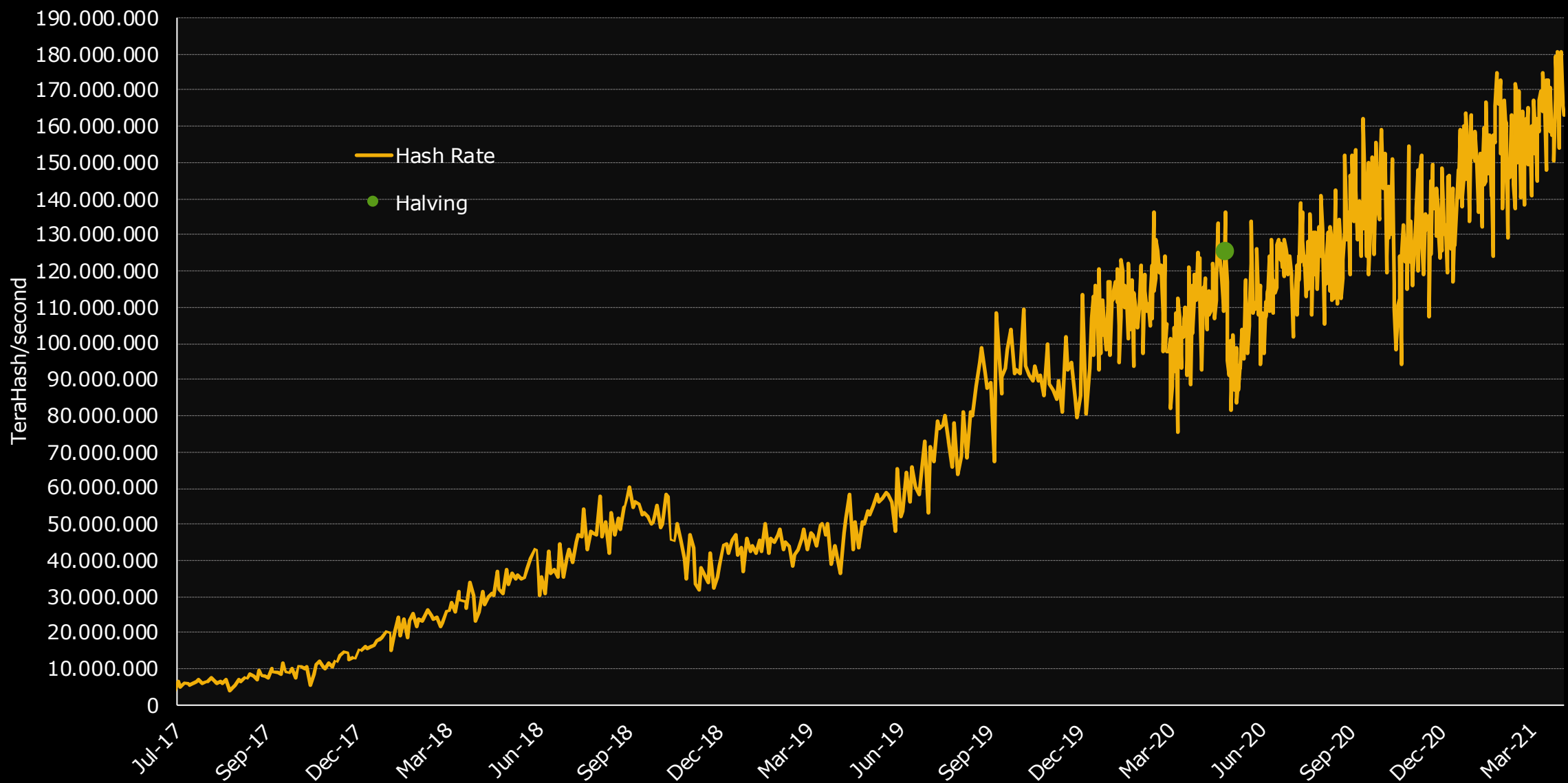
Taproot

- Major protocol upgrade since Segregated Witness (2017)
- Schnorr signature and script-tree
- Pools will be able to veto again?
- Activation meetings
- LockinOnTimeout (LOT)
- LOT=true or LOT=false?
- Activation “Speedy Trial” proposal

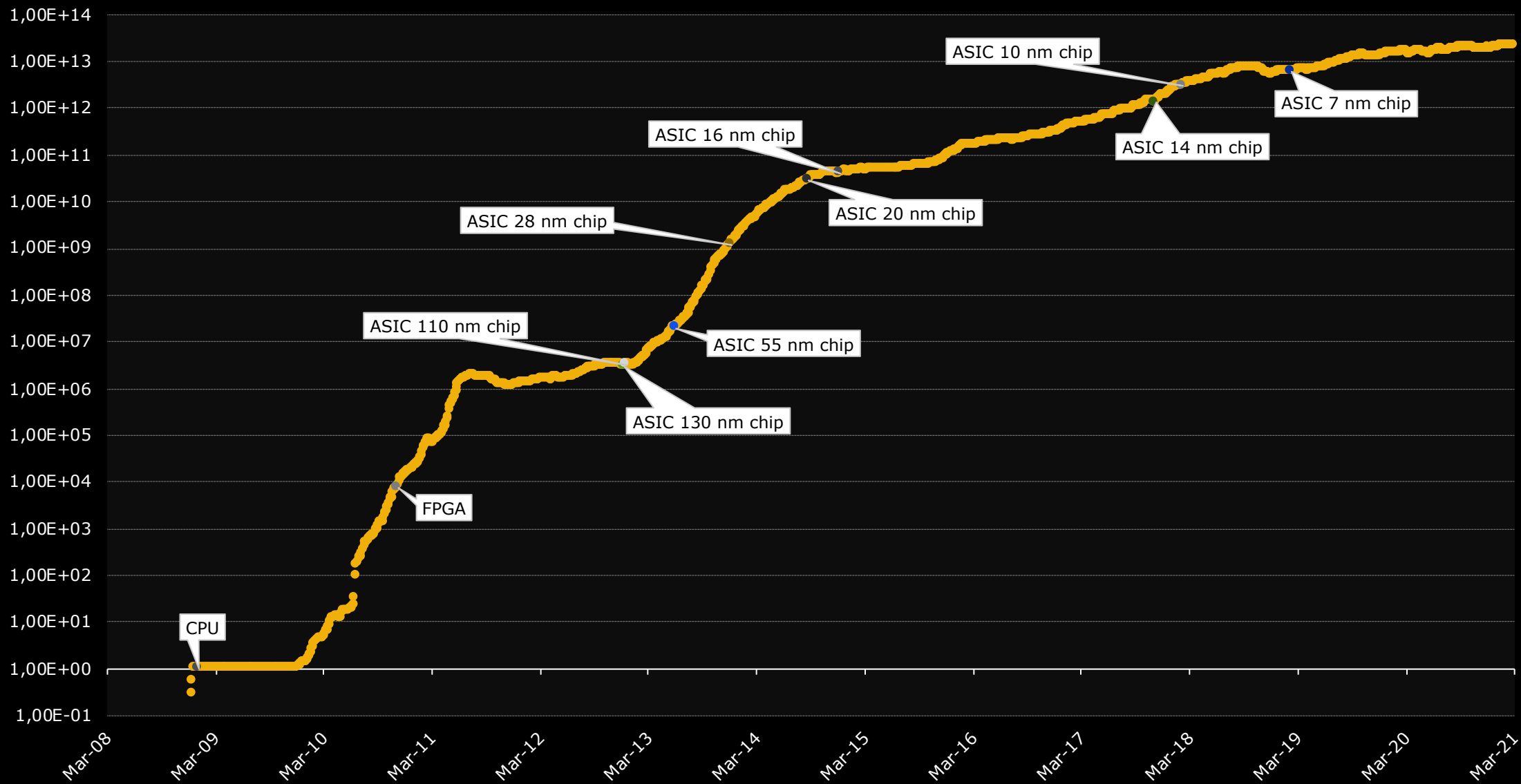




Bitcoin Hash Rate Hits All-Time High

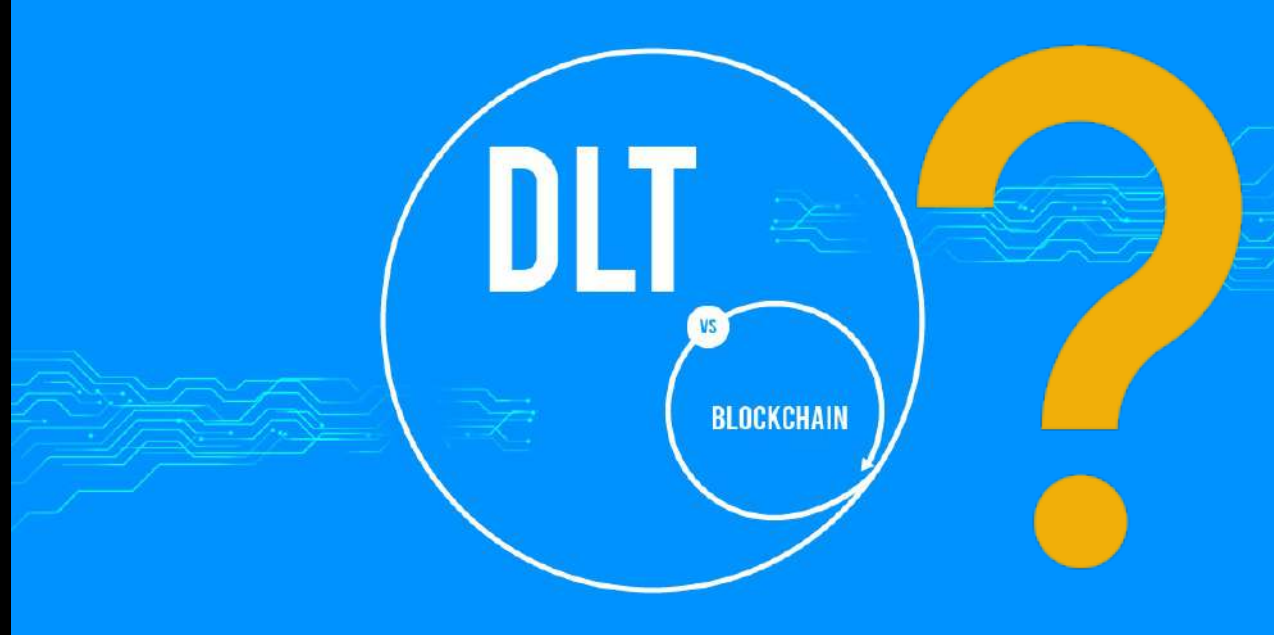


Bitcoin Mining Difficulty Hits All-Time High



Blockchain and DLT

- New York Launches a Blockchain-Powered COVID-19 Passport
- South Korea to issue blockchain-protected digital 'vaccine passports'



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REGULATION



Central Bank Digital Currency (CBDC)

- India preparing to launch digital rupee
- Federal Reserve's Powell says CBDCs 'Need to Coexist With Cash' (and Doubles Down on Bitcoin as Digital Gold)
- BOJ must prepare 'thoroughly' on digital currency, says Kuroda, and plan to begin central bank digital currency experiments later this year
- Swedish Central Bank Reveals First Study of Digital Currency
- Britain will focus crypto rules on stablecoins
- Digital Euro Will Be Decided On Within Months, it might be launched in four years or more
- PBoC official says 'completely anonymous CBDC is not an option'

Global and European Trends

- Financial Action Task Force (FATF-GAFI) Proposed Updated Guidance for Cryptocurrency Regulation and Travel Rule
- ESMA sees high risk for investors in non-regulated crypto-assets
- EU: Digital Finance Package and MiCA (Markets in Crypto Asset)



Guest Speaker

Prof. Filippo Annunziata

Università Bocconi



**The European proposal for regulation of Markets in
Crypto-Assets (MiCA)**

The background of the slide is a monochromatic yellow-orange. It features a large, semi-transparent Bitcoin coin in the center, showing its characteristic 'B' logo and the words 'BITCOIN' and 'PEER-TO-PEER'. Below the coin, a portion of a computer keyboard is visible, with several keys like 'Enter', 'Shift', and 'Ctrl' discernible. On the left side, there is a white graphic element consisting of three stacked squares and a vertical line, which frames the text.

DGI INSIGHT

Selected Media Appearances



FuoriTg - Rai TG3

January: <https://dgi.io/2021/01/27/fuoritg-tg3>

March: <https://dgi.io/2021/03/11/fuoritg-tg3>



Zero Virgola - TGCom24

<https://dgi.io/2021/03/08/zero-virgola>



BFC Forbes

<https://dgi.io/2021/01/20/bfc-forbes>



Adnkronos

<https://dgi.io/2021/03/29/adnkronos>



ClassCNBC

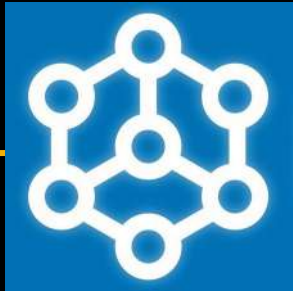
Miscellaneous

Interviews



Breakfast with BNP Paribas (interview by Andrea Cattaneo)

<https://dgi.io/2021/03/17/bnp-paribas>



Koinsquare (interview by Tiziano Tridico and Filippo Angeloni)

<https://dgi.io/2021/01/29/koinsquare>



Max Relativo

<https://dgi.io/2021/01/26/max-relativo.html>

Webinars



Cripto-attività: tra recenti sviluppi e Digital Finance Package

Parlamento Europeo

<https://dgi.io/2021/03/31/parlamento-europeo>



Moneta digitale e dintorni

Centro di Ricerca Interdipartimentale "Paolo Ferro-Luzzi"

<https://dgi.io/2021/03/24/centro-ferro-luzzi>



Bitcoin per l'Information Forensics

Associazione Italiana Digital Forensics

<https://dgi.io/2021/03/22/iisfa>

Events



Report 2020-Q4, February

<https://dgi.io/reports>



Bitcoin e Blockchain Training, January + March

<https://dgi.io/workshop>



CryptoWeek, every Friday

<https://dgi.io/cryptoweek>

Next Training Sessions

- **Entry-level** and **Advanced** Training
- **Focus:** Bitcoin, crypto asset, blockchain, distributed ledger, smart contract, and cryptography
- Next sessions:
 - **15-16 giugno 2021**
 - 14-15 settembre 2021
 - 14-15 dicembre 2021
- <https://dgi.io/workshop>



CryptoWeek: Every Friday at 6PM

- The most relevant news about bitcoin, crypto-assets and blockchain
- Live streaming:
 - YouTube
 - Facebook
- Also available as podcast
- <https://dgi.io/cryptoweek>



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Digital Gold Institute

Scarcity in the Digital Realm

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