MARKET LANDSCAPE
November's Top-30 coins' market capitalization growth outperformed October's growth (46% vs. 20%) and continued to set another yearly-high of $554 billion in market capitalization.

Trading volume for November 2020 closed out with a bang, recorded an 82% increase to $4 billion.

The November rally was institution-led as Bitcoin received recognition by BlackRock, the world's largest asset manager, as an alternative to gold.

Additionally, S&P Dow Jones Indices will be launching cryptocurrency indices in 2021. This further strengthens market sentiment on the crypto market.

XRP and Ethereum closed the month with a higher price growth than Bitcoin.

Cryptocurrencies are gaining more institutional support and recognition by the mainstream media. As Bitcoin rallied +42%, other major altcoins displayed strength as well. XRP saw its month-on-month growth skyrocketed by +177%.

*Top-5 Cryptocurrencies exclude Tether (USDT) stablecoin
Despite the recent rally, Bitcoin's dominance dropped 1.5% to 65.7%, making it the biggest loser among all other coins. Ethereum's and XRP's dominance meanwhile rose 1.1% and 2.6% respectively.

Bitcoin's consolidation around $19,000 with a seemingly strengthening altcoin market hints at a return of the altcoin season.

*Others (8 - 30) refers to top 8 - 30 coins by Market Capitalization on CoinGecko as of 1st December 2020.
Top-5 Stablecoins Trading Volume

Stablecoins circulating supply increased marginally by 12% to $24 billion

The stablecoin market capitalization grew marginally faster in November compared to October (+12% vs +10%). However, trading volume far outpaced market cap growth with a 104% increase, likely fueled by market volatility.

For the latest stablecoins statistics, visit coingecko.com/en/stablecoins
Bitcoin mimics its 2017 trajectory as retail and institutions pushed it to a new ATH

Bitcoin Price & Trading Volume

<table>
<thead>
<tr>
<th>Date</th>
<th>Price</th>
<th>Trading Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-20</td>
<td>$25,000</td>
<td></td>
</tr>
<tr>
<td>Feb-20</td>
<td>$20,000</td>
<td></td>
</tr>
<tr>
<td>Mar-20</td>
<td>$15,000</td>
<td></td>
</tr>
<tr>
<td>Apr-20</td>
<td>$10,000</td>
<td></td>
</tr>
<tr>
<td>May-20</td>
<td>$5,000</td>
<td></td>
</tr>
</tbody>
</table>

Bitcoin rapidly gained momentum and hit a new all-time high at $19,725 (+42%) on 30th Nov, surpassing previous ATH of $19,665 in 2017.

News of institutional adoption as well as the launch of Dow Jones crypto indexes likely contributed to a positive sentiment for BTC.[1][2]

Unlike the 2017 cycle, the ongoing Bitcoin rally appears to be more gradual, seemingly bolstered by increased institutional participation & retail interest.

Google search trend for the “Bitcoin” keyword indicates that the current market only has about ¼ of the 2017 hype. This could be a hint at further potential growth for Bitcoin in 2021.
Ethereum Price vs. Trading Volume

Ethereum’s price broke past the $600 mark in anticipation of ETH 2.0

Ethereum Price vs. Trading Volume

Ethereum’s price jumped over 50% in November and broke $600, a first since June 2018. ETH now sits 58% below its ATH of $1,448 on 13th Jan 2018.

For the trading volume, it ended the month with an 59% increase, higher relative to the previous month (+8%).

<table>
<thead>
<tr>
<th>Month</th>
<th>Price Return</th>
<th>Trading Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-20</td>
<td>39%</td>
<td>40%</td>
</tr>
<tr>
<td>Feb-20</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Mar-20</td>
<td>-39%</td>
<td>-39%</td>
</tr>
<tr>
<td>Apr-20</td>
<td>54%</td>
<td>56%</td>
</tr>
<tr>
<td>May-20</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Jun-20</td>
<td>-3%</td>
<td>-2%</td>
</tr>
<tr>
<td>Jul-20</td>
<td>53%</td>
<td>54%</td>
</tr>
<tr>
<td>Aug-20</td>
<td>26%</td>
<td>27%</td>
</tr>
<tr>
<td>Sep-20</td>
<td>-17%</td>
<td>-17%</td>
</tr>
<tr>
<td>Oct-20</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Nov-20</td>
<td>59%</td>
<td>59%</td>
</tr>
<tr>
<td>YTD</td>
<td>374%</td>
<td>394%</td>
</tr>
</tbody>
</table>

ETH price growth YTD 2020 +374%
DeFi tokens begin to pick up steam again, while stablecoins continue the ascent

Market Capitalization of Top-5 Tokens as of 1st December (September - November 2020)

November saw the resurgence of the DeFi sector back to its Aug-Sep level as the total market capitalization of the top-5 DeFi tokens rose from $5.9 billion to $8.8 billion.

Stablecoins continued to show an upward trend with a new high of $24 billion in market capitalization as trading activity ramps up.

Overall, DeFi greatly outperformed all other categories. This illustrates a strong rebound from DeFi as market regained its momentum.

*Includes figures for LEND from 1st September onwards, before and after migration to AAVE. AAVE market cap included from 3rd October onwards.

Top-5 tokens by each category is taken on CoinGecko as of 1st December 2020.
### Decentralized Finance (DeFi)

Cryptocurrencies experienced a bull market during the month of November.

#### Top-10 DeFi Tokens Price Return (June – December 2020)

<table>
<thead>
<tr>
<th>Top-10 DeFi Tokens</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEND*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-47%</td>
<td>156%</td>
</tr>
<tr>
<td>AAVE</td>
<td>10%</td>
<td>70%</td>
<td>101%</td>
<td>-37%</td>
<td>14%</td>
<td>27%</td>
<td>694%</td>
</tr>
<tr>
<td>SNX</td>
<td>146%</td>
<td>100%</td>
<td>90%</td>
<td>-36%</td>
<td>-36%</td>
<td>-36%</td>
<td>-33%</td>
</tr>
<tr>
<td>MKR</td>
<td>-1%</td>
<td>22%</td>
<td>22%</td>
<td>-16%</td>
<td>-9%</td>
<td>8%</td>
<td>29%</td>
</tr>
<tr>
<td>UMA</td>
<td>35%</td>
<td>120%</td>
<td>42%</td>
<td>-60%</td>
<td>-24%</td>
<td>8%</td>
<td>29%</td>
</tr>
<tr>
<td>COMP</td>
<td>175%</td>
<td>-38%</td>
<td>81%</td>
<td>-45%</td>
<td>-32%</td>
<td>23%</td>
<td>45%</td>
</tr>
<tr>
<td>AMPL</td>
<td>32%</td>
<td>-56%</td>
<td>118%</td>
<td>-68%</td>
<td>50%</td>
<td>45%</td>
<td>67%</td>
</tr>
<tr>
<td>ZRX</td>
<td>6%</td>
<td>8%</td>
<td>220%</td>
<td>-53%</td>
<td>20%</td>
<td>31%</td>
<td>136%</td>
</tr>
</tbody>
</table>

#### Top-5 Cryptocurrencies**

<table>
<thead>
<tr>
<th>Top-5 Cryptocurrencies</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTC</td>
<td>-3%</td>
<td>24%</td>
<td>3%</td>
<td>-8%</td>
<td>28%</td>
<td>42%</td>
<td>167%</td>
</tr>
<tr>
<td>ETH</td>
<td>-3%</td>
<td>53%</td>
<td>26%</td>
<td>-17%</td>
<td>7%</td>
<td>59%</td>
<td>363%</td>
</tr>
<tr>
<td>XRP</td>
<td>-14%</td>
<td>48%</td>
<td>9%</td>
<td>-15%</td>
<td>-1%</td>
<td>177%</td>
<td>227%</td>
</tr>
<tr>
<td>LTC</td>
<td>-10%</td>
<td>41%</td>
<td>5%</td>
<td>-24%</td>
<td>20%</td>
<td>57%</td>
<td>116%</td>
</tr>
<tr>
<td>BCH</td>
<td>-7%</td>
<td>35%</td>
<td>-9%</td>
<td>-17%</td>
<td>15%</td>
<td>21%</td>
<td>40%</td>
</tr>
</tbody>
</table>
EXCHANGES
In November, trading volumes across the top-7 centralized and decentralized exchanges increased by a staggering $172 billion, hitting 2020 high of $348 billion monthly volume. CEXs contributed to all of the increase while DEXs saw a slight drop of $3.3 billion (-15.8%).

The enormous gains for CEXs likely stem from positive global macroeconomic events such as the conclusion of the U.S. election and strong institutional interest in cryptocurrencies.

Despite strong gains throughout the year, DEXs failed to capitalize on the November surge as volumes fell. The DEX-CEX volume ratio fell from 12% to 5% in November.
Top-7 Decentralized Exchanges (DEX)

Uniswap maintained its dominance while SushiSwap leapfrogged ahead

The downward trend for DEX trading volumes continued in November, where total volume fell by $3.3 billion (-15.8%).

Uniswap and Curve lost $2.39 billion and $2.41 billion respectively. However, relative to each platforms’ own trading volumes, Curve was hit harder, losing 9% in dominance. In comparison, Uniswap lost a mere 1% lead.

SushiSwap was the biggest winner in November, registering a significant $1.1 billion increase in volume, raising its dominance to its highest yet from 4% to 11%.
Derivatives Exchanges – Bitcoin Perpetual Swaps Volume

BTC Perpetual swaps volume reached a yearly record of $524 billion

Aggregate Monthly Bitcoin Perpetual Trading Volume (June – November 2020)

Bitcoin’s recent rally to above $18,000 pushed BTC Perpetual Swap volumes to rebound strongly in November. Total monthly volume increased by 130% to $524 billion, reaching its highest monthly volume in 2020.

+130%

Total BTC Perpetual Swaps Volume Growth in November 2020

46% of the increase was driven by Binance (+$135 billion), followed by 19% by Bybit (+$57 billion) and 16% from Huobi (+$48 billion).

Data source: CoinGecko. Open Interest is measured for Bitcoin Perpetual swaps trading pair of top-7 exchanges.
Derivatives Exchanges – Bitcoin Perpetual Swaps Volume

Binance solidified its lead, Bybit rebounds and BitMEX faltered

Aggregate Monthly Bitcoin Perpetual Volume Dominance (June – November 2020)

Data source: CoinGecko. Open Interest is measured for Bitcoin Perpetual swaps trading pair of top-7 exchanges.

Binance's Bitcoin Perpetual swap volume dominance in November increased to 44%, further strengthening its lead.

Additional uptick in dominance is covered by Bybit which increased to 17%, returning to levels last seen in August this year.

Amongst all platforms, BitMEX was the only loser as it continued to witness its November share drop from 17% to 12% month-on-month.
The increase in Open Interest was likely driven by strong institutional interest in Bitcoin, which in turn fueled the asset's own rally to its new all-time high of $19,725 on 30th November.
November saw BitMEX's market share slide further from 21% to 17%, making the month its 5th consecutive drop. Overall, it has lost 22% in OI dominance since June.

This continual drop is likely due to BitMEX's ongoing legal proceedings with the CFTC, which has significantly impacted trading sentiment on the platform.

Huobi saw a staggering loss in dominance in November, owing to China's recent crackdown of several crypto exchanges. Nearly $300 million flowed out of the platform to Binance.

Binance and Bybit both enjoyed a significant increase in market share, with a 6% gain for each platform, giving them their highest OI dominance yet.
CRYPTO HIGHLIGHTS
**DeFi Economic Exploitation – Flash Loan Attack**

Almost $70 million has been exploited from five DeFi protocols via flashloan attacks

Throughout October and November, five high-profile exploits of DeFi protocols led to nearly $70 million worth of cryptocurrencies stolen.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Date</th>
<th>Audited</th>
<th>Amount lost</th>
<th>Exploit method</th>
<th>Fund Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvest Finance</td>
<td>26 Oct 2020</td>
<td>✔️</td>
<td>$34 million[1]</td>
<td>Hacker took out a $50M USDT flash loan, then used Curve (y pool) to swap funds and stretch stable coin prices out of proportion.</td>
<td>$2.5M</td>
</tr>
<tr>
<td>Akropolis</td>
<td>12 Nov 2020</td>
<td>✔️</td>
<td>$2 million[2]</td>
<td>Fake token was deposited multiple times and withdrew for DAI.</td>
<td>N/A</td>
</tr>
<tr>
<td>Value DeFi</td>
<td>14 Nov 2020</td>
<td>✔️</td>
<td>$6 million[3]</td>
<td>Value DeFi used Curve as their price oracle and over $100M of USDT &amp; DAI were swapped for USDC to manipulate its price.</td>
<td>N/A</td>
</tr>
<tr>
<td>Origin Protocol</td>
<td>17 Nov 2020</td>
<td>✔️</td>
<td>$7 million[4]</td>
<td>The attacker used a malicious contract to manipulate Origin’s “minting” code and extracted approximately 20M OUSD.</td>
<td>N/A</td>
</tr>
<tr>
<td>Pickle Finance</td>
<td>21 Nov 2020</td>
<td>✔️</td>
<td>$20 million[5]</td>
<td>The hacker drained funds by reallocating funds from the original jar to a fake Pickle Jar.</td>
<td>N/A</td>
</tr>
</tbody>
</table>


**IMPORTANT:** Audits do NOT guarantee fund security.
DeFi Economic Exploitation – Flash Loan Attack

Impacted protocols experienced lower prices and user confidence

Dates of exploitation
Harvest Finance (FARM): 26 Oct 2020
Akropolis (AKRO): 12 Nov 2020
Value Liquidity (VALUE): 14 Nov 2020
Origin Dollar (OUSD): 17 Nov 2020
Pickle Finance (PICKLE): 21 Nov 2020

All 5 native tokens of the protocol dropped in price after suffering the exploitation.

OUSD suffered the worst with 85% drop in price from $1 to $0.16 right after the attack.

The exploit on Harvest Finance plummeted the value of its FARM token by more than 50% from $234.

All the affected protocols struggled to rebound to their previous price points post-exploit.

Users have probably lost their confidence in these affected protocols and deemed them to be vulnerable to future attacks.
What are Schnorr Signatures and Taproot?

- On 15 October 2020, a set of Bitcoin Improvement Proposals (BIP 340, 341, 342) was merged into the main Bitcoin code repository.
- Dubbed Taproot, this is the most significant upgrade on the Bitcoin codebase since SegWit in 2017.
- Besides Taproot, this update will also replace Bitcoin’s current digital signature algorithm (ECDSA) with Schnorr Signature, a different signature algorithm.
- While this upgrade has yet to be decided, a soft fork is likely to occur. Up to 82.05% of Bitcoin’s mining pools are in support of the soft fork.

What is Taproot?

At its core, Taproot aims to hide transaction scripts so that they appear as normal transactions on the blockchain.

What is Schnorr Signature?

- A key advantage of Schnorr is the ability to aggregate multiple keys into a single unique signature.
- ECDSA

How Taproot Improves Bitcoin?

- Security
  Improved security from Schnorr Signatures as less assumptions are required in the algorithm.
- Scalability
  More transactions can occur per block as Schnorr Signatures remove data bloat from having multiple signatures in transactions.
- Transaction Privacy
  Complex transactions are indistinguishable from simple ones to a blockchain observer.
Eth2: Ethereum’s Next Upgrade

A phase-by-phase implementation to address Ethereum’s issues

Eth2 refers to the latest infrastructure upgrade of the current Ethereum blockchain (Eth1) that would improve the network’s scalability, efficiency, and sustainability to iron out the current bottlenecks and enable the network to process more transactions. It will be conducted in 4 phases.

Issues with Eth1

1. Poor Scalability
   - Growing # of transactions and throughput limitation leads to:
     1. Network congestion
     2. High fees

2. High Energy Use
   - Proof-of-work (PoW) requires large amounts of computational power (and electrical power) to keep the network secure and operational.

Eth2’s Solutions

1. Sharding for Scalability
   - In Eth2, the Ethereum blockchain is split into shards. By dividing the data processing & validation across nodes, a much higher theoretical throughput of 1M transactions/second can be achieved.

2. Proof of Stake for Sustainability
   - Change of consensus mechanism from Proof of Work (PoW) to Proof of Stake (PoS). In PoS, validators stake ETH as collateral to validate blocks in place of mining.
   - This is much less energy intensive and can potentially be more sustainable in the long run.

Which phase are we in now?

- Phase 0 - Beacon & Staking (1st December 2020)
- Phase 1 - Sharding (est. 2021)
- Phase 1.5 - Migration of Eth1 to Eth2 (est. 2021)
- Phase 2 - Execution Environments Ready (est. 2022 and onwards)

Is Eth2 a separate blockchain?

Yes, but it will eventually be merged with Eth1 in Phase 1.5.

What will happen to my Ethereum holdings?

Eth1 Ether ‘hodlers’, will not be required to take any action as the chain will merge automatically with Eth2 under the existing infrastructure.
Eth2: Ethereum’s Next Upgrade

Phase 0 (Q1 2020)
Beacon & Staking

- Eth 2.0 will be a separate blockchain, developed in phases.
- Eth 1.0 blockchain will continue to operate in parallel, as existing smart contracts may not be compatible with Eth 2.0
- Eth 1.0 holders can deposit 32 ETH into a staking contract as a commitment to Eth 2.0 (Here's how much you can make.)
- Stakers validate blocks on Beacon Chain via Proof-of-Stake.
- The Beacon Chain does not do much by itself, it cannot validate or execute transactions yet.

Phase 1 (Q1 2021)
Sharding

- Multiple chains (shards) will be deployed to facilitate scaling.
- Computational loads spread out across multiple chains rather than being dependent on a single chain as is on Eth 1.0
- Beacon Chain is the Beacon that “points the way” for all shards to maintain sync and data integrity within shards.

Phase 1.5 (2021)
Mine blocks & secure network

- Deposit 32 ETH
- Emits event to the Beacon Chain to register validator

Phase 2 (2022)
Execution Env.

- Allows processing of transactions, tokens & smart contracts
- Ethereum 2.0 finally ready to launch!