# Table of Contents

**Key Takeaways** 2

**Crypto Market Performance** 3
- Decentralized Finance (“DeFi”) 5
- Non-Fungible Token (“NFT”) 6

**Charts of the Month** 7
- Bitcoin Fees Surpass Ethereum Fees 7
- Solana DEX Volumes Take Off 8
- Polygon Pushes Forward on the ZK Front 9
- Telegram Bots See Sustained Activity 10

**Upcoming Events and Token Unlocks** 11

**References** 12

**New Binance Research Reports** 13

**About Binance Research** 14

**Resources** 16
Key Takeaways

◆ The crypto market sustained its upward trajectory in November, culminating in a 11% month-on-month (“MoM”) increase in total market capitalization. The market experienced a dynamic surge throughout the first half of the month, then entered into a period of fluctuations. SOL and LINK emerged as the leading performers among the top ten coins by market capitalization for the second consecutive month, with MoM gains of 69% and 29%, respectively. Both coins also saw a surge in institutional interest, evidenced by GSOL trading at an 800% premium and GLINK at a 200% premium.

◆ Transaction fees on Bitcoin have exceeded those on Ethereum, widening to the broadest point seen in over two years. Renewed interest in the Ordinals protocol has contributed to increased activity on Bitcoin and demand for block space.

◆ Solana’s DEX volumes grew by over 166% between October and November. This has coincided with a rise in general daily activity and market cap of the SOL token, as well as a rise in DeFi TVL of over 101%. The activity and attention generated from the recent Pyth Network, Jupiter Exchange, and Jito Network airdrops, alongside the points programs implemented by other major Solana DeFi protocols, have been crucial drivers for increased DEX activity. The recent hype surrounding SPL-20 tokens, which have created Solana’s own inscription market, has also been a contributing factor.

◆ Polygon zkEVM marked a major milestone in November, as its TVL surged to US$107.8M – a notable 47.2% increase MoM. This increase, driven by a series of key developments along with Polygon’s continued focus and progress in the ZK space, is generating increased interest in its ecosystem, suggesting a positive outlook for Polygon zkEVM.

◆ Telegram bots remain popular among users. Despite dwindling media coverage in recent months, the sector has continued to see sustained activity and trading volumes.
Crypto Market Performance

The crypto market sustained its upward trajectory in November, culminating in a 11% MoM increase in total market capitalization. The first half of the month experienced a dynamic surge, with the market swiftly notching up a 12% gain. This was followed by a period of fluctuations, marked by the pullbacks on November 16 and 21, each resulting in approximately a 5% dip in the total market capitalization. These retractions appeared to be standard market corrections, responding naturally to the preceding rapid growth. Since October, the crypto market has witnessed an increase of over 35% in total market capitalization. As key bullish catalysts are gradually factored into prices, it’s not uncommon to see the market oscillating between bullish and bearish sentiments.

Figure 1: Monthly crypto market capitalization increased by 11% in November

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td>30.4</td>
<td>3.4</td>
<td>9.3</td>
<td>3.2</td>
<td>-6.0</td>
<td>3.3</td>
<td>1.0</td>
<td>-8.8</td>
<td>2.6</td>
<td>19.0</td>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>-22.6</td>
<td>-0.3</td>
<td>25.3</td>
<td>-18.1</td>
<td>-25.2</td>
<td>-31.7</td>
<td>21.8</td>
<td>-11.4</td>
<td>-2.1</td>
<td>7.2</td>
<td>-18.0</td>
<td>-4.5</td>
</tr>
<tr>
<td>2021</td>
<td>33.9</td>
<td>39.6</td>
<td>31.1</td>
<td>11.4</td>
<td>-25.7</td>
<td>-5.9</td>
<td>12.5</td>
<td>25.2</td>
<td>-9.9</td>
<td>42.9</td>
<td>-1.0</td>
<td>-15.0</td>
</tr>
<tr>
<td>2020</td>
<td>35.4</td>
<td>-5.5</td>
<td>-27.7</td>
<td>38.8</td>
<td>10.0</td>
<td>-4.5</td>
<td>25.9</td>
<td>13.7</td>
<td>-7.6</td>
<td>14.6</td>
<td>37.5</td>
<td>39.7</td>
</tr>
<tr>
<td>2019</td>
<td>-11.6</td>
<td>12.3</td>
<td>11.1</td>
<td>17.1</td>
<td>55.5</td>
<td>30.8</td>
<td>-22.5</td>
<td>-6.5</td>
<td>-13.7</td>
<td>14.8</td>
<td>-14.7</td>
<td>-7.9</td>
</tr>
<tr>
<td>2018</td>
<td>-10.2</td>
<td>-9.0</td>
<td>-42.9</td>
<td>67.9</td>
<td>-26.2</td>
<td>-23.4</td>
<td>18.1</td>
<td>-22.9</td>
<td>-1.7</td>
<td>-8.4</td>
<td>-32.1</td>
<td>-5.5</td>
</tr>
</tbody>
</table>

Source: CoinMarketCap
As of November 30, 2023

Figure 2: Monthly price performance of the top 10 coins by market capitalization

Source: CoinMarketCap
As of November 30, 2023
In descending order of performance:

- All the top 10 coins ended November with positive gains, with SOL and LINK leading the pack. SOL closed the month with an impressive 69.5% gain, while LINK followed with a 29.11% increase. Solana’s resurgence in the crypto landscape in recent months was particularly notable. Its annual conference, Solana Breakpoint, drew over 13,000 attendees to one of its four venues, highlighting the growing community interest. The event’s highlight was the announcement of Solana’s partnership with Google Cloud, marking a significant milestone for the Solana ecosystem. This positive sentiment was mirrored in the institutional domain, where GSOL, Grayscale’s Solana Trust, traded at an extraordinary 800% premium. LINK, paralleling Solana’s trajectory, also garnered institutional attention, with GLINK, Grayscale’s Link Trust, being traded at a 200% premium. Moreover, Chainlink had announced the schedule for Staking v0.2, which is set for early December. Meanwhile, ADA also shone in November, registering a 26.1% gain. Cardano’s 2023 summit was a key event, spotlighting Cardano’s ongoing developments and prospects.

- DOGE sustained its momentum from October, achieving a 15.7% increase. TON shook off its October stagnation, ending the month with a 14.5% gain. ETH maintained its deflationary status, as indicated by data from ultrasound money, thanks to elevated market activity.

- BTC, TRX, and XRP demonstrated modest gains, closing the month with increases of 9.7%, 8.3%, and 5.3%, respectively. Notably, CME Group claimed the top spot among the world’s largest Bitcoin futures exchanges by open interest in November. This indicates the growing institutional demand for Bitcoin, given CME’s position as the major venue for large institutions. BNB experienced a slight decrease of 0.4%.
November witnessed an expansion in the DeFi sector, with TVL sustaining its uptrend from October, registering a 10% MoM increase. This uptick aligns with the overall positive market sentiment and the continued uptrend in token prices. Among the top ten chains, Solana led the charge with a 56% increase in TVL, followed by Optimism’s 17% rise and Avalanche’s 16% gain. Solana’s growth was primarily propelled by the staking protocols Marinade and Jito, which boasted TVL gains of over 79% and 130%, respectively. Avalanche’s TVL growth saw a significant contribution from Benqi, a money market and staking platform, which recorded a 62% monthly TVL increase. Conversely, Tron and Base observed downturns, ending the month with TVL declines of 4% and 2%.
The NFT market witnessed a pivotal turnaround in November, reversing its year-long downtrend with a sales volume of US$0.91B. This represents a MoM increase of 200%, the largest seen in 2023. Indicative of this recovery, Nansen’s NFT-500 Index and the Blue Chip 10 Index both reported reduced year-to-date declines, now at 49% and 43%, respectively—an improvement from the previous month’s 58% and 50%. A significant driver of a resurgence in NFT sales was Bitcoin NFTs. The $SATS collection, featuring individual satoshis with unique identifiers, stood out with a staggering 1,039% MoM growth in sales volume, which skyrocketed to US$93M, eclipsing Bored Ape Yacht Club’s US$42M and CryptoPunks’ US$29M.
Historically, transaction fees have almost always been higher on Ethereum than Bitcoin. This is unsurprising, considering that Bitcoin activity tends to be lower and less complex than Ethereum.

However, an interesting observation was made in November, as average transaction fees on Bitcoin surpassed those on Ethereum for over two-thirds of the month. While there were several days in October when such a trend was observed, the disparity reached its widest point in more than two years, reaching US$6.73 on November 22. This gap has since normalized and narrowed.

The increase in Bitcoin fees in November was largely driven by activity on the Ordinals protocol. Since late October, renewed interest in minting Bitcoin NFTs had contributed to a surge in the number of inscriptions. According to data from CryptoSlam, November marked the highest monthly sales of Bitcoin NFTs, at over US$376M.
Solana DEX Volumes Take Off

Figure 6: Solana’s DEX volumes rose by over 166% between October and November

Source: Dune Analytics (@ilemi), Binance Research
As of November 27, 2023

Solana’s performance has been strong in recent weeks, with daily activity rising and market capitalization growth significantly outperforming the broader market (SOL ranks among the top 10 assets by market cap growth in the last 60/90 days).

Correspondingly, the Solana DeFi ecosystem has also seen strong growth, with its month-on-month TVL growth of over 101% being the best among other top chains. Central to the DeFi ecosystem are the major Solana DEXes, which have seen a notable uptick in volume, rising over 166% between October and November.

Solana DeFi has benefited from the activity and attention generated by recent airdrops from oracle project, Pyth Network, DEX aggregator Jupiter Exchange, and MEV-linked liquid staking provider Jito Network. Additionally, some of the other major DeFi projects, including MarginFi, Jito Network, and Kamino Finance, have implemented (or teased) point systems. User activity generates points, which many in the community think might be a factor in potential upcoming airdrops from these protocols. This has led to an increase in user activity across these projects, which has had a very direct effect on Solana DEXes.

DEX activity has also been impacted by the hype surrounding the recently popularized SPL-20 token standard. These have created an inscription market for Solana, similar to one that exists for Bitcoin, and alongside a growing memecoin market within the L1, have helped propel DEX volumes to their recent highs.
Polygon Pushes Forward on the ZK Front

Figure 7: In November, Polygon's zkEVM achieved a significant milestone, exceeding a TVL of US$100M, representing a growth of over 47.2% MoM

Polygon continues to make significant strides in the ZK space, signaling bullish potential for its zkEVM Layer-2 (“L2”) rollup, as evidenced by its recent performance. In an important milestone, Polygon zkEVM’s TVL reached over US$107.8M in November, growing a notable 47.2% MoM and surpassing 100K depositors. This growth, which is organic in nature, marks a departure from the earlier, slower pace of Polygon zkEVM compared to other competing L2 rollups, some of which benefited from the speculation of airdrops.

Contributing to this progress are several developments related to Polygon zkEVM and the wider Polygon ecosystem, with the latter unlocking natural synergies. For instance, Polygon zkEVM launched its first E-CLP for rETH/WETH, and saw integrations with key cross-chain and interoperability protocols, including Symbiosis and Socket. What’s more, the buzz around Polygon 2.0, featuring a tokenomics revamp and the migration of the Polygon PoS chain to its final Validium, signaled a strategic shift to markets. This move effectively positioned Polygon zkEVM and Validium as the foundation for a new super network of L2s.

The adoption of Polygon's CDK by various crypto projects and exchanges, notably OKX’s X1, to build customizable ZK-powered L2s highlights Polygon's growing influence in this sector. Moreover, the development of zkWasm chains and the upcoming Polygon Miden, focusing on ZK privacy and scalability, further demonstrate Polygon's commitment to ZK-based innovation. Overall, these efforts collectively boost Polygon's standing in the ZK space, generating increased interest in its ecosystem and setting the stage for future advancements in products such as Polygon zkEVM.
Telegram trading bots allow traders to easily automate and execute on-chain activities. Common features include trading, sniping, airdrop farming, and other analytic tools. While Telegram bots have been around for quite some time, interest in Telegram bots first surged in July, as skyrocketing token prices brought attention to the sector and onboarded a number of new users.

On-chain metrics today reveal that Telegram bots remain a popular platform for traders, and activity remains elevated. Following subdued activity in September and October, trading volume in November has rebounded and grew 65% MoM to US$735.9M. Maestro and Banana Gun remain the largest Telegram trading bots by trading volume, accounting for over 83% of total volume.

Nonetheless, it is important to recognize that interacting with Telegram bots is not without risks. Given that bots have access to private keys, the security of tokens may be compromised in the event of any exploits. The old adage comes to mind: “Not your keys, not your crypto.”
Upcoming Events and Token Unlocks

In this section, we have summarized notable events and upcoming token unlocks for the month. We hope this will help monitor key developments in the space and keep track of unlock events.

**Figure 9: Notable events in December 2023**

Source: Binance Research

**Figure 10: Largest token unlocks in US$ terms**

Source: TokenUnlocks, Binance Research
References

https://defillama.com/
https://coinmarketcap.com/
https://www.cryptoslam.io/
https://token.unlocks.app/
https://dune.com/
https://www.theblock.pro/
https://l2beat.com/
https://pro.nansen.ai/
https://flipsidecrypto.xyz/
New Binance Research Reports

Decoding Cross-Chain Interoperability
An in-depth review of the cross-chain interoperability market

Data Insights: Exploring Crypto Fundraises
A compilation of fundraising charts and insights

State of the Market: Turkey’s Crypto Landscape
A study of Turkey’s crypto landscape and takeaways from Binance Blockchain Week 2023

The Rollups-as-a-Service Primer
A deep dive into the rollups-as-a-service market
About Binance Research

Binance Research is the research arm of Binance, the world’s leading cryptocurrency exchange. The team is committed to delivering objective, independent, and comprehensive analysis and aims to be the thought leader in the crypto space. Our analysts publish insightful thought pieces regularly on research topics, including but not limited to the crypto ecosystem, blockchain technologies, and the latest market themes.

Jie Xuan Chua
Macro Researcher

Jie Xuan (“JX”) is currently working for Binance as a Macro Researcher. Prior to joining Binance, he worked as a Global Investment Specialist with J.P. Morgan and had prior Equity Research experience at various fund houses. JX is a CFA charterholder. He has been involved in the cryptocurrency space since 2017.

Moulik Nagesh
Macro Researcher

Moulik is a Macro Researcher at Binance, and he has been involved in the cryptocurrency space since 2017. Prior to joining Binance, he had experience spanning cross-functional roles in Web3- and Silicon Valley-based tech companies. With a background in co-founding start-ups and a BSc in Economics from the London School of Economics & Political Science (“LSE”), Moulik brings a comprehensive perspective to the industry.
Shivam Sharma  
Macro Researcher

Shivam is currently working for Binance as Macro Researcher. Prior to joining Binance, he worked as an Investment Banking Associate / Analyst at Bank of America on the Debt Capital Markets desk, specializing in European Financial Institutions. Shivam holds a BSc in Economics from the London School of Economics & Political Science (“LSE”) and has been involved in the cryptocurrency space since 2017.

Brian Chen  
Macro Research Intern

Brian is currently working for Binance as a Macro Research intern. Prior to joining Binance, he worked as a DeFi researcher at a financial service startup and a Web3 education organization. He holds a Master of Finance degree from the University of California, Irvine (“UCI”) and has been involved in the cryptocurrency space since 2021.
General Disclosure: This material is prepared by Binance Research and is not intended to be relied upon as a forecast or investment advice and is not a recommendation, offer, or solicitation to buy or sell any securities or cryptocurrencies or to adopt any investment strategy. The use of terminology and the views expressed are intended to promote understanding and the responsible development of the sector and should not be interpreted as definitive legal views or those of Binance. The opinions expressed are as of the date shown above and are the opinions of the writer; they may change as subsequent conditions vary. The information and opinions contained in this material are derived from proprietary and non-proprietary sources deemed by Binance Research to be reliable, are not necessarily all-inclusive, and are not guaranteed as to accuracy. As such, no warranty of accuracy or reliability is given, and no responsibility arising in any other way for errors and omissions (including responsibility to any person by reason of negligence) is accepted by Binance. This material may contain ‘forward-looking’ information that is not purely historical in nature. Such information may include, among other things, projections and forecasts. There is no guarantee that any forecasts made will come to pass. Reliance upon information in this material is at the sole discretion of the reader. This material is intended for information purposes only and does not constitute investment advice or an offer or solicitation to purchase or sell in any securities, cryptocurrencies, or any investment strategy, nor shall any securities or cryptocurrency be offered or sold to any person in any jurisdiction in which an offer, solicitation, purchase, or sale would be unlawful under the laws of such jurisdiction. Investment involves risks.