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Unveiling the Interplay: NFTs, Metaverse Hype, and Ether Price Dynamics

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Abstract: Examining the connection between Non-Fungible Tokens (NFTs), the Metaverse, and Ethereum (ETH) prices reveals a nuanced relationship. NFTs, unique digital assets stored on the Ethereum blockchain, have seen a surge in global interest since early 2021, particularly on platforms like OpenSea. While there is an initial correlation between ETH price surges and increased NFT sales, a decline in ETH prices later leads to a surge in NFT sales, suggesting increased affordability. In the Metaverse, represented by projects like Decentraland, the relationship between the number of Land units sold and ETH prices is inconsistent. Additionally, examining average LAND prices compared to ETH prices reveals some correlation in specific periods. In summary, the analysis suggests a complex interplay between NFTs, the Metaverse, and ETH prices. While initial trends show correlations, factors like affordability and evolving market dynamics contribute to the nuanced relationship. Understanding these elements is crucial for accurate predictions of their impact on ETH prices.

Keywords: NFT, Metaverse, ETH, Ethereum

1. Introduction

In the ever-evolving landscape of blockchain technology, the rise of Non-Fungible Tokens (NFTs) and the Metaverse has captured the imagination of enthusiasts, investors, and tech innovators alike. This scientific article delves into the intricate relationship between the NFT and Metaverse phenomena and their potential impact on the price dynamics of Ethereum (ETH). NFTs, unique digital assets with applications far beyond the Metaverse, have become a focal point in blockchain-based ecosystems. Simultaneously, the Metaverse, a virtual world for diverse activities, has garnered increased attention and active development from tech and gaming industries.

To navigate this intricate web of blockchain innovations, we commence by clarifying the definitions of NFTs and the Metaverse, drawing insights from notable

works and contemporary perspectives. The exploration then delves into the intersection of these entities, where NFTs serve as digital representations within the Metaverse, fostering a novel economic system. Notably, most NFTs find their home on the Ethereum blockchain, establishing an inherent connection to ETH.

Utilizing a multi-faceted approach, we analyse data sourced from Dune and the activities of OpenSea, a prominent NFT marketplace. Our examination unveils trends in trading volume and monthly sales, shedding light on potential correlations with ETH prices. A parallel investigation explores the Metaverse market, focusing on projects like Decentraland, and scrutinizes the relationship between Land unit sales and ETH prices.

The main goal of the article is to identify how the evolving landscape of NFTs and the burgeoning Metaverse may influence the price dynamics of Ethereum. Amidst the speculative fervour and technological advancements, this scientific exploration aims to contribute valuable insights into the intersection of blockchain innovations and their implications for the cryptocurrency market. To achieve this objective, the research methods employed encompass comprehensive literature analysis and rigorous statistical data analysis.

2. Understanding NFTs and Metaverse

Our initial investigation will involve establishing a relation between the NFT and Metaverse phenomena and their impact on the price of Ether.

Prior to delving into specificities, let us briefly reiterate the formal definition of Non-Fungible Tokens (NFTs).

Swan (2015) in her book *Blockchain: Blueprint for a New Economy* defines NFTs as units of value in a blockchain-based system that are unique, non-interchangeable, and not divisible.

Drescher (2017) came up with another definition in his book *Blockchain Basics: A Non-Technical Introduction in 25 Steps*, where he defined NFTs as unique digital assets that are stored on a blockchain and represent ownership of a unique item such as artwork, music, or even tweets. He explains that NFTs are different from cryptocurrencies like Bitcoin, which are fungible and interchangeable, because each NFT is unique and cannot be replicated or divided into smaller units.

Wikipedia described NFTs as a unique digital identifier that cannot be copied, substituted, or subdivided, that is recorded in a blockchain, and that is used to certify authenticity and ownership (Non-Fungible Token, n.d). However, what is the precise definition of the term “metaverse”? The term was first coined by science fiction writer Stephenson in his 1992 novel *Snow Crash*. In the book, Stephenson (1992) describes a virtual world called the Metaverse, which is accessed through a virtual reality interface and serves as a global hub for commerce, entertainment, and social interaction. Since then, the concept of the Metaverse has been explored

and expanded upon by numerous authors, technologists, and futurists, and is now being actively developed by companies in the tech and gaming industries.

In tandem with technological advancements, the conceptualization of the metaverse has undergone progressive evolution.

In 2018 in his book *The Basics of Bitcoins and Blockchains* Lewis (2018) described the metaverse as a blockchain-based virtual world where users can own digital assets and participate in a variety of activities, from gaming to socializing to commerce.

The vision incorporated the usage of the blockchain technology, which resulted in the emergence of a new faction called crypto metaverse.

Gemini described the crypto metaverse as a metaverse that incorporates blockchain into its underlying technology and crypto assets, such as metaverse tokens, into its economy. Examples of crypto metaverses and protocols that incorporate metaverse elements include Decentraland, Cryptovoxels, Alien Worlds, Axie Infinity, and The Sandbox (Cryptopedia, 2022).

Having elucidated both definitions, we now seek to ascertain the inter-relationship between them.

Within the Metaverse framework, non-fungible tokens (NFTs) can be harnessed as digital representations of virtual land, items, and avatars. As a consequence, a novel economic system emerges, enabling users to engage in the acquisition, sale, and exchange of digital assets facilitated by cryptocurrencies.

Significantly, it is imperative to acknowledge that the Metaverse and non-fungible tokens (NFTs) are independent entities, devoid of mutual dependence. NFTs exhibit versatility in their application beyond the confines of the Metaverse, while the Metaverse itself is capable of operating in the absence of NFT utilization. Nevertheless, the integration of NFTs is poised to assume a momentous role in the advancement of the Metaverse, enabling the establishment of augmented ownership privileges and the generation of intrinsic value within the realm of virtuality. Moreover, NFTs extend their utility to encompass a diverse array of other assets, including official documents such as identification cards and academic certifications, as well as property ownership rights, tickets to sporting events, and even fashion accessories.

In the context of a potential relation between NFTs and the Metaverse, it is worth exploring the plausible ramifications on the price of Ether. One important fact is that most NFTs are stored on the Ethereum blockchain, so there will be anyways always a connection to Ethereum, but will it impact the price?

The data presented on Figure 1 illustrates the weekly trading volume denominated in USD for non-fungible tokens over the preceding 2-year period. This information is further divided based on the specific marketplaces where these trades transpired. A conspicuous observation reveals that since the onset of the NFT fervour in early 2021, OpenSea, an online marketplace established in 2017 by Devin Finzer and Alex Atallah, has consistently dominated the trade volume, accounting for the largest share in the market.

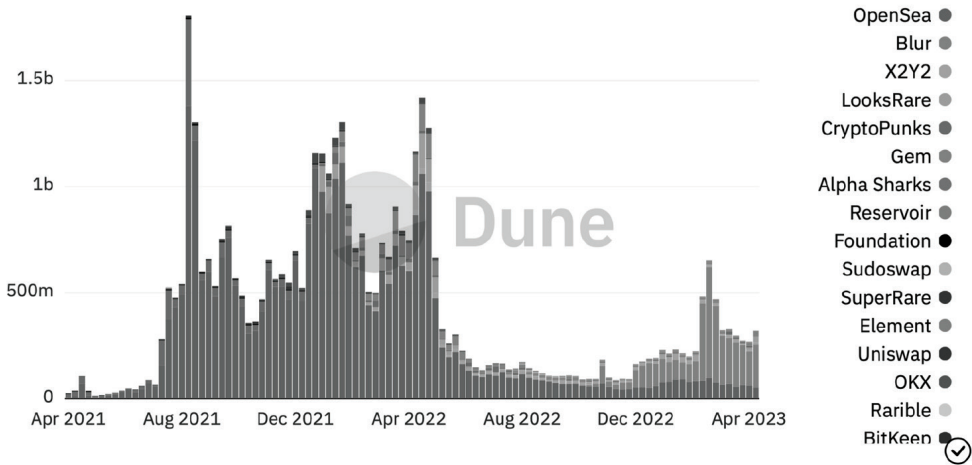


Figure 1. NFT weekly volume by marketplace

Source: (Dune, 2023b).

Considering OpenSea’s dominant position in the non-fungible token (NFT) market, our subsequent analysis will predominantly centre around data derived from its operational activities.

3. OpenSea Monthly NFTs Sold Compared to ETH Price

The graphical representation depicted on Figure 2 portrays the monthly sales volume of Non-Fungible Tokens (NFTs) on the OpenSea platform, spanning from July 2018 to April 2023. Observing the chart, it becomes evident that a notable surge occurred in the middle of 2021, enduring for the subsequent months. Notably, by the conclusion of August 2021, an astounding quantity exceeding 800,000 NFTs had been sold within a mere four-week timeframe. Remarkably, this surge merely constituted a preliminary demonstration, as January 2022 witnessed the sale of over 1.7 million NFTs, thereby establishing an unprecedented pinnacle in sales figures. How do these numerical values manifest when compared with the Ether price?

The graph depicted on Figure 3 illustrates the monthly sales of non-fungible tokens (NFTs) juxtaposed with the value of Ethereum (ETH) in USD. From the onset of January 2021, a relation emerges between the growth in ETH price and the corresponding increase in NFT sales; however, the latter exhibited a slower rate of ascent. In November 2021, when ETH price reached its zenith, a noteworthy reversal occurred, resulting in a diminished number of NFTs sold compared to previous months characterized by steady growth.

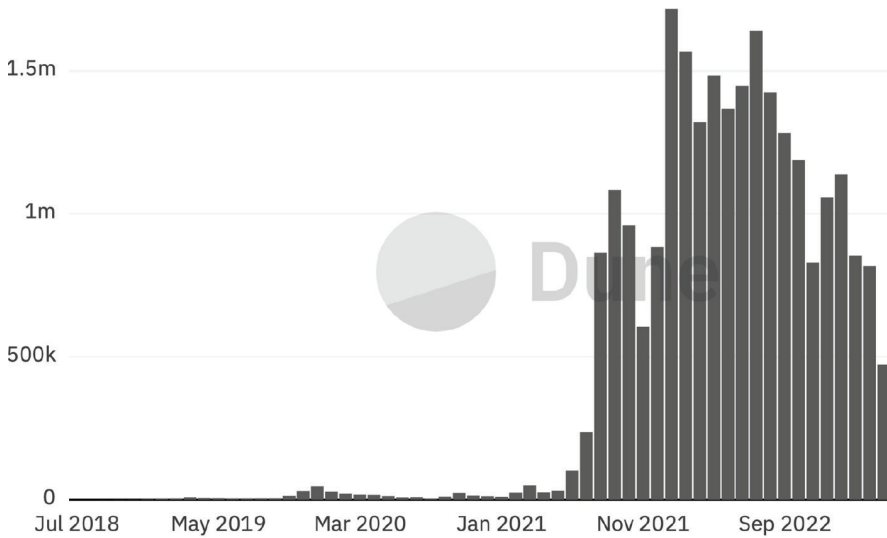


Figure 2. OpenSea monthly NFTs sold

Source: (Dune, 2023c).

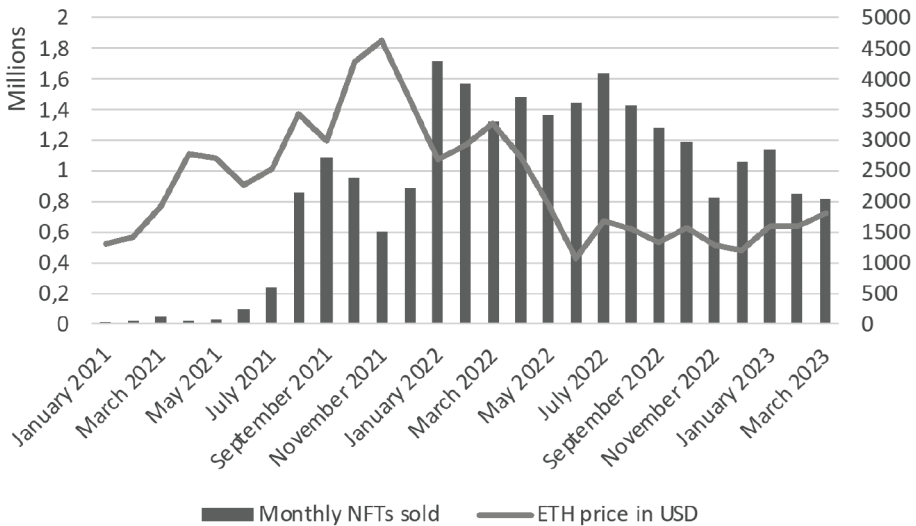


Figure 3. Monthly NFTs sold compared to ETH price

Source: own elaboration based on data from (Coinmarketcap, 2023; Dune, 2023c).

Additionally, it is noteworthy that subsequent to November, as the ETH price experienced a sharp decline, the quantity of NFTs sold surged to an all-time high. One plausible explanation for this phenomenon is the increased affordability of

NFTs due to the lower ETH price, enticing a larger audience to participate. This trend persisted for several months but between July 2022 and March 2023, despite the ETH price remaining relatively stable, the volume of NFTs sold exhibited a gradual decline. Therefore, while it is tempting to assume a negative relation between NFT sales and ETH price, this relationship does not hold true consistently.

4. OpenSea Monthly Active Traders Compared to ETH Price

The data illustrated on Figure 4 presents the quantitative representation of monthly active traders engaged in the OpenSea marketplace. The term “active traders” denotes individuals who have undergone the registration process and have executed at least one transaction. The visual depiction portrays a notable surge in the number of active traders commencing from the onset of 2021, culminating in September of the same year with an exceeding count of 200,000. The pinnacle of this growth manifested in February 2021, where the number of active traders surpassed half a million. Subsequently, a gradual decline in the quantity of active traders ensued, resulting in a reduction to approximately 285,000 by March 2023.

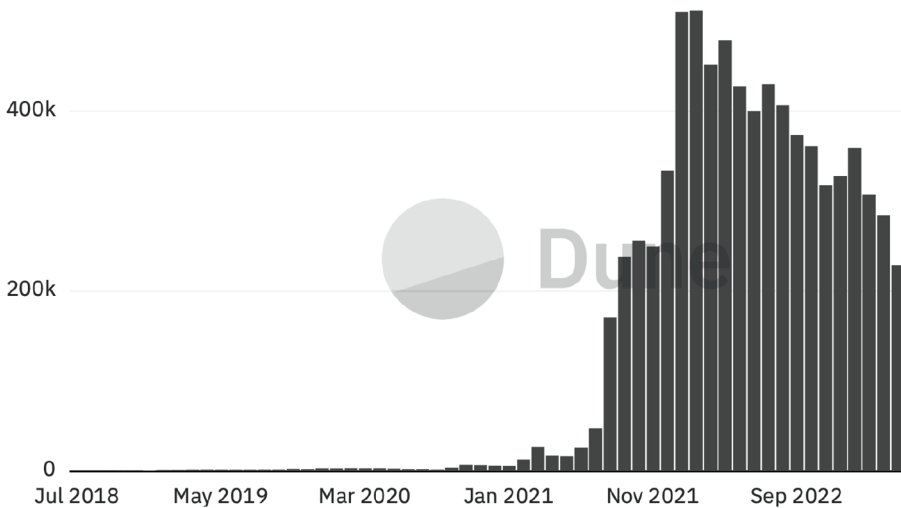


Figure 4. OpenSea monthly active traders

Source: (Dune, 2023c).

Figure 5 shows a correlation between the quantity of monthly active traders on the OpenSea platform and the value of Ethereum (ETH) in terms of United States Dollars (USD). A similar pattern emerges when analyzing the monthly sales of non-fungible tokens (NFTs) – at the onset of January 2021, coinciding with the surge in

ETH price, a greater number of users began engaging on the marketplace. Following the peak of ETH price in November 2021, despite the subsequent decline, an increasing number of users continued to participate on the platform. This observation may be attributed to a phenomenon similar to that depicted on Figure 5, where the affordability of purchasing an NFT improved due to the significant drop in Ether's price. Consequently, we observe an inverse relationship between the ETH price and the quantity of active traders on OpenSea.

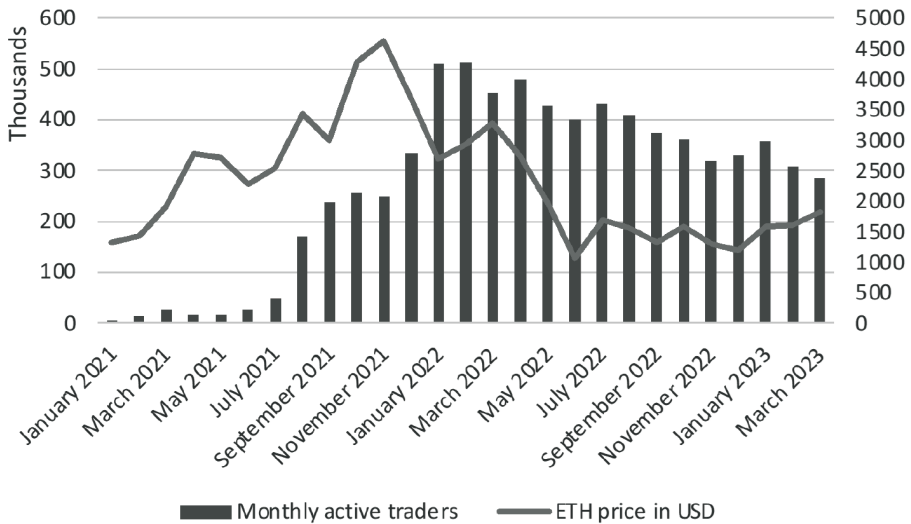


Figure 5. Monthly active traders compared to ETH price

Source: own elaboration based on data from (Coinmarketcap, 2023; Dune, 2023c).

If there have been so many users and NFTs sold, how does the volume look like?

5. OpenSea Monthly Volume Compared to ETH price

Figure 6 illustrates the monthly volumetric representation of NFT transactions denominated in USD on the OpenSea platform. As can be noticed, along with the rising interest in NFTs and more traders joining the platform, the volume grew as well. By the culmination of August 2021, the volume had exceeded an impressive threshold of 3 billion US dollars, surpassing the magnitude observed in July 2021 by a factor of ten. The pinnacle of the monthly volume was reached in January 2022, surpassing a notable milestone of 4.8 billion USD in transactional expenditure. Following this zenith, a marginal reduction transpired in the subsequent months, which was subsequently revealed to be a precursor to the substantial decline experienced in June 2022.

What is the correspondence between the volume and Ether price volatility?

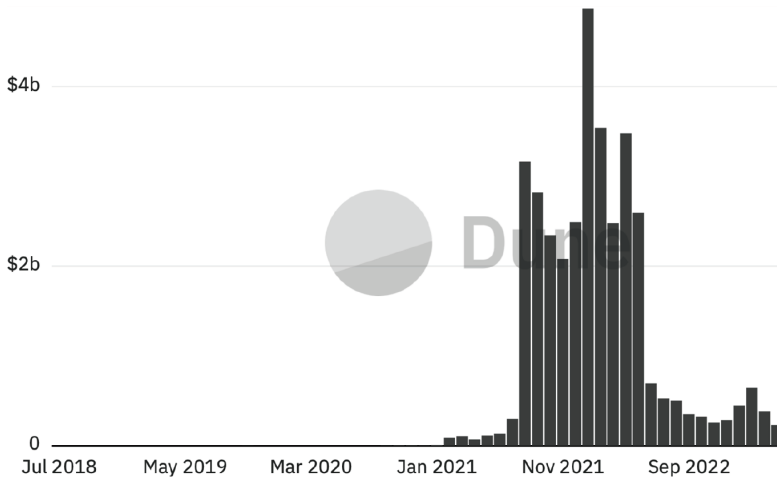


Figure 6. OpenSea monthly volume

Source: (Dune, 2023c).

The graphical representation presented on Figure 7 illustrates the monthly volume of OpenSea in comparison to the price of ETH. During the period from January to November 2021, the volume of NFTs sold demonstrated a remarkably close correlation with the number of NFTs sold and the level of engagement from traders involved in these transactions. As the price of ETH experienced growth, the volume of NFT transactions also witnessed an increase. However, subsequent to reaching its peak in November, the volume traded on OpenSea exhibited a decline alongside the decline in ETH price.

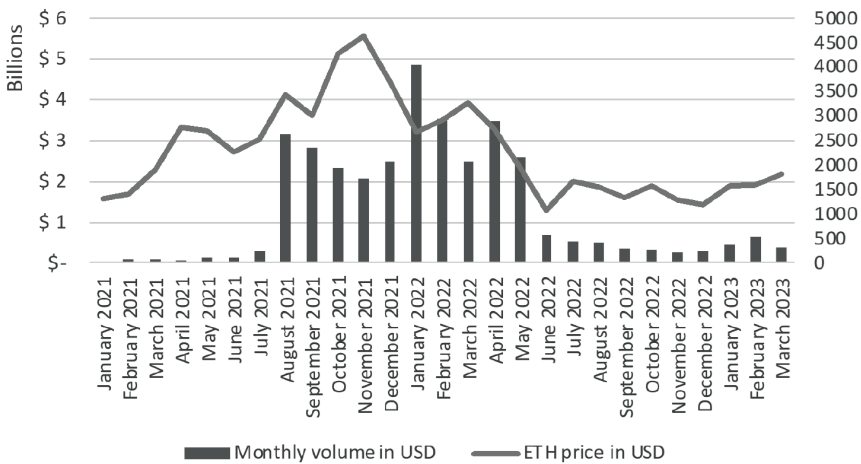


Figure 7. Monthly volume sold compared to ETH price

Source: own elaboration based on data from (Coinmarketcap, 2023; Dune, 2023c).

In contrast, the number of NFTs sold and the active traders, as depicted on Figs 2 and 4, experienced an upward trend following the peak in ETH price. Thus, it can be postulated that following the decrease in Ether price, the values of NFTs also declined. This would provide an explanation for the observation that, despite an increase in the number of NFTs sold after November 2021, the volume remained relatively stagnant or even lower compared to the period prior to the ETH peak. So, it might be assumed that there is a significant relation between the Ether price and the NFT value, but it works rather one way, meaning that ETH price sets NFT value, not the NFT value the ETH price.

After conducting a thorough analysis of the operational data pertaining to OpenSea, the subsequent course of action involves examining the potential relation between the Metaverse and the price of Ether.

6. State of the Metaverse Market

The graphical representation displayed on Figure 8 provides an overview of the market capitalization dominance within the Land sector, specifically encompassing three metaverse projects, namely Decentraland, Otherdeed, and Sandbox. Notably, Decentraland holds the distinction of being the most established among them, having been introduced in the early stages of 2020, thereby accounting for its prolonged sole dominance in the land market capitalization. Subsequently, Sandbox was launched in November 2021, followed by Otherdeed in May 2022. Given these circumstances, our subsequent analysis will primarily focus on data derived from the operations of the Decentraland metaverse, owing to the wealth of information accumulated over an extensive time frame.

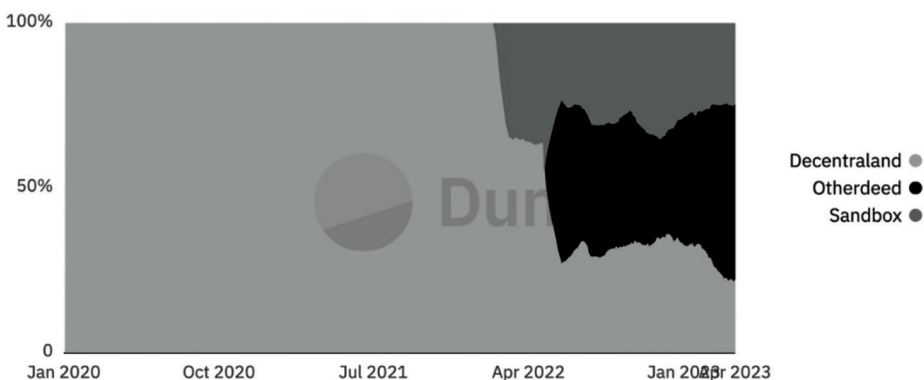


Figure 8. Land market capitalization dominance by project

Source: (Dune, 2023a).

7. Number of Units of LAND Sold Compared to ETH Price

The graphical representation displayed on Figure 9 provides an overview of the monthly volume of Land units sold within the virtual realm of Decentraland. It is crucial to note that each individual Land parcel is uniquely represented as a non-fungible token (NFT) stored on the Ethereum blockchain, ensuring the preservation of ownership rights over these virtual estates. To acquire a Land parcel, users are required to make payments using MANA, the native cryptocurrency of Decentraland. MANA, being an ERC-20 token, is also securely stored on the Ethereum blockchain.

The chart reveals a general upward trend in the number of Land units sold, although the rate of growth has varied, with periods of slower or more substantial increases. Notably, the peak occurred in November 2021, when the sales figure surpassed 1,500 Land units. Subsequently, the volume of Land sales has gradually declined, and as of the date of writing (April 23, 2023), it has reached its lowest level within the past two years.

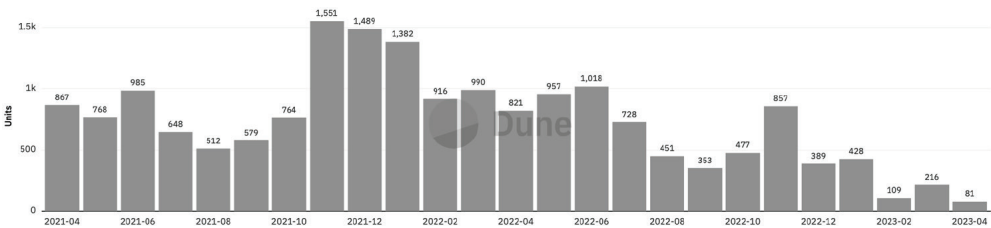


Figure 9. Number of units of LAND sold per month

Source: (Dune, 2023a).

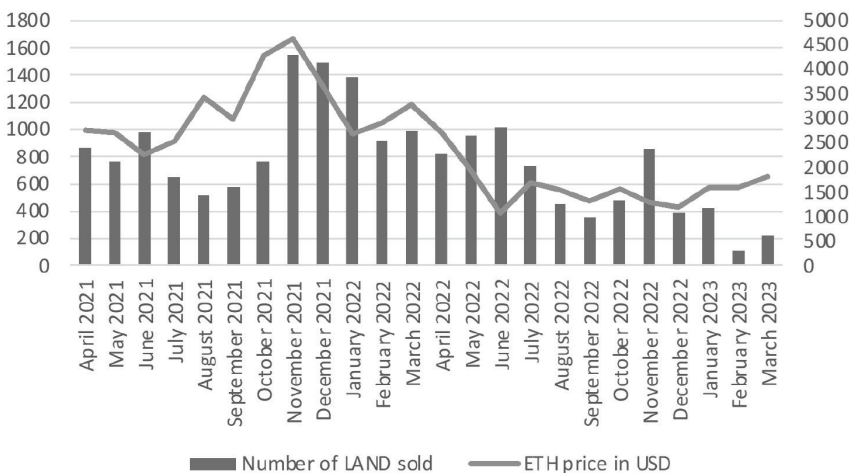


Figure 10. Monthly LANDs sold compared to ETH price

Source: own elaboration based on data from (Coinmarketcap, 2023a; Dune, 2023a).

The graph on Figure 10 illustrates the monthly volume of LANDs sold in relation with the fluctuating ETH price. Evidently, certain months exhibited a remarkable synchrony between the number of LANDs sold and the value of ETH. Notably, this similarity occurred in the period from April to May 2021, wherein both the ETH price and LAND sales experienced a decline. Similarly, between February and April 2022, the price of Ether initially increased and subsequently decreased, mirroring the corresponding trajectory of LAND sales. Another noteworthy occurrence took place from July to October 2022, wherein the ETH price demonstrated a progression followed by a regression, which was paralleled by the sales figures of LAND plots. In summary, it appears that there exists a relationship between the volume of plots sold and the price of ETH, although it is not consistently observed due to occasional deviations.

8. Average LAND Price Compared to ETH Price

The data illustrated on Figure 11 presents the monthly average price of LAND over a span of two years. The price exhibited its pinnacle in February 2022, reaching a value of 7369 USD, while experiencing its lowest point in March 2023, plummeting to 1797 USD.

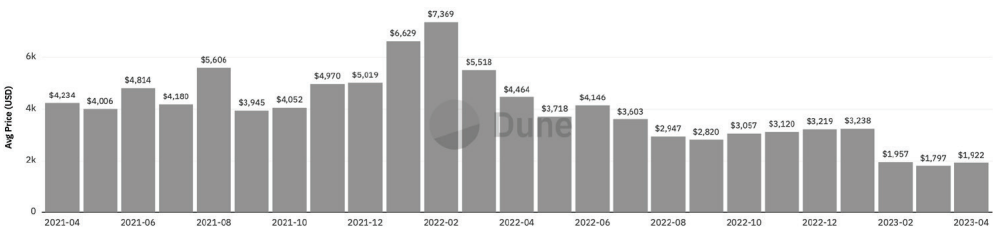


Figure 11. Average LAND price per month

Source: (Dune, 2023a).

The data presented on Figure 12 illustrates the average price of LAND in relation to the price of ETH over the preceding 2-year period. It is essential to note that to acquire LAND within Decentraland, users must employ MANA, the platform's native token, rather than Ether. An examination reveals a noticeable similarity between these two variables. From April to September 2021, these variables exhibited a nearly synchronous behaviour, with only a minor deviation occurring in June 2021. Another period demonstrating a close association between the average price of LAND and ETH price spanned from March to October 2022. During March, when the ETH price declined, the average price of Land similarly experienced a downturn. However, in June 2022, a deviation emerged as the ETH price declined while the average Land price increased. Subsequently, in July, when the ETH price stabilized,

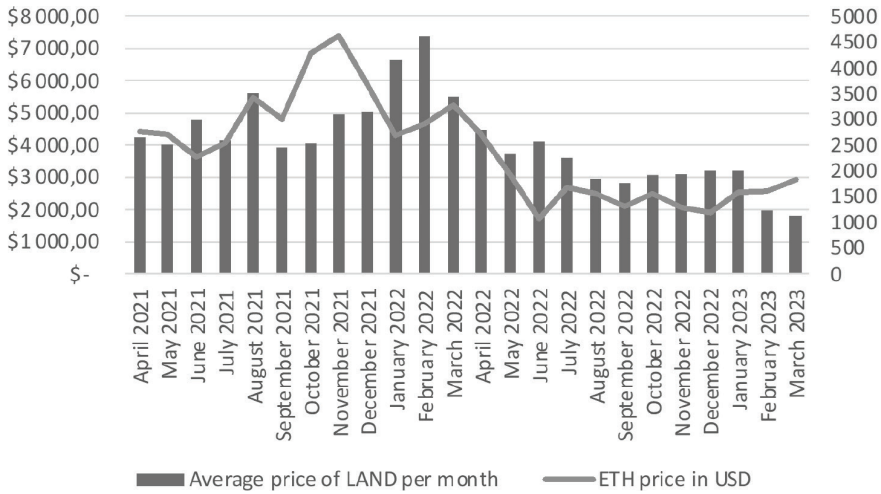


Figure 12. Average price of LAND compared to ETH price

Source: own elaboration based on data from (Coinmarketcap, 2023a; Dune, 2023a).

the average Land price remained relatively unchanged. Therefore, despite ETH not being the required currency for LAND transactions, a significant relation appears to exist between the average Land value and the price of ETH.

9. Summary

This in-depth analysis investigates the intricate relationships between Non-Fungible Tokens (NFTs), the Metaverse, and Ethereum (ETH) prices. Commencing with a definition of NFTs as unique digital assets stored on the Ethereum blockchain, the exploration unfolds the versatility of NFT applications, extending beyond the confines of the Metaverse.

The study underscores the rising global interest in NFTs. Notably, OpenSea, a dominant NFT marketplace, plays a pivotal role in the narrative, consistently leading in trading volume. The correlation between ETH price surges and increased NFT sales on OpenSea is intriguing, suggesting a dynamic market response wherein affordability becomes a key factor.

Transitioning to the Metaverse, the analysis centres on projects like Decentraland, examining the relationship between Land unit sales and ETH prices. While specific periods exhibit correlation, such as the remarkable surge in November 2021, the overall relationship is characterized by nuances, reflecting the evolving dynamics within the Metaverse market.

The examination of OpenSea’s monthly active traders and trading volume unveils a complex interplay with ETH prices. Despite a decline in ETH prices, both active traders and volume initially increase, indicating an intriguing inverse relationship between ETH prices and trader participation.

Exploring the average LAND prices compared to ETH prices provides additional insights. While LAND transactions primarily utilize MANA, the native cryptocurrency of Decentraland, a noticeable correlation between the average LAND value and ETH prices exists in specific periods. This synchrony underscores the interconnected nature of these variables.

In conclusion, this scientific exploration sheds light on the multifaceted connections between NFTs, the Metaverse, and ETH prices. Affordability considerations, evolving user behaviours, and intricate market dynamics contribute to the nuanced relationships observed. As the blockchain landscape continues to evolve, these insights offer valuable perspectives for navigating the complex intersection of innovation and market dynamics within the cryptocurrency realm.

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Odkrywanie wzajemnych powiązań: NFT, Hype Metaverse i dynamika cen Ethereum

Streszczenie: Badanie powiązania między cenami tokenów niezamienialnych (NFT), Metaverse i Ethereum (ETH) ujawnia niuansową zależność. NFT, unikalne aktywa cyfrowe przechowywane w łańcuchu bloków Ethereum, cieszą się dużym zainteresowaniem na całym świecie od początku 2021 r., szczególnie na platformach takich jak OpenSea. Chociaż istnieje początkowa korelacja między wzrostami cen ETH a zwiększoną sprzedażą NFT, późniejszy spadek cen ETH prowadzi do wzrostu sprzedaży NFT, co sugeruje zwiększoną przystępność cenową. W Metaverse, reprezentowanym przez projekty takie jak Decentraland, związek pomiędzy liczbą sprzedanych jednostek Land a cenami ETH jest niespójny. Dodatkowo badanie średnich cen LAND w porównaniu z cenami ETH ujawnia pewną korelację w poszczególnych okresach. Podsumowując, analiza sugeruje złożoną interakcję pomiędzy cenami NFT, Metaverse i ETH. Chociaż początkowe trendy wykazują korelacje, elementy takie jak przystępność cenowa i zmieniająca się dynamika rynku przyczyniają się do zniuansowanej relacji. Zrozumienie tych elementów jest kluczowe dla dokładnego przewidywania ich wpływu na cenę ETH.

Słowa kluczowe: NFT, Metaverse, ETH, Ethereum