PARALLEL WORLDS? A COMPARISON OF VIRTUAL ESTATE AND REAL ESTATE

ABSTRACT

The Metaverse has risen in popularity in recent years, with an increase in virtual reality (VR) content and environments. This research investigated whether trading patterns within Decentraland, a decentralized VR platform, were similar with traditional real estate markets. Previous studies have analyzed the DeFi ecosystem, market efficiency within Decentraland, and player and gameplay experience. The findings of this searched showed minimal correlation between virtual and traditional real estate, and virtual real estate matching the interest of the public rather than being a stable asset class. The findings of this research contribute to a better understanding of the evolving landscape of decentralized economies, virtual spaces, its implications for both virtual and traditional financial markets. Further research is required across virtual real estate and more traditional real estate data to confirm our findings.

INTRODUCTION

In 2021, Decentraland, a virtual and decentralized real estate platform, attracted both the public and crypto community. This study sought to examine potential relationships between virtual real estate in Decentraland and traditional real estate. Contrary to expectations, price movements had negligible correlations, while virtual parcels strongly corresponded with the cryptocurrency market. These findings provide insight into how decentralized economies work as we navigate the evolving metaverse.

Decentraland is a 3D virtual world that features an immersive environment with music, animated 3D characters, and a real-time gaming experience where the player can see other players' movements, outfits, and even voice chat with them. Players can connect a MetaMask wallet to trade, buy, sell and gift wearables, emotes, names, and parcels. Parcels are virtual plots of land within the game, whose owners can edit content, build, and conduct sales on the parcel. In addition, parcel owners can help run Decentraland, along with holders of MANA, Decentraland's native token.

In 2018, Decentraland hosted 2 major land auctions and all parcels in Decentraland were sold. Since no further land will be created, players must acquire parcels through the marketplace. This dynamic is like the real estate market, where land is limited and buyers must purchase homes from others. At time of writing, the cheapest parcel in Decentraland can be bought for $240.60 [1], the most expensive parcel sells for $27.21M, and the average transaction price is $1,911.30 [2].

METHODOLOGY

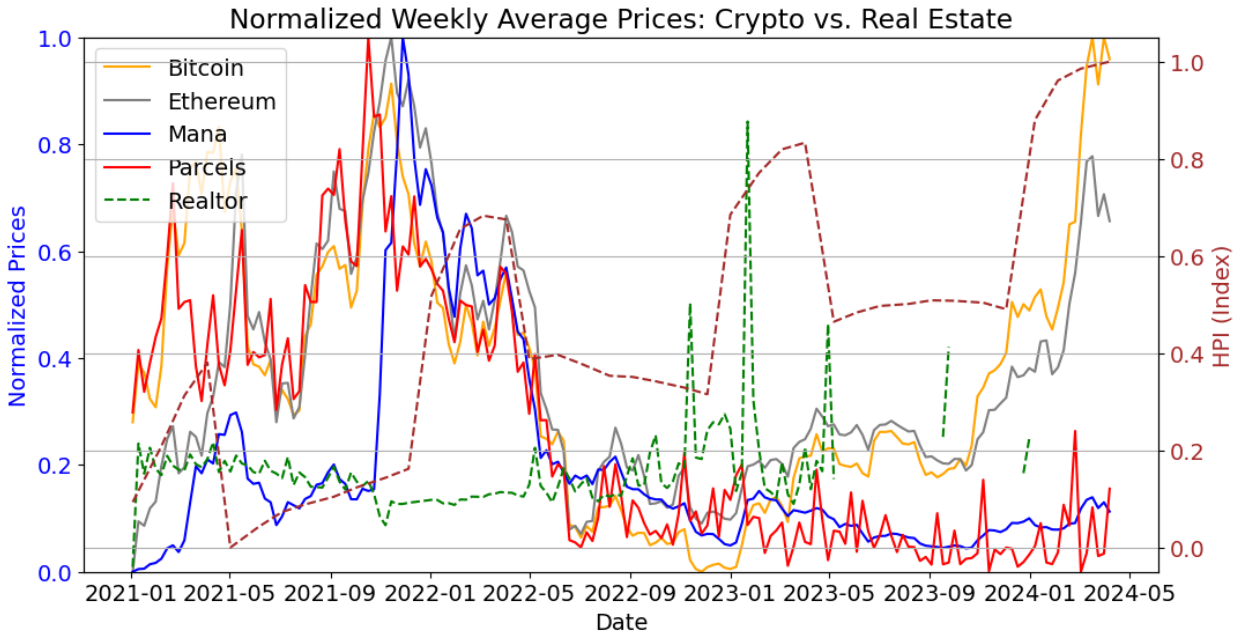
In April 2024, we collected the daily total price of parcels traded by querying Decentraland's subgraph on The Graph [3]. However, on June 12, 2024, the Graph service was sunsetted [4], meaning we could not make further queries for data from the LAND API. Prices were recorded in WEI, which were converted to ETH. We converted the ETH prices to USD, as well as the value of BTC and MANA to USD, using the Top 2000 Crypto Historical Data from Kaggle. [5]

For traditional real estate counterparts, we used the House Price Index (HPI) dataset from the Federal Housing Finance Agency [6]. We also used the USA Real Estate Dataset from Kaggle [7] for selling dates and prices of houses on the Realtor Marketplace. We filtered all data to be from January 2021 to May 2024.

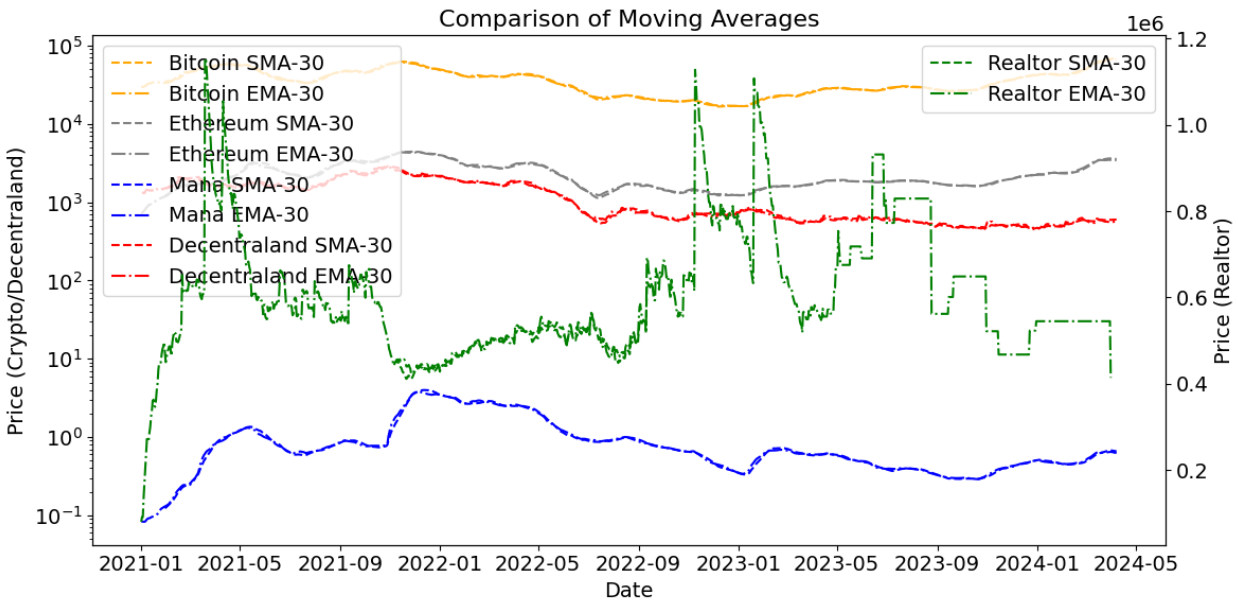
To analyze transactional data from both the Decentraland and traditional real estate market, we focused on trading volume and frequency, and price averages and changes. We aim to identify trading and supply and demand patterns, as well as correlations between market dynamics between Decentraland and traditional real estate.

RESULTS

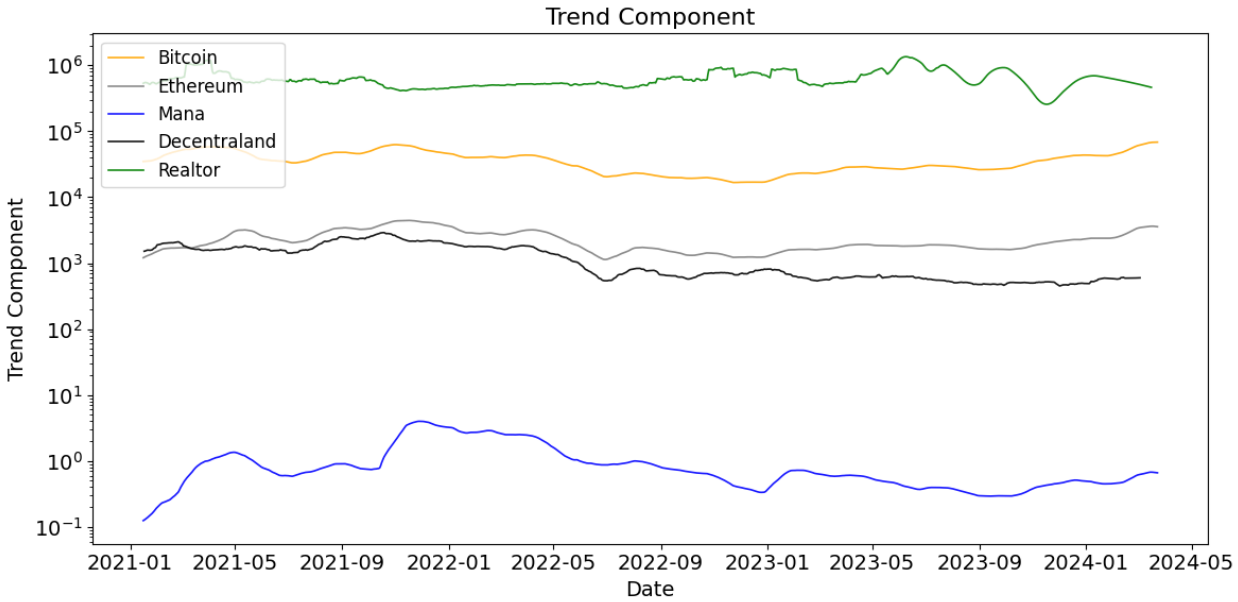
We found that before May 2022, parcel prices were almost the same as BTC and ETH, while the price of MANA followed parcel prices with a time lag of a month. However, after the TERRA-LUNA crash in May 2022, both the prices of parcels and MANA fell and did not recover. Meanwhile, BTC and ETH recovered to pre-crash prices after April 2024.



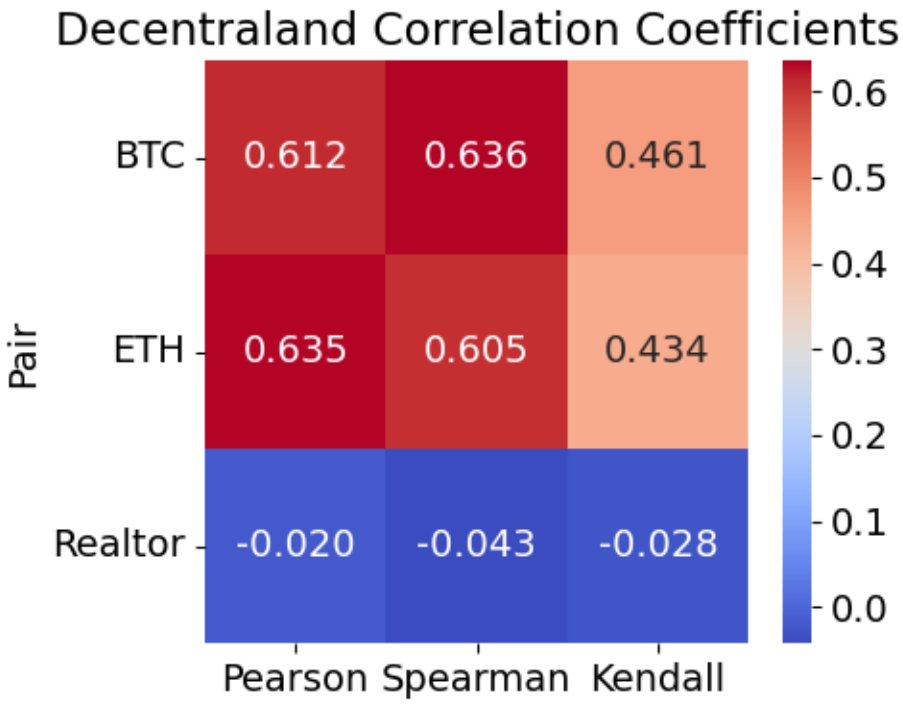
We also found that the prices of MANA and Decentraland were up in 2022, when there was high public interest in Metaverse.



We also found that the trend of real estate prices fluctuated more than cryptocurrencies, and that MANA was the most volatile asset.



We found that Decentraland has a moderately strong positive correlation (greater than 0.5) with BTC and ETH, measured using the Pearson and Spearman correlation coefficients. When using the Kendall correlation coefficients, we found a weak positive correlation (greater than 0.3) with BTC and ETH. However, across Pearson, Spearman, and Kendall correlation coefficients, Decentraland has no significant correlation with real estate prices from the Realtor marketplace.



The findings show that there is a minimal correlation between prices of real estate in Decentraland and the real world. However, since the findings show that traditional real estate prices are volatile, the dataset may be lacking enough data points or not representative of the full market.

CONCLUSION

The rising popularity of the Metaverse, including platforms such as Decentraland, signifies an important shift in how people engage with digital environments. Volatility in the broader cryptocurrency market corresponds to fluctuations in the value of virtual real estate. However, since the research showed real estate prices were more volatile than cryptocurrencies, which are known for being an unstable asset class, our findings may not be accurate. Research with more housing price data is required, such as using data from other housing marketplaces or aggregating sales from states around the US. Research with virtual real estate from platforms other than Decentraland may also provide a more complete understanding of the market.

Further research is required to examine how policies governing virtual estate compare to real estate housing regulations, particularly regarding property rights, ownership structures, and trading. A thorough analysis of these factors is essential to conclude whether virtual real estate is a stable investment class or if it will continue to follow the unpredictability of crypto markets. In addition, examining how these policies influence market dynamics in virtual real estate markets can help give insight to regulatory challenges and opportunities presented by Metaverse.

This understanding can inform investors, economists, policymakers, and developers about the potential opportunities and risks associated with virtual real estate investments. Overall, the research shows large divides between virtual and traditional real estate market dynamics and helps contribute to a better understanding of trading patterns in the Metaverse.

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