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TRENDS OF CRYPTOCURRENCY DEVELOPMENT DURING THE PANDEMIC

On December 31st, 2019, the World Health Organization received a report about the first outbreak of an unknown virus, with characteristics of pneumonia, in the city of Wuhan in China. Later, the Chinese Center for Disease Control and Prevention identified it as the new coronavirus, known as COVID-19. On January 30th, 2020, the World Health Organization declared an international public health emergency due to the imminent increase in infections around the world [1].

Measures put in place by governments to combat the virus and curb its spread, like lockdowns in the year 2020, had a direct impact on big corporations, small and medium-sized businesses, and international trade. This resulted in significant challenges for the global economy, causing several markets to decline, and leading to a worldwide economic downturn [2]. Furthermore, the initial impact of lockdowns and quarantine measures was a significant decrease in consumer spending, which negatively affected the production side of the economy. Those who were unable to work from home faced difficult choices, such as taking pay cuts or losing their jobs, which further impacted their savings. Cryptocurrency emerged as a useful alternative to traditional banking during this time, providing a way for people to safeguard their savings from the economic downturn. This was particularly beneficial as the lockdowns were expected to last for an extended period.

From the perspective of market capitalization, since 2019, that of cryptocurrencies has experienced an upward trend despite some short-term fluctuations. At the end of 2019, the total market capitalization of cryptocurrencies was around 190 billion dollars, but it significantly increased at the end of 2020 to around 660 billion dollars and in November 2021 it reached a peak of around 2.9 trillion dollars [4].

On May 11th, 2020, one of the major events in the cryptocurrency market was the third „Bitcoin Halving“. This is a programmed occurrence that occurs when the Bitcoin blockchain reaches a certain length and reduces the mining rewards per block in half, to its current 6.25 BTC per block. The halving was designed to extend the currency's lifespan, as there will only be 21 million BTC created, and to counter inflation. However, it also had an impact on the mining industry. In the past, halvings have caused concern about how miners would adapt to the decrease in profits, but they have also been followed by extended periods of bullish activity and increases in the value of BTC, resulting in greater profits for miners despite the reduced rewards.

This year the cryptocurrency market has seen significant advancements in terms of regulations and interest from institutions and big brands. In July 2020, the OCC (Office of the Comptroller of the Currency) issued a letter allowing US banks to hold crypto assets on behalf of clients, indicating increasing acceptance among key players in the economy [3]. This led to advancements in research and development of Central Bank Digital Currencies (CBDCs) as a solution to include marginalized populations in access to banking and support unrestricted cross-border transactions. Additionally, in October, PayPal announced plans to allow users to buy, sell and hold cryptocurrencies through their system in 2021.

In terms of the US dollar quotation of two of the largest cryptocurrencies on the market, Bitcoin and Ethereum, it can be observed that, during the last month of 2019, the price of Bitcoin oscillated between \$6594 and \$7633. During the first report of the virus, it had an approximate value of \$7200. Ethereum had values between \$121 and \$152 and on that day its value was approximately \$130. During the month of January, Bitcoin tended to rise and reached around \$9500 on the 31st, Ethereum followed the same pattern reaching a peak of \$185 on that day. During this period, Bitcoin reached a price of \$8707 on February 29th and dropped to \$6423 on March 31st. On the other hand, Ethereum reached \$230 in February and dropped to \$130 in March [5, 6].

In April 2022, the price of Bitcoin was around \$7000, in May and June the price fluctuated between \$8200 and \$10000; Ethereum went from quoting \$137 on April 1st to reaching \$2260 on April 30th. In May the price of Ethereum

uctuated between \$177 and \$250 and in June the price was around \$230 [5, 6]. Both currencies showed a decrease at the beginning of the period, however, they managed to rebound in May, showing subsequent relative stability, despite the global recession and fall of other markets such as the oil market [7].

The prices of Bitcoin and Ethereum remained on the rise; by the end of October, the prices were around \$13400 and \$390, by the end of November they were \$18500 and \$560, and by the end of December they were \$28000 and \$700, respectively [5, 6]. We can see that both cryptocurrencies showed an increase in their quotations by the end of December.

The Decentralized Finance (DeFi) sector experienced a rapid increase (parts I and II) due to both the growing popularity of blockchain-based financial services during the pandemic and the launch of the COMP token by Compound, one of the leading DeFi platforms, which enabled public governance of the platform. As the economy was expected to be impacted for an extended period, the derivatives market and digitization of assets gained momentum. The DeFi sector saw an unexpected surge, going from \$1 billion in Total Value Locked to nearly \$4 billion in two months (from late May to late July), and reaching \$10 billion in September and closing the year at nearly \$15 billion.

In 2021, Bitcoin saw a significant amount of investment from global companies. In February, Tesla's CEO, Elon Musk, announced that the company had invested \$1.5 billion in Bitcoin and would also accept it as a form of payment. Following this announcement, the price of BTC rose significantly in March. As of October 2021, Tesla held approximately 43200 BTC, valued at around \$2.5 billion. Additionally, MicroStrategy's CEO, Michael Saylor, added more Bitcoin to the company's reserve. By December 2021, the company had acquired 124391 BTC, worth \$3.75 billion.

In 2021, Bitcoin went from trading around \$30000 in January to reaching around \$65000 in April, while Ethereum went from \$700 in January to reaching \$4000 in May. However, both Bitcoin and Ethereum started to falter around similar dates, so Bitcoin began its downward trend from April, reaching around \$30000 again in July and Ethereum began to fall in May to \$1810 on July 25th [5, 6].

In the midst of the pandemic, the largest cryptocurrencies in the market gained a considerable boost, however, in the second quarter of 2021 they suffered a pronounced decline in their quotations, which could be closely related to three very important events:

On May 21st, 2021, Elon Musk announced that Tesla would no longer accept Bitcoin as payment due to its carbon footprint, which caused concern among investors who sold their BTC to protect their investments, increasing the supply and causing a drop in the price of Bitcoin on that trading day. He

also clarified that it does not mean they would stop supporting the cryptocurrency [9].

On May 18th, 2021, China reiterated its ban on banks offering services related to cryptocurrencies and warned users about the risks. Although this ban has been in place since 2017, many investors interpreted the announcement as a recent ban, causing fear and massive sales [8].

On May 21st, 2021, the Chinese government warned that it would take strong measures to stop Bitcoin mining and cryptocurrency trading activities. This warning caused concern among Bitcoin mining companies in China, as many of them were based in the country due to low energy costs. Additionally, according to the Cambridge University Index, Chinese miners accounted for more than 71% of the network's total processing power, or «hash rate», from September 2019 to April 2020 [10].

El Salvador made history by being the first country to adopt Bitcoin as a legal currency alongside the US dollar. The law came into effect on September 7th, 2021, three months after it was passed. The government also launched Chivo wallet, which allows citizens to make payments in Bitcoin. Social media platforms were filled with people sharing their purchases made in BTC at popular retailers such as Starbucks, Pizza Hut, and McDonald's.

The Ethereum London hard fork was implemented in August 2021 as the first step in the transition to Ethereum 2.0. Ethereum Improvement Protocols (EIPs) have been the focus as they are crucial for the merger with the proof-of-stake Beacon Chain. One key factor is the built-in ETH burn mechanism, which isolates a portion of ETH used to pay transaction fees.

NFT games gained popularity in the 2021 year by allowing players to monetize their gameplay and skills. One example is Axie Infinity, a play-to-earn NFT game developed on the Ethereum blockchain, which saw a large user base during the pandemic. Many users in developing countries, such as the Philippines, were able to earn income by playing the game when they were unemployed. Other popular NFT games include Splinterlands, Gods Unchained, The Sandbox, and Sorare.

After years of speculation, Proshares, a specialized exchange-traded products provider based in Maryland, launched the first-ever Bitcoin ETF on the New York Stock Exchange in October 2021. The launch was a huge success as the funds closed the day with a 4.8% increase in its price. The trading volume on the first day was an impressive \$1 billion, making it the second-most heavily traded ETF. Bitcoin reached \$66,000 on October 21, 2021, while Ethereum hit \$4,724 on November 11th, 2021 [5, 6]. During the months of November and December 2021 and January 2022, the value of Bitcoin began a steep decline, reaching a market price around \$35,000 on

January 22nd, 2022; although it managed a slight recovery in its price to reach again \$47500 on March 29th, the sharp drop continued, reaching \$19000 on June 18th. During the second half of 2022, the price of Bitcoin has remained fluctuating, reaching a maximum of \$24500 on August 13th and a minimum of \$16200 on November 28th [5, 6].

Ethereum also followed the path of Bitcoin, in this way, on January 24th, 2022 it reached a market price around \$2440, on March 4th it recovered the value of \$3500, although the decline continued until reaching \$1066 on July 2nd. Since then, until December 2022 its price has been fluctuating between the minimum of July 2nd and the maximum of August 14th corresponding to \$1900 [5, 6].

As we can see, the year 2022 was a surprise for the cryptocurrency industry, as the market value fell significantly from its peak of nearly \$3 trillion at the beginning of the year. Due to factors such as global monetary tightening and the ongoing pandemic, the value of LUNA dropped and famous institutions like FTX went bankrupt.

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EMPLOYING SWOT ANALYSIS IN MAKING STRATEGIC MANAGEMENT DECISIONS TO ENSURE THE ENERGY SECURITY OF THE COUNTRY

In today's challenges, energy security of the country is a global problem. The implementation of new engineering and design solutions in energy supply systems, which provide the integrated use of renewable energy sources, will help to solve an important economic, scientific and technical problem of reducing the consumption of traditional fuel and energy resources for Ukraine.

Energy security is closely related to energy independence – it is the level of independence of the country's leadership in the formation and implementation of policy, independent of external and internal interference and pressure [1].

There is an increased interest in the use of non-conventional renewable energy sources in various sectors of the economy all over the world. The driving force of this process is changes in the energy policy of countries with structural reorganization of the fuel and energy complex related to the environmental situation and the transition to energy and resource saving technologies in energy, industry, housing and communal services, etc.

The main directions of improving energy efficiency and realization of energy saving potential are not only the mentioned technological modernization of energy