

## ANALYZING THE ACCEPTABILITY AND CHALLENGES OF THE CRYPTOCURRENCY MARKET

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### ABSTRACT

Cryptocurrency is a medium of exchange which is digitally encrypted, decentralized and is based on the blockchain technology. Even though cryptocurrencies are unlikely to substitute traditional fiat currencies, they have the potential to completely transform the way in which global financial markets interact with each other. Cryptocurrencies have the power to create a free flowing trade system with minimum fees. A major feature of cryptocurrency is its organic nature, providing the currency immunity against the manipulation and interference by the Government. There are different factors which affect the investing decisions of different players in the cryptocurrency market. Investors will be encouraged to invest in cryptocurrency if it can be classified as a store of value, making it an attractive investment instrument among the various asset classes. Cryptocurrencies have their own pros and cons. This paper analyzes, in depth, the various challenges and risks that stand in the long term expansion of the market. In addition to this, the paper elaborates on the advantages and opportunities available in the future. Since, the

cryptocurrency market is evolving with a rapid speed and has shown tremendous growth, a detailed analysis has been made regarding the potential of cryptocurrencies. Cryptocurrency has the possibility of becoming a future currency.

**Keywords:** Cryptocurrency, Investment, Blockchain, Digital currency, Cryptography **JEL Code:** E42, G28, G11

### 1. INTRODUCTION

Cryptocurrency is digital currency, which is growing at a rapid speed. Cryptocurrency is a type of digital currency that can be used to buy goods and services. It can be viewed as a means of investment and exchanged for other traditional currencies such as cash. One of the most prominent cryptocurrencies, Bitcoin, for example, may be traded and redeemed for cash in the form of USD. What distinguishes bitcoin from a country's official currency is its decentralised nature, which refers to how the ledger of transactions is recorded openly on a computerised system for everyone to see. Everyone can see the transactions that are taking place, but each transaction has anonymity in the form of digital wallet keys, which are long numerical and letter combinations that are not related with anyone or anything publicly.

Cryptocurrency is a virtual currency that generates money and verifies transactions using encryption called cryptography. Transactions are recorded in a public ledger known as the Transaction BlockChain, and new coins are created through the mining process. Unlike traditional fiat money which is issued by the central bank, cryptocurrency is created by mining using cryptography and the decentralised technology of blockchain. In order to conduct these mining activities, miners need to incur huge expenses in purchasing hardware and software. A new miner will first have to register such a wallet and encrypted banking which is eligible to store and accept crypto. Mining works by way of validating a transaction by linking it to a block which was earlier accepted. The blockchain will record every transaction and assign a unique ID to each block. This system of verifying a transaction is called proof of work protocol wherein the miners will have to solve an algorithm or puzzle using computer mathematical processes in order to validate that they are real identities. The user will be charged for solving this problem and the miner who solves it will be rewarded with digital coins in their wallet. The blockchain will prevent any double spending by fraudsters who may try to manipulate or forge the ledgers.

As of 2020, cryptocurrency has been used as a decentralised alternative to traditional fiat currencies like the US dollar (which are normally backed by a central government). Meanwhile, bitcoin technology, such as smart contracts and blockchain, has been applied to a wide range of uses, including apps, cloud computing, and more. When Bitcoin was founded in 2008, it became the first decentralised digital currency and in 2009, it went public. Bitcoin has the highest market capitalisation in comparison to other cryptocurrencies as of 2021. Other currencies, such as Ethereum (ETH), Ripple (XRP), Litecoin (LTC), and others, are also notable. Currently the cryptocurrency Market currently has around 6000 different currencies. There has been a great degree of expansion in the cryptocurrency market in the past decade.

This paper seeks to provide a complete analysis of the different factors that cause a cryptocurrency to be accepted by investors and consumers. The investor sentiment and reaction to cryptocurrency is analysed. This analysis is necessary as cryptocurrencies can be successful at a later stage, as a speculative good for an investor, or as a mode of payment for a consumer. Thus, in order to know if we can fully exploit these advantages and be prepared for any threats that crypto has to offer to us we need to have an analysis to be used to rely upon in the future. In the paper we also analyze the

potential of cryptocurrency as an investment instrument and to see if cryptocurrency can be classified as an asset class. There are different factors that need to be assessed by investors, to analyze if an addition of cryptocurrency in their investment portfolio will be favourable or not. The potential of cryptocurrency to act as a store of value is also assessed in order to have a better picture, in order to classify it as an investment instrument or asset class.

This paper focuses on the critical factors that are The paper also discusses in detail the current challenges and future prospects of cryptocurrency. This paper focuses on analyzing the acceptability and the obstacles faced by the market. The current regulatory framework and financial institutions are not well built to incorporate such a technology. If cryptocurrency

becomes a standard method of payment, then it will demand a complete reform of the existing economic system. The cryptocurrency market capitalization is growing despite the multiple hurdles this market faces.

### Background And Motivation

Our research paper revolves around analyzing the acceptability and challenges of the cryptocurrency market. The constant evolution taking place in cryptocurrency has urged us to choose this topic for our research. To be able to understand how the market dynamic works has become our motivation to choose this topic to make ourselves more informed and help us better understand new financial innovations. After studying in detail the various concepts such as inclusion of cryptocurrency in a diversified portfolio, bitcoin mining, the various advantages and disadvantages have helped in bringing out a clearer picture of how cryptocurrency has evolved. Even though the interest has attracted many enthusiasts, there are still many who are not aware of the various opportunities and future prospects of cryptocurrency.

## 2. LITERATURE REVIEW

After a careful Observation, **Ryan Farell (2015)** came to a conclusion that cryptocurrency has evolved radically in the past decade, he believes that cryptocurrency is basically a chain of digital signatures which replaces the the requirement of a trusted third party. The blockchain technology aims to work as a solution for the double spending problem. The double spending problem is associated with the possibility and risk of digital currency being duplicated and spent multiple times. There is always the possibility of digital files being copied, however the bitcoin technology records the ownership and timestamps in each transaction and sends it across all the nodes, which are connected on the cryptocurrency network software. The future of cryptocurrency is dependent on two major factors. First, is the government regulations, it is essential to establish their legal status in order to standardize cryptocurrency as a method of payment. While the governments are experimenting on different ways of regulating cryptocurrency, they all aim to seek the same i.e preventing fraud, consumer protection, economic stability and feasible taxation methods. The second factor affecting long term growth is

the public perception. The public acceptance for cryptocurrency is of prime importance as it ensures its future stability. It is only the growth in the number of users of cryptocurrency networks that will ensure stability in the system of virtual currency.

It can be noted that some of the greatest advantages of cryptocurrency revolve around it's confidentiality, privacy and anonymity. However, it is argued that the greatest advantage of cryptocurrency is in fact it's transparency. The cryptocurrency network of payment allows all it's participants to see all the transactions taking place. Unlike banks where the participants only have knowledge with respect to their accounts. The organic nature of cryptocurrency makes it immune to government interference, manipulation and corruption. **Ivaschenko (2016)** believed that the major drawbacks with cryptocurrency were regarding it's volatility and massive risks involved in investing. The value of bitcoin for example depends on the statements declared by governments of different countries to a huge extent. The risk of illegal activity funding and money laundering are also a major cause of concern.

According to **Peter D. DeVries (2016)**, even though cryptocurrency is in an infancy stage, it has still managed to create a significant effect in the global markets. The blockchain technology in particular which is behind bitcoin, can single handedly be the backbone of new technological innovations. The cryptocurrency market has the potential of facilitating a strong virtual free trading system. One of the major factors that contribute to the future stability of a cryptocurrency like bitcoin is associated with it's immunity to inflation arising from it's overabundance and government restrictions. It is believed that if cryptocurrencies became a standard method of payment and transaction, then the current practices will need to be completely transformed in order survive in the competitive nature of cryptocurrencies.

**Yukun Liu & Aleh Tsvinski (2018)** established the differences between cryptocurrencies and stock market while stating that returns on cryptocurrencies equals risks from stock markets. Returns on cryptocurrency can be determined by two factors specific to its markets- investors' attention and momentum. High investor attention predicts high future returns and vice-versa. There was no consistent evidence of systematic commodity exposures in crypto. Upon exposure of various industries to crypto, it was established that Bitcoin returns are more with growth and high profit firms and

that Ethereum is better than Bitcoin as its returns comove with the growth rather than value firms. A popular theory that supply factors such as mining costs, price-to-dividend ratio, or realized volatility are useful for predicting the behaviour of cryptocurrency returns has been put to doubt. Moreover, it came to be known that blockchain technology embodied in crypto has a potential to affect a number of important industries.

**Linda Schilling & Harald Uhlig (2018)** analysed the coexistence and competition between traditional fiat money (Dollar) and cryptocurrencies (Bitcoin), Bitcoin price evolution and interaction between Bitcoin price and monetary price which targets Dollar. In expectation, Bitcoin price has to rise if not all Bitcoins are spent on transactions and are held back in a hope to spend them later at an appreciated value while earning interest. They believed that the present bitcoin price will equate the expected price of tomorrow and the correction term for risk aversion. It has been inferred that block rewards, which were thought of as a tax on bitcoin holders, are actually financed by Dollar taxes imposed by the Central Bank. Since, the dollar inflation target is guaranteed by the Central Bank while bitcoin mining is decentralised, implications for monetary policy has been assessed in two scenarios, first being when bitcoin price evolves exogenously driving the dollar injections to reach the inflation target, and second being, inflation target reached by monetary injections which would influence the prices of bitcoins.

A survey focusing on the microeconomics of cryptocurrencies by **Hanna Halaburda (2020)** examines the robust nature of a highly decentralized network without any clear owner and what drives its demand (i.e., to what uses agents are putting it), supply (i.e., what technological properties allow it to operate), value (i.e., what determines its trading price in the market) and competition (i.e., how strong is substitution between different varieties of the new goods or service and others with similar functionality). It analyses the outcome of interactions between supply and demand and how these impact the price of bitcoin. Bitcoin is a digital cash ecosystem, guided by three main components- the users, miners, and blockchain. Even though it uses modern microprocessors and relied on cryptography advancements, few components

required large advances in technology and substantial reductions in costs of supply. Instead, the protocols governing bitcoin based on the contributions in computer science could be said to scale with existing technology rather than rely upon it.

**Fauzi, Norazha & Othman(2020)** has systematically analysed the various aspects of cryptocurrency starting from the origin of bitcoin followed by covering the advancements made in the mining and blockchain system. They have further analysed the opportunities and advantages of cryptocurrency like security of its technology, low cost of transaction and high return on investment. The challenges of cryptocurrency are original to this research paper like law and regulation, high energy consumption, possibility of crash and bubble, and the attacks on networks. At the end, the author discusses the future of cryptocurrency and its applications.

### Factors Causing Cryptocurrency to be Accepted By Investors And Consumers

#### Investors

Cryptocurrency investors can be categorized into two main categories: miners and traders. **Miners:** Users who pool their computation resources, run algorithms using computers and sometimes use specialized devices to find a coin to conduct pool mining and acquire consistent payouts are called miners.

**Traders:** Traders are the people who buy and sell cryptocurrencies.

#### Factors influencing acceptance by investors:

**Electricity bills-** Apart from investing in the hardware, another principle cost a miner has to pay is for consuming energy and it has been observed that proof of work in mining of crypto has taken up more energy as compared to the rewards granted by solving a block. It requires high energy consumption and requires intensive computer capabilities to prevent the issue of double spending which is a breach of security. Mining, being expected to slow down within the next decade, only those miners with an ability to reduce cost of electricity consumption are expected to survive.

**Price volatility-** Cryptocurrency was introduced only around a decade ago which makes it difficult for the investor to rely on the past records to predict the profitability of his investment. It is thus said to be a weak commodity for a long term investment because of its volatility which is driven by speculation. It is difficult to determine its fair value due to the limited number of users which might lead to a loss in investment.

It could, however, be seen in a different light as investors looking for a long term gain need not worry about short term variations and just keep playing the game.

**Attack on network-** The decentralised technology of crypto makes the network vulnerable to manipulation and forgery. Miners carrying out activities using pool creation are open to two types of attacks, by pool operators, who can target the network by combining their resources in a pool, or by pool members, who can increase the computational power in a mining pool and destabilize it later on. These attacks can sabotage the pool's mining returns and its effectiveness which

can negatively influence an investor's decision to invest in crypto.

**Market attention-** It has been observed that the search queries and prices of crypto are directly related to each other, i.e., the prices of these cryptocurrencies increase with the number of searches on Wikipedia and Google Trends and vice-versa. This might influence an investor's decision as he could now predict an increase in future prices, as increase in the number of searches means that consumers are becoming more aware of this technology and may demand for it.

**Legal risks-** Investors will have to take various precautionary steps while investing in crypto due to increasing legal implications associated with it. Some of these risks include:

**Cryptocurrencies as Property-** Cryptocurrency being treated as a property means that investors are liable to pay capital gains tax, which is one of the most critical legal considerations which any investor has to keep in mind while making his decision

**Decentralized Status-** Having a decentralised status means that the cryptocurrency is not backed by any one central authority unlike the traditional fiat money. This results in freedom of investors from being accountable to those institutions, on one hand, while on the other, it leads to certain legal complications such as ownership issues and particulars of transactions.

**Business Registrations and Licensing-** Dealing in cryptocurrencies leads to various legal complications for businesses and companies. The sole responsibility of complying with legal procedures for their transactions falls on business owners and managers.

**Fraud and Money Laundering-** The belief of cryptocurrencies being used as a means to commit fraud and money laundering by certain organizations may influence the investors' decision to purchase and hold onto cryptocurrency and take on risk. This risk can be reduced by precautionary measures taken by cryptocurrency exchanges and investors, however, it can never be eliminated.

#### Consumers

**Perceived Risk-** Perceived risk can be defined as the possible losses a consumer may incur from the decisions he makes due to uncertainty of future. The risk of fraud, money laundering, double spending in the blockchain technology can negatively influence consumer's decision to use cryptocurrencies. In case of a crypto transaction, the level of trust of consumers is very low as, in case of traditional fiat money, any loss can be taken care of by the central authority, however, the same cannot be done in crypto due to its decentralised status. It can thus be concluded that perceived risk affects trust and behavioral intention of consumers negatively.

**Performance Expectancy-** It refers to the degree of improvement of performance of an individual by using a specific technology. It has been observed that price expectation of future holdings is one of the key factors to influence consumers' decision to accept cryptocurrencies. Due to the absence of a fair value, the price of cryptocurrencies is determined by the number of users which tends to increase if the users believe it will have high returns in the future. It can be concluded that performance expectancy influences the use of cryptocurrencies positively.

**eWom-** Electronic Word of Mouth (eWom) refers to any statement made by any customer about a product or company before many people through the internet to share their opinions and experiences. However, since these reviews are given by strangers, consumers face reliability issues. eWom is one of the crucial factors to affect consumers' decisions, so, it can be established that eWom may influence the trust and behavioral intention of consumers positively or negatively, depending on the people's reviews.

**Quality of the Website-** Quality of a website induces positive trust in cryptocurrencies as if they have confidence in the website, the issue of unfamiliarity with the technology will be reduced, giving consumers the perception of having control over the transaction, which will further encourage future transactions and higher risk operations.

**Cost of transaction-** Cryptocurrency transaction charges are lower as compared to traditional currencies. Unlike traditional modes of payment, where high rates of interest are charged for defaults in payments, no such thing can occur in crypto as remittance is made only once end-to-end users agree. Moreover, cryptocurrencies are available free of cost as long as there is internet due to the availability of data pricing.

**Unfamiliarity with cryptos-** Awareness of cryptocurrencies increases with the increase in the number of modes of payments used by the consumer. Moreover, due to a low level of financial literacy, explaining the concept of cryptocurrencies is difficult as it is an important factor in financial decision making. Higher financial knowledge is a trademark for financial decisions with more savings, smarter choices and higher participation level in using new modes of payment and vice-versa. Since, cryptocurrency is a fintech product, from the above observations it can be concluded that financial literacy affects the behavioral intention of consumers positively.



### Cryptocurrency as an Investment Instrument

While we began to analyse the classification of cryptocurrency as an investment instrument, it is beneficial to briefly look into its comparison with traditional money. Money is broadly defined

as a medium of exchange, a store of value and a unit of account. If we compare these features with cryptocurrency we will observe that like money, cryptocurrency also acts as a medium of exchange by eliminating the possibility of double spending i.e the possibility of a coin being spent more than once, this is possible because of the existence of the blockchain technology and it's associated cryptography.

In principle, cryptocurrency has the potential of satisfying the condition of a unit of account. Cryptocurrency must act as a store of value in order to classify itself as an investment instrument. The two crucial economic indicators that are considered with cryptocurrency is exchange rate and capitalization. To access the capitalization it is necessary to calculate the market value of the cryptocurrency in circulation by multiplying the number of crypto coins issued by one currency with the current value of the same currency.



years	market capitalisation
2014	10,706,799,616
2015	5,476,570,112
2016	7,148,669,952
2017	18,634,000,384
2018	641,042,612,224
2019	126,727,581,187
2020	192,955,886,232
2021	770,821,285,662

Source: <https://www.statista.com/statistics/377382/bitcoin-market-capitalization/>

According to this data, the market value has shown a huge jump from the year 2020 -2021. The cryptocurrency market is currently on the path of it's highest bull run till date. A major downfall can also be seen in the market capitalisation between 2017 and 2018, which clearly proves how volatile the market can become, there are many speculation about the reason for this bubble burst such as high amount of sell offs, Goldman Sachs abandoning plans of expanding a cryptocurrency trading desk and the possibility of huge capital gain taxes. The Global market value of cryptocurrency in 2019 was valued around 126 billion dollars, and at the same time the capitalization of the United states stock market was valued around 30 trillion dollars. So it can be clearly seen that, despite that increasing amount of price movement and media attention, the cryptocurrency market only comprises a small portion in terms of investment.

If we look at Bitcoin, one of the major cryptocurrencies it has been declared highly speculative, and having minimal correlation with the financial markets and the macroeconomic events. Since Bitcoin has no relation with any currency or commodity like Dollar, gold, etc. It cannot be used for hedging or risk management, making it less attractive as an investment instrument. This notion of cryptocurrency being a massive speculative investment has led to a decrease in the

possibility, for it being used in daily transactions. It is important to analyse the role cryptocurrencies play in an investment portfolio. An investment portfolio aims to create an optimal combination between risk and return. The goal is to maximise profitability and minimise risks. An ideal portfolio must be diversified in order to maintain stable returns. Diversification takes place in two forms, first it is within different asset classes, such as real estate, gold, bonds, etc. and the other is within the asset class itself. The lack of correlation of cryptocurrency with other asset classes, makes it a favourable option, because a fall in the value of any one asset class may not have the same impact on the value of a cryptocurrency.

A diversification within different cryptocurrencies is definitely encouraged, because of the competitive nature of this market. There can be a negative correlation between various cryptocurrencies, people might shift from one cryptocurrency to another, resulting in the fall in the value of one cryptocurrency and rise in the other. So it is advisable to have a broad and diversified investments even within the class of cryptocurrency as the high amount of negative correlation will often lead to the dominance of few particular cryptocurrencies over the market. Cryptocurrencies can generate considerable profits, in combination with a considerable degree of risk. The investment in cryptocurrency can be successful, if there is a diversification in holdings, the cryptocurrency has some liquidity, this means tokens which have negligible value and cannot be converted into dollars or the national currency should be avoided.

### **Current Challenges and Future Prospects**

#### **Current Challenges**

There are many challenges and obstacles in the cryptocurrency market. The biggest concern in the crypto market currently is the lack of security. Certainly, with hackings and data breaches frequently making the news, users are demanding increased protection for their assets and data. Hackers get increasingly sophisticated as technology advances. Exchanges are so vulnerable to hackers because they centralise the risk, so decentralisation may be a viable solution to increase security. Security is a serious and pressing issue. On a daily basis, almost \$2.7 million is stolen from exchanges, and this amount has been increased by 13 times due to the introduction of cryptocurrency.

The lack of transparency, accountability and professionalism from renowned institutions can be dangerous for the trade of digital currencies. It also might undermine the strength and influence of blockchain adoption in the industries beyond finance. Initial Coin Offerings (ICOs) are an excellent way to attract investors, but some of them have turned out to be scams. Exchanges must be cautious and strict in listing the crypto coins, and should only approve the trustworthy ones. There are also challenges with respect to the trading fees in these transactions. Some exchanges levy a single flat fee on all trades, i.e. 0.2 percent of the transaction value. However, many exchanges divide their trading fees into two categories: maker fee and taker fees. Maker fees may be higher than taker fees in some circumstances because the maker adds liquidity to the market, so the exchange 'rewards' the trader. Another challenge faced by the cryptocurrency market is due the shortage of liquidity. Liquidity is a major element of any market. When there is a scarcity of it, the atmosphere becomes unbalanced, and things spiral out of control. Orders are not placed/executed on time due to the decrease in liquidity leaving the door open for large holders to manipulate prices. Markets become more volatile and price slippages occur as a result of a lack of liquidity.

### **3. FUTURE OF CRYPTOCURRENCY**

Cryptocurrency is still a new technology and there are different speculations and predictions about its future. Cryptocurrency has a potential future even though it has fluctuating values. This digital asset finds a way to become a viable payment method. The future challenges do not protect the investors from the possibility of financial failure.

The future of cryptocurrency depends considerably on it's widespread adoption by big commercial houses as a method of payment. This will be possible only by strengthening the long term security, liquidity and value of cryptocurrency. The global acceptance and regulation of

cryptocurrency by different governments will decide its future prospects. The taxation and regulatory criteria are a big factor in affecting the future growth of cryptocurrency.

There are many cryptocurrencies that are already being traded, and there are many still to be released. There are many emerging currencies that are already competing with Bitcoin in terms of price and market capitalization. Additionally, all the currencies are interchangeable within themselves, with acknowledgement from the account holder. In future, Bitcoin might also be replaced with other fascinating coins that have better features. Therefore, in future, features such as security, low mining cost and security will prove to be major determinants in replacing Bitcoin. Since the cryptocurrency market is yet to be regulated, the users should keep in mind the practical drawbacks of this virtual asset.

### **4. CONCLUSION**

The Cryptocurrencies market is evolving with a rapid speed and has shown tremendous growth. The industry has its own achievements and obstacles. On analyzing the potential of cryptocurrency as an investment instrument we can conclude that cryptocurrency can be considered as a legitimate investment instrument. Cryptocurrency helps the investors in hedging the risks incurred while investing in other financial instruments due to the lack of correlation of cryptocurrency with global macro economic happenings. The involvement in the cryptocurrency market also allows the investor to be in a safer position by holding a diversified portfolio. A diversification in the investment of different types of currency within the cryptocurrency asset class is also highly encouraged, due to the negative correlation between different cryptocurrencies. It also must be noted that due to the high volatility and continuous fluctuation in prices,

cryptocurrency investment portfolios should be continuously adjusted and monitored in real time. In the long run, the potential of cryptocurrency as an asset class will depend on the future regulatory policies and market dynamics. A major factor that affects the future prospects and stability of cryptocurrency as a potential investment instrument is the increase in the number of players in the market.

The future of cryptocurrency will depend upon the new upcoming technologies which will ultimately benefit mankind. The improvement of cryptocurrency and its future will include improving the security issues, credibility and liquidity issues regarding the same. The application of knowledge of the management system will also be of utmost importance. More in depth research should also be done on various aspects of cryptocurrency looking at the future prospects and positive outlooks of cryptocurrency. The exact value of cryptocurrency can't be speculated because it is still new and upcoming. There is not much historical data to predict the future of cryptocurrency.

Guided by three main components, users, miners and blockchain, cryptocurrencies coexist as well as compete with traditional fiat money. After analysing the risk-return tradeoff of cryptocurrencies, it can be concluded that it is different from those of stocks, currencies, and precious metals as Cryptocurrencies have almost no exposure and relation to most common stock market and global macroeconomic factors. Analysing the acceptance factors of cryptocurrencies by investors and consumers, we observe that investors (mainly miners and traders) and consumers (users of crypto) react to different factors differently and their decisions are dependent on each other at times. Take, for example, in order to accept cryptocurrencies, an investor will analyse the demand for it, he will see whether or not the consumers are willing to accept it, and will then invest accordingly. On the other hand, from the consumer point of view, one of the main factors that can influence his decision is performance expectancy, they expect high return and secure transactions. For this purpose, the trader, or investor, will have to build trust in the consumer, which is a bit difficult as the investor himself faces difficulties in predicting the price of crypto. The investors are influenced by factors such as high returns, legal risks, electricity bills, market attention. The consumers are also influenced by some different factors- such as cost of transactions, unfamiliarity with cryptos, lack of technical knowledge- as well as factors similar to those of investors such as performance expectancy, perceived risk and trust but might react differently.

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