WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Cryptocurrencies And Their Risks

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ABSTRACT :

Cryptocurrencies have turned out to be a game changer in the financial world, promising users increased privacy and anonymity, efficient and cheap transactions. Despite all these advantages, cryptocurrencies do have some drawbacks such as high volatility in value, regulatory uncertainty, security issues and environmental concerns. Through a survey this paper tries to analyze the impact of these risks and tries to provide viable solutions for them. This research paper aims to provide an informed understanding of cryptocurrencies, and the risks associated with it thus helping investors and regulators.

Keywords: Cryptocurrencies, Blockchain, Finance, Bitcoin, Environmental

1. Introduction :

Cryptocurrencies have totally disrupted the financial world. It has introduced people to a new financial asset that offered them unprecedented growth in value, opportunity and innovation. Cryptocurrencies got into the spotlight with the launch of Bitcoin in 2009, because of these thousands of alternative cryptocurrencies and blockchain projects have risen. All this has started a revolution in the minds of people regarding their perception about money. At the same time cryptocurrencies have introduced a lot of new and complex sets of problems that need scrutiny. Cryptocurrencies use blockchain technology to offer peer-to-peer transactions among users without any intermediaries like banks. This helps users in lower transaction costs and get increased privacy. Users of cryptocurrencies face a major issue of its value being highly volatile. As their value fluctuates drastically in a brief time it often leads investors who aren't very cautious about heavy losses. Another major issue with cryptocurrencies is their uncertain regulatory environment [1]. Due to governments and regulators still trying to understand and set up regulations for cryptocurrencies, its value swings rapidly whenever there are any regulatory actions and announcements regarding it. Environmental and sustainability concerns are also a contentious issue in the world of cryptocurrencies. The high financial and environmental costs incurred during the mining of cryptocurrencies have raised serious doubts regarding the sustainability of cryptocurrencies as a viable alternative investment for the masses. Technological limitations have also caused a roadblock in the adoption of cryptocurrencies among the masses. Because of cryptocurrencies' unparalleled growth in the financial world, it's utmost important to understand and manage the risks associated with them to better inform and protect investors, policymakers and the public before it becomes too late. This research paper aims to analyze all such risks of cryptocurrencies in detail to learn their impact.

2. Literature Review :

A. Introduction to cryptocurrencies

The origins of cryptocurrencies can be traced back to the cyberpunk movement of the 1990s, it advocated the use of cryptography to protect digital privacy. However, it wasn't until 2008 when the world took notice of cryptocurrencies, as Bitcoin was introduced via a white paper by an anonymous person named Satoshi Nakamoto. This white paper outlined a peer-to-peer electronic cash system that would allow users to transact without the need of any central authority [4]. The core of all cryptocurrencies is supported by blockchain, it's a distributed ledger recording all transactions in a network [10]. It provides a public and immutable record of all cryptocurrency transactions ensuring transparency and prevents fraud. Each block in the chain coincides with a group of transactions so it's impossible to alter any transaction without altering the subsequent transactions, making blockchain highly secure and tamper proof. While Bitcoin remains the most popular and well-known cryptocurrency, as time has passed thousands of other cryptocurrencies have been launched. For example, Ethereum, BAT etc.

B. Regulatory and legal risks

Regulatory and legal risks are the most significant problems plaguing cryptocurrencies [7]. The decentralized nature of cryptocurrencies makes it difficult for traditional regulatory frameworks to be implemented, preventing a unified and often leading to an inconsistent global regulatory landscape [8]. One of the fundamental issues faced by regulators is the classification of cryptocurrencies. Different countries have taken different approaches to it,

some classify cryptocurrencies as an asset class, some as commodities and some as securities. This inconsistent and fractured approach in the regulatory space has caused uncertainty for investors and businesses trying to operate in the world of cryptocurrencies [9].

C. Market volatility and investment risks

Cryptocurrencies are infamous for their extreme market volatility and investment risks [2]. Nevertheless, they still provide investors and users with opportunities to create wealth. The main driver behind the market volatility of cryptocurrencies is the speculative nature of its value. Unlike traditional financial assets whose value is based on factors such as cash flow or physical properties, cryptocurrencies' value is based on market sentiment [6][11]. This leads to rapid increase and decrease in its value causing periodic fluctuations referred to as "bull run" and "crypto winter" respectively [5]. New and unsuspecting investors are often faced with huge losses due to market manipulation techniques such as "pump and dump", in which prices of certain cryptocurrencies are artificially inflated to create demand and then sell them off before the demand is lost leading to steep price crashes [3].

D. Security and technological risks

Even though blockchain provides several key security features, still cryptocurrencies face several vulnerabilities which can lead to losses for users and investors. One of the most common threats faced by the world of cryptocurrencies is hacking. Cryptocurrency exchanges often face an onslaught of cyber-attacks. For instance, the Mt. Gox incident in 2014 resulted in losses of hundreds of millions of dollars. Such incidents highlight the importance and strong security measures and weak points of decentralization. Usage of third-party wallets for story cryptocurrencies introduces additional weaknesses. Scalability is another area where cryptocurrencies are facing issues.

E. Environmental concerns

The energy and environmental costs associated with cryptocurrencies have raised serious concerns among the general populace. High emissions produced due to cryptocurrency activities have the potential to threaten environmental sustainability [15]. All such issues may have long term consequences on the environment, leading to climate change [14]. Some governments have started to propose bans on cryptocurrency mining to reduce these risks.

F. Outlook and potential mitigations

Even though cryptocurrencies may have several risks and issues, there are also some mitigation measures to address them. Studies have suggested better regulatory frameworks with balanced oversight that allow innovation along with user protection [13]. International coordination is required to implement such frameworks successfully and to make them consistent. Institutional trading may improve the cryptocurrency market by reducing speculative investment and legitimizing cryptocurrencies as a viable investment [12].

3. Design :

A. Research Design

This research used descriptive survey research design, which was conducted using Google Forms to collect data from respondents about their attitude and view towards risks associated with cryptocurrencies.

B. Data Collection Method

The data for this research was collected through an online survey via Google Forms. This survey was shared on various social media platforms.

C. Sampling

The sampling method used for this research is Convenience sampling, it was chosen because of its ease of use for such surveys. The target population was adults with varying levels of experience with cryptocurrencies, providing unique and diverse insights. Sample size was 53 respondents, even though the sample size is small it provides exploratory knowledge about the perception of cryptocurrency risks.

D. Survey Content

This survey asked for the following to cover various aspects of cryptocurrency risks:

1. Age group
2. Level of experience/knowledge with cryptocurrencies
3. Level of concern about government regulations
4. Regulatory risks
5. Effective mitigation measures
6. Level of investment risk
7. Market volatility risks
8. Strategies to avoid investment risks.
9. Level of concern about security of cryptocurrency holdings
10. Security threats
11. Mitigation measures for tackling security risks
12. Level of importance of environmental impact
13. Environmental concerns

The question types were mainly of multiple choice and checkboxes.

E. Ethical Considerations

The consent of respondents was obtained before the survey. Respondents chose to complete the survey voluntarily.

F. Limitations

Since this research was done using convenience sampling and a limited respondents of 53, it may not be suitable as a representative of all stakeholders involved in the cryptocurrency space. Also, since the responses are self-reported by the respondents it may not reflect their actual behavior and market condition. Being a survey, it restricts this research paper from digging deeper into the respondents' responses.

4. Discussion :

A. Research Problem

The rapid growth of cryptocurrencies has made it exceedingly difficult to catch up on the risks associated with it. Even though cryptocurrencies have many advantages, the risks associated with them need to be addressed with utmost importance, so that investors and stakeholders in the cryptocurrency space are well informed and protected. This research aims to address and understand the risks associated with cryptocurrencies. Through detailed analysis and review of these risks, we would be able to provide highly beneficial insights which could be used for creating mitigation strategies to counter these risks.

B. Research Objectives

1. Identifying major risks associated with cryptocurrencies: This objective aims to identify risks and classify them into distinct categories. For the categorization of these risks will be conducting a large-scale survey of cryptocurrency users to understand their experiences and concerns. Then we will be able to identify the risks and categorize them into financial risks, legal risks, technological risks and environmental risks from a user's perspective.
2. Analyzing the impact of the risks on the perception of cryptocurrency and its viability: This objective focuses on analyzing the risks to understand the user trust, belief, and viability of cryptocurrencies. Through the survey we will be able to figure out how cryptocurrency users perceive the risks and how they impact their view on the cryptocurrency space.
3. Proposing risk mitigation strategies: Based on the previous objectives we will be able to create mitigation strategies. These strategies would be directly addressing the concerns of users discovered through the survey.

5. Results :

A. Age group & Experience/Knowledge

As we can see from Fig. 1 most of the respondents of the survey were young adults. Approximately 52% were in the 18-24 age group, and about 41.5% were in the 25-34 age group. Respondents from the age group 35-44 were 3.8% and 45-54 were just 1.9%.

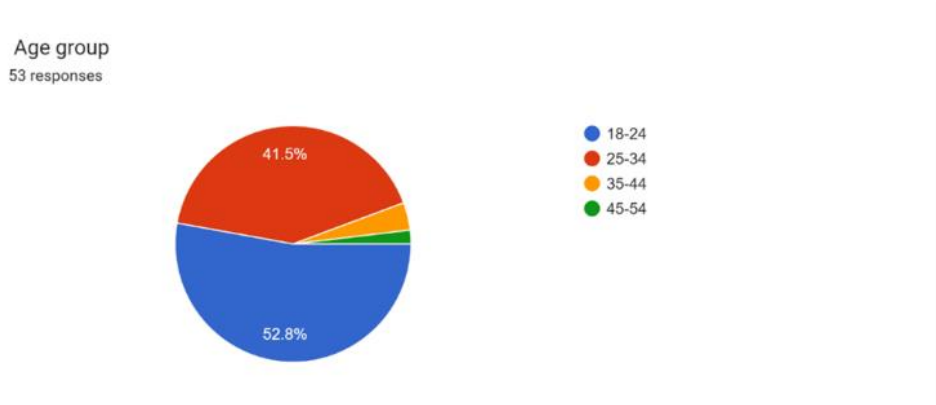
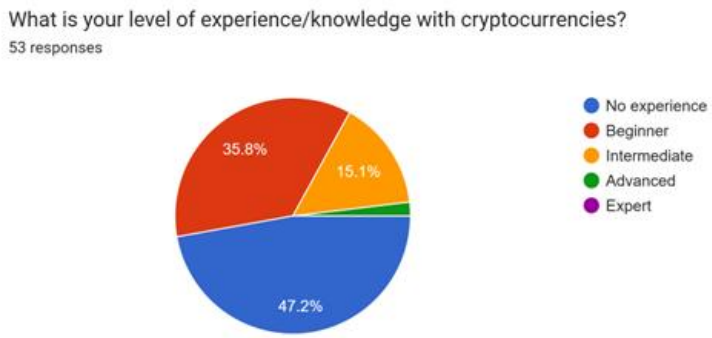


Fig. 1. Pie chart showing the age groups of the respondents of the survey.

Fig. 2 demonstrates that most of the respondents are beginners or inexperienced with cryptocurrencies. Even though most of the respondents were young adults, they still aren't very experienced with cryptocurrency.

Fig. 2. Pie chart showing the experience/knowledge of respondents regarding cryptocurrencies.



B. Regulatory concerns, risks & mitigations

Fig. 3 shows what types of regulatory concerns the respondents have. Most of the respondents were extremely or slightly concerned with government regulations. From this we can understand that everyone has some sort of regulatory concern.

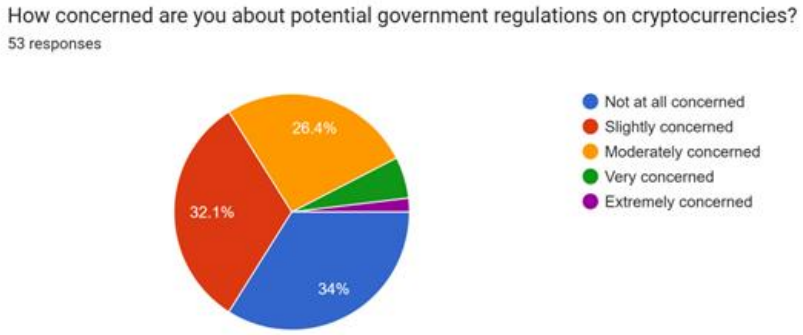


Fig. 3. Pie chart showing the level of regulatory concerns of respondents.

Fig. 4 shows distribution of regulatory risks perceived by the respondents. Almost all respondents perceive some form of regulatory risk demonstrating that they are aware of the regulatory difficulties faced in the crypto space, which potentially turns away a lot of new investors.

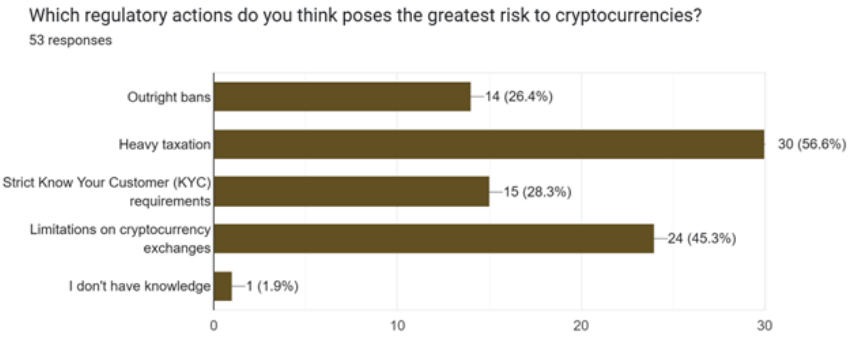


Fig. 4. Bar chart showing risks from regulation according to respondents.

Fig. 5 shows distribution of mitigations for regulatory risks perceived by the respondents. Majority of respondents consider transparency in the crypto space the best mitigation for regulatory risks. This indicates that a collaborative and transparent approach between regulators and entities in crypto space could eliminate the risks.

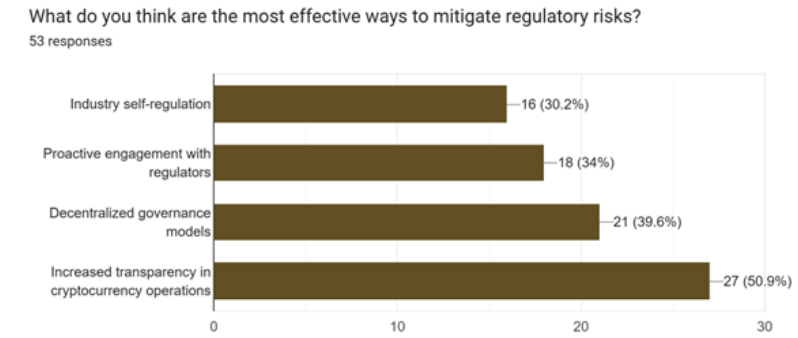


Fig. 5. Bar chart showing mitigations for regulation according to respondents.

C. Market volatility, investment risks & mitigations

Fig. 6 shows the distribution of factors that affect the market volatility of cryptocurrencies. It shows that the primary factors are limited adoption & liquidity and market speculation & manipulation. These factors make cryptocurrencies non-viable for general investors and users.

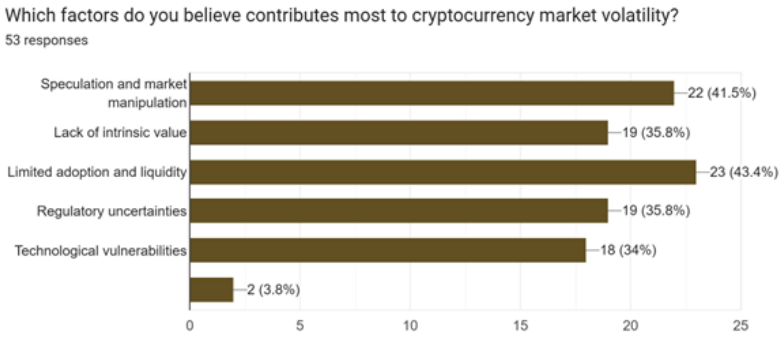


Fig. 6. Bar chart showing distribution of factors that affect market volatility according to respondents.

Fig. 7 shows the perception of respondents regarding the risk level cryptocurrencies compared to traditional investments. Majority of respondents consider that cryptocurrencies have somewhat higher risks when compared to traditional investments. This indicates that respondents are very well informed about the investment risk that cryptocurrencies carry.

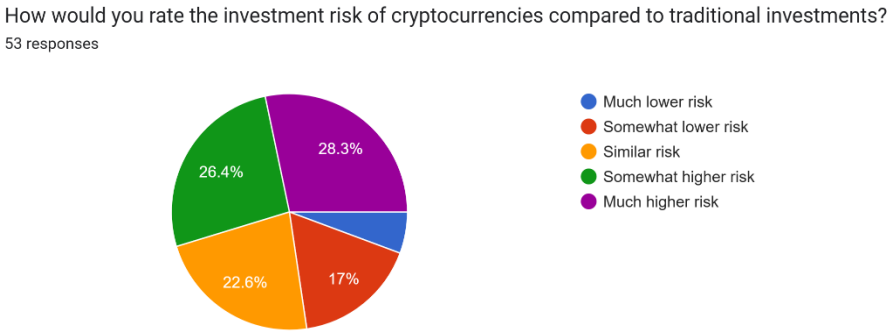


Fig. 7. Pie chart shows perception of investment risk that cryptocurrencies have compared to traditional investments.

Fig. 8 shows the distribution of mitigation strategies for investment risks according to respondents. The best mitigation strategy is diversifying the cryptocurrency portfolio. This indicates that users are aware of how risky their investments are and how they can avoid it.

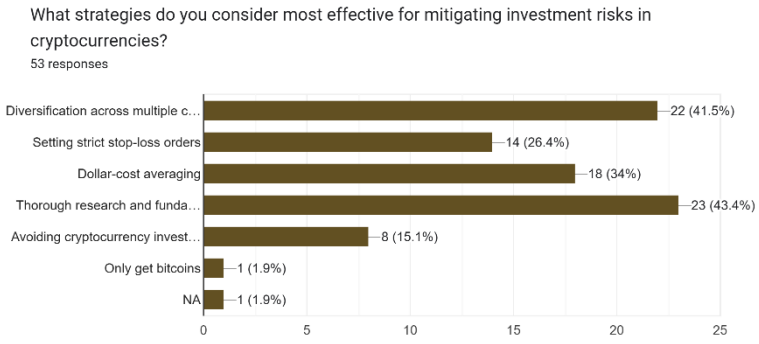


Fig. 8. Bar chart showing mitigation strategies for investment risks according to respondents.

D. Security

Fig. 9 shows the level of concern respondents have regarding security risks of cryptocurrencies. The majority are either only slightly or moderately concerned about security. This indicates that users are somewhat confident about how secure their investments are.

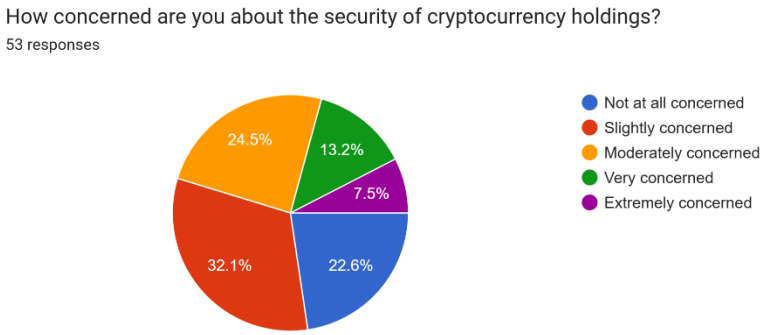


Fig. 9. Pie chart showing the level of concern about security risks among the respondents.

Fig. 10 shows the factors responsible for security risks according to respondents. Most respondents consider cyber-attacks such as hacking and phishing to be the leading cause of security risks.

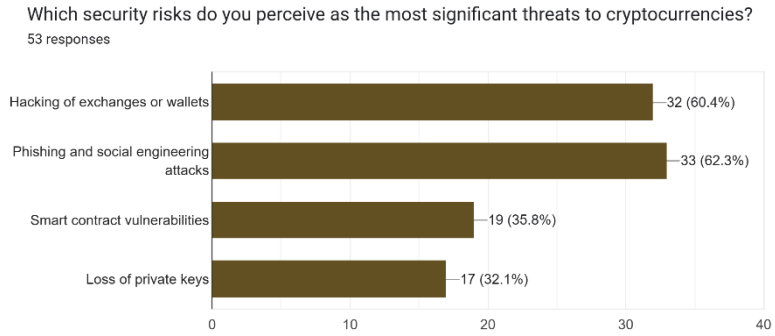


Fig. 10. Bar chart showing factors responsible for security risks according to respondents.

Fig. 11 shows the distribution of mitigation strategies for security risks according to respondents. The best mitigation strategies are enhancing user education about security practices and conducting regular security audits of cryptocurrency exchanges and protocols.

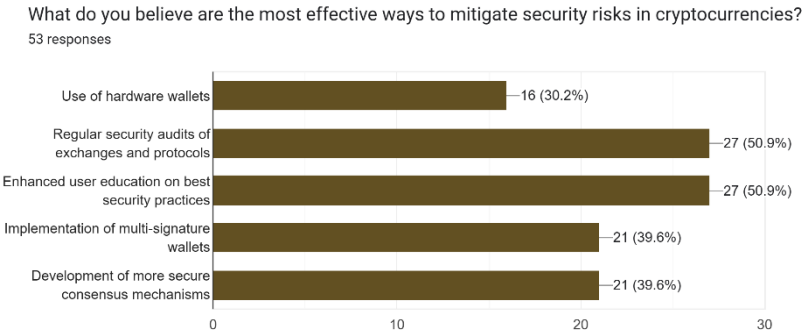


Fig. 11. Bar chart showing mitigation strategies to avoid security risks according to respondents.

E. Environmental Impact

Fig. 12 shows the importance of the environmental impact of cryptocurrencies for the respondents. Almost all respondents consider environmental impact an important factor. This indicates that users are aware of the environmental impact of cryptocurrencies.

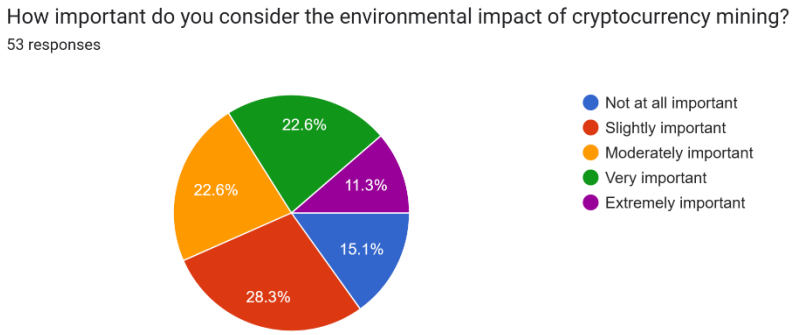


Fig. 12. Pie chart showing the importance of environmental impact of cryptocurrencies according to respondents.

Fig. 13 shows the various environmental concerns respondents have. The major environmental concern is e-waste. This indicates that users are aware of the effect cryptocurrencies have on the environment.

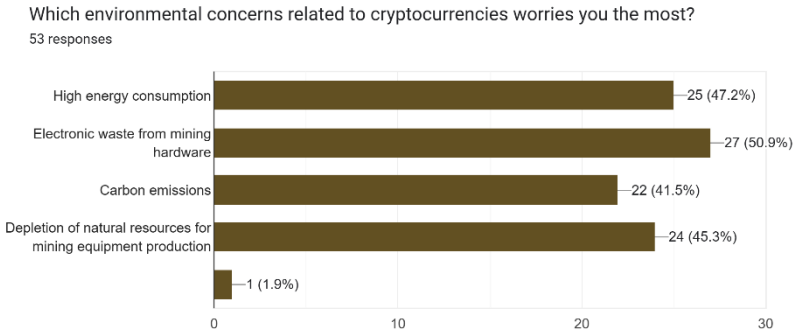


Fig. 13. Bar chart showing various environmental concerns.

Fig. 14 shows the various solutions for addressing environmental concerns. Respondents believe that the use of renewable energy is the most promising solution for addressing the environmental impact of cryptocurrencies.

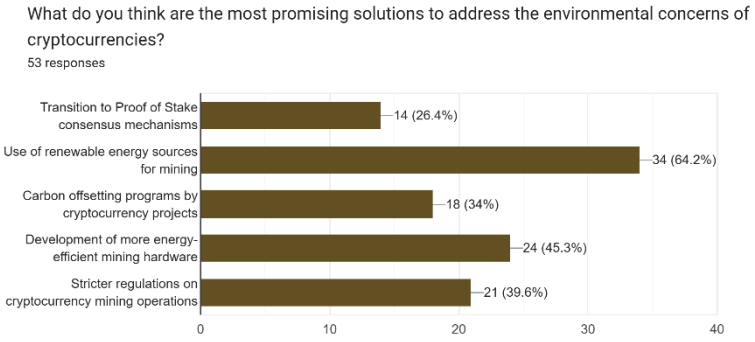


Fig. 14. Bar chart shows various mitigations for environmental concerns.

The following are the various key findings of this survey:

1. Regulatory concerns: Most respondents had some level of concern and understanding about the regulations in crypto space. This indicates that there is a need for a consistent, transparent and uniform regulatory framework for regulating cryptocurrencies.
2. Market volatility and investment risks: Respondents perceive cryptocurrencies as having higher investment risks compared to traditional investments, with limited adoption, liquidity, and market manipulation being primary factors affecting volatility.
3. Security risks: Respondents showed varying levels of concern regarding security risks. Majority respondents consider cyber-attacks as the major cause for this. This emphasizes the need to develop better and more robust security measures.
4. Environmental impact: All respondents showed concern about environmental impact. This indicates that there needs to be an initiative-taking approach towards avoiding any adverse environmental impact due to cryptocurrencies.

6. Conclusion :

A. Conclusion

This research paper provides useful insights into cryptocurrencies and the various risks associated with it. We have understood the various concerns and potential mitigations that can be considered for cryptocurrency risks. The findings from the research show that the risks associated with cryptocurrencies are often very complex, so it needs to be handled in a transparent and sophisticated manner.

B. Future Work

This study can be further enhanced by addressing its limitations through future research. The following are the key areas which can be further explored:

1. Expanded sample size: A larger sample size can provide more accurate and diverse representation of the perception of cryptocurrencies.
2. Qualitative research: In depth interviews with users, industry experts and investors can provide better insights and solutions.
3. Cross-cultural analysis: Expanding the study with participants from different countries can provide better insights into the perception and regulations differences that affect cryptocurrencies.

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