
A New Thing is Always Attractive Even if it Hurts: Exploring the Dynamics of Cryptocurrency Investments in Tanzania

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Abstract:

This study aimed at examining the factors affecting crypto-currency investment in Tanzania. Its focus was in the determination of the extent technological, socioeconomic and legal factors affect crypto-currency investment in Tanzania. Utilizing questionnaires to obtain data through snowball sampling, the study used 400 respondents deemed familiar with crypto-currency. The SPSS statistics V26, was used in analyzing the data where descriptive statistics and multiple linear regressions were used in interpreting the study results. It used the diffusion of innovation theory to provide insights into the adoption of new technology “crypto-currency” and explain the study variables.

It has been found that exogenous variables technological factors and regulatory aspects significantly affect investments in crypto-currency in Tanzania. The legal aspects appear to be the dominant factor exerting high effect on investment, while the technology factor moderately and negatively affects crypto-currency investment in Tanzania. Socioeconomic factors do not have a significant effect on crypto-currency investment.

It is concluded that, despite limited government support and security concerns, crypto-currency investment has persevered in Tanzania. This fact should be recognized not only by the investment fraternity but also by the government, and other regulatory authorities, to harness this trend and consider instituting supportive measures and guidelines to address the existing investment challenges. By doing so, the potential growth of the crypto-currency market in the country can be fostered.

The study puts forth several recommendations aimed at enhancing the crypto-currency landscape in Tanzania. These include improvements in regulatory frameworks to instill confidence on the crypto-currency market. Strong security measures should be established to mitigate risks associated with cyber-attacks. The study also recommends education programs and awareness campaign to spread crypto-currency knowledge and lastly, as the concept is still in its infancy there should be continuous researches and monitoring of the crypto-currency market in Tanzania.

Key words: Bitcoin, Blockchain, Crypto-Currency, Innovation, Investment

1.0 Background of the study:

There is an old Swahili saying which goes like “Kipya kinyemi ingawa kidonda” literary

translated as “a new thing is a source of joy even if it hurts,” essentially meaning that something

new that might initially be a cause of discomfort, can still bring about excitement or happiness due to its newness. Cryptocurrencies are a relatively new phenomenon in the finance lingua franca not only in Tanzania, but also around the world. A crypto-currency (also known as crypto) is a digital currency designed to work through a computer network that is not reliant on any central authority, such as a central bank to uphold or maintain it (Aslan, 2021). The transactions are verified and records maintained by a decentralized system using cryptography, rather than by a centralized authority. Crypto ownership records are stored in a digital ledger or blockchain which is a computerized database that uses a consensus mechanism to secure transaction record, control the creation of additional coins, and verify the transfer of coin ownership (Smutny, *et al.*, 2021).

Crypto-currencies are money because they have got most of the requisite qualities: durability, portability, divisibility, uniformity, scarcity, fungibility, and cognizability. The only qualities that might be questionable are: acceptability (not all people regard them as money) and stability of value (should be relatively stable to allow for accurate comparisons and transactions). While exhibiting most of the money qualities, crypto-currencies function as money in that for those who recognize them they can be used as a medium of exchange, a unit of account, a store of value, and sometimes a standard of deferred payments.

These currencies are becoming popular in today's decentralized digital world whereby crypto-currencies such as bitcoin provide an outlet for personal wealth that is beyond restriction and confiscation (Aslan, 2021). As the modern economies are increasingly being influenced by the internet, it permits companies as well as individuals in different parts of the world to transact with each other online. Economic history alludes the fact that through time, money has evolved from the barter form of commodities-to-commodities-backed currency, to fiat currency, and eventually to the modern internet-based forms, such as electronic money or digital

currencies, which are often referred to as cryptocurrencies (Smutny, *et al.*, 2021).

In many countries, including Tanzania, the cryptos are an almost uncontrolled peer-to-peer type of currencies (Martins, 2014; Yeong, *et al.*, 2019). The different types of cryptos, like the Bitcoin have been categorized as a new type of investment around the world. In a period of about 7 years from 2011 to 2018 the Bitcoins exhibited a tremendous price growth rate of about 70,074% from \$10 in August 2011 to \$7,017.35 in August 2018. This sort of return contributed to a pull factor to investors (Smutny, *et al.*, 2021). Given the demand and the expected returns, cryptocurrencies are now accepted as a legitimate payment methods and alternative investments in most western countries like Germany, Japan, the US, Belgium, and many others (Corbet *et al.*, 2019). Around the world, the crypto-currency market has undergone several periods of growth and contraction which have been termed as bubbles and market clashes. Noteworthy were those in 2011, 2013–2014/15, 2017–2018, and 2021–2023 (*Forbes Advisor*, 2023)

Due to its newness in the market and because they look to be highly speculative, the investments in crypto-currencies are very complex and the risks are certainly very high. Regardless, however, there has been a pronounced increase in the market for these currencies as transaction and investment vehicles. The availability of digital services has contributed to the rapid growth of crypto-currencies, with over 8,600 crypto-currencies in existence by February 2021 (Smutny, *et al.*, 2021). It estimated that there are about 114 million individuals worldwide investing in crypto-currencies, with Bitcoin as a market leader holding about 27% market share followed by Ethereum and Litecoin with 18.5% and 14.6% of the market share respectively (Aslan, 2021).

Because of these diametrically opposite positions on crypto-currency investments it is important to investigate and understand the factors that affect crypto-currency investments (Juwita *et al.*, 2022). Theoretically, the theory of diffusion of

innovation seems to be robust enough to provide the requisite insights into these factors. Amongst those innovations is the crypto-currency as a new investment vehicle as well as the social system fabric which influence its choice of adoption (Rogers, 1983). Innovation in crypto-currencies is manifested in the fact that they offer a possibility of having an investment vehicle without the intervention of third-parties as well as ensuring high security through the blockchain technology. On the other hand, the social system, whether at the individual or community level, influences investment choices through social influences from social groups like family members and other reference groups (Alzahrani and Daim, 2019).

There has been a rapid and increased interest in crypto-currencies in developed countries like the United States of America, the United Kingdom, Japan, China, and Germany. For example, in three years from 2015 to 2018 in the United States, the number of active crypto-currency wallet users increased a tremendous 654% from 3,177,707 in 2015 to 23,952,849 by 2018 (Corbet, *et al.*, 2019). Likewise, there has been differences in the adoption of crypto-currencies in Africa. The differences have been due to several factors including the expansion of technology services, improved understanding of online services, a desire to reduce transaction costs, political pressures from industrialized nations, and the presence of weak legal frameworks (Aslan and Hemantha, 2021).

There has been a rapid growth of both regulated and unregulated digital markets and crypto-currencies in Africa which is attributed to the underdevelopment nature of the traditional banking infrastructure, insecurity in conventional banking, and the economic instability in the region (Biczok, 2018). As a result, therefore, crypto-currencies have been seen as being more secure when compared to the traditional online banking because they are less susceptible to cyberattacks and hacking (Abramova and Bohme, 2016). It is noteworthy, however, that some digital currency sites operate illegally in Africa, ignoring

national and international regulations, which has, in essence, hindered the development of the financial sector and the overall economy (Reuters 2021). These diametrically opposite sides of the same coin create challenges noted by Rouse and Verhoef (2017) that African governments struggle with the decision of whether to accept or prohibit crypto-currencies within their respective countries.

African countries have responded to the onset of crypto-currencies in diverse ways. In 2015, Tunisia became the first African nation to ban the use of crypto-currencies within its borders (Moez, 2017) while soon after, countries like Nigeria and Uganda prohibited their financial institutions from providing services to crypto-currency exchanges (Philemon, 2020). The skeptical governments on the operations of crypto-currencies market was mainly due to the suspected linkage between crypto-currencies and illegal activities such as tax evasion, money laundering, and Ponzi schemes (Irwin and Dawson, 2019). In Tanzania, the government's acceptance of crypto-currencies has been, if anything, lukewarm. In 2019, the Bank of Tanzania Issued a notice warning the public against using crypto-currencies because they were not authorized to be used in the country and that trading, marketing and usage of virtual currencies were against the country's foreign exchange regulations (BOT, November 2019). While not officially banned, the Bank of Tanzania advises not to use cryptocurrency, stressing that the Tanzanian shilling is the only acceptable legal tender.

Despite the BOT's warning, the country has seen a significant presence in the crypto-currency market. In 2021 it was reported that Tanzania had a substantial crypto-currency reserve and it ranked number 120 out of the 219 countries that were actively involved in Bitcoin mining (Nkwabi, 2021). Moreover, slowly through time, there has been a pronounced shift in the general people's attitudes toward crypto-currencies in the country which might have been a result of the President's intervention. In June 2021, President Samia

Suluhu Hassan acknowledged the inevitability of digital currencies and directed the country to prepare for their arrival and to work on their regulatory framework (Reuters, 2021). Additionally, Tanzanians are increasingly using the internet market and many e-commerce platforms are continuing to flourish throughout the country. This provides crypto-currencies with a better opportunity of thriving in the Tanzania financial services industry (Philemon, 2020). Moreover, in January 2023, the Central Bank announced plans to issue a legal tender Central Bank Digital Currency (BOT, 2023) implying that the Tanzanian government was in the process of providing guidelines on crypto-currencies.

2.0 Statement of the Problem:

It has been argued that crypto-currencies are a risky business for investors since they are not regulated by monetary authorities and seem to have a negative impact on monetary systems (Philemon, 2020). Regardless, however, there is a rising number of new crypto-currencies and crypto-currencies' investors joining the industry (Smutny, et al., 2021). It is often assumed that investors are rational who are always driven by the desire to maximise their wealth while minimising risk (Baisi, 2025). As a result, investors are expected to take into account the risks and returns when making investment decisions (Alqaryouti, et al., 2020). Associated with this hypothesis is the assumption of market efficiency. In practice, however, investors are not always rational in their decision-making, and therefore, there are a number of other factors that affect their investment decisions (Thaler, 2015; Aslan, 2021). It is in this regard that, besides the theoretical wealth maximization aspect, this study assumed a situation whereby regulatory aspects, as well as technological and socioeconomic aspects as having a significant effect on crypto-currency investment decisions in Tanzania.

3.0 Literature Review:

Crypto-currencies are a digital form of currencies that rely on cryptographic algorithms for their

operations, serving as both a medium of exchange and a store of value (Aggarwal, et al., 2019). Crypto-currencies employ cryptographic protocols to enable users to mine, store, and transfer currency in a distributed network ledger referred to as blockchain. They function in a completely open and dispersed system, without regulatory agencies managing them (Corbet, et al., 2019; Coin-Market-Cap, 2021). The World Bank has categorized crypto-currencies as a subset of digital currencies (European Union, Report 2012).

As an asset, crypto-currency is considered overly liquid which makes it a great investment opportunity to investors looking to make short-term profits. On the other hand, it also attracts long-term investment since its value continues to increase with time (Nkwabi, 2021). Crypto-currency can be bought using real and other virtual currencies and be sold for real and other virtual currencies according to specific exchange rates (Corbet, et al., 2019). The value and popularity of crypto-currencies vary over time based on how many users are using the coins (Philemon, 2020). Moreover, crypto-currencies are decentralized as they are not tied to any specific geographical area in terms of their uses (Moez, 2017) and they have less documentation compared to other investment assets (Corbet, et al., 2019). Based on a blockchain technology ensures security, anonymity and faster settlement of transactions (Yeong, 2019). The ownership of the currencies is documented in a computerized database known as a digital ledger under blockchain technology. To prevent the entries in the ledger from being manipulated by unauthorized persons, they are encrypted using sophisticated crypto-graphic techniques which ensure security (Irwin and Dawson, 2019). As with Chuen et al., (2017), this study considered crypto-currency as a digital asset designed to work as a store of value that uses crypto-graph to send, receive and store digital fund without central bank intervention.

The primary purpose of investing is to grow wealth or generate income from the invested asset

and the major attribute of any investment is that it requires a sacrifice of some present asset, such as time, money, or effort with a main objective of earning a return in the future (Cobb-Clark and Crossley, 2003; Baisi, 2025). In regard to cryptocurrencies as investment vehicles, they are deemed to be highly volatile and thus, very risky such that they are not considered as an alternative transaction system or a currency (Glaser et al. 2013). Due to the assumed volatility characteristic many investors characterize the crypto-currencies as examples of a risky long-term investment (Smutny, *et al.*, 2021). Nevertheless, the investors are attracted because they believe that the crypto-currencies value will continue to raise although there are others who still prefer to benefit from the daily price volatilities (Alzahrani and Daim, 2019).

Investments are, amongst other variables, affected by technological factors, that in essence have got an impact on the acceptance of new technologies (Hester, 2010). In the context of crypto-currency, technological aspects such as system security plays a crucial role in the adoption and investment decision. Security is a significant risk factor that affects the widespread acceptance of crypto-currencies by users (Alzahrani and Daim, 2019) and the main security concerns include aspects such as hacking, security breaches, theft of crypto-currencies, fraudulent offering, security in crypto-currencies platforms and system limitations. Regardless, however, crypto-currencies operating under the blockchain technology are assumed to be secure because hacking a decentralized system is considered difficult since there is no single-entry point (Chuen *et al.*, 2017). Nonetheless, threats on security may exist at individual user level where hackers might target users' personal computers to steal currencies since the users manage their own wallets (Folkinshteyn and Lennon, 2016; Darlington, 2014; Krombholz, *et al.*, 2016).

On innovation, Fleming (2008) argues that the macroeconomic PEST variables (i.e. political, economic, social and technological structures) of

the society can hinder or assist the diffusion of innovation. Furthermore, Rogers (1983) maintains that innovation can be embraced at the individual (individual innovation), at the community level (collective innovation) or at the management authority level (authoritative innovation). The difference between the three types of innovation is that collective innovation that is reached by consensus among community members is easily passed down across generations and, thus, long lived. On the other hand, however, individual innovation (taken by individuals independent of others in the community) and authoritative innovations (innovation in the hands of the ruling elites) can easily vanish from the society.

Evaluating the motivations and barriers of using bitcoins, Presthus and O'Malley (2017) argue that bitcoins users are motivated by technological curiosity rather than monetary incentives or external influences while due to the uncertainty about security, the non-users are laggards waiting for the pioneers to enter the fray of crypto-currencies. For the users of crypto-currencies, it is not only the question of curiosity but also the trust thrust into the system. Researches by Abramova and Böhme (2016), as well as Albayati, *et al.*, (2020) found that more people use crypto-currencies due to their high level of trust in the systems that they deem to be not only secure but also they contend that it is designed to prevent hackers from altering transaction data, making them seemingly immune to cyberattacks compared to traditional payment systems like online banking and mobile wallets.

Consequently, security breaches or insecurities in crypto-currency investment may result from users' lack of awareness regarding available security measures, rather than inherent issues with the currency itself. As a decentralized asset, management rights are left in the hands of individuals, which can be challenging for those with limited understanding. However, individuals who are proficient in managing crypto-currency tools find these investments secure and trustworthy. This highlights the significant impact

of security measures on crypto-currency investments.

A study by Bohr, *et al.* (2014) on the demographic features of Bitcoin users in Toronto, Canada found that men outnumber females by a ratio of 95% to 5%. The other demographic features were that the users were relatively young with an average age of 32 years; not religious (61.8%), in a relationship (55.6%), and did not have a full-time employment (63.3%). Theoretically, however, it not right to generalize on the Bohr, *et al.* (2024) findings as the study only examined the demographic characteristic of the Bitcoin community while ignoring other crypto-currencies. Drobysheva *et al.*, (2019) in line with Bohr, *et al.* (2024) studied the social and psychological predictors of youths' attitudes towards crypto-currencies in Russia. It was found that young individuals associated cryptocurrencies as an assured source of income and enrichment.

Crypto-currencies attractiveness to youths was also studied by Juwita *et al.*, (2022) on millennials and Gen z age groups in Indonesia. It was revealed that herding and heuristic factors were significant in investment decisions while prospect for enrichment. The study concluded that crypto-currency investors are not rational investors as most of their decisions are influenced by other people in line with Presthus and O'Malley (2017), Alzahrani and Daim (2019), as well as Baur *et al.*, (2015) and (Dickason and Ferreira, 2018). The major observation from these studies is that the users of crypto-currencies are always willing to adopt crypto-currencies by following their peers mainly through word of mouth.

Some researchers have linked the success in the adoption of crypto-currencies in some countries with government support. Albayat *et al.*, (2020) concludes that government support, policies and guidelines are important in reducing the risks associated with crypto-currencies adoption with Uematsu and Tanka (2019) supporting that position by arguing that government support may help to increase user acceptability and adoption of new technology.

4.0 Methodology:

The study, like most behavioural finance research, employed a survey technique for the exploratory framework to determine the macro variables influencing the investment decisions in cryptocurrencies. When studying an individual as a unit of analysis, surveys have been identified as one of the most suitable methods for research (Sekaran, 2000). They are said to be especially appropriate for behavioural and entrepreneurship researches focusing on individual attitudes and characteristics (Babbie, 1995; Oppenheim, 1992; Robson, 1998). Thus, this study, like most behavioural finance researches employed a survey technique to determine the crypto-currency investment dynamics in Tanzania. Cross-sectional analysis involved gathering and analyzing data from 400 respondents.

In order to effect generalisability of the study results and achieve adequacy in the data developed for cross-sectional analysis the sample was a purposive randomised pick of 400 crypto-currency investors in Tanzania's major industrial and business areas. The country was divided into five geographical strata consisting of the five major industrial and business zones in Tanzania represented by four cities and one municipal. The zones were numbered 1 to 5. Number 1: Coast and Eastern (Dar es Salaam – City); Number 2: North and Central (Arusha – City); Number 3: Western and Lake (Mwanza – City); Number 4: South and Southern highlands (Mbeya – City); Number 5: Zanzibar and Pemba (Zanzibar – Municipal).

Besides their zonal representation (geographical diversity) the five cities (Dar es Salaam, Mwanza, Arusha, Mbeya, and Zanzibar) were selected because they are also the leading commercial and industrial centres in the country. Dar es Salaam is the commercial capital of the country and is the largest metropolis. It has the highest number of any type of business in terms of size and ownership. Mwanza, Arusha and Mbeya are commercial centres in three of the densely populated and economically developed areas in

the country besides Dar es Salaam. Zanzibar was included in the sample not only as a matter of diversity but also because it is the largest commercial centre in the isles. Dar es Salaam provided 34 percent of the sample (136 cryptocurrency investors) because of the population and the other three cities and the municipality accounted for 16.5 percent each (66 investors each).

For the purpose of the study, population was defined as individuals who are using or have used crypto-currency before because it was believed that these are the people who possess the relevant information for the study (Mugenda, 2016). The exact data of crypto-currencies investors in Tanzania is not readily available hence this population was identified through recommendations or reference from one investor to another using the snowball sampling procedure. The respondents were not selected based on gender, education level, or the type of crypto-currency they dealt with. The main criterion was the willingness of the respondent to participate in the study.

The non-probability sampling procedure adopting the snowball technique was used because of its cost-effectiveness, simplicity, and suitability for constrained populations (Parveen and Showkat, 2021). The technique is adopted when it is not easy to identify members of the desired population (Saunders, *et al.*, 2009). The snowball sampling approach has an advantage of instilling confidence in the respondents and provides the researcher with the opportunity to gather intelligent respondents who are well versed in the issue and are highly trusted by their peers. The snowball techniques minimized personal bias in the response selection process because it is the responders themselves who point to the next respondent (Bryman, 2015; Pastory *et al.*, 2023).

Data was collected using interviews and structured questionnaire on a likert scale of 1 to 5. The measures of central tendency were used to determine the mean scores from the group scores. The mean was then used to draw conclusions

(Sekaran, 2000). Measures of variability were also computed to show variance within a population, and this was done using standard deviations. Frequencies and percentages were used to describe and summarize the data. Multiple linear regression analysis was used to establish the relationship used to predict individual's decisions to engage in crypto-currency investment activities. Additionally, correlation analysis was used to validate the findings of the regression analysis. The regression equation showing the factors affecting the decision to invest in crypto-currencies:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where: **Y** – decision to invest in crypto-currencies

X₁ – technological factors affecting investment in crypto-currencies

X₂ – socioeconomic factors affecting investment in crypto-currencies

X₃ – legal factors affecting investment in crypto-currencies

β₀ – Constant term

β₁, β₂, β₃ – Beta coefficients of X₁, X₂, X₃;

ε - Error term.

The questionnaire was piloted to evaluate the validity and viability of the research instrument before the actual administration of questionnaires to the study respondents (Sekaran, 2000). The anti-image correlation value for technological factors were between 0.911 (hackers/security breach and theft of crypto-currencies) and 0.913 (System limitations). The anti-image correlation value for social economic factors were between 0.897 (cryptocurrencies allowed by government) and 0.907 (loss of trust on conventional monetary system), the anti-image correlation value for social economic factors are between 0.500 (returns on investment) and 0.500 (consistent advices from peers/close family member).

The reliability of the data was tested by conducting scale analysis in which Cronbach's alpha was used to determine the dependability of

the data instruments; a value equal to or higher than 0.7 (70%) was deemed reliable (George and Mallery, 2003). The reliability test in table 1 reveals that the technological factors were reliable by 96% (0.960) with predictors of: hackers/security breach and theft of crypto-currencies, scams, fake crypto-currency

exchanges, security of crypto-currency platforms, fraudulent offering of crypto-currencies and system limitations e.g. transaction speed and scaling. The social economic factors were reliable by 73.2% (0.732) with predictors of: consistent advices from peers/close family members and returns on investment.

Table 1: Reliability and Validity Table

Objective	Item	KMO	Anti-Image	Conclusion	Reliability Cronbach Alpha	Conclusion
Technological factors	Hacker’s breach and theft of crypto-currencies	0.904	0.911	Valid	0.960	Reliable
	Scams fake crypto-currencies exchanges		0.890	Valid		
	Security of crypto-currencies platforms		0.922	Valid		
	Fraudulent offering of crypto-currencies		0.885	Valid		
	System limitations		0.913	Valid		
Social Economic Factors	Returns on investment	0.500	0.500	Valid	0.732	Reliable
	Consistent advices from peers/close family member		0.500	Valid		
Legal factors	Crypto-currencies allowed by government	0.889	0.897	Valid	0.965	Reliable
	Lack of government control in crypto-currencies investment		0.881	Valid		
	Anonymity of the transactions influence investment		0.900	Valid		
	Difficulty of confiscation of crypto-currencies		0.863	Valid		
	Loss of trust on conventional monetary system		0.907	Valid		

5.0 Findings:

5.1 Demographic features of the respondents:

There is a noticeable gender disparity in the interest in crypto-currency investment in Tanzania, with more men showing a higher willingness to invest in this emerging asset class (Table 2). As a new investment, crypto-currency

is considered risky and in agreement with Dickason and Ferreira (2018) generally, men are more willing to take on risky projects than women who are more conservative. This also supports Bohr’s et al (2014) assertion on demographic features whereby males were found to outnumber females by a margin of 95% to 5% in Bitcoin usage.

Table 2 Demographic Features of Respondents

Variable		Frequency	Percentage
Gender	Female	136	34.0
	Male	264	66.0
Ethnicity	Tanzanians (African)	160	40.0
	Tanzanians (Asian)	228	57.0
	Foreigners	12	3.0
Age of Respondents	18-20	28	7.0
	21-29	244	61.0
	30-39	72	18.0
	40-49	12	3.0
	50-59	32	8.0
	60 Plus	12	3.0
Level of Education	Primary	16	4.0
	O' Level	28	7.0
	A' Level	32	8.0
	Diploma	48	12.0
	Bachelor Degree	208	52.0
	Post Graduate	68	17.0
Source of Income	Public Employment	120	30.0
	Private Sector Employment	188	47.0
	Business	56	14.0
	Unemployed	36	9.0

As for the composition of the sample of all the respondents, 40% were Tanzanians of African origin, 57% were Tanzanians of Asian origin, and 3% were foreigners. This distribution shows the lopsided nature of investments in Tanzania because the Tanzanians of African origin represent about 99% and of the rest the bulk is made up of Tanzanians of Asian origin. The majority of the Tanzanians of African origin own almost small and medium investments and their share of ownership decreases disproportionately as the businesses' size categories grow.

The average age of the respondents was 55.5 years with the youngest being 18.5 years and the oldest 80 years. Given the fact that the average age of Tanzanians is between 30 and 35 years and the life expectancy is about 67.2 years with a median of 17.5 years it means that Tanzania has a relatively young population (Worldometer, 2025). The age distribution of the respondents shows that

the crypto-currency investors are in the higher age bracket. This is contrary to the general belief that young people are generally risk takers relative to their older counterparts and, therefore, are more likely to embrace investing in new and untested assets. This phenomenon could also be an indicator of the underdeveloped nature of the financial markets in Tanzania and therefore, the difficulties that young investors face in accessing investment funds.

Apparently, it seems like crypto-currency investment requires a relatively higher education level with 69% of respondents holding at least bachelor degrees. This might be attributed to the importance of education and knowledge in making informed decisions while investing in the novel and seemingly untested risky crypto-currency market (Drobysheva et al., 2019). As in Farivar et al. (2017) it was found that investors with formal private employment are more inclined

to invest in crypto-currencies. As the majority of the investors have got a stable source of income, it means that crypto-currency investment is viewed more or less as a supplementary income stream rather than a primary source of livelihood.

5.2 Technological factors affecting investment in crypto-currency:

Table 2: Descriptive analysis of technological factors affecting investment in crypto-currency

Items	Responses					N	Mean	Std.
	VH	H	M	L	VL			
Hackers/security breach and theft of crypto-currencies	64	52	28	124	132	400	3.52	1.467
Scams fake crypto-currency exchanges	44	68	24	124	140	400	3.62	1.398
Security of crypto-currency platforms	60	48	40	124	128	400	3.53	1.432
Fraudulent offering of crypto- currencies	52	64	28	96	160	400	3.62	1.469
System limitations e.g. transaction speed and scaling	64	32	60	112	132	400	3.54	1.431
Weighted Mean							3.566	

The existence of hackers/security breaches and theft of crypto-currencies have a mean effect of 3.52 on the Likert scale of 1 to 5 with a standard deviation of 1.467 indicating a relatively high effect on crypto-currency investment decisions. They are deemed as contributing to an unfavorable environment of insecurity in the crypto-currency investment. Instances of scams and fraudulent activities are identified as additional contributing factors to the overall impact on crypto-currency investment. Crypto-currency exchanges play a pivotal role in affecting the investment landscape in Tanzania with a mean score of 3.62 and a standard deviation of 1.398 suggesting that the reliability and integrity of crypto-currency exchanges highly affect investor sentiments. The security of crypto-currency platforms is another crucial aspect influencing investment with a mean of 3.53 and a standard deviation of 1.432. The fraudulent practices in the provision of crypto-currency exchanges are underscored for their considerable high effect of a mean score of 3.62 and a standard deviation of 1.469. Such fraudulent activities can undermine trust in the crypto-currency environment. The investment in crypto-currency in Tanzania has

Table 2 provides analysis of the effects of technological factors on crypto-currency investment in Tanzania. Several key variables were identified as having an effect on the crypto-currency investment landscape as affected by technological factors.

been highly impacted by system restrictions, particularly in terms of transaction speed and scaling exchanges. These limits have been shown to have a mean of 3.54 and a standard deviation of 1.431. Therefore, investment of crypto-currencies in Tanzania is influenced by the technological factors on a high extent, as evidenced by a weighted mean of 3.566.

The analysis reveals that technological factors have a profound effect on crypto-currency investment in Tanzania. The weighted mean of 3.566 underscores the overall high extent of this effect. This suggests that addressing and mitigating these technological challenges it is essential for fostering a more stable and secure crypto-currency investment environment in the country.

5.3 Socioeconomic factors affect investment of Crypto-currency in Tanzania:

Two key items are identified to affect the crypto-currency investment landscape (Table 3). Receiving reliable advice from peers or close family members moderately affects crypto-currency investment with mean and standard deviation of (2.83±1.464). This influence is

associated with the information and guidance provided by social networks. Returns on investment moderately affects crypto-currency investment with mean and standard deviation of (2.96 ± 1.543) . Socioeconomic factors have been found to moderately affect investment of crypto-

currency in Tanzania with weighted mean of 2.895. This suggests that elements related to both advices from social networks and financial returns have a moderate effect on investment decisions in the crypto-currency market.

Table 3: Descriptive statistical analysis of socioeconomic factors s in investment in Crypto-currency

Items	Responses					N	Mean	Std.
	VH	H	M	L	VL			
Advices from peers/close family member	108	64	56	80	92	400	2.83	1.464
Returns on investment	96	104	44	84	72	400	2.96	1.543
Weighted mean							2.895	

The findings emphasize the role of socioeconomic factors in crypto-currency investments in Tanzania. While the factor is moderately influential, it provides valuable insights into the interplay between social advice, financial returns, and investment decisions in the crypto-currency space. This understanding is crucial for stakeholders seeking to comprehend and potentially influence the dynamics of crypto-currency investment in the Tanzanian context.

5.4 Legal factors effect on investments in Crypto- currencies in Tanzania:

The government allowing trading in crypto-currencies greatly affects individuals’ decisions to invest in this investment vehicle in Tanzania, with

mean and standard deviation of (3.45 ± 1.351) (Table 4). Likewise, lack of government controls in crypto-currency highly affects individuals to invest in crypto-currencies, with a mean and standard deviation of (3.49 ± 1.389) . This implies that a lack of rigid government oversight encourages individuals to invest in crypto-currencies, potentially due to increased freedom. Moreover, anonymity of the transactions in crypto-currencies investment highly affects individuals to invest in crypto-currencies in Tanzania, with mean and standard deviation of (3.48 ± 1.352) .

Table 4: Descriptive statistical analysis of governmental factors affect investment in Crypto-currencies in Tanzania

Items	Responses					N	Mean	Std.
	VH	H	M	L	VL			
Crypto-currencies allowed by government	60	40	52	156	92	400	3.45	1.351
Lack of government control in crypto- currency investment affects investment in crypto-currencies	56	56	32	148	108	400	3.49	1.389
Anonymity of the transactions affects investment in crypto-currencies	52	52	52	140	104	400	3.48	1.352
Difficulties in confiscating crypto-currency accounts affect investment in crypto-currencies	60	48	40	140	112	100	3.49	1.403
Loss of trust on conventional monetary system affects investment in crypto- currencies	64	32	64	136	104	400	3.46	1.381
Weighted mean							3.474	

Difficulties associated with the confiscation of crypto-currency accounts greatly affect individuals in deciding to invest in crypto-currencies, with a mean and standard deviation of (3.49 ±1.403). Loss of trust on conventional monetary systems highly affects individuals to invest in crypto-currencies in Tanzania, with mean and standard deviation of (3.46 ±1.381). Individuals may be drawn to crypto-currencies as an alternative to traditional financial systems due to concerns or distrust. Generally, it is noted that, in Tanzania, legal factors affect investments in crypto-currencies to a high extent with weighted means of 3.474.

5.5 Regression analysis of the factors that have a major effect on Crypto-currency investment decisions in Tanzania

The regression analysis model was used to measure the effect of the technological, legal and the socioeconomic factors on crypto-currency investment as observed in the descriptive analysis.

The probability values at P<0.05 were deemed as acceptable and rejected at P>0.05 (George and Mallery, 2003). Additionally, the Adjusted R-squared value was used to evaluate the connection between the analyzed factors and crypto-currency investment (Sekaran, 2000).

The R-square values indicate the strength of the relationship between technological, governmental, and socio-economic factors and the investment of crypto-currency in Tanzania (Ndunguru, 2007; Sekaran, 2000). A value between 0.81 and 1.0 signifies a very strong relationship, while a value between 0.61 and 0.80 represents a strong relationship. A value between 0.41 and 0.60 indicates a moderate relationship, while a value between 0.21 and 0.40 suggests a weak relationship. Lastly, a value between 0 and 0.20 signifies a very weak relationship between these factors and crypto-currency investment in Tanzania.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.949 ^a	0.901	0.898	0.400

a. Predictors: (Constant), Social Economic factors Technological factors Legal factors

Table 6: ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	139.575	3	46.525	290.315	0.000 ^b
	Residual	15.385	96	0.160		
	Total	154.960	99			

a. Dependent Variable: Level of Crypto-currency investments in Tanzania

b. Predictors: (Constant), Social Economic Factor, Technological factors, Governmental factors

Table 7:Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.292	0.118		2.478	0.015
Technological factors	-0.290	0.142	-0.310	-2.044	0.044
Legal factors	1.205	0.152	1.241	7.939	0.000
Social Economic Factors	0.012	0.040	0.013	0.304	0.762

a. Dependent Variable: Level of Crypto-currency investments in Tanzania

The results from table 5 above indicate a strong linear relationship between the independent variables and the dependent variable, as evidenced by the high correlation coefficient (R) of 0.949. The R^2 and adjusted R^2 values are also high at 0.898 and 0.901 respectively, suggesting that the model explains a substantial portion of the variance in the dependent variable. This is to say, from the adjusted R^2 we can see that 90.1% of variances in crypto-currency investment can be explained by the analyzed predictors i.e., technological, governmental and social economic factors while the remaining 9.9% (0.099) of the prediction is attributed by other predictors which have not been involved in this study. Finally, the low standard error of the estimate (0.400) indicates that the model's predictions are relatively accurate and that this relationship is significant. These results suggest that the model is a good fit for the data and can effectively explain the variation in the dependent variable.

Furthermore, the results from table 6 indicates that the regression model is highly significant with very low p-value (0.000) suggesting that the model, which includes the three predictors, is an excellent fit for explaining the variation in the dependent variable. Table 7 reveals the relationship between the dependent variable and the independent variables. For every one-unit change of technological factors (system limitations transaction speed and scaling, scams, fake crypto-currency exchanges, security of crypto-currency platforms, Hackers/security breach and theft of crypto-currencies, Fraudulent offering of crypto-currencies) leads to a change in investment in crypto-currency in Tanzania by 0.290. The Beta is -0.310, suggesting a moderate negative impact and the p-value is 0.044, indicating that this coefficient is statistically significant.

For every one-unit change of legal factors (loss of trust on conventional monetary system, lack of government control, anonymity of the transactions, difficulty of confiscation, crypto-currencies allowed by government) leads to a

change in investment in crypto-currency in Tanzania by 1.205 units. The standardized coefficient is 1.241, indicating a strong positive effect and a very low p-value of 0.000 shows that this coefficient is highly statistically significant. For every one-unit change of socioeconomic factor (Consistent advices from peers/close-family member and returns on investment) leads a change in investment in crypto-currency in Tanzania by 0.012 units. The standardized coefficient is 0.013, indicating a very small positive impact and the p-value is 0.762, which means that this coefficient is not statistically significant.

Table 7 shows the estimated effect of each independent variable on the dependent variable. The "Governmental factors " has a strong positive impact, while the "Technological factors" have a moderate negative impact. The "social economic factor" does not appear to have a statistically significant impact on the dependent variable. Using the multiple linear regression analysis to develop an equation that demonstrates the relationship between the independent and dependent variables in the study enables the derivation of an equation that establishes the association and enables the prediction of an individual's inclination to participate in crypto-currency investment activities.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

Y = decision to invest in crypto-currencies;

B_1 =Technological factors affecting investment in crypto-currencies; -0.290

β_2 = socioeconomic factors s affecting investment in crypto-currencies; 0.012

β_3 = legal factors affecting investment in crypto-currencies; 1.205

β_0 = constant term; 0.292

ε - Error term

$$Y = 0.292 - 0.290 X_1 + 0.012 X_2 + 1.205 X_3 + \varepsilon$$

The descriptive statistical analysis indicates that technological factors affect investment in crypto-

currency. Although the regression analysis supports this connection, it does so to a moderate degree. These findings suggest that the current level of security in crypto-currency investments in Tanzania is inadequate, leading to a waning in crypto-currency investments. Investors are shying away due to concerns about fraudulent activities, security breaches, and inadequate security measures within crypto-currency platforms, eroding trust and confidence leading to lower investments. This is in contrast to previous studies which asserted that crypto-currency technology effectively safeguards funds from unauthorized access and cyber-attacks and thus promotes investments in crypto-currency (Albayati, et al., 2020). While Khan et al. (2020) argue that government support is vital in establishing a legal framework for promoting investments in crypto-currency by addressing issues like fraud and breaches, in Tanzania the government involvement is inadequate (BOT November 2019, Reuters 2021) which, in a way, may have contributed to the security concerns. Additionally, it's possible that security issues are linked to investors' limited knowledge about existing security mechanisms as asserted by Krombholz et al. (2017). It goes without saying that the responsibility for implementing security measures in peer-to-peer crypto-currency transactions falls on individual investors, which can be quite challenging.

This study's descriptive analysis suggests that socioeconomic factors moderately affect the investment in crypto-currency in Tanzania though the regression analysis shows that the changes that the factor brings to the dependent variable is insignificant. These findings can be supported by the diffusion of innovation theory proposed by Rogers (1983), which suggests that to a large extent, innovations such as crypto-currency, depend on both individual and authoritative decisions. It is apparent that in Tanzania, crypto-currency investment is not widespread as the investment is still in the hands of just a few and the governmental policies and measures have not

been supportive enough. As a result, individual persuasion has a limited effect on crypto-currency investment in Tanzania. Presthus and O'Malley (2017) support these findings arguing that Bitcoin investors are, more than anything else, driven by technological curiosity rather than the desire for enhancing returns and being influenced by external factors which is in line with the Swahili saying of "kipya kinyemi", that a new thing is always very attractive and popular even though it might be sore. Note, however, that Drobysheva et al. (2019); Juvita et al. (2022); Alzahrani and Daim (2019) and Baur et al. (2015) argue differently that the motivation for any investment, in order for it to be worthwhile, it has got to be the maximization of returns. Unfortunately, this assertion has not been categorically supported by this study.

6. Conclusion and Recommendations:

The objective of this study was to ascertain the extent of crypto-currency investments in Tanzania and the factors that have contributed to such a phenomenon. A priori, three variables (technological, socioeconomic, and regulatory factors) were hypothesized to contribute to investments in crypto-currency. The study results demonstrate a moderate and negative effect of technological factors on investment, substantiated by a significant coefficient of 0.044. It has been found that, for every increase in technological factors, crypto-currency investment decreases by 0.290, indicating a moderate shift.

Regarding socioeconomic factors, the findings indicate that they affect crypto-currency investment to a low extent, such that the results were deemed insignificant, with a P value of 0.762. The analysis further ascertained that, for each incremental rise in socioeconomic factors, crypto-currency investments exhibited a marginal increase of 0.012. For regulatory variables the results indicate that, legal factors highly and significantly affect crypto-currency investment in Tanzania with a p-value of 0.000. It has been shown that with each increase in the identified regulatory factors, crypto-currency investments in

Tanzania experience a notable positive change of 0.205.

It is concluded that, technological factors and regulatory aspects have a more pronounced effect on crypto-currency investments in Tanzania. While technological factors exhibit a moderate and negative effect, regulatory aspects were found to be domineering exhibiting high effect on crypto-currency market. Socioeconomic factors have insignificant effect on crypto-currency investment in the country.

It has been revealed that, despite the limited government involvement in supporting investments in the crypto-currency market, there is a high and significant relationship between regulatory aspects and crypto-currency investment in Tanzania. It is, therefore, recommended that the government and regulatory authorities should work on improving the regulatory framework for improving the environment for crypto-currency investments. This might involve developing clear and comprehensive regulations that provide investor protection, reduce fraud, and enhance market integrity. Furthermore, regulatory bodies have to actively enforce these regulations to instill confidence in the crypto-currency market. Through these actions, the cryptocurrency investment market may experience growth and development and therefore positively contribute to the economic development of the country.

The study identified that, technological factors have a negative and moderate effect on crypto-currency investment. It became evident that a variety of security issues were impeding the crypto-currency investment market. Given the security concerns associated with crypto-currency investments, there is a need for stakeholders to emphasize security measures, such as strong cybersecurity protocols and investor education about safe practices in the digital asset space, and in the use of the available security measures. This will help mitigate risks associated with cyberattacks and fraud, and ultimately foster the growth and development of crypto-currency market.

To address the observed lack of influence of socioeconomic factors on crypto-currency investment, educational programs and awareness campaigns can be initiated to inform individuals about the potential benefits and risks associated with crypto-currency investments. These programs may provide the necessary information to the mass and facilitate diffusion. Similarly, this can empower potential investors to make informed decisions.

Given crypto-currency investment is still on its infancy stage, the study recommends that, there should be continuous research and monitoring of the crypto-currency market in Tanzania. This will provide insights into the evolving landscape and allow for timely adjustments to regulatory and policy measures as needed.

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