



Exploring Opportunities and Barriers for Cryptocurrency in Pakistan (A Stakeholder Perspective)

Sehrish komal^{a*} Noor, Dr. Hamid Ullah^b

^aMS Scholar, Islamia College Peshawar. ^bAssistant Professor, Islamia College Peshawar

*Email: Sehroo74@gmail.com.edu.pk

Abstract: This study explores the cryptocurrency opportunities & barriers in the context of Pakistani region. With the passage of time cryptocurrency is getting popular day by day. Different countries accept this digital technology. While in the case of Pakistan, this technology is still not legalized. There are some opportunities, and some barriers to this technology in Pakistan. This study focused on different opportunities which attract investors and affect the Pakistan economy, and different barriers which is faced by Pakistani investors while using this currency. A qualitative approach was used by employing a convenience sampling technique through eleven different open ended (semi-structured) interviews comprising of investors, trading firms and state Bank of Pakistan to explore opportunities and barriers of cryptocurrency in Pakistan. Open ended (semi-structured) interviews were conducted from different investors. The results show the different variables of cryptocurrency which is based on demand and supply. Research is based on Block chain technology, while different variables are extracted from opportunities which are profitability, transferability, decentralized technology, stable economy, and tax benefits. Along with that different barrier factors are discussed including lawlessness of cryptocurrency in Pakistan and the restrictions by the government of Pakistan. The results imply that the profitability, secure technology and economy development are the opportunities of cryptocurrency. While few barriers of this technology like no support by government. Government can play vital role in reducing the barriers. This study contributes to the existing research studies to consolidate the different results of this research study. This study contributes to different cryptocurrency investors to know about the different opportunities as well as different barriers of this technology in the Pakistani context.

Keywords: Cryptocurrency, Opportunities, Barriers, Decentralized Technology, Block chain.

1. Introduction

The Introduction is in three parts. In the first part, the concept of cryptocurrency is explained. The second part elaborates the research problem and the research gaps related to the research topic. In the last part, the research objectives are defined and research questions are framed accordingly.

1.1 Background

After the usage of the barter system, money has been used as a medium of exchange for about 3000 years. The development of societies and technological innovations has accompanied the evaluation of money from precious stones to metal coins and then paper currency. Before the formation of the coin civilizations progressed using it as commodities, metals, or stones but initially, money was in the form of commodities. During the Middle Ages, the guarantee receipts of repayments were issued as a letter, when required. With the passage of time the receipts were

then used as currency on the repayments in gold or silver. This led to the development of the gold as standard. The paper currency then could be exchanged with gold. After that in the twenty-first century, the currency was further developed into many other forms such as e-money and virtual currency (Davies 2010). World became a global village due to the intranet or internet. Different revolutions occurred with time. Now innovations became the heat of the market as people were getting benefited from it. The people, now, are getting smarter due to technology. For instance, computer. Firstly, the heavy-based computer was introduced then it was converted into the handy computers such as laptops, tablets, and mobiles. Block chain technology entrances give a new way to traditional perspectives which changed the way of thinking. Block chain is based on database that can record any online digital currency event (Crosby, 2016).

Cryptocurrency facilitates the user to transfer funds through an electronic cash system without any financial intermediary or any central repository. This type of virtual currency is unregulated by any government. This currency can be used for an unlawful purpose. Around the world different countries (governments) faced challenges due to rapid growth and wide acceptance of cryptocurrency. This affects the monetary policy and also disrupts the regulatory payments systems (Middlebrooks & Hughes, 2014). The first cryptocurrency was bitcoin which was launched under the name of “Satoshi Nakamoto” in 2008 by an individual or group of individuals. This currency transparency in transactions creates peer to peer payment system and adopted Blockchain technology. Furthermore, practical transactions for trade are irreversible for this technology that smartly prevent fraud (Satoshi Nakamoto, 2008). With the emergence of the bitcoin, cryptocurrency is gaining more popularity in numbers. There are 4000 crypto coins in the crypto market, (Buriske and Tatar 2017), with exchanges of more than 280 (Nakamoto 2009) in a very short run between 2009 to 2021 this has become a huge market (Lorenzo and Arroyo, 2022).

There are two large groups in cryptocurrency, crypto coins and crypto tokens. Crypto coins are based on the Block chain, while token does not base on Block chains. They are used in a smart contract in the Block chain from another cryptocurrency. While in January 2021 the crypto market exceeded USD 1 trillion and in April 2021 USD reached 2 trillion (CoinMarketCap 30 June 2021). In February 2021, there were 8600 cryptocurrencies worldwide. Cryptocurrency is in the form of assets currency which can perform monetary transactions (Kim, 2017). Block chain technology is the most sophisticated technology and one of the best platforms discovered on the internet. It provides online efficient transactions in terms of security and confidentiality (Ying et al, 2018). A paper “How to Make a Mint: The Cryptography of Anonymous Electronic Cash” was published by the National Security Agency (NSA) in 1996 which described the cryptocurrency system and was published in an MIT mailing list. Later in 1997, it made some changes in the perceptions of the society and they could see the impact of the cryptocurrency on the existing social and economic structure (Law, Laurie; Sabett, Susan; Solinas, Jerry, 2018).

Some countries are still not in the favor of cryptocurrency. But most countries adopt this technology like Australia. The government at first did not regulate this currency but after few cases of money laundering, they took it into consideration and make laws for cryptocurrency, Same was the case in China and India. The approaches to crypto in china were different. They banned crypto in china but then due to the money exchanger’s issues and risks regarding crypto trade, china not only allowed the miners for mining but also took responsibility for three quarters bitcoin mining’s (Bilal 2021). While in the case of India, they also blocked this technology initially. The government did not recognize any digital currency as a legal tender, in 2018 the sale and purchase of any currency was banned by the Reserve bank of India (RBI). In 2019 a petition was filed by internet and mobile associations, while in 2021 the RBI issued digital currency (Mubarak 2021). In Pakistan Cryptocurrency is also gaining popularity. Pak coin is the first cryptocurrency of Pakistan which is launched in 2015. The innovations of the payments system have plenty of witnesses such as Easy paisa. In a country, the growth and the popularity are potential for cryptocurrency. While in November 2017 the preference of the consumer is not dismissed for virtual currencies the Pakistan IMF chief advised (Hussain, 2017).

The state bank of Pakistan (SBP) and the federal board of revenue (FBR) have banned the use of any digital currency for the economy. In 2016, digital currency was recognized by the state bank of Pakistan (SBP). While in April 2018 it clearly states that any such currencies shall not be supported by the government. The transactions of any such assets will be reported. The federal board of revenue (FBR) and federal investigation agency (FIA) have taken legal action against Pak coin currency and globally recognized currencies like one chain and bitcoin (Khan 2017). In KPK, government in December 2020, passed a regulation about the legalization of cryptocurrency and crypto mining. “The cryptocurrency law is formulated by the federal government to regulate the crypto mining in Pakistan, especially in KP”. Later, Electronic Money Institutions (EMI) regulations were introduced for regulations related to digital

currencies. These regulations were part of the actions taken in the context of Financial Actions Task Force (FATF). The objective of the regulations was to regulate and monitor digital currencies in the country. The central bank needs to acknowledge the global phenomenon of the repaid growth in cryptocurrencies paying attention to such drastic global change through the national financial inclusion strategy. Under the security and exchange commission of Pakistan, state bank could take actions to reduce the risk which is associated with these currencies and categorize them as a (Hacker and Thomale 2018). Assets that are commonly used for the exchange of goods, investment, and utility tokens are making a clear distinction (Hacker and thomale, 2018). Contract law which includes following private or company law could follow by the SBP then they set the best examples like Poland in which cryptocurrencies are categorized in different subjects. This is not an alternative form of payment or does not fail in any category of financial instruments, but the revenue from cryptocurrency, personal belonging, and capital gain, it could not tax as personal income (Ruminski, A., & Lichnowska, K 2016). According to Bilal 2021, after the legalization of cryptocurrency in Pakistan will affect society in different ways. There are some difficulties in the online payment system in Pakistan due to our international reputation in the market. Due to the unavailability of such services, alot of hurdles are faced by the Pakistani freelancers. If this currency gets legalized, it will help people to buy multiple trade services in Pakistan through crypto and it also will affect the economy of our country.

1.2 Problem Statement

According to Davidson et al., (2016), the decentralization of cryptocurrency has a more dynamic monetary system. There is a need by minimizing the risk by providing effective regulations for the government with an innovative payment system. There is a different application of cryptocurrency both for the public as well as government. The state bank of Pakistan (SBP) has not recognized any digital currency. In April 2018 a circular issued that government does not support any currency that is linked with online trading. Block chain technology can be used in the development of a country to improve their democratic system as this technology is more transparent, efficient, and trustworthy (Penn Wharton Public Policy Initiative, 2017). The most significant barriers of cryptocurrencies are highlighted according to (Chowdhury et al 2013) that technology adaptation is one of the huge barriers to cryptocurrency. Also there is a trust-related barrier, as personal information is required by the cryptocurrency system, because cryptocurrency is fully digital currency and is not based on any fiat money or has no physical existence (Vyas, C.A.; Lunagaria 2014). Limited market opportunities, and fluctuation in the value of cryptocurrency are off the market-related barrier of cryptocurrency (Li, T.R.; Chamrajnagar, et al 2019). The most significant barrier to cryptocurrency is the regulatory barrier, the current study intense to explore the various barriers which are faced by different investors and institutions in Pakistan and highlights different opportunities which will be helpful in the Pakistan context.

1.3 Research Objectives

The study objectives are as follows:

- a) To explore various opportunities for cryptocurrency in Pakistan.
- b) To explore various barriers for cryptocurrency in Pakistan.
- c) To explore various strategies to promote the use of cryptocurrency as a mode of transaction in Pakistan.

1.4 Research Questions

- a) What are the opportunities that are available in the markets of Pakistan for cryptocurrency?
- b) What are the different barriers that are limiting the introduction of cryptocurrency in Pakistan?
- c) What are the various strategies that can be used to promote the use of cryptocurrency in Pakistan?

1.5 Significance of the Research

This study will give an understanding of cryptocurrency and Block chain technology. This study also highlights the various opportunities as well as barriers to cryptocurrency. The finding of the study will be fruitful for investors, investing firms, policymakers (SBP, finance ministry), and also for researchers, while finding the barriers and opportunities related to cryptocurrency in Pakistan and devising strategies for it.

According to the (Ying et al, 2018) after the discovery of the internet the most sophisticated technology and the best platform is the Block chain, which provides online transaction efficiency, with a term of security and confidentially.

This technology is very secure. The banks can easily detect suspicious activities with their operational system. The fraudsters cannot do any fraud. At the same time, they cannot validate several ledgers (Bariviera et al., 2017). Cryptocurrency provides secure transactions with a lower processing fee. Cryptocurrency is better than the use of credit cards because it provides a secure algorithm (Van Alstyne, 2014). The use of cryptocurrency is quite simple like purchasing any goods/commodities by retailers through flat money or by using a credit card (Wingfield, 2013). This study also highlights some social, methodological, academics, and industrial aspects: According to (Dolbec and Fischer, 2015, Christoph F. Breidbach, 2021) the purpose of the formation of the crypto market is to lead, manage, and respond to the firm such as work on orientation market, proactive market orientation, investigates firms, capabilities, and driving behavioral market. (Christoph F. Breidbach, 2021). The key development of the crypto assets and cryptocurrency has been rise by emerging the crypto exchanges like everyone can trade in crypto by opening an account and trade easily against fiat currencies (Hileman and Rauchs, 2017). To develop the smart concept by issuing the digital tokens, this allowed entrepreneurial teams to rise their capital through cryptocurrency and fiat money by allowing the advent of the blockchain technology (Giudici and Adhami 2019).

There are different researches done on cryptocurrency on the Legalization of Cryptocurrency in Pakistan (Bilal, 2021). Afzal and Asif, (2019) Impact of Digital Currency in Case Study Pakistan (Asfa, Pershotam, Dr. Intzar Ali Lashari). A study of the history of cryptocurrency and associated risks and threats (Robert Stanley Madey, December 2017). Bitcoin and Cryptocurrency: Challenges, Opportunities and Future Works (Muhammad Ashraf Fauzi and Norazha Paiman, August 2020). While in the Pakistani context especially in KPK this will be the first ever research made on opportunity and barriers of cryptocurrency.

2. Literature Review

The purpose of this chapter is to provide the theoretical background to this research topic. There are some major sections presented in this chapter. A literature gap has been identified. In the theoretical literature, different theories related to cryptocurrency are identified, like behavioral finance theory, the theory of money and credit, and signaling theory. While in the second phase, different currencies are defined like bitcoin, Ethereum, etc. while the final phase highlighted the overview of the financial market of Pakistan.

2.1 Developed Nations

The GDP of the US will boost to \$1.76 trillion by 2030 predict by (Pwc 2020). The expecting potential net benefit to the china for top 5 priorities are the US\$440bn. Other countries including Germany, Japan, the UK, and France will see estimated returns exceeding US\$50bn (PWC 2020). In developed nations, enterprises have been open to crypto assets. For instance, firms such Tesla has accepted Bitcoin on-and-off for car payments (Hussain and Balu, 2021).

2.2 Developing Nations

UNCTAD (2021) study (2021, p. 6) on blockchain usage notes that governments of developing countries "...should seek to strengthen their innovation systems to strategically position themselves to benefit from this new wave of technological change." (Domjan et al., 2021, p. xi) states that: "There is a growing realization all over the world, but especially in developing countries, that there is a set of problems linked to trust, verification and value transfer that could be solved with blockchain technology".

2.3 Theoretical Literature

The new investment opportunity is searched for different investors. Cryptocurrency market is a new investment platform for the investors to invest their capital in common financial markets (Chowdhury & Mendelson, 2013). There are two contradicting theories in this regard, the classical finance theory and behavioral finance theory. In the classical finance theory, due to the neutralized demand, the price will not be influenced by behavior finance. While behavioral finance theory assumes that behavioral finance factors are influenced by asset price (Almansour, 2017).

2.3.1 Behavioral Finance Theory

In the theory of behavioral finance, employees work on only herding theory as a factor of behavioral finance in the cryptocurrency market. To determine the price in the crypto market the herding theory played an important role due

to the behavioral finance theory in the case of cryptocurrency market prices. In the cryptocurrency market, private information is not paid attention to but rather public information investors (Poyser, 2018).

2.3.2 Theory of Money and Credit

According to the Carl Menger, money is acceptable as a medium of exchange, or a most marketable commodity. According to the medieval concepts, fiat money is more valuable. Vissering states that “common commodities” refer to the term money by ancient Chinese (Hayek, 1990, p.35). The concept of money is much closed to the ancient Chinese, while the definition proposed by Carlile that the most liquid asset is money which is widely used today (Hayek, 1990, p.55). There are three essential roles of money (a store of value, a medium of exchange, and a unit of account). The last two roles are fundamentally caused by the first one (Hayek, 1990, p.55) According to the Walras, commodities have a specific given quantity which is measured by the value (Walras, 1954, p.188). There is no difference between money and commodity according to these definitions. While according to the Fisher definition that “there is no difference between money and other commodities,” money is accepted as exchanges, and other commodities generally accepted as exchanges are called money argues my Fisher (Fisher, 1931, p.2). In the credit theory of money, this theory indicates that money is completely separate from the secondary characteristics which are superior to other commodities as pure trust in money is concerned as far (Simmel, 1978, p.124).

2.3.3 Signaling Theory

The signaling theory describes the behavior of two parties i.e. organizations and individuals. The first party is responsible for sending communications (termed as signals) and decides on how to communicate whereas the second party (termed as receivers) decides on how to interpret the message or signal. Signaling theory is an important theory for the management, entrepreneurs and human resource responsible in organizations (Connelly, et al., 2011). Michel spencer 1973 examined the labor market signaling that occurs in this market by introducing signaling theory. Under the condition of imperfect information, this theory provides protective problems of a social section uniquely, practically, and empirically tested. In this study, this theory penetrates and describes the signals, and the management scholars have to explore the use of this theory, also making the road map that how the scientific community can advance this theory (Spence, 1973).

2.3.5 Electronic Payment

The utilization of communication and information technology by electronic payment systems such as integrated circuits (IC), cryptography, and communication networks. Electronic payment systems are directly related to customer bank accounts except for credit cards, used such as phone banking, internet banking, debit card, and ATM banking (Pramono, et al., 2006).

2.4 Blockchain Technology

In 1991 the technology of Blockchain was first introduced by the (Stuart Haber and Wescott stornetta, Haber and Scott, 1991; Arvind et al., 2016) The technology of Blockchain is border aspects. The data of this technology is decentralized and used immutable (Kim, 2010) Blockchain technology is based on peer-to-peer transactions. This technology is associated with digital currency. The first Bitcoin currency of the cryptocurrency was supported by Blockchain technology this technology starts to shake the world with bitcoin and many other cryptocurrencies by financing and transformation of corporate government, shareholder activism, double bookkeeping accounting, and stock exchange transactions (Nakamoto, 2008). Every unit of the transaction is recovered by blockchain technology (Eyal & Sirer, 2014). Blockchain uses cryptography technology to create mining via cryptocurrency. This system consists of a user, developer, miners, maintainers, and interactions (Dos Santos, 2017). The technology of the Blockchain is very secure. Crime has been not committed by the Fraudsters. At the same time, no one will validate the ledgers or cannot change them (Bariviera et al., 2017). In the Proof of Work protocol, there is a block with a unique ID, which is proceeded by the blocks. Verification of information and transaction are also done in proof of work. With real identities, the user or a miner has done their work with the validations and proofing. With the help of the computer mathematical process, the puzzle and algorithm works are solved (Tschorsch & Scheuermann, 2016). The ownership of each unit in cryptocurrency is provided a way to verify by Blockchain technology. Which help in small contract in executing and setting up the transaction involving a title (Harvey & Tymoigne, 2015).

Making a payment with Blockchain technology is easier and particle as compared to others technologies (CrossRef).

2.5 Bitcoin

In 2009 bitcoin was first introduced by Nakamoto. Initially, in circulation, 50 bitcoins have been purchased. In this earlier stage, all around the world computer enthusiasts gives the hype lightly (Wallace, 2011). The Blockchain platform has been used to introduce the first cryptocurrency coin bitcoin. This coin is used to create a transaction log with computer participants across a network (Bohme et al., 2015). Bitcoin serves as a foundation in the form of money. It's based on value on scarcity. The central bank or monetary authority uses fiat currency to hold and reserve the money. The circulation of the money and its absolute quantity of power has been adjusted by the country's fiscal economy the bank only produced a limited amount of paper money. Scarcity will be preserved by the legal rules and recorded in the bookkeeping (Bohme et al, 2015). The risk of the bitcoin is very low. Because this is a very volatile currency. Due to its proportion and diversified portfolio, this risk is very low. The investor will purchase any commodities at a lower price will sell it's at a high rate and will earn a profit of 1000-10000 percent (Bohme et al., 2015). Bitcoin the coin of cryptocurrency based on Blockchain technology has improved and similar characteristics of fiat currencies, which has facilitated exchange. Which include salability, durability, scarcity as well as portability (Weber, 2014). At the end of 2017 over 1800 cryptocurrencies Bitcoin are widely traded and the most popular currency of cryptocurrency (Leong & ChavezDreyfuss, 2018). A digital chain of signatures is in the electronic coin. Each transaction is linked with a previous transaction of digitally signed hash and then with the public key with the next owner. Two keys are in these transactions, the private key is used to signing the transaction, while the public key is used for verifying the transaction (S. Nakamoto, 2008). Bitcoin is also known as a state transition system, which shows all existing bitcoin ownership of status as well as the transition function of the state in a form of a transaction (Ethereum Community). Compared with the others currency the transactions cost of cryptocurrency and bitcoin are low-rate transactions, and low-cost transactions are prominent with the features of the currencies, decentralization, and deregulations (Kim, 2017).

2.6 Ethereum

One of the recent currencies of cryptocurrency is Ethereum with tremendous success, which is launched in 2015. The worth of the Ethereum is increasing by 9900% value recorded in 2017 was just 10 dollars, while on 5 January 2018, the value was over 1000 dollars (Ethereum Price Index — Coin Desk 20, 2018). The decentralized application of Ethereum will be useful for large class by providing a different set of tradeoffs, and creating alternatives protocols for building decentralized applications. Ethereum co-founder is Vitalik Buterin who is a programmer of the Russian- Canadian, in this coin Russian government also take part in this technology due to the avoiding of U.N and U.S sanctions (Bilal, 2021).

2.7 Overview of Financial Markets in Pakistan

The development of the stock market in the financial market was correlated with current and future economic growth, capital accumulation, and improvement of productivity (Levon and Zervos 1996). The shortage of domestic resources was perceived as a major constraint in the economic development which meets the investment demand and imports capital goods for the lack of external resources which were required for desired industrialization (Chenery and strout 1996). In the financial market Government has been the dominant agent which has been controlled by institutions such as Nationalized Commercial Banks (NCBs) and Development financial institutions (DFIs) account, all loans for over 60 percent and less than the half of sum of all deposits and government borrowings and bonds. The deficit of government was used primarily for financing (Naeem 2014).

The financial institutions in Pakistan can be essentially classified into two broad categories, banking companies, and non-banking institutions both being controlled by the commercial bank and state bank of Pakistan (SBP). The corporate law Authority, the ministry of finance, and the religious board have regulated these institutions (Naeem 2014). With the conjunction of financial intermediaries (banks, insurance companies, and pension funds) financial markets (bond and stocks markets) perform the important channeling role of surplus loanable funds from the household, business, government, and foreigners to households in an efficient manner. To obtain funds from the market the most common method was through debt instruments (Bonds, Mortgages) the same can be done through the equity market (common stock, share in net income) (Shahid Mehmood, and Ahmad Faraz, 2020). In 1858, British Prime Minister William Gladstone expressed financial markets significance in the following words:

“Finance is, as it were, the stomach of the country from which all other organs take their tone”. This indicates that there is a direct relationship between the developments of the financial market and economic growth. (Levine, Ross 2004).

3. Methods

This part of the study deal with different approaches available to the researcher among which the study defines the framework for conducting the study. This study includes an approach for the study based on the qualitative aspect of the study.

3.1 Research Philosophy

Research philosophy are the set of beliefs related to the nature of reality that is being researched upon (Bryman, 2012). Research philosophy varies depending on the objectives of the research and depends on the way how these objectives can be achieved in the best way (Goddard & Melville, 2004). Thus, research philosophy is important in determining the research methodology as it helps in identifying assumptions inherent in the process of research. The way how research will be conducted is justified by the assumptions created as a result of the research philosophy (Flick, 2011). The research study is based using the interpretivism approach. The approach will be based be a naturalistic approach where data will be collected using different means such as interviews and observations.

3.2 Research approach

Inductive approach is the research approach in which a researcher moves from the specific to the general (Bryman & Bell, 2011). Observations are the beginning point in this approach and the researchers look for patterns in the data (Beiske, 2007). This approach is use in the qualitative research where the researcher collects data using interviews and then data to examine to see patterns in the collected data (Flick, 2011).

The research study is exploratory in nature exploring the different opportunities and barriers to cryptocurrency using the interviews for data collection. It is a qualitative study which is aimed at examining a social phenomenon. It is not aimed at finding a cause-and-effect relationship between two variables (Feilzer, 2010).

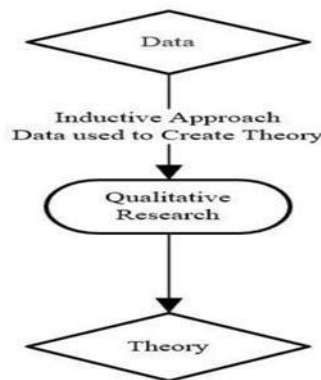


Figure 3.1: Inductive Approach in Qualitative Research. Source. Saunders et al. (2012)

3.3 Research Strategy

A research study is a planned way of going out the research work. It shows the steps and ways how the research will be carried out by the researcher. It involves the planning, executing and evaluation of the overall research work (Saunders et al., 2007).

The researcher intends to seek an exploratory strategy as the study aims to explore all those factors which were not studied before in-depth and to provide a better-researched model or investigations of different problems. A qualitative survey method is used whereby an in-depth interview was conducted to explore the different factors.

The research paper aims at identifying themes and different dynamics related to the cryptocurrency opportunities and barriers in Pakistan. For the purpose of collecting data, semi structured interviews were conducted with different investors of cryptocurrency in the country. The questions were designed to explore the investors` behavior regarding cryptocurrency. Data is collected using non-probability purposive convenience sampling technique using 360-

degree feedback (Kanaslan & Iyem, 2016). 360-degree feedback is also referred to as multisource feedback in which feedback is taken from all key stakeholders. Researcher has collected data from all major stakeholders such as the State Bank of Pakistan, investors, companies and other government institutions. For transcribing interviews into codes, nodes, themes, charts and for thematic analysis and display of the data, NVivo 13 package has been used by the researcher. Following patterns are employed by the author for carrying out the research:

- a) Literature review used to devise questions
- b) Questions are sequenced
- c) Carrying out semi-structured interviews
- d) Development of codes (open Coding, axial Coding and selective Coding) using NVivo 13 software package

3.4 Research Choice

According to Saunders et al. 2007, there are three choices for the research study (Mono, Mixed, Multi-method) A mono method is used as this study is inductive in nature and only qualitative techniques will be employed to collect data from respondents via open-ended interviews.

3.5 Time Horizons

The time horizon for research studies is defined as the time frame in which the project is intended to be completed (Saunders et al., 2007). Bryman (2012) identifies two types of time horizons i.e., cross-sectional and the longitudinal. In cross-sectional studies, the time horizon is already established. Also referred to as the “snapshot” time collection, the data is collected at one point in a time horizon (Flick, 2011).

The present research study is qualitative and inductive in nature. Data will be collected from the faculty via open-ended in-depth interviews and that will be a cross-sectional time horizon.

3.6 Data Collection

Collection of data and analysis is based in the methodological approach used for the study (Bryman, 2012). It contributes greatly towards the reliability and validity of the research study (Saunders et al., 2007).

Primary data collection methods have been used for carrying out of this study. Primary data is referred to the data which is collected from first-hand source. This can either be done using historical first-hand sources or by using primary data collection techniques such as interviews or surveys (Bryman, 2012). Primary data can also be derived from other researchers or it can also be represented by a text being analyzed (Flick, 2011). Primary data is best when the researcher wants to analyze data himself/herself rather than looking at the data from someone else's eyes.

3.7 Population

A population of the research is characterized by items or groups of individuals that possess similar nature characteristics (Castillo, 2009). The population of this study is the state bank of Pakistan, the financials department, private trading firms, and their investors.

3.8 Research Design

Research design describes the overall process as to how the research was conducted, how the respondents were selected, how the data was collected and how it was then analyzed (Flick, 2011). Research designs can be descriptive, explanatory and exploratory in nature. This study is exploratory in nature. Exploratory studies are aimed at exploring an issue before there is enough knowledge on the subject to conduct a formulaic research study. Exploratory studies are helpful in identifying areas for future studies on the subject (Neuman, 2003).

3.8.1 Samples

A sample is a representative segment of a larger population (Bryman, 2012). In qualitative research, the sample characteristics are also important, but much smaller samples tend to be used. Convenient sampling techniques are used, which is a type of non-probability sampling. In this sampling those employees were taken into account who were working in the state bank of Pakistan, and financial institutions. Also, the private trading firms and investors of the cryptocurrency markets were interviewed for this purpose who were readily available for the interviews. The interviews were totally based upon open-ended style.

3.8.2 Sample Size

The sample size represents the number of respondents selected from the overall population that is used in the research (Newman, 1998). In qualitative research, the size of the sample is less important, and the concept of representativeness is not as strong a guideline for the validity of the research.

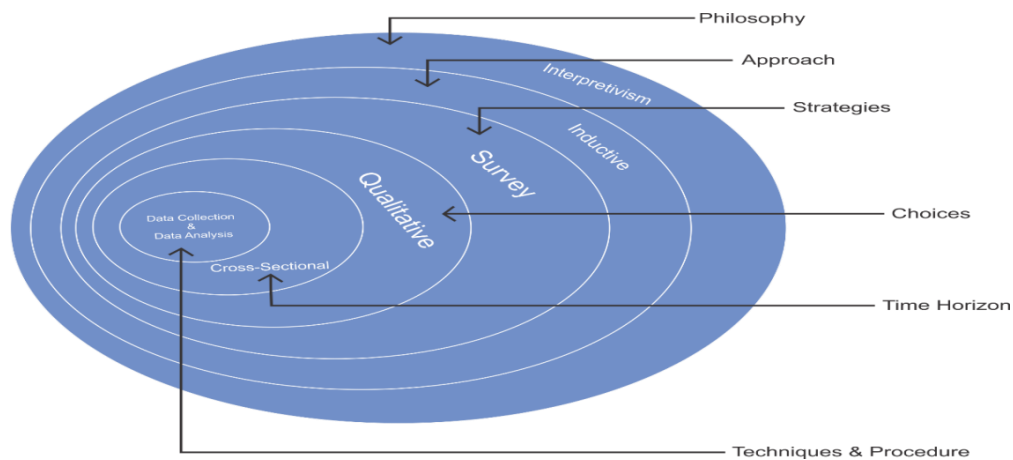
3.8.3 Sampling Techniques

Sampling techniques are the ways in which appropriate sample size is selected for the wider study (Bryman, 2012). Several accepted techniques can be used. In the present research, convenient sampling techniques were used to collect data through interviews. There are eleven (11) interviews in which (7) are taken from investors, three (3) interviews from trading firms and one (1) interview were conducted in State bank of Pakistan.

3.8.4 Data Analysis

Analysis of the study will be explorative in nature. The explorative analysis includes thematic analysis will be used to extract or find the different factors out of the interview.

Proposed Onion Model



Qualitative Research

4. Result and Discussions

The findings suggest that EL begins when entrepreneurs face challenging tasks, events, and situations that push them beyond their existing knowledge, skills, and abilities. Based on the source from which the trigger emanates, these events have been grouped into six overarching themes as shown on Exhibit 1: Competitive Pressures,

4.1 Results, Discussion, Findings and Conclusion QSR NVivo Qualitative Results

This section comprises with the results discussion in QSR NVivo qualitative results i.e. word frequency query results (word clouds, treemap, and cluster analysis charts). This session also discusses text search query i.e. word tree. Hierarchy chart and project maps are also discussing in this section.

4.2 Word Frequency Query Results

The current section shows the results about several charts of word frequency query i.e., word clouds, tree map, and cluster analysis chart.



Figure 4.1 Word cloud

Word tag loud (showed in figure 4.1) shows the related themes based on the frequency of works repeated in the entire process. The given figure shows that the repeated words are greater than the remaining word also included the count, percentage, and similar words used in the text (table no 4.1). For example, People, “Cryptocurrency” (57) with 1.26%, “profit” (166) with 0.80%, “money” (56) with 1.23%, “trade” (53) with 1.12%, “economy” (31) with 0.68%, “country” (96) with 1.70%, “market” (50) with 1.10%, “technology” (43) with 0.92%, “government” (76) with 1.12%, “legal” (67) with 1.48%, etc. Word tab clouds do not show any correlation or linkage in the words. It only shows the most repeated words.

Table 4.1 NVivo Output Word Frequency

| Word | Count | Weighted percentage (%) | Similar words |
|----------------|-------|-------------------------|--|
| Cryptocurrency | 57 | 1.26 | Cryptocurrency |
| Money | 56 | 1.23 | Money account, advantage, benefit, benefiting, benefits, clear, earned, earning, earnings, economic, fruit, gained, gaining, gains, infrastructure, issue, paying, position, positive, profit, profits, stock |
| Profit | 166 | 0.80 | |

| | | | |
|------------|----|------|---|
| Market | 50 | 1.10 | market, markets |
| Trade | 53 | 1.12 | dealing, trade, traded, trades, trading |
| Government | 76 | 1.12 | authorize, control, established, establishment, government, governments, order, ordered, orders, organization, regularized, regulated, regulations, rules |
| Country | 96 | 1.70 | countries, country, national, state, states |
| Legal | 67 | 1.48 | legal, legalization, legalize, legalized, legalizing |
| Economy | 31 | 0.68 | Economy |
| Technology | 43 | 0.92 | technical, technologies, technology |

Tree Map

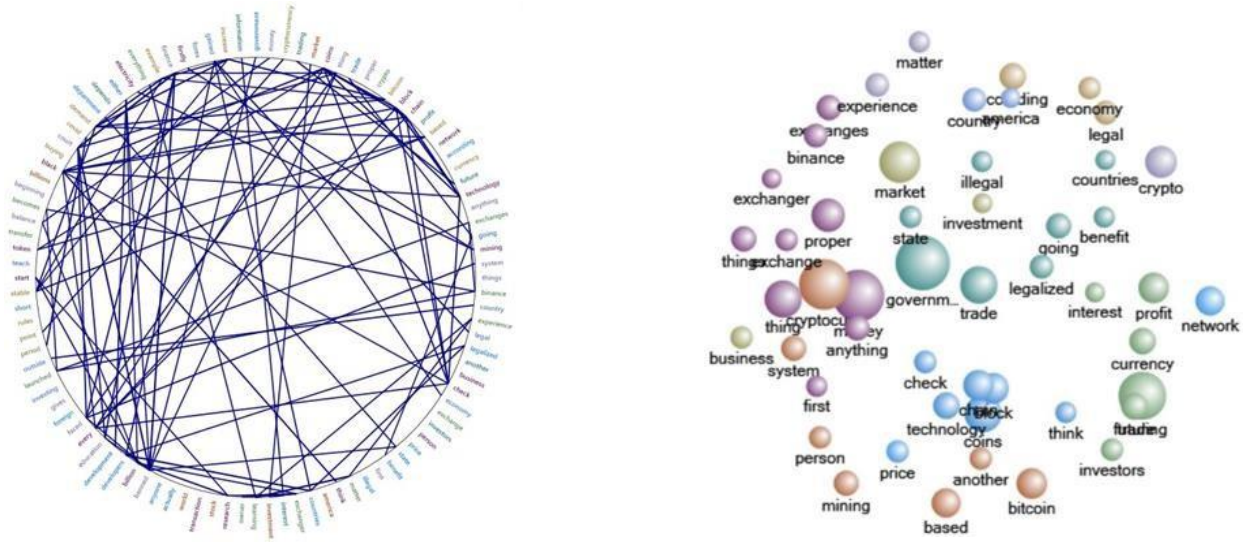


Figure 4.2 Tree Map

Figure 4.2 is about word tree map obtained from the QSR NVivo qualitative software which shows the results based on the extent of responses from one variable separately in the chart. When the number of references given for particular variables are highest, the size of the box is also the largest. Results show that the terms “Cryptocurrency” and “people” has the highest number of references that denotes that cryptocurrency is highly connected with people.

Cluster Analysis

Figure 4.3 Cluster Analysis

| | | | | | | | | | | | | | | | | | | | |
|----------------|----------|-------|-----------|------------|-----------|---------|----------|---------|--------|--------|---------|--------|---------|--------|---------|---------|-------|----------|-------|
| people | pakistan | thing | coins | trading | mining | benefit | currency | think | invest | state | accord | adopt | network | some | transac | comp | count | easily | |
| | | | | | | | | | | | | | | | | | | | |
| | market | money | governmer | technology | chain | country | economy | based | start | system | first | anyor | exch | opport | binan | foreign | mean | projex | |
| | | | | | | | | | | | | | | | | | | | |
| cryptocurrency | | | | things | different | world | every | price | resear | busine | legaliz | anythi | starte | reas | still | study | trans | value | |
| | | | | | | | | | | | | | | | | | | | |
| | profit | trade | bitcoin | | | | investme | another | future | experi | thousa | inform | billion | earn | work | bitc | ched | ever | field |
| | | | | crypto | block | person | | | | | | | | | | | | | |
| | | | | | | | proper | exchang | going | years | place | knowl | forex | learn | ame | invest | unde | basichin | |
| | | | | | | | | | | | stock | legal | inves | pers | basid | level | bank | digit | extar |

Figure 4.3 showing Cluster Analysis is also a type of word frequency query. The results of the Cluster analysis are consistent with the word cloud and tree map showing the number of references coded for a particular word in the thematic process. The analysis shows several repeated words used in the codes i.e. Government, legalized, technology, trading, demand, investment, transactions, exchangers, Blockchain, buying, trading, market, etc. These words are a severe concern in the study.

Text Search Query – Word Tree



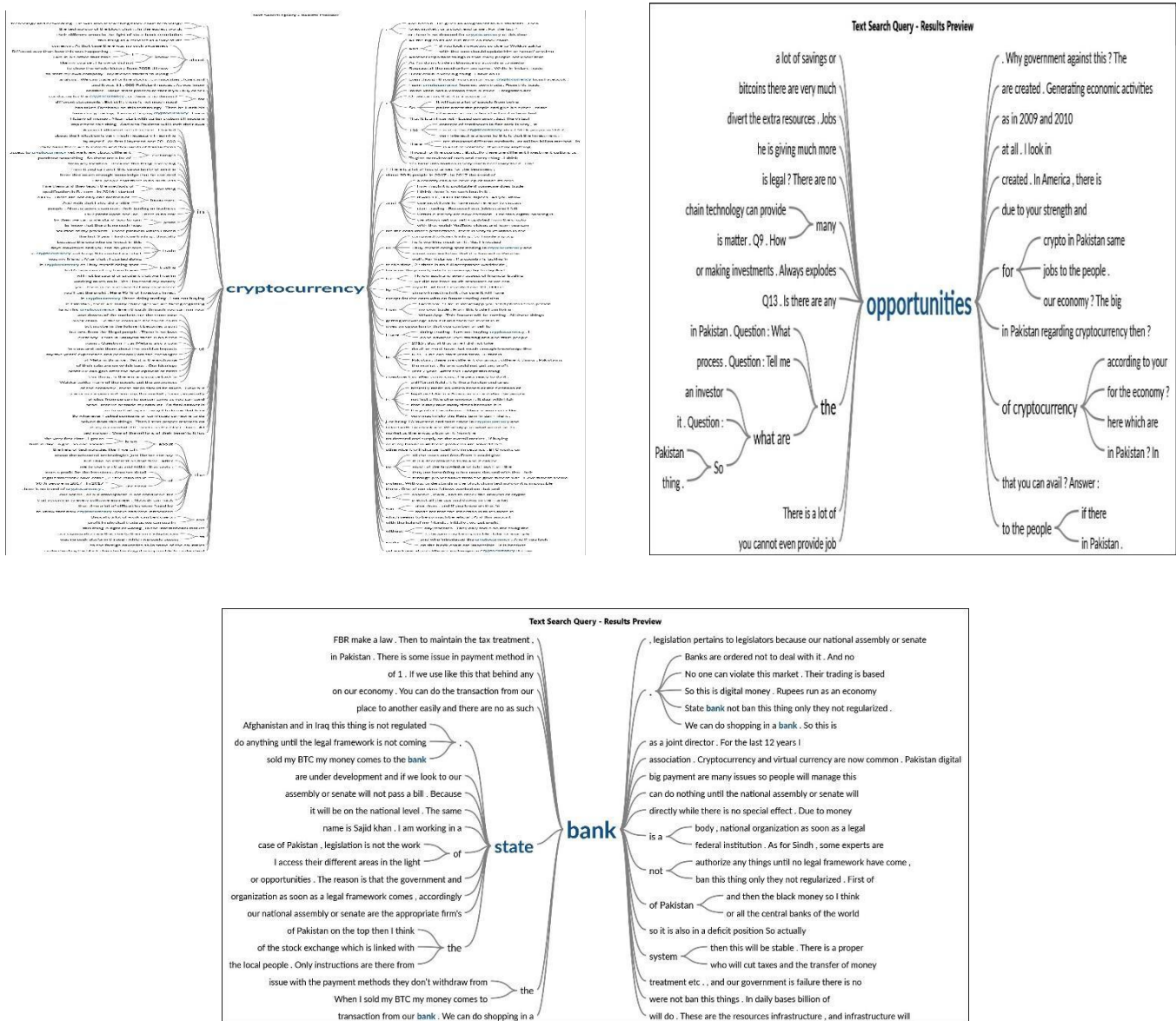
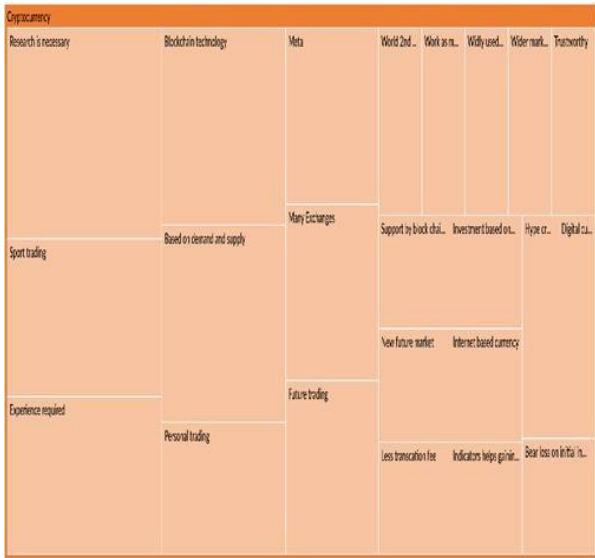


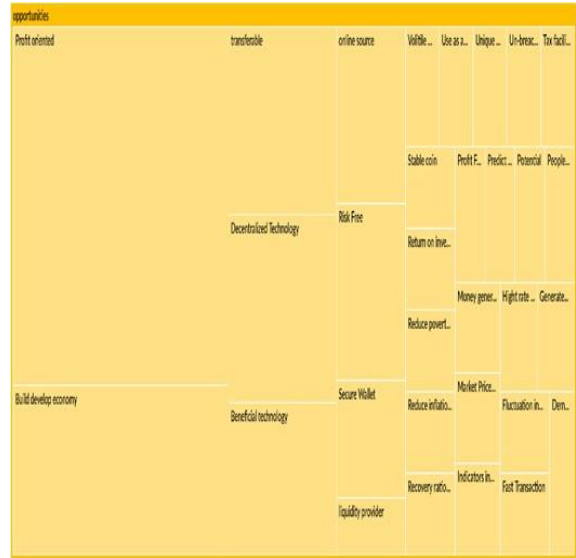
Figure 4.4 Word Tree

Figure 4.4 showing the tree map shows the direction of words and their association with a central word in the pattern of a talk by the respondents. The figure helps in identifying new themes as it shows several directions from one theme to another. The central word is the cryptocurrency and the connected responses with the central word are mapped towards the left and right in the word tree map. This leads to the formation of a complete phrase while aligning the left central right words.

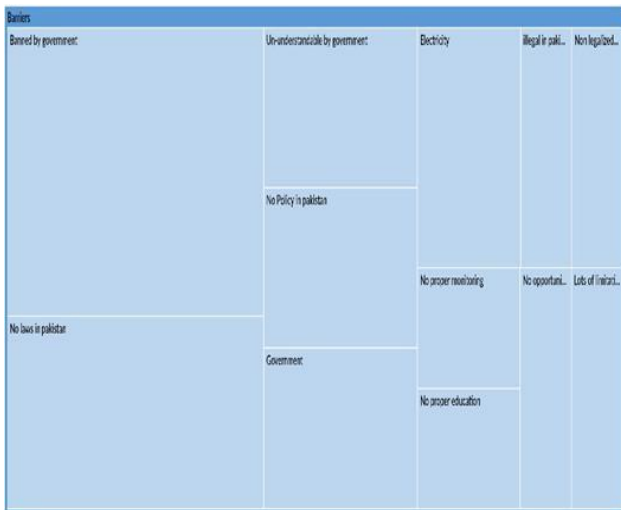
Hierarchy Chart



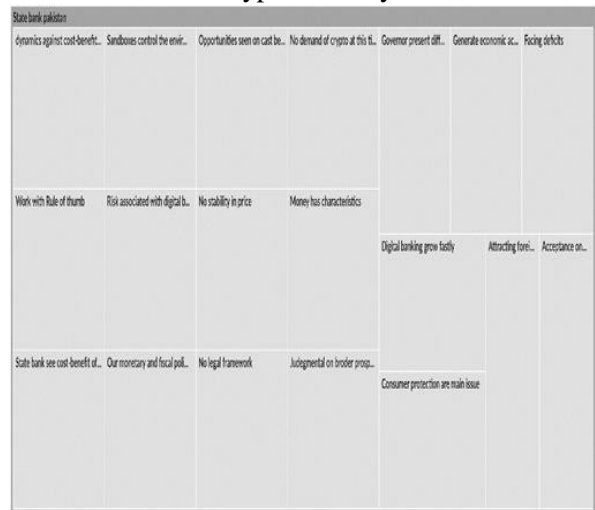
Hierarchy chat of cryptocurrency



Hierarchy chat of Opportunities in Cryptocurrency



Hierarchy chat of barriers in cryptocurrency



Hierarchy chat of State bank of Pakistan



Figure 4.5 Hierarchy Chart

The hierarchy chart (figure 4.5) shows several variables successfully coded in the study. The hierarchy chart provides all the open, axial, and selective codes. Different nudes show different factors like Opportunities shows (Profit oriented, building developed economy, demandable, etc.) Cryptocurrency shows (Research is necessary, Blockchain technology, Spot trading, etc.) Barriers shows (Banned by government, no laws in Pakistan, no policy in Pakistan, etc.) While the state bank of Pakistan nudes shows (Dynamics against cost benefits, works with the rule of thumb, SBK sees cost benefits, etc.) in the hierarchy chart.

Project Maps (Thematic Framework)

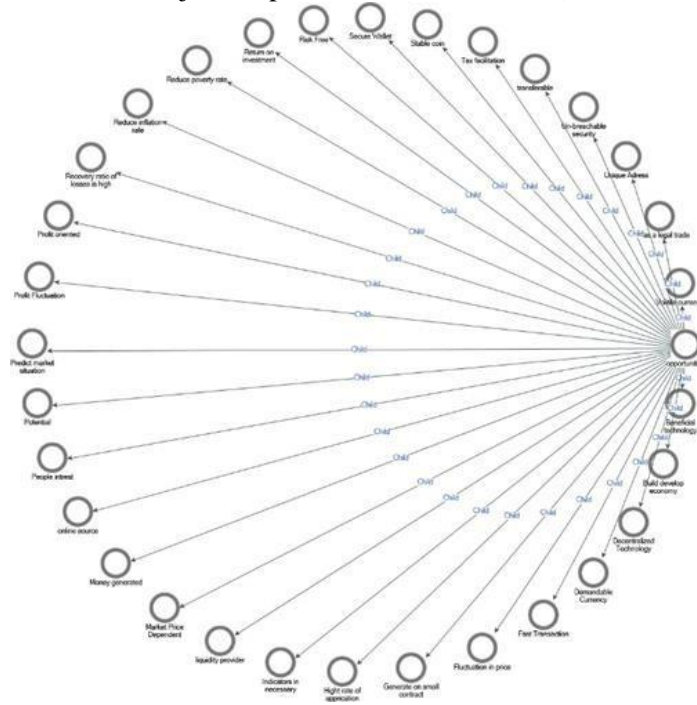


Figure 4.6: Thematic Framework of opportunities in cryptocurrency

The thematic framework of opportunities shows the main cod of opportunities linked with different child codes (Unique address, risk-free, transferrable, reduce inflation, potential, etc.)

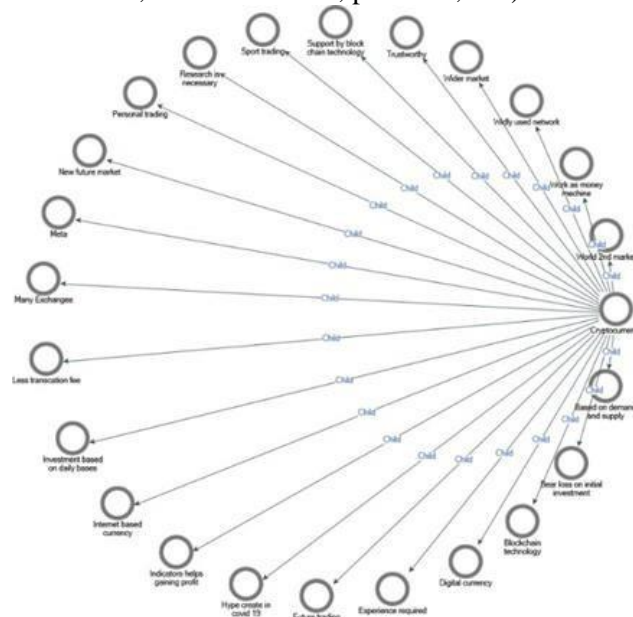


Figure 4.7: Thematic Framework of Barriers in cryptocurrency

The thematic framework of barriers shows the main cod of barriers linked with different child codes (Banned by the government, illegal in Pakistan, lots of limitations, no laws in Pakistan, no proper education, etc.)

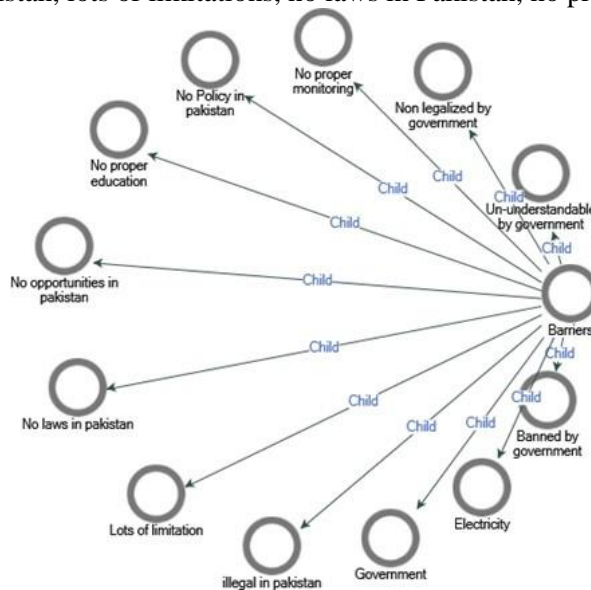


Figure 4.8: Thematic Framework of cryptocurrency

The thematic framework of cryptocurrency shows the main cod of cryptocurrency which is linked with different child codes (wider market, trustworthy, support by Blockchain technology, Meta, many exchanges, digital currency, based on demand, etc.)

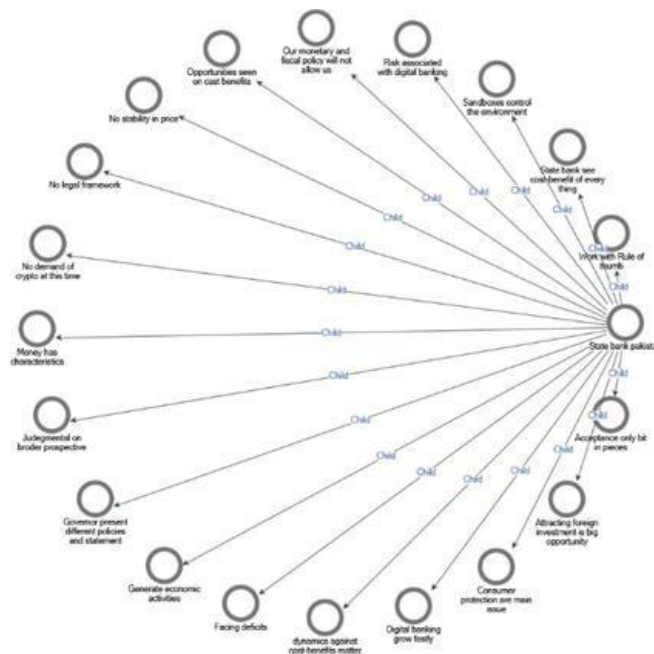


Figure 4.9: Thematic Framework of State bank of Pakistan in cryptocurrency

The thematic framework of SBP shows the main cod of SBP which is linked with different child codes (sandboxes control environment, the risk associated with digital banking, our monetary and fiscal policy will not allow us, no

legal framework, etc.)

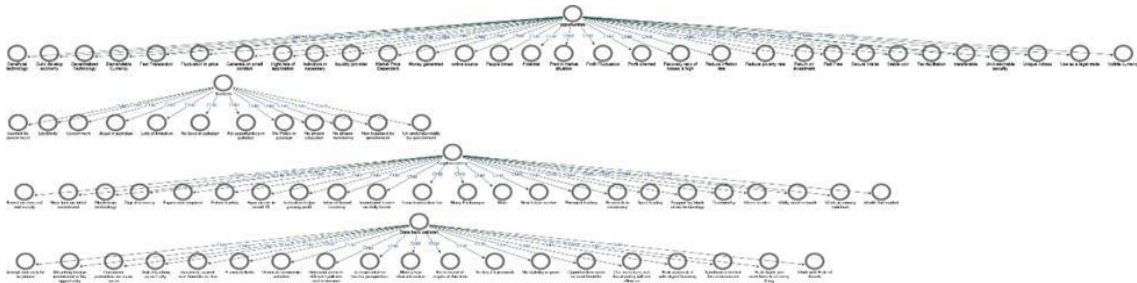


Figure 4.10: Thematic Framework

4.3 Research Findings, Discussion and Implications

There are different findings, discussions, and implications in the research which further include in main themes and sub-themes of the research.

4.3.1 Main Themes and Sub-Themes Established in Thematic Analysis

In the main themes, there are main 3 extracted from the research which are opportunities, barriers, and an overview of the state bank of Pakistan about cryptocurrency. While in sub-themes we extract different variables in the main themes of opportunities and barriers.

4.3.1.1 Cryptocurrency

Cryptocurrency is a digital currency, which is based on Blockchain technology. This currency facilitates the user to earn profit. Some of the characteristics of cryptocurrency are mentioned below which were highlighted by different investors during the open-ended interviews.

4.3.1.2 Based on Demand and Supply

The fluctuation In Bitcoin prices is due to associated market expectations. (Griffin and Shams, 2020). The unique equilibrium of the bitcoin prices is demonstrated by the economic forces (demand and supply) (Athey et al, 2016).

“Our ideology of cryptocurrency is based on demand and supply on the overall market, if buying is more than the rate will increase, and if selling is more rate will be reduced (Participant 1, company, Participant 3, Male, investor, Participant 4, company)”

The economic theory of demand and supply are directly affect with the price. When price increase, supply increase and demand decrease. Same as the case when price decrease demand increase, and supply decrease. Same as the case of cryptocurrency, when supply reduce the demand will increase. Several investors told that the overall market is based on demand and supply. The whole crypto market is running by the economic factor of demand and supply with buyers and sellers. The more buyers will increase in demand while more sellers will reduce the rate of the crypto market.

4.3.1.3 Research is necessary

“First of all we should get knowledge about it the experience is not necessary but basic information is very much necessary to take an initiative in this technology (Participant 2, Male, investor, Participant 3, Male, investor, Participant 6, Male, investor)”

Research is necessary for every field. While investing in cryptocurrency, the first thing that is research importance for any investor to know about the market situation of those coins in which the investor wants to invest. When investors intend about every analysis of the crypto market and then go to the crypto market, an initial study about this market is necessary. Without any basic knowledge of this market, investors bear the loss in the initial stage. In the above paragraph, different investors said that basic knowledge is very necessary while taking Initiative from this technology.

4.3.1.4 Based on Blockchain Technology

Blockchain is decentralized nodes that provide a secure transactional database ([miners](#); [Glaser, 2017](#)). Blockchain technology is used to develop various cryptocurrencies due to their decentralized nature. To perform any transaction or exchange any information without involving a third party due to their consensus machine. Without any central authority users can accomplish their tasks (ArunimaGhosh, Shashank Gupta, AmitDua, NeerajKumar, 2020).

“Blockchain is used for linkage there is some coin in this technology that was transferred from one place to another place. Like bitcoin, all the procedures of the transaction are held by Blockchain technology (Participant 1, company, Participant 4, company, Participant 5, Male, investor, Participant 6, Male, investor, Participant 8, Male, investor, Participant 9, Male, investor)”

According to some investors and researcher cryptocurrency is based on Blockchain technology. Blockchain is a fully secure technology which is use for transfer currency from person to person. Cryptocurrency is a decentralized technology. Which connects with a peer-to-peer network. Blockchain technology enables the existence of cryptocurrency due to its security and decentralization technology. All the secure transactions of cryptocurrency are held through Blockchain technology. Most of the coins rely on Blockchain technology.

4.3.2 Opportunities

There are different variables which based on opportunities of cryptocurrency while using the cryptocurrency.

4.3.2.1 Profitable

According to the Godfrey 2017, Bitcoin is the most efficient among cryptocurrencies. It should be noted that the higher the level of liquidity of a digital currency, the higher liquidity leads to a higher capacity for achieving abnormal profits. The significant increase in crypto investment with the recent increase in bitcoin is equal to 10% which can make a lot of profit (Reinicke, 2021).

“As according to research in 2021 majority of people in Pakistan has nearly about 25.5 billion crypto assets. I repeat \$25.5 billion and if we look at it is such a huge amount that in reality Pakistan has no such profit in physical trade as we can see in this cryptocurrency which seems to be so much beneficial. And this amount also showed the interest of the people that many of the people are interested in this as a lot of profit is coming to the market from the people (Participant 1, company, Participant 2, male, investor, Participant 4, company, Participant 7, male, investor, Participant 9, male, investor.)”

According to the above statement crypto market is profit oriented market. While investing in cryptocurrency means earning a lot of profit. There are a lot of coins in the cryptocurrency market, which gives profit to their investors while mining. Most investors said that in interviews that they earn profit while investing in cryptocurrency. One of the investors said that according to the research 25.5 billion crypto assets in Pakistan in 2021. While adopting this technology lots of profits will comes to our country which builds our economy. There are lots of people who show their interest in this market from earing profit.

4.3.2.2 Transferrable

Due to the decentralization of cryptocurrency money can easily be transferred from one person to another person according to (Conoscenti, M., Vetrò, A., Martin, and J.C.D 2017) due to the associated distributed network of Blockchain peer-to-peer (p2p) is prevalent and this was popular of sharing between users. P2P is being able to share resources with other peers in the network. The two-party electronic payment system is based on Blockchain technology. Which was fundamentally change the nature of electronic payment (Nakamoto 2008).

“A cryptocurrency is a decentralized form and it can be transferred from one place to another easily and there are no such bank systems that will cut taxes and the transfer of money from one place to another place (Participant 1, company, Participant 2, Male, investor, Participant 3, Male, investor, Participant 5, Male, investor, Participant 10, Male, investor.)”

Transferring data from one person to another is one of the opportunities of cryptocurrency because of its Blockchain technology which provides a peer-peer network. In the above statement, several investors said that this is a decentralized currency that can easily perform the transferability function from one person to another person without cutting any extra tax or charges. As we know that cryptocurrency is a decentralized technology that performs the transferability function. The transferability opportunity of cryptocurrency provides benefits to the investor to transferability without cutting any extra tax and transactional charges.

4.3.2.3 Decentralized Technology

The decentralization of cryptocurrency due to Blockchain technology has been further glorified and popular (Alabdulwahhab, 2018). Cryptocurrency allows people to manage their funds due to their decentralized system without any intermediary (Afzal and Asif, 2019). The decentralization of bitcoin technology has a major innovation (Böhme et al., 2015). Bitcoin is a complete digital decentralized currency that did not need any middleman (Sharma, D. K et al., 2020).

“The whole technology is decentralized if something is in the control of one person so it seems dangerous. So this is a decentralized technology and it is in the hands of many people so it is free of any risk (Participant 1, company, Participant 9, Male, investor.)”

Decentralized technology is peer-to-peer Blockchain technology. This technology is free of any risk due to its decentralization. Because this technology is link with many persons in a chain form due to its Blockchain technology. If this technology is on one hand, then it will seem dangerous. Blockchain provides secure technology, and due to this Cryptocurrency has been further secure, popular, and risk-free technology. While in the above statement interviewers highlight one of the opportunities of decentralized technology cryptocurrency. Interviews said that the whole technology is based on decentralized technology due to its Blockchain technology. This technology is totally risk-free technology.

4.3.2.4 Stable Economy

Whether BTC delivers to the high expectations of financial inclusion and *hedging against inflation*. Cryptocurrency has a lot of potentials to satisfy the customers against the gradually adopting demands of economy. The exchange rate of the bitcoin in a long run is much more responsive to economic fundamentals. According to the DeVries (2016) Bitcoin contributes to a change in an economics paradigm,

“If it is legalized by the government of Pakistan so the economy of Pakistan can also be improved (Participant 1, company, Participant 2, Male, investor, Participant 6, Male, investor, Participant 7, Male, investor, Participant 8, Male, investor, Participant 10, Male, investor.)”

The above statements prove that, as there are lots of opportunities for cryptocurrency, which is beneficial for the investor as well as the economy of any country. Cryptocurrency is a secure and profit-oriented currency. Due to the strong demand in the economy, cryptocurrency has a lot of potential. This technology will boost the economy of our country if it will be legalized by our government properly. Then this technology can stabilize the economy. If the government of Pakistan adopts this technology and starts working on this technology, then this technology helps to boost the economy and provide profit-oriented trading platform.

4.3.2.5 Tax Gives Benefit to Economy

Regarding tax, cryptocurrency provides a set of new challenges to the various governments. The government needs to define legal definitions of many financial instruments regarding cryptocurrency based on economic systems to provide stability to crypto tax policy. To increase the GDP of developing countries like Pakistan (Naheeda Ali, 2022). States need to work toward creating a taxation system for digital assets that directs incentives toward the promotion of long-term economic growth (Rijswijk, L. V., et al., 2018).

“Taxes are deducted from each transaction quickly. If Pakistan operates these things then all the taxes have come to the government of Pakistan. . When the government adopts this currency then the government will charge taxes and get benefits to the economy. Because at a time everyone will go for this currency. (Participant 1, company, Participant 2, Male, investor, Participant 5, Male, investor, Participant 8, Male, investor, Participant 9, Male, investor)”

In the above statement, the interview refers to the benefits of a tax system in which taxes are automatically deducted from each transaction. The investors believe that if the government of Pakistan operates this system, the taxes collected will directly go to the government and contribute to the country's economy. The interviewee further stated that if the government adopts a certain cryptocurrency currency, it can charge taxes on transactions and get benefits to the economy. This is because they believe that eventually, everyone will adopt this currency, and thus, the government will have a higher chance of generating more tax revenue. The interviewee is making the argument that a tax system in which taxes are deducted from transactions can be beneficial to the government and the economy.

“This is an advantage no dough; there is some advantage in this thing but there is a cost. Everything has a cost like we assessment of infrastructure so billion of \$ are invested, and against this how much tax we received. Are these billions of dollars NO, does our fiscal or monetary policy situation allow us this time? NO, so from a very broader perspective, we will see things. You need to see things from a broader perspective. (State Bank of Pakistan)”

According to the statement of SBP receiving tax while mining in cryptocurrency is an advantage for the country. But everything wants a cost, and due to this our monetary policy and fiscal policy do not allow us that time, tax is not more than the cost, we need to see things from a broader perspective. While adopting cryptocurrency mining is necessary for this technology, without mining this technology is useless. But mining requires a lot of costs, and Pakistan is not in this position due to its monetary and fiscal policy, and in return, not much profit as we gain to improve or stable economy.

4.3.3 Barriers

Same as the case of the opportunities of cryptocurrency, there are different variables of barriers extracted from the thematic analysis which is:

4.3.3.1 No law for Cryptocurrency in Pakistan

The Cryptocurrencies marketplace has very little and unpredictable legislation (Corbet S. et al., 2019). The legislation of cryptocurrency is implemented by two countries Australia and Canada that comply with money laundering and counter to found terrier’s organizations’ legislations. While others, such as Pakistan, Nepal, Vietnam, Bolivia, and others, outright outlaw any activity about cryptocurrencies (Naheeda Ali, 2022). Legislations provide a safeguard to investors from suffering financial losses as well as fraudulent schemes in digital assets (Nadlifatin, R et al., 2022).

“There are no policies from the government side for the local people and no proper law has been made for it to act, for option. Whether it is legal or illegal. So in short there is no law for this (Participant 1, company, Participant 4, company, Participant 8, Male, investor, Participant 9, Male, investor,)”

Legislation is very important for any country. When it comes to digital technology this will be very important for the protection of any fraud and provide a secure digital technology. As all we know that we are living in the age of technology. Due to this for any country development legislation is very important. According to several investors, there are no laws or not policies made by the government of Pakistan for their local people whether this currency is legal or illegal. If the government starts working on this thing and makes proper laws and policies for cryptocurrency then this will be very beneficial for investors as well as the economy.

“There is no full acceptance worldwide, these are only a bit in pieces. Or in very strengthening condition, in the case of Pakistan, legislation is not the work of the state bank, legislation pertains to legislators because our national assembly or senate are the appropriate firm’s state bank does not authorize any things until no legal framework have come (State Bank of Pakistan)”

According to the above statement legislation is made by the legislator’s, parliament or any government body. Cryptocurrency is not fully accepted worldwide, only accepted in pieces. While in the case of Pakistan legislation, it is not the job of SBP, it is authorized by the legislators (national assembly, senate, etc.) without any legal framework, SBP is not authorized anytime.

4.3.3.2 Banned by Government

According to the statement of the State Bank of Pakistan, digital currencies are not recognized in the country and thus its sale, purchase, exchange and investment is not authorized by the central bank of Pakistan.

“The government is blaming that this is not a good trade it should be blocked or banned as there is nothing such as that so there is no proper education. (Participant 1, company, Participant 2, Male, investor, Participant 9, Male, investor, Participant 10, Male, investor,)”

It is very important for any country's economy that either government properly adopts anything and provides proper education, or properly banned this thing so that people will be secure from any fraud. Several investors said this is not a good trade according to the government. The government should take one step either it should be properly blocked or the government provides proper education about this technology.

5. Conclusion and Limitation

5.1 Conclusion and Future Scope of the Study

The implications of the research study as well as the limitations of the current study will be presented. It will also identify areas for future research on the subject. The chapter will present the conclusion of the study which will tie together the whole document and show if the purpose of the study is achieved.

5.2 Conclusion

The current study has aimed to explore various opportunities for cryptocurrency in Pakistan and also to explore various constraints for cryptocurrency in Pakistan. For this purpose, the study has followed an inductive method of research as there is no such well-established published work available. The study used the interview as a mode of data collection and semi-structured questions were asked from various stakeholders including investors, investment managers, and policymakers. The study followed thematic analysis for analysis as well as NVivo was also used for the analysis. The results of various analysis showed that there are various barriers to the cryptocurrency such as banned by the government, illegal in Pakistan, no laws in Pakistan, etc and various opportunities such as transferability, tax facility, stable economy, profit oriented, and decentralized technology etc.

There are lots of barriers to cryptocurrency in Pakistan are as followed:

1. According to some investor interviews and different previous studies that one of the major barriers to Cryptocurrency is government. Pakistani government does not support this technology. Due to this, there's no law or policy regarding cryptocurrency in Pakistan is another barrier.
2. Cryptocurrency is not supported by the government of Pakistan because technology is illegal in Pakistan.
3. There are no laws, legislation, and no proper education for this technology. Without any law, this technology has harmful to our economy because there's no proper education for this technology. Without education investors bear losses.
4. If the government adopts this technology by legalizing it and providing proper education than this technology will help financially as well as educationally, and we will parallel other countries in this technology racing.

There are lots of opportunities for cryptocurrency in Pakistan are as followed:

1. According to the investor's interviews and different previous research studies. However, when looking at the data collected, the most reasonable interpretation is that many of the investment blockers are the results of limited access, information, and big risks. As we know that cryptocurrency is backed by Blockchain technology due to this decentralized technology. This is fully secure technology due to their peer-to-peer network.
2. Another opportunity for cryptocurrency is profit-oriented technology. There are lots of previous studies as well as investor interviews that show that this technology is profit-oriented. If someone adopts this technology and starts investing in this technology, this technology will give a profit. Giving a high percentage of profit this will be fruit-full in boosting the economy of any nation.
3. The same is the case of Pakistan. If Pakistan adopts this technology this will help to develop the economy and gives benefits to the economy in the shape of profit, transaction fee, and tax rate. While using this technology tax are automatically deducted from each transaction, and this tax money goes to another country which will be fruitful for their economy. If Pakistan adopts this technology, then tax fee comes to our economy and will boost the economy, because taxes give benefit to the economy and makes stable economy.

5.3 Theoretical implications

Through this study, there have been further contributions to the fairly new subject of cryptocurrencies. This study gives a new perspective to cryptocurrency investors and firms.

The general findings are in line with previous studies, which were found in the literature review and explored through the conducted interviews. It was quite obvious just after a few interviews that the results and thoughts were very similar, something that has resulted in very strong results and not many discussion possibilities.

5.4 Practical Implications

The practical implications that were discovered early in the research process were the limited number of people having other than surface-level knowledge of cryptocurrencies. Therefore, it was important to make sure that we used

a snowballing technique to get in contact with more potential interviewees. There was a wider group of investors who showed interest in cryptocurrency investment and earn profit from this currency. A lot of people do not wish to share information about investments and how they handle their money, therefore information has at times been hard to get out of the selected interviewees.

5.5 Limitations and Future Research

This study faces certain limitations that allows futures researchers to investigate the underline areas. Limitations & future recommendations of the study have the following;

- I. This study scope was limited to Pakistan only.
- II. Small sample size was used as a smaller number of investors and regulators were able to access as most of the investors do not provide information being the crypto not a legal investment in Pakistan.
- III. Very less literature is available that could guide us regarding barriers and opportunities to cryptocurrency.

5.6 Delimitation

This study has the following limitations;

- i. Cryptocurrency regulations vary significantly across different countries.
- ii. Cryptocurrencies are often designed for specific use cases. For instance, Bitcoin was initially conceived as a decentralized digital currency, while other cryptocurrencies may have different purposes, such as enabling smart contracts or facilitating private transactions.
- iii. Cryptocurrencies face security challenges, including the risk of hacking, fraud, and vulnerabilities in smart contracts.
- iv. Cryptocurrency markets can be subject to volatility and manipulation.

Reference

- Alabdulwahhab, F.A.: Web 3.0: the decentralized web blockchain networks and protocol innovation. In: 2018 1st International Conference on Computer Applications Information Security (ICCAIS), pp. 1–4 (2018)
- Almansour, B. Y. (2017). Investment decision making among Gulf investors: Behavioural finance perspective. *International Journal of Management Studies*, 24(1), 41–71.
- ArunimaGhosh, ShashankGupta, AmitDua, NeerajKumar (2020) *Journal of Network and Computer Applications* Volume 163, 1 August 2020, 102635 <https://www.sciencedirect.com/science/article/abs/pii/S1084804520301090>
- Athey S, Parashkevov I, Sarukkai V, Xia J (2016) Bitcoin pricing, adoption, and usage: theory and evidence (No. 17-033). IDEAS working paper series from RePEc. St. Louis. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2826674
- Although cryptoassets is a more general term, as explained in Burniske and Tatar (2017), we use cryptoasset, cryptocoin, and cryptocurrencies terms indistinguishably
- Bariviera, A. F., Basgall, M. J., Hasperué, W., & Naiouf, M. (2017). Some stylized facts of the Bitcoin market. *Physica A: Statistical Mechanics and its Applications*, 484, 82-90. <https://doi.org/10.1016/j.physa.2017.04.159>
- Beiske, B. (2007). *Research Methods: Uses and limitations of questionnaires, interviews and case studies*, Munich: GRIN Verlag.
- Böhme, R., Christin, N., Edelman, B., & Moore, T. (2015). Bitcoin: Economics, technology, and governance. *The Journal of Economic Perspectives*, 29(2), 213-238. <http://dx.doi.org/10.1257/jep.29.2.213>
- Bresnahan, T.F.; Trajtenberg, M. General purpose technologies “Engines of growth”? *J. Econom.* 1995, 65, 83–108. [CrossRef]
- Bryman, A. (2012). *Social research methods* (5th ed.). Oxford: Oxford University Press.
- Bryman, A., & Allen, T. (2011). *Education Research Methods*. Oxford: Oxford University Press.
- Chenery, Hollis, and Alan Strout (1966) *Foreign Assistance and Economic Development*. *American Economic Review* 56: 679-733.
- Chowdhury, A., & Mendelson, B. K. (2013). *Virtual currency and the financial system: The case of Bitcoin*. Working Paper.

- Christoph F. Breidbach, Silviana Tana. (2021). betting on Bitcoin: How social collectives shape cryptocurrency markets. 311-320
- CoinMarketCap. Cryptocurrency Prices, Charts and Market Capitalizations. 2021. Available online: <https://coinmarketcap.com/> (accessed on 30 June 2021).
- Conoscenti, M., Vetrò, A., Martin, J.C.D.: Peer to peer for privacy and decentralization in the internet of things. In: 2017 IEEE/ACM 39th International Conference on Software Engineering Companion (ICSE-C), pp. 288–290 (2017)
- Connelly, B.L., Certo, S.T., Ireland, R.D., Reutzel, C.R. (2011), Signaling theory: A review and assessment, *Journal of Management*, 37(1), 39-67
- Crosby, M. a. (2016, june). Blockchain technology: Beyond bitcoin. *Applied Innovation*, 2(2), 6--10.
- Davidson, S., De Filippi, P., & Potts, J. (2016). Disrupting governance: The new institutional economics of distributed ledger technology. Retrieved from <https://dx.doi.org/10.2139/ssrn.2811995>
- Davies, G. (2010). *History of money*. Cardiff: University of Wales Press.
- DeVries, P. D. (2016). An analysis of cryptocurrency, bitcoin, and the future. *International Journal of Business Management and Commerce*, 1(2), 1-9.
- Dolbec *et al.* (2015) Refashioning a field? Connected consumers and institutional dynamics in markets *Journal of Consumer Research*.
- Dos Santos, R. P. (2017). On the Philosophy of Bitcoin/Blockchain Technology: Is it a Chaotic, Complex System? *Metaphilosophy*, 48(5), 620-633.
- Domjan et al., 2021 P. Domjan, G. Serkin, B. Thomas, J. Toshack Introducing Blockchain: Tomorrow's Railroads *Chain Reaction* (2021), pp. 1-8, [10.1007/978-3-030-51784-7_1](https://doi.org/10.1007/978-3-030-51784-7_1)
- Dr Mubarak, Assistant Professor and Research Guide, Department of P G Studies and Research in Commerce, VSK University, P G Centre Nandihalli-Sandur-583119 ** Hosmani Manjunath, Research Scholar, Department of P G Studies and Research in Commerce, VSK University, PGCentreNandihalli-Sandur-583119 <https://www.researchgate.net/publication/353887034>
- Eyal, I., & Sirer, E. G. (2014, March). Majority is not enough: Bitcoin mining is vulnerable. In: International conference on financial cryptography and data security (pp. 436-454). Berlin/ Heidelberg, Germany: Springer.
- Ethereum Price Index—CoinDesk 20. (2018). CoinDesk <https://www.coindesk.com/price/ethereum>
- Ethereum Community, “A next-generation smart contract and decentralized application platform,” White Paper, available at: <https://github.com/ethereum/wiki/wiki/White-Paper>
- Feilzer, M. Y. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research*, 4(1), pp.6-16.
- Fisher, Irving (1931[1911]), *The Purchasing Power of Money: its determination and relation to credit, interest and crises*, New York: Macmillan
- Flick, U. (2011). *Introducing research methodology: A beginner’s guide to doing a research project*. London: Sage.
- F. Glaser Pervasive decentralisation of digital infrastructures: A framework for blockchain enabled system and use case analysis <https://ssrn.com/abstract=3052165>
- Giudici, G., & Adhami, S. (2019). The governance of ICO projects: Assessing the impact on fundraising success. *Journal of Industrial and Business Economics*, 46(2), 283–312.
- Godfrey, Keith R. 2017. Toward a model-free measure of market efficiency. *Pacific-Basin Finance Journal* 44: 97–112.
- Griffin JM, Shams A. Is Bitcoin really untethered? *J Financ*. 2020;75(4):1913–1964. doi: 10.1111/jofi.12903. [CrossRef] [Google Scholar]
- Goddard, W. & Melville, S. (2004). *Research Methodology: An Introduction*, (2nd ed.) Oxford: Blackwell Publishing.
- Haber, Stuart; Stornetta, W. Scott (January 1991). "How to time-stamp a digital document". *Journal of Cryptology*. 3 (2): 99–111. CiteSeerX 10.1.1.46.8740. doi:10.1007/bf00196791.
- Hacker, P., & Thomale, C. (2018). Crypto-securities regulation: ICOs, token sales and cryptocurrencies under EU financial law. *De Gruyter*, 15(4), 645–696.
- Harvey, C., & Tymoigne, E. (2015, March 1). Do cryptocurrencies such as Bitcoin have a future? *Wall Street Journal*. Retrieved from <https://www.wsj.com/articles/do-cryptocurrencies-such-as-bitcoin-have-a-future-1425269375>

- Hussain and Balu, 2021_Hussain, N. Z., & Balu, N. (2021). Tesla will “most likely” restart accepting bitcoin as payments, says Musk. Retrieved January 1, 2022, from <https://www.reuters.com/business/autos-transportation/tesla-will-most-likely-restart-accepting-bitcoin-payments-says-musk-2021-07-21/>.
- Hayek, F. A. (1990). *Denationalisation of Money: The Argument Refined*. London: The institute of Economic Affairs.
- Hileman, G., & Rauchs, M. (2017). *Global cryptocurrency benchmarking study*. Cambridge Centre for Alternative Finance. <https://cdn.crowdfundinsider.com/wp-content/uploads/2017/04/Global-Cryptocurrency-Benchmarking-Study.pdf>. Accessed 14 Sept 2019.
- Husain, T. (2017, November 20). Is Bitcoin the future for Pakistan? *Express Tribune*. Retrieved from <https://tribune.com.pk/story/1563057/2-financial-innovation-bitcoin-future-Pakistan>
- Kanaslan, E. K., & Iyem, C. (2016). Is 360 Degree Feedback Appraisal an Effective Way of Performance Evaluation? *International Journal of Academic Research in Business and Social Sciences*, 6(5), 172–182. <https://doi.org/10.6007/ijarbss/v6-i5/2124>
- Khan, M. Z. (2017, May 25). FBR goes after bitcoin traders. *Dawn*. Retrieved from <https://www.dawn.com/news/1335184>
- Khurshid, Jamal (2020). State Bank did not declare crypto currency illegal, SHC told. *The News*, 2020.
- Kim, T. (2017). On the transaction cost of Bitcoin. *Finance Research Letters*, 23, 300-305. <http://dx.doi.org/10.1016/j.frl.2017.07.014>
- Kim, Y.-J. a. (2010). A secure decentralized data-centric information infrastructure for smart grid. *IEEE Communications Magazine*, volume= {48}, number= {11}.
- Leong, R., & Chavez-Dreyfuss, G. (2018, May 14). Fed’s Bullard says cryptocurrencies only adding to tangled market. *Reuters*. Retrieved from <https://www.reuters.com/article/us-usa-fed-bullardcryptocurrencies/feds-bullard-says-cryptocurrencies-only-adding-to-tangled-market-idUSKCN1IF1TA>
- Law, Laurie; Sabett, Susan; Solinas, Jerry (11 January 1997). "How to Make a Mint: The Cryptography of Anonymous Electronic Cash". American University Law Review. 46 (4). Archived from the original on 12 January 2018. Retrieved 11 January 2018. https://en.wikipedia.org/wiki/Cryptocurrency in The American Law Review (Vol. 46, Issue 4).*
- Levine, Ross, and Sara Zervos (1996) Stocks Markets, Banks, and Economic Growth the World Bank. (Working paper)
- Levine, Ross (2004) ‘Finance and Growth: Theory and Development’; Levin, Beck and Asli (2004) ‘Finance, Inequality and Poverty: Cross-country Evidence’; Lopez and Spiegel (2002) ‘Financial structure and macroeconomic performance over the short and long run’.
- Li, T.R.; Chamrajnagar, A.S.; Fong, X.R.; Rizik, N.R.; Fu, F. Can local stress enhancement induce stability in fracture processes? Part I: Apparent stability. *Front. Phys.* 2019, 7, 1–8. [CrossRef]
- Lorenzo and Arroyo *Financial Innovation* (2022) 8:7 <https://doi.org/10.1186/s40854-021-00310-9>
- Middlebrook, S. T., & Hughes, S. J. (2014). Regulating cryptocurrencies in the United States: Current issues and future directions. *William Mitchell Law Review*, 40(2), 813–848.
- Naheeda Ali (2022) legislate blockchain and cryptocurrencies; to tax the crypto trade in Pakistan <https://mc-caddogap.com/wp-content/uploads/paper-40-of-vol-8-issue-3.pdf>
- Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system. Working Paper.
- Nadeem Ul Haque on 02 July 2014. Financial Market Reform in Pakistan https://www.researchgate.net/publication/24046043_Financial_Market_Reform_in_Pakistan
- Neuman, W. L. (2003). *Social Research Methods: Qualitative and Quantitative Approaches*, London: Allyn & Bacon.
- Newman, I. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale: Southern Illinois University Press.
- Penn Wharton Public Policy Initiative. (2017). *the business of voting: Market structure and innovation in the election technology industry*. Philadelphia: Author.
- PwC. (2020, October 13). Blockchain technologies could boost the global economy US\$1.76 trillion by 2030. Retrieved July 4, 2021, from <https://www.pwc.com/gx/en/news-room/press-releases/2020/blockchain-boost-global-economy-track-trace-trust.html>
- Poyser, O. (2018). Herding behavior in cryptocurrency markets (Issue November). <http://arxiv.org/abs/1806.11348>

- Pramono, B., Yanuarti, T., Purusitawati, P., & Emmy, Y. (2006). Dampak Pembayaran Non Tunai terhadap Perekonomian dan Kebijakan Moneter. Working Paper Bank Indonesia
- Reinicke, C. (2021, August 24). 1 in 10 people currently invest in cryptocurrencies, many for ease of trading, CNBC survey finds. CNBC; CNBC. <https://www.cnbc.com/2021/08/24/1-in-10-people-invest-in-cryptocurrenciesmany-for-ease-of-trading.html>
- Rijswijk, L. V., Hermsen, H., & Arendsen, R. (2018). Exploring the future of taxation: A blockchain scenario study. TARC workshop, 23-24 April 2018.
- Ruminski, A., & Lichnowska, K. (2016, October 12). Blockchain: A Polish perspective. University of Oxford, Faculty of Law. Retrieved from <https://www.law.ox.ac.uk/business-law-blog/blog/2016/10/blockchain-polish-perspective>
- Satoshi Nakamoto. (2008). Bitcoin: A peer-to-peer electronic cash system. Retrieved from <https://bitcoin.org/bitcoin.pdf>
- Shahid Mehmood and Ahmad Faraz 2020, The Poor State of Financial Markets in Pakistan, <https://pide.org.pk/research/the-poor-state-of-financial-markets-in-pakistan/>
- Sharma, D. K., Pant, S., Sharma, M., & Brahmachari, S. (2020). Cryptocurrency mechanisms for blockchains: models, characteristics, challenges, and applications. Handbook of research on blockchain technology, 323-348.
- Simmel, Georg (1978 1907), the Philosophy of Money, London: Routledge
- S. Nakamoto, "Bitcoin: a peer-to-peer electronic cash system," 2008, available at: <https://bitcoin.org/bitcoin.pdf>
- Spence, M. (1973), Job Market Signaling. The Quarterly Journal of Economics, 87(3), 355-374.
- State Bank of Pakistan. (2016). Soundness and efficiency of financial market infrastructure. In Financial Stability Review (Chap. 5). Retrieved from <http://www.sbp.org.pk/FSR/2016/pdf/Chap-5.pdf>
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Research Methods for Business Students, (6th ed.) London: Pearson.
- Tezel, A.; Febrero, P.; Papadonikolaki, E.; Yitmen, I. Insights into Blockchain Implementation in Construction: Models for Supply Chain Management. J. Manag. Eng. 2021, 37, 1–19. [CrossRef]
- Tschorsch, F., & Scheuermann, B. (2016). Bitcoin and beyond: A technical survey on decentralized digital currencies. IEEE Communications Surveys & Tutorials, 18(3), 2084-2123
- UNCTAD 2021 UNCTAD, (2021) Harnessing blockchain for sustainable development:prospects and challenges. Paper presented at the United Nations Commission on Science and Technology for Development Inter-sessional Panel 2020-202118-22 January 2021 Geneva, Switzerland.
- Van Alstyne, M. (2014). Why Bitcoin has value. Communications of the ACM, 57(5), 30-32. DOI: 10.1145/2594288
- Vyas, C.A.; Lunagaria, M. Security Concerns and Issues for Bitcoin. Int. J. Comput. Appl. 2014, 10–12. Available online: <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.667.5197&rep=rep1&type=pdf> (accessed on 15 February 2022).
- Wallace, B. (2011). The Rise and Fall of Bitcoin Wired. Lnbiiuuu
- Walras, L. (1954 [1874]), Elements of Pure Economics or the Theory of Social Wealth, London. George Allen & Unwin, translation by W. Jaffé
- Wingfield, N. (2013). Bitcoin pursues the mainstream. New York Times. Retrieved March 27, 2018 from: <http://www.nytimes.com/2013/10/31/technology/bitcoin-pursuesthe-mainstream.html>
- Ying, W., Jia, S., & Du, W. (2018). Digital enablement of blockchain: Evidence from HNA group. International Journal of Information Management, 39, 1-4. <https://doi.org/10.1016/j.ijinfomgt.2017.10.004>
- Ying, W., Jia, S., & Du, W. (2018). Digital enablement of blockchain: Evidence from HNA group. International Journal of Information Management, 39, 1-4. <https://doi.org/10.1016/j.ijinfomgt.2017.10.004>