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Principles of cryptocurrency and cryptocurrency investment strategies

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Objectives of thesis

The main objective of the bachelor thesis is to identify principles of cryptocurrency, how coin market capitalization works, what investments are and how to create a strategic plan on investing money in cryptocurrencies.

Methodology

The work consists of two parts – theoretical and practical. The theoretical part will be based on the study of secondary sources. The empirical part will be compiled on the basis of outputs from quantitative/qualitative research.

The proposed extent of the thesis

30 – 40 pages

Keywords

cryptocurrency, virtual currency, decentralized networks, investments, blockchain technology, investment strategies, cryptography, coin market capitalization

Recommended information sources

GRABOWSKI, M. *Cryptocurrencies : A Primer on Digital Money. [elektronický zdroj] /.* Milton: Taylor & Francis Group, 2019. ISBN 9780429510144.

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Declaration

I declare that I have worked on my bachelor thesis titled "Principles of cryptocurrency and cryptocurrency investing strategies " by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on   15.03.2023   _____

Anastasiia Zubrytska

Principles of cryptocurrency and cryptocurrency investing strategies

Abstract

The bachelor thesis investigates the history of money from physical to digital money, as well as the development of cryptocurrencies as a new type of digital money. It evaluates the potential of cryptocurrencies as financial assets and analyzes their influence on investing strategy. The paper covers a historical overview of the evolution of money and digital money, as well as an evaluation of the present cryptocurrency market. It looks at the elements that influence cryptocurrency value, including as market volatility, regulatory uncertainty, and technical improvements. Moreover, the thesis assesses several cryptocurrency investing methods, such as buy-and-hold, buy-and-sell, and hedge fund strategy. The study's findings suggest that cryptocurrencies can provide diversification opportunities for investors, but they must be carefully considered and risk managed. It gives information for investors looking to include cryptocurrencies into their investment portfolios and may inform legislative choices about cryptocurrency regulation and use in investing activities.

Keywords: cryptocurrency, virtual currency, decentralized networks, investments, blockchain technology, investment strategies, cryptography, coin market capitalization.

Principy kryptoměn a strategie investování do kryptoměn

Abstrakt

Bakalářská práce se zabývá historií peněz od fyzických k digitálním a vývojem kryptoměn jako nového typu digitálních peněz. Hodnotí potenciál kryptoměn jako finančních aktiv a analyzuje jejich vliv na strategii investování. Práce zahrnuje historický přehled vývoje peněz a digitálních peněz a také zhodnocení současného trhu s kryptoměnami. Zabývá se prvky, které ovlivňují hodnotu kryptoměn, včetně jako volatilita trhu, regulatorní nejistota a technická zlepšení. Kromě toho práce hodnotí několik metod investování do kryptoměn, jako je strategie "kup a drž", "kup a prodej" a strategie hedgeového fondu. Závěry studie naznačují, že kryptoměny mohou investorům poskytnout příležitosti k diverzifikaci, ale je třeba je pečlivě zvážit a řídit rizika. Poskytuje informace pro investory, kteří chtějí kryptoměny zařadit do svých investičních portfolií, a může být podkladem pro legislativní rozhodnutí o regulaci kryptoměn a jejich využití v investičních aktivitách.

Klíčová slova: kryptoměna, virtuální měna, decentralizované sítě, investice, technologie blockchain, investiční strategie, kryptografie, tržní kapitalizace mincí.

Table of content

1 Introduction

In everyday life each of us at least once thinks about past, present or future actions. That's how our mind works. We all know that our past/present actions or thoughts might in a greater or lesser degree influence on the future.

Our daily lives depend heavily on the use of money as a medium of exchange for goods and services. For thousands of years, the basic building block of human society has been money. The development of human communities, culture, and technology may be seen in the history of money, which is remarkable. During time, money has experienced countless modifications and transformations, from bartering to the usage of precious metals. Money now comes in a variety of shapes, including coins, banknotes, and digital currencies. Because it influences people's and countries' purchasing power and economic well-being, the value of money has always been a topic of interest.

In addition to more conventional investing alternatives like equities, bonds, and real estate, cryptocurrencies have recently become a popular new investment option. Decentralized digital currencies known as cryptocurrencies have drawn a lot of interest because of their potential to uplift the current financial system. Investors now have a new asset class to take into account when diversifying their investing portfolios due to the development of cryptocurrency.

Like with any investment, investing in cryptocurrencies has some risks and demands a solid understanding of the underlying concepts and investment approaches. With an emphasis on comprehending the value of money in the world and how it relates to investments and cryptocurrencies, this study will investigate the fundamentals of cryptocurrencies and cryptocurrency investing techniques.

2 Objectives and Methodology

2.1 Objectives

The main objective of the bachelor thesis is to identify principles of cryptocurrency, how coin market capitalization works, what investments are and how to create a strategic plan on investing money in cryptocurrencies.

In order to achieve the goal and realize the main objective, it was necessary to determine the specific sub-objectives of the thesis work, which include:

◊ Conduct a literature search, discover the theoretical background, and sort through the data

◊ To explore the history of money and its transition to digitization

◊ To examine possible future developments in the field of digital currency

◊ To analyze investment options and how digitization affects them

◊ To look into the origins and history of cryptocurrencies

◊ To evaluate the existing legal environment for cryptocurrency and investments

◊ To discover and assess various cryptocurrency investing techniques

◊ To provide an in-depth explanation of the relationship between history of money, digitalization, investing and cryptocurrency

2.2 Methodology

The work consists of two parts - theoretical and practical. The theoretical part is based on the analysis of secondary sources, i.e. analysis of professional literature, study of relevant Czech and foreign articles and publications, as well as the study of relevant Internet sources. It includes basic information about development of money, their digitalization, investments and their types, deep dive into cryptocurrency "world" and possible ways to invest in it with a future profit.

The empirical part is compiled on the basis of outputs from quantitative/qualitative research.

Review of the literature: conduct an extensive research of academic and non-academic literature on the development of money, digitization, investments, cryptocurrencies, and the rules and regulations that govern them. This served as a strong basis for the study and helped to influence the research questions.

Data collection and analysis: data was gathered and evaluated from a variety of sources, including internet databases, academic publications, official documents, and books. This offered essential information about the subject.

Explanation with a concrete example how the bitcoin blockchain system and hash generating work, what investment strategies are the most relevant and step-by-step guide how to invest in cryptocurrency (in this case ADA/USDT) is included.

Conclusion: Summarized the study's findings, drew conclusions and offer suggestions for further research and practical applications.

3 Literature Review

3.1 The history of money

Almost all human beings use money in their everyday life. Vast majority of them either know at least something about digital money and cryptocurrencies or have used them once. But how many of us took into consideration what is "money" and when it firstly appeared in our life? When and what were the first money? Were they really so important to people that generation and how did they look like at first? And can we name it "money" as we do now?

The history of money begins not from the last century and even couple of centuries ago. Money has been used in human societies for thousands of years as a means of exchanging goods and services. The concept of money has evolved over time, from barter to the development of sophisticated financial systems.

Barter was the oldest form of trade, in which goods and services were exchanged directly for other goods and services. However, the disadvantage of this system was the lack of a single measure of value, and some goods could not be easily separated or transported (Weatherford, 2011).

This was the reason of development of commodity coins, which used specific objects such as shells, beads, or precious metals as a medium of exchange. Commodity coins had the advantage that they were easy to identify, easy to separate, and easy to transport. In some cultures, commodity money had not only economic value but also symbolic and cultural value.

Some sources say that the origin of money comes from 1200 BCE. However initially the money looked a little different than we are used to see now. For instance, cowrie shells or other thing of nature from Indian and Pacific ocean's coastal waters people used to pay for their needs in European countries. Native Americans used another type of shells (wampum), Fijians used whale teeth, on Yup island carved limestone disks were used (Tikkanen, 2020).

The use of precious metals such as gold and silver as money was especially common in ancient civilizations such as Greece, Rome, and China. The use of coins with images of rulers and gods made the exchange of money more standardized and secure.

In the Middle Ages, banks emerged to provide services such as deposit, credit, and currency exchange. In China, paper money appeared in the form of requisitions for payment of precious metals to the treasury during the Tang Dynasty (618-907), In 17th century in Europe, the development of banking and international trade led to widespread use of paper money.

In the 20th century, the global economy became more complex, and new forms of money appeared, including checks, credit cards, and digital currencies. Most countries now use fiat money, which is backed not by goods, but by credits issued by central banks. This has allowed more flexibility in managing the money supply, but it has also created problems such as inflation, exchange rates and financial instability.

Counterfeiting, or the creation of counterfeit currency, is as old as money itself. The first known counterfeit coins were made in ancient Lydia (now Turkey) around 600 BC. As coins spread around the world, the problem of counterfeiting grew.

3.1.1 Counterfeiting

Counterfeiting was practiced even before money was invented. But counterfeiting was a serious problem all over the world, and severe punishments were introduced: on Chinese banknotes from about the 14th century it was written that "counterfeiters would be beheaded," while in England criminals were punished by being burned at the stake. Even in the American colonies, the first counterfeiter faced death. Various measures were taken to prevent counterfeiting. Ben Franklin, the owner of a company that printed coins for several colonies, often misspelled the word "Pennsylvania," believing that counterfeiters would correct their mistake (Chapell, 2005).

Counterfeiting has always been taken seriously by governments and authorities because it undermines the value and credibility of currency. Historically, penalties for counterfeiting have ranged from fines and imprisonment to harsher punishments such as branding, mutilation and death (Simonetti & Canhoto, 2014).

In the Middle Ages in some countries counterfeiting was punished by hanging, beheading or burning at the stake. In China, counterfeiters were punished with death by thousands of beheadings, a method of execution in which the body of the condemned is slowly mutilated.

In the United States, counterfeiting became a serious problem during the colonial period, and many of the first counterfeiters were executed. The U.S. Constitution gave Congress the power to mint money and regulate its value, and the first federal law against counterfeiting was passed in 1792 (Kiser, 2011).

Over time, technological innovation has made counterfeiting more sophisticated, but at the same time, more advanced anti-counterfeiting measures have been developed. Today, currencies are all over the world printed with various security features that make them difficult to copy, such as watermarks, microprints and holograms. For example, the most frequently counterfeited U.S. $20 banknotes have embossed seals, watermarks and security features that can be seen when held up to the light. However, penalties for counterfeiting have increased. In the U.S., the maximum penalty is 20 years in prison.

Despite these efforts, counterfeiting remains a persistent problem, especially in the digital age, where counterfeiters are able to create convincing counterfeit banknotes using sophisticated printing and imaging technologies. Therefore, governments and central banks continue to develop new security measures to protect their currencies and maintain confidence in the value of money (Levi, 2088).

3.1.2 Coin

It is possible that standardized and recognized coinage did not emerge until the 7th century BCE, despite the fact that the usage of metal as money may be dated back to

Babylon before 2000 BCE. Several historians assert that the Lydian kingdom (located in modern-day Turkey) initially produced controlled coinage at this time. They were constructed of electrum, a naturally occurring mixture of gold and silver, and first emerged during the reign of King Alyattes (c. 610–c. 560 BCE). These coins, which were crudely formed like beans, had a lion as their royal emblem. The kingdom's currency was changed by Alyattes' son Croesus (reigned approximately 560–546), who introduced silver and gold coins. Such currencies soon started to exist abroad (Callataÿ, 2008).

3.1.3 Leather money

Leather and animal hides were first made into money around the sixth century BCE. This form of currency was supposedly employed in early ancient Rome. Additionally, it was discovered in places like Carthage and what is now France, and it is thought that Russia used leather money during the reign of Peter the Great (1682–1725 CE). The skins from his personal collection of white stags were used to make currency by the Chinese emperor Wudi (reigned 141–87 BCE). It has intricate motifs on it and was fringed. Even though it is no longer in use, leather money may have left a lasting impression since, according to some, it is the origin of the term "buck" for a dollar (Eltman, 1978).

3.1.4 Paper money

Paper banknotes are, to a certain extent, an indicator of the culture, technical and economic development, welfare of the people, their social and political system, and documentary evidence of many historical events of the state. They convey the character of the era, testify to the culture, peculiarities of the people's way of life, their traditions, ideological doctrines and priorities at any given historical moment. In artistic terms, they are examples of original graphic art. They concentrate the achievements of graphics, drawing and ornamentation. After all, most often the design of banknotes was entrusted to outstanding artists (Van Der Chijs, 2011).

It seems appropriate that China introduced paper money because it is usually thought that paper originated there. Most historians agree that Emperor Zhenzong's rule (997–1022 CE) is when this invention was made. It was created with mulberry tree bark (so,

in a sense, money really did grow on trees). Paper money had expanded throughout the world by the late 18th and early 19th centuries. Nonetheless, the majority of this cash wasn't actual money in the conventional sense. Instead, it served as promissory notes, which were essential in the establishment of banks as pledges to pay certain sums of gold or silver.

3.1.5 Gold

Naturally, there are several issues with currency, one of which being fiat money. In contrast to gold and silver coins, this type of currency is created by a sovereign government by "fiat" (decree) and has no inherent value. Thus, nations can print such money at will, and some have (and continue to print it), potentially rendering the currency worthless. Because to the severity of the issue, the United Kingdom—at the time the forerunner in global finance—instituted the gold standard in 1821. The standard unit of currency in this monetary system is often maintained at the value of a set amount of gold, which boosts confidence in international trade by prohibiting governments from printing money excessively. The gold standard was eventually adopted by other nations, such as Germany, France, and the United States (Chisholm, 2005).

The method, however, had some weaknesses. In particular, it made it harder for nations to shield their economies from global economic slowdowns or inflation. Countries started to reconsider the gold standard after the Great Depression (1929–1939), and by the 1970s gold was no longer correlated with money. Several severe instances of hyperinflation have occurred since then. Zimbabwe is a prominent example from the early 2000s, when the nation minted currency in amounts as high as $100 trillion, or about one loaf of bread.

3.1.6 Credit cards

Credit cards have existed since the early 20th century. But, it wasn't until the middle of the 20th century that the modern credit card as we know it today appeared.

Certain clients received metal charge plates from Western Union in 1914, enabling them to charge purchases made at neighborhood shops. Oil firms and retail stores started giving their customers their own charge plates in the 1920s. These plates had the customer's name and account number stamped on them and were made of metal or celluloid.

The first contemporary credit card was launched by Diners Club in 1949. Customers were able to charge their meals to their accounts because it was made for usage in restaurants (Martin, 2014).

In 1958, American Express released their own charge card as a response. The American Express card was distinctive in that it demanded full payment of the debt each month.

The BankAmericard, the first bank credit card, was introduced by Bank of America in 1959. The only state where it was first offered was California, but it swiftly spread to other states. One of the biggest credit card corporations in the world today, Visa, was once known as BankAmericard until changing its name in 1976.

As "Master Charge: The Interbank Card," Mastercard was established in 1966. While it was initially intended to be BankAmericard's rival, the two businesses eventually combined to form what is now known as Mastercard.

Credit cards have spread widely through time and have had a big impact on the economy. They have made internet shopping feasible and allowed customers to make transactions without needing to carry cash. Credit cards have, however, also played a role in the high levels of consumer debt and financial struggles that certain people and families are currently experiencing (Mandell 2014).

Despite these difficulties, credit cards are nevertheless a useful financial instrument for plenty of individuals all over the world.

3.2   Value of money nowadays

Nowadays, a range of influences, including inflation, economic circumstances, and world events, can affect the value of money. The buying power of money is often defined as the quantity of products and services that may be obtained with a given sum of money.

Inflation is a significant element that affects how much money is worth over time. Inflation is the term used to describe the pace of increase in prices for goods and services, which causes a progressive decline in the buying power of money. This means that when prices increase more quickly than income, customers' purchasing power falls and they are unable to make as many purchases as they formerly could.

Economic factors can also have an impact on the value of money. For instance, prices might increase and the value of money could decrease if the economy is thriving and there is a huge demand for products and services. But, if the economy is through a recession, prices may decrease and the value of money may increase.

Global happenings like wars or political chaos may also influence the value of money. For instance, during crisis situations, individuals could lose trust in their currency, which could result in a fall in its value.

After all, today's concept of the worth of money is dynamic, intricate, and dependent on a wide range of factors.

3.3   Digitalization of money

Cash kept in online bank accounts is a type of digital money that is already used in society today. You can send or receive money from others using this method. Also, it is ideal for online purchases.

As it can serve as a unit of account and a medium for regular transactions, digital money is identical to its physical counterpart in both concept and application. But it's not money. For

instance, when you take money out of an ATM, it takes on a physical form, therefore the Czech korunas in your online bank account are not digital currency.

Digital money differs from physical money in the way it optimizes the transactional process. For instance, compared to traditional money, the technical basis of digital money can simplify and speed monetary transactions across borders. The mechanism for central banks to implement monetary policy is also greatly simplified by this type of money. Several types of digital currency use cryptography to make its transactions censorship- and tamper-resistant, making it impossible for governments or private organizations to regulate them (Hoffstein, Pipher, Silverman, 2008).

With these benefits, the use of digital currency has increased among various governments all over the world. Since 2017, the central bank of Sweden, a nation that is moving toward becoming a cashless society, has published a number of research papers that evaluate the advantages and disadvantages of using digital currency in its economy. The DC/EP, China's digital version of its national currency, has already completed pilot testing and is about to be made available. The digital version of the national money of the Bahamas is called the "sand dollar." The publication date was October 2020 (Grabowski, 2019).

Almost 111 of the 159 countries that make up the International Monetary Fund (IMFmember)'s nations are considering or preparing to implement digital currency, according to a survey it conducted in February 2021 very soon (Grant, 2022).

3.3.1 Does digital money solve any problems?

A number of systems already conduct transactions using digital money. Systems like credit cards, for instance, let customers buy products and services on credit. Cash may be sent across borders thanks to wire transfer technologies.

Such transactions need the usage of many processing systems, which makes them costly and time-consuming. An example of such a group is the SWIFT system, a global network of banks and financial institutions that handles payments. Each transfer made over the SWIFT

network is subject to fees. The SWIFT member banks operate under a patchwork of laws, each of which is unique to a particular financial jurisdiction (Antonopoulos, 2014).

Furthermore, the foundation of these systems is the prospect of future payments, which guarantees a lag between each transaction. For instance, users can make refund requests for purchases, and credit card balance proceeds at a later time.

One goal of digital money is to minimize the operational expenses and time lag associated with such transactions by using distributed ledger technology (DLT). A DLT system uses a network of interconnected servers or shared ledgers to handle transactions. To reduce transaction processing speeds, this network can be developed to include other jurisdictions. By removing the requirement for a centralized database of records, it increases transparency for authorities and stakeholders while boosting the security of a financial network (Popper, 2015).

The double-spending issue is also solved by digital money by using an algorithmic sharing of information. Simply put, the issue is how to prevent the same person from using a digital "note" of money more than once.

A system of serial numbers is used to ensure that each note is unique under a centralized system of money production and distribution, such the one that is currently in place with central banks. The role of a central authority in protecting the solvency and integrity of transactions is duplicated by certain kinds of digital money, such as central bank digital currencies (CBDCs) or digital money issued by private parties, but in a technological sense.

Decentralized digital currency exists in several forms. They deal with the necessity for middlemen to distribute currency and central agencies to regulate output. Cryptography is performed. Blind signatures and zero-knowledge proofs both mask the identities of the persons involved in transactions. Cryptocurrencies like Bitcoin and Ethereum are examples of this form of digital money (Tapscott, 2016).

3.3.2 Types of digital money

Digital money comes in a variety of types, each with special qualities and purposes. Some of the most typical ones are listed below:

1. Cryptocurrencies: These are decentralized digital currencies that govern the creation of units of money and validate the movement of payments using encryption methods. Bitcoin, Ethereum, and Litecoin are among examples.
2. Stablecoins are digital currencies that are designed to keep their value steady by being linked to tangible assets like gold or the US dollar. Some examples are Dai, Dollar Coin, and Tether.
3. Digital fiat currencies that are issued and governed by the central bank of a nation are known as central bank digital currencies (CBDCs). Examples include the Swedish e-Krona, the Bahamas' Sand Dollar, and China's Digital Yuan.
4. E-wallets are digital wallets that let users store and manage a variety of digital assets, including loyalty points, fiat money, and cryptocurrencies. PayPal, Venmo, and Google Pay are among examples.
5. Mobile payments are electronic transactions carried out using a mobile device, frequently using an app or a mobile wallet. Apple Pay, Samsung Pay, and Google Pay are a few examples.
6. Prepaid cards: These are digital, fund-loadable cards that may be used for both online and offline shopping. Prepaid cards from Visa and Mastercard are two examples.
7. Online banking: This is a type of digital banking that enables users to control their accounts remotely, including sending and receiving money electronically. Examples include Simple, Chime, and Ally Bank (Narayanan, Bonneau, Felten, Miller, Goldfeder, 2016).

3.4 Market Capitalisation

3.4.1 Basic overview

Market capitalization, often known as market cap, is a financial measure that represents the whole value of the outstanding shares of stock of a publicly listed firm. It is determined by

dividing the stock's current market value by the total number of outstanding shares of the corporation.

A company's market capitalisation would be $25 million (0,5 million shares x $50 per share = $25 million market cap) if it had 0,5 million outstanding shares of stock and the current market price of each share was $50.

Due to its ability to evaluate the relative size and profitability of various organizations, market capitalization is a crucial indicator for investors and analysts. Businesses with higher market capitalizations are normally considered to be more well-established and stable, whereas those with lower market capitalizations may be riskier and have more opportunity for growth.

The S&P 500, which analyzes the performance of the 500 biggest publicly listed firms in the United States by market capitalization, uses market capitalization as a benchmark for stock indexes. Based on the size and performance of various firms in the market, investors use market capitalization to evaluate the effectiveness of their portfolios and make investment decisions (Damodaran, 2012).

A measure called market cap makes it simpler to evaluate a company's financial landscape. It enables investors to evaluate a firm according to how valuable the general public thinks it is. The corporation appears "larger" the greater the valuation. By investing in a business's stock, you may expect a certain degree of risk as well as potential returns on your investment based on the size and worth of the firm.

This method of categorizing businesses aids investors in building a diversified portfolio that is optimal for long-term growth.

An in-depth look at the main market-cap segments is provided below, but it's vital to keep in mind that the threshold isn't precisely defined and that higher-value segments from one segment may overlap lower-value segments from a subsequent segment. Market cap may be defined differently by indexes and fund managers, or they may use wider or more restrictive criteria. The share price of a firm might also change significantly enough to place it in a higher or lower market-cap category.

3.4.2 Market Cap segments

The value of a company's outstanding shares of stock, or market capitalization, is a technique to group publicly traded enterprises based on their market capitalization. The following is the most typical method for grouping corporations by market cap:

Large Cap: These are businesses having a market value of above $10 billion. Typically, they are reputable, blue-chip businesses with a solid track record of stability and success.

Mid Cap: These firms fall into the $2 billion to $10 billion market capitalization range. Companies often have a smaller and more flexible size than large-cap firms, yet they still have a history of stability and profitability.

Small Cap: These firms fall into the $300 million to $2 billion market capitalization range. They are often more riskier than mid-cap and large-cap firms since they are smaller and less well-established.

Micro Cap: These firms fall into the $50 million to $300 million range in terms of market capitalisation. Often, they are relatively tiny businesses that are just getting started or are in the beginning phases of expansion. They are regarded as the most dangerous market capitalization sector (Swan, 2015).

Nano Cap: These are firms with a market capitalization of less than $50 million. They are regarded as the most dangerous market capitalization sector. These are often relatively tiny businesses that are either just getting started or are having difficulty expanding. Among all market capitalization sectors, they carry the most risk and are the most speculative.

Investors and analysts use these segments to compare and evaluate businesses of a similar size and to help them decide which investments to make depending on their investment goals and risk tolerance. While small-cap and micro-cap firms may have better growth potential but also higher risk, large-cap companies are frequently more established and have a history of reliable profitability.

3.5   What is cryptocurrency

Digital or virtual currency known as cryptocurrency uses cryptography for protection and is not controlled by a central bank. It is built on a decentralized structure, which indicates that no government or financial organization has any authority over it. Instead, it uses a network of computers to check transactions and guarantee the currency's validity.

The practice of "mining," which includes utilizing computing power to solve challenging mathematical puzzles, is a common way to produce cryptocurrencies. This procedure assists in transaction validation and network security management (Tapscott, 2016).

Although Bitcoin is the most well-known cryptocurrency, there are thousands of others in use today, each with special characteristics and applications. While some cryptocurrencies are aimed as a store of wealth or investment, others are made with specific uses in mind, such as allowing smart contracts or payments.

Blockchains are a type of open ledger that are maintained by a decentralized network of computers that power cryptocurrencies. This ledger, which is kept throughout the whole computer network as opposed to in a single, centralized location like a bank, keeps track of all monetary transactions.

A sophisticated mathematical process verifies a transaction made with a cryptocurrency by broadcasting it to the network of computers. The sender's account is debited and the recipient's account is credited when the transaction has been confirmed and uploaded to the blockchain ledger (Nyman, 2005).

Each transaction is protected using cryptography to protect against fraud and maintain the blockchain's integrity. This consists of developing an exclusive digital signature that can only be produced by the currency's owner. The usage of a global network of computers also aids in preventing fraud and hacking since it makes it more difficult for an attacker to change the ledger from a remote location.

Several cryptocurrencies compensate users for "mining" new coins or validating transactions in order to encourage users to validate transactions and maintain the network. This entails

employing computing power to solve challenging mathematical puzzles, adding new transactions to the blockchain, and rewarding the user with additional currencies in return.

In order to guarantee the authenticity and security of the money, cryptocurrencies work utilizing a complicated system of distributed computation, cryptography, and incentives (Schwager, 1999).

3.6 Blockchain and how does it work

Blockchain is a technology that makes it possible to share information securely. A database obviously contains data. A ledger is an account book where transactions are entered. The ability to update a blockchain is shared among the nodes, or participants, of a public or private computer network. A blockchain is a sort of distributed database or ledger, one of today's top technological developments. Distributed ledger technology, or DLT, is what this is. Digital tokens or money are used as rewards to motivate nodes to update blockchains.

Blockchain makes it possible to permanently, transparently, and hashed record data and transactions. In consequence, this enables the trade of anything with value, whether it be a tangible object or something less so.

Three key characteristics describe a blockchain. A blockchain database must, first and foremost, be cryptographically secure. And therefore, two cryptographic keys are required in order to access or contribute data to the database: a public key, which is essentially the database address, and a private key, which is a unique key that must be verified by the network.

The second is that a blockchain is an entirely online transaction record or database.

The last thing is a blockchain, which is a database that is shared through a public or private network. The Bitcoin blockchain is one of the most well-known public blockchain networks. Anybody may create a Bitcoin wallet and join the network as a node. Certain blockchains can be exclusive networks. They are more relevant to banking and fintech since such industries require transparency regarding participants, data access rights holders, and private

database key holders. Consortial blockchains and hybrid blockchains are two more forms of blockchains that combine various features of both public and private blockchains.

A "block" is where the records of all the transactions are kept when data on a blockchain is viewed or changed. Older data blocks are not overwritten by new ones; instead, they are added together to allow for the monitoring of any changes. Moreover, since all transactions are encrypted, records are unchangeable, allowing the network to detect and reject any modifications to the ledger.

When transactions are progressively and endlessly recorded and these blocks of encrypted data are continuously "chained" to one another, a flawless audit history is created that enables access to previous iterations of the blockchain.

The majority of nodes, often referred to as consensus mechanisms, must check and certify the legitimacy of new data when it is uploaded to the network based on permissions or financial assistance. A new block is made and added to the chain when agreement is achieved. The blockchain ledger is then updated on all nodes.

The first node in a public blockchain network to reliably demonstrate the authenticity of a transaction is rewarded financially. It is defined as "mining".

3.7 Types of crypto

According to CoinMarketCap, there are roughly 21,910 cryptocurrencies with an estimated $850 billion market valuation. Considering that Bitcoin only started in 2009, that is a sizable population.

In 2011, altcoins like Litecoin (LTC) and Namecoin, commonly referred to as altcoins, initially entered the market as alternatives to the original cryptocurrency (NMC). Before Ethereum (ETH) started, altcoins were relatively unknown.

Bitcoin and other cryptocurrencies are utilized as investment vehicles. They are viewed as a store of value by many customers. Some, like ETH, are more transactional. With the more

transactional blockchains, developers may create a wide range of transactional tools, services, and communities (Crosby, Pettanayak, Verma, Kalyanamaran, 2016).

Cryptocurrencies that are not Bitcoin are referred to as Altcoins (short for "alternative coins"). Altcoins were developed to solve some of the perceived disadvantages of Bitcoin, including its lengthy transaction times, high transaction costs, and constrained functionality. Altcoins have been increasingly popular recently as more investors and traders have looked to diversify their cryptocurrency portfolios, even if Bitcoin is still the most well-known and often used cryptocurrency.

Some of the most well-known and well-traded altcoins are listed below:

1. Ethereum is a decentralized platform that facilitates the development of smart contracts and decentralized apps (DApps). Ether is the platform's own coin that powers network transactions.
2. LTC, or Litecoin: Litecoin, which was developed as a "lite" version of Bitcoin, is intended to be quicker and more effective than its forerunner, with quicker transaction times and cheaper costs.
3. Ripple (XRP): Designed for quick and safe international money transfers, Ripple is a digital currency and payment system that is utilized by banks and financial organizations all over the world.
4. Tether (USDT): Known as a "stablecoin," Tether is used as a buffer against the volatility of other cryptocurrencies. It is intended to be linked to the value of the US dollar.
5. Bitcoin Cash (BCH) is a hard fork of Bitcoin that was developed to address scalability difficulties and expand the number of blocks in the network.
6. ADA Cardano: Cardano is a decentralized platform that employs its own cryptocurrency, called ADA, to power network transactions. Cardano intends to provide a more safe and transparent manner of developing and operating DApps.

These are only a few sorts of the numerous cryptocurrencies that exist, each with its own special characteristics, advantages, and disadvantages.

3.8 Earning from cryptocurrencies in ČR

The Czech Republic has rules that govern the usage of cryptocurrencies and the taxation of earnings made from them.

Cryptocurrencies have been recognized as a kind of property in the Czech Republic since 2017, and they are governed by the same laws and regulations as other assets. This means that any income gained from purchasing and trading cryptocurrency must be taxed by individuals and corporations (Ministry of Finance of the Czech Republic, 2021).

Taxation of Cryptocurrency Profits: profits from purchasing and selling cryptocurrencies are subject to 15% capital gains tax. This tax is charged on both people and corporations and is based on the difference between the purchase and sale price of the cryptocurrency.

Income Tax on Cryptocurrency Mining: Anybody who is mining cryptocurrency must pay income tax on any earnings made from their mining activity. The tax is computed based on the market value of the cryptocurrency at the moment of purchase, less any mining-related expenditures.

Regulations on Anti-Money Laundering (AML) and Counter-Terrorism Financing (CTF): In the Czech Republic, cryptocurrency exchanges and other service providers are accountable to AML and CTF legislation. This entails doing customer due diligence, monitoring transactions for suspected activities, and reporting any questionable transactions to authorities.

Value-Added Tax (VAT) on Transactions Using Cryptocurrencies:

For VAT reasons, the Czech Republic considers cryptocurrency to be a type of property. This implies that firms who accept cryptocurrency payments must report them to the tax authorities and pay VAT on the value of the goods or services sold.

Regulation of Cryptocurrency Exchanges: In the Czech Republic, cryptocurrency exchanges must follow a variety of regulations, including AML and CTF guidelines, client due diligence requirements, and reporting duties. In addition, exchanges must be certified by the Czech National Bank and fulfill to cybersecurity and data protection regulations.

These rules and regulations aim to guarantee that cryptocurrencies in the Czech Republic are subject to appropriate governance and taxes, while also recognizing the potential advantages of this new technology.

3.9   History of investment

Investment may be traced back to prehistoric times when primitive systems of investment were developed by early civilizations like the Greeks and Romans. Yet it was in the 17th and 18th centuries that the modern concept of investing as we know it today truly began to gain shape.

The establishment of the Dutch East India Company in 1602 is one of the oldest examples of contemporary investing. This organization was founded as a joint stock company, allowing investors to combine their funds, and split the earnings. One of the earliest international organizations in history, the Dutch East India Company enjoyed great success.

The Industrial Revolution in Europe in the 18th century caused a rise in investment activity as business owners wanted money for their factories and enterprises. Once Amsterdam created the first stock exchange in 1720, stock markets quickly appeared in other European towns.

Philadelphia became home to the nation's first stock exchange in 1790. Yet it wasn't until the late 19th and early 20th centuries, with the industrial revolution and the growth of businesses, that the American stock market truly started to take off.

With the rise of index funds, hedge funds, and other investment vehicles during the 20th century, investment became an ever-more-significant component of the global economy. The landscape of investing has changed recently as a result of the creation of new financial products and technology including algorithmic trading and electronic trading platforms.

The global economy now depends heavily on investment since it provides money to governments and businesses all across the world. There are many different types of investment options available to both people and organizations, extending from stocks and bonds to alternative assets like real estate and private equity.

3.10 Value of investment nowadays

In the modern world, investing is significant and profitable for a number of reasons.

1. Building wealth: by generating returns on their assets, investing enables people and organizations to create wealth through time. Investors can profit from the rise of assets like stocks, bonds, real estate, or mutual funds and accumulate capital gains and dividends over time.

2. Reaching financial goals: Investment may also help people and organizations in reaching their financial objectives, such as retirement savings, college funding, or property ownership. Investors can increase their wealth and reach their financial goals by making regular investments over time and generating returns.

3. Diversification: Investors may diversify their portfolios by investing, which spreads risk across a variety of asset classes and minimizes the effect of any one investment on the portfolio as a whole. Investors can decrease their sensitivity to market volatility and increase their chances of generating stable returns over time by diversifying their investment portfolios (Steenbarger, 2003).

4. Helping businesses and the economy: Investment may also help finance the economy and businesses, enabling them to expand and develop, provide employment, and promote economic growth. By making investments in businesses, people and organizations may encourage the creation of new goods and services, stimulate technical progress, and promote the general health and prosperity of the economy.

In conclusion, investment may offer a mechanism for people and organizations to gain money, meet their financial objectives, diversify their portfolios, and assist in the growth of enterprises and the economy. Even while there is risk involved with investing, with careful preparation and smart investment techniques, investors may achieve their goals and build long-term financial stability.

3.11 Spot and Futures Trading

Both spot trading and futures trading are popular ways to trade cryptocurrencies, but they have some significant differences (Schwager, 1999).

3.11.1 Spot Trading

Spot trading, commonly referred to as instant or cash trading, includes purchasing or selling cryptocurrencies at the going rate of the market, with payment usually taking place quickly. The easiest way to trade cryptocurrencies is through spot trading, which involves a straightforward exchange of money between a buyer and a seller that results in the ownership of the coin changing hands.

The flexibility of spot trading allows for the buying or selling of cryptocurrencies at any moment as well as the possibility to profit from swift price changes. As there are no additional expenses incurred beyond the cost of the cryptocurrency itself when maintaining a position, spot trading often has cheaper fees than futures trading.

3.11.2 Futures Trading

In futures trading, contracts are bought or sold to enable traders to make predictions about the price of a cryptocurrency in the future. Futures contracts outline the time and price at which a cryptocurrency will be purchased or sold in the future, giving traders a way to protect their positions from price fluctuations.

Perpetual and expiry futures are the two categories into which futures trading may be split. Whereas expiry futures have a fixed date on which the contract expires, perpetual futures have no set expiration date. As a futures contract expires, the trader must either roll the position over to a new contract or settle the deal by purchasing or selling the underlying cryptocurrency at the agreed-upon price (Steenbarger 2003).

The ability to use leverage, which enables traders to boost their potential earnings (or losses) by borrowing money to open greater positions than they would be able to with their own capital, is one benefit of futures trading. Moreover, futures trading enables traders to profit from longer-term trends and fluctuations in price in the bitcoin market.

Key differences:

- Spot trading involves buying or selling cryptocurrencies at the going rate, whereas futures trading includes making predictions about a cryptocurrency's price in the future.
- While futures trading involves contracts with particular dates and prices for settlement, spot trading has an immediate settlement.
- Leverage is permitted in futures trading but not in spot trading.
- Spot trading has cheaper fees than futures trading.

3.12   Short and long term investment strategies

The goal of short-term investing strategies is to make money over a short period of time, often less than a year. Investors who want to take advantage of market opportunities or who need to produce speedy returns for a particular financial aim typically adopt these tactics. Some of the most popular short-term investing methods are listed below:

- High-Yield Savings Accounts: Investing in a savings account that pays a greater interest rate than a typical savings account is a low-risk approach. Online banks and credit unions frequently provide high-yield savings accounts, which have the potential to generate up to 2% interest.
- Certificates of Deposit (CDs): CDs are a sort of savings account where you must deposit your money for a certain amount of time, usually between a few months and a few years. While CDs provide greater interest rates than standard savings accounts, you cannot withdraw money from a CD until it has reached its maturity date without incurring fees.
- Money Market Accounts: Although they sometimes provide greater interest rates than savings accounts, money market accounts are identical to those of savings accounts. They have a lower monthly transaction limits and a higher minimum balance requirement.
- Short-term bonds are debt instruments with maturities of less than two years. They often provide larger rates than savings accounts or CDs, but because there is a chance of default, they are riskier.
- Dividend-Paying Stocks: Shares of businesses that provide a portion of their income to shareholders are known as dividend-paying stocks. Although they are sensitive to

market volatility, they can provide a consistent income stream and the possibility of capital appreciation.

- o Day trading: Day trading is the practice of buying and selling of securities on the same day in order to profit from rapid price changes. This tactic may be quite risky and calls for a great level of expertise, understanding, and discipline.

It's crucial to remember that short-term investing strategies are more risky than long-term ones since they are more vulnerable to market volatility and swings. Understanding the dangers and performing your proper research before to investing in any short-term plan will help you determine whether the investment fits with your financial objectives and risk tolerance (Sinclair, 2013).

The goal of long-term investing strategies is to increase wealth over a long period of time, usually five years or more. These tactics involve purchasing and holding investments that may increase in value over time. Some of the most popular long-term investing approaches are listed below:

- o Index Funds: A mutual fund or exchange-traded fund (ETF) that monitors the performance of a particular stock market index, such the S&P 500, is known as an index fund. You may diversify your portfolio and take advantage of the stock market's long-term growth by investing in an index fund.

- o Retirement Accounts: Retirement accounts, like 401(k)s and IRAs, provide tax benefits and the opportunity for long-term development. You may create a nest egg that will provide income throughout your retirement years by making monthly contributions to these accounts and selecting assets that are in line with your retirement goals.

- o Real estate: With the potential for capital growth as well as rental income, real estate may be a long-term investment plan. A steady income stream and long-term growth potential can be obtained by investing in rental properties or real estate investment trusts (REITs).

- o Growth stocks are shares of businesses that are predicted to grow faster than the broader market. Although these equities may have a higher level of risk than other types of investments, they also have a better potential for long-term rewards.

- o Dividend Growth Stocks: Companies that pay dividends and have a history of raising those payouts over time are considered dividend growth stocks. You may take advantage of compounding returns and perhaps enhance your wealth over time via reinvested dividends (Grabowski, 2019).
- o Value Stocks: Shares of firms that the market believes to be undervalued have the potential to increase in value over time. You may be able to profit on inexpensive companies' future growth by purchasing them and keeping them for a long time.

It's essential to keep in mind that long-term investing methods call for restraint and patience. The secret to long-term success is maintaining your investment and resisting the need to sell during market downturns, despite the possibility of short-term swings in the market. You may accumulate wealth and meet your financial goals over time by making investing decisions that are in line with your risk tolerance and financial goals, as well as by keeping a long-term perspective (Narayanan, Bonneau, Felten, Miller, Goldfeder, 2016).

4 Practical Part

4.1 Blockchain – hash generating

The method of hash generation is used to give each message or piece of data a distinctive digital fingerprint. A hash or set of inputs is the name given to this digital fingerprint. The hash value is produced by hash functions, which are mathematical algorithms that accept as input data and generate a fixed-size result.

Data integrity checks, digital signatures, password storage, and file verification are just a few of the uses for hash functions. The result of a hash function is typically a hex string of defined length.

The input data must be used to create a hash by being sent through the hash function. The hash value is the result of the hash function. As the hash value is specific to the input data, it will change if the input data changes.

Hash generation is a crucial aspect of modern computer security and is used to protect the validity and integrity of data. Hash functions are an essential part of many encryption techniques, therefore they're also employed in cryptography.

The hashing algorithms SHA-1, SHA-2, MD5, and SHA-3 are a few popular ones. It's crucial to keep in mind that some of these hash algorithms, such MD5, are no longer regarded as safe because of known problems. Choosing a hash function that is appropriate for your unique use case and staying up to speed with the most recent security guidelines are crucial.

The digital signatures used by Bitcoin to validate transactions on the blockchain are created using the SHA-256 hash algorithm. A popular cryptographic hashing algorithm, SHA-256 generates outputs with a constant length of 256 bits. Because of the enormous conflict resistance of this hash function, it is extremely improbable that two separate inputs would result in the same hash value. The production of new bitcoins and the verification of transactions are two activities that the SHA-256 hash function is used to secure.

Next information will be an example of hashing process on a base of Bitcoin hashing (SHA-256 hash algorithm):

1. Open a hash Generator https://www.browserling.com/tools/all-hashes
2. Type a random information (for instance, approved transaction №1234567)

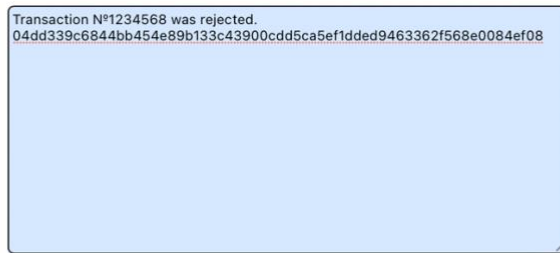Picture 1 Hash Generating

Source: Own processing (2023)

Text written in a search box: "Transaction №1234567 was successfully accepted."

Hash received:

SHA-256: 04dd339c6844bb454e89b133c43900cdd5ca5ef1dded9463362f568e0084ef08

3. Adding new information (for instance, declined transaction №1234568 + previous hash)

Picture 2 Hash Generating 2

Source: Own processing (2023)

Text written in a search box: "Transaction №1234568 was rejected. 04dd339c6844bb454e89b133c43900cdd5ca5ef1dded9463362f568e0084ef08"

Hash received:

SHA-256: ce226984e00574c1db83af6707779cec3a236cbbd5b97874e30f9632833c2ed3

In consequence, every time we enter new information – new hash appears. This makes it impossible to decrypt this blockchain and steal someone's personal data, because every second a huge number of new hashes are created by the actions of people from all over the world.

4.2   3 investment strategies

4.2.1   Buy & hold

Buying an item, such as a stock or cryptocurrency, and holding it for a long time, generally several years or even decades, is known as the "buy and hold" investing strategy. The

assumption behind this method is that the asset would increase in value over time, giving the investor a profit.

Long-term investors that want to accumulate wealth over time rather than try to gain immediate money via aggressive trading sometimes employ the "buy and hold" method. Investors who retain an asset for a long time may be able to weather short-term market swings and profit from the asset's long-term growth.

With cryptocurrencies, which are famous for their volatility, the "buy and hold" strategy can be especially beneficial. Even if there are major short-term swings along the road, an investor who holds onto a cryptocurrency for an extended length of time may benefit from the market's overall development.

There is always some risk associated with every investment, even while the "buy and hold" method may be a helpful way to accumulate money over time. Investors should properly investigate any asset they are thinking about purchasing and take into account elements like market trends, the underlying technology or fundamentals of the asset, and the possible risks and benefits of keeping the asset for a long time.

4.2.2 Buy & sell

Also one very common investing technique employed by traders and investors is the "buy and sell" method, usually referred to as the "buy cheap, sell high" strategy. The tactic entails purchasing assets—like stocks or cryptocurrencies—at a cheaper cost with the hope that their value will rise in the future. The objective is to ultimately sell the asset for more money, making a profit.

Investors that use the "buy and sell" approach must conduct their own research and analysis to find inexpensive assets with growth potential. They may employ fundamental research to evaluate the basic financial health and future prospects of a firm or asset, or technical analysis to spot trends in price movements.

An investor will often set a target price at which they aim to sell an asset once they have decided which one to purchase. This target price might be determined by the investor's

evaluation of the asset's prospective growth or by outside variables like market circumstances.

A key component of the "buy and sell" technique is timing. While purchasing assets, investors seek to undervalue them and subsequently sell them at a profit or when the market conditions change. However, timing market moves may be challenging, and there is always a chance that the asset's value may not rise as expected.

Generally, the "buy and sell" approach to investing is a well-liked method that can be applied in a range of markets and asset types. To succeed, however, it takes careful planning, timing, and study, therefore investors should be ready to keep a close eye on their investments and modify their approach if necessary.

4.2.3 Hedge fund

A hedge fund is a form of financial vehicle that pools funds from various participants and generates profits using a range of investing methods. Hedge funds often employ more complicated investing methods than standard mutual funds or other types of investment vehicles, and they may invest in a variety of asset classes such as stocks, bonds, currencies, commodities, and derivatives.

Hedge fund investing techniques can vary widely based on the individual fund and the investment philosophy of the fund manager. Even so, some typical hedge fund tactics are:

1) Global Macro: Based on macroeconomic trends and market dynamics, this approach invests in a variety of asset classes, including stocks, bonds, currencies, and commodities.
2) Quantitative: This method involves integrating computer algorithms and quantitative analysis to discover investment possibilities and control risk.
3) Long/Short Equity: This method involves keeping long holdings in equities that the fund expects to grow and short positions in stocks that the fund expects to fall. The idea is to create returns independent of the market's general direction.
4) Event-Driven: With this technique, you make investments in businesses that are going through a large event, such a merger, an acquisition, or bankruptcy. The idea is to profit from price swings caused by the occurrence.

Hedge funds are often managed by qualified investment professionals who are paid a mix of management fees and performance-based incentives. Management fees are normally calculated as a proportion of the fund's assets under management, whereas performance-based rewards are paid when the fund delivers good returns for its investors (Beers, 2020). Hedge funds are sometimes regarded as high-risk, high-reward investments since they may create significant profits for investors while also carrying a higher amount of risk than other forms of investments. Hedge funds are often restricted to certified investors and have higher minimum investment requirements than other forms of investment funds due to the complicated and sophisticated nature of their investing techniques.

4.3   Graph analyzing

Technical analysis, often known as graph analysis, is a common instrument for evaluating stocks and making financial decisions. It entails analyzing price and volume movement charts and graphs to discover trends and patterns that might give insight into the future direction of the cryptocurrency's price.

Many types of graphs are used by investors in their investing strategies, including:

1. Line charts: The most basic sort of graph, line charts show the closing prices of a securities over time. They can give a rapid visual picture of the security's overall price trend.

Graph 1 Line charts

Source: TradingView (2023)

2. Bar graphs: Bar graphs show the opening, closing, and high/low prices of a securities over a certain time frame. They are important for recognizing trends and patterns in a security's price fluctuations.

Graph 2 Bar charts

Source: TradingView (2023)

3. Candlestick charts: Similar to bar charts, candlestick charts give more comprehensive information about a security's price fluctuations. They show the opening and closing prices, as well as the high and low prices for a certain time period, and are frequently used to spot probable reversal patterns.

Graph 3 Candlestick charts

Source: TradingView (2023)

4. Point and figure charts: Point and figure charts are a sort of graph that uses Xs and Os to illustrate a security's price fluctuations. Especially they are useful for detecting support and resistance levels and can give insight into probable price fluctuations in the future.

Graph 4 Point and figure charts

Source: TradingView (2023)

To build investing strategies, graph analysis is frequently used in conjunction with other forms of analysis, such as fundamental analysis. Investors can obtain insights into market behavior and make better educated investing decisions by monitoring the price and volume changes of a securities over time. Nevertheless, investors should keep in mind that previous performance is not always predictive of future outcomes, and graph analysis should only be used as one tool in an investor's toolbox.

While performing technical analysis, technical analysts search for different figures or patterns in charts and graphs. These are a few of the most common:

Trends: The overall direction of a security's price movement over time is defined as a trend. Trends are classified into three types: uptrends (higher highs and higher lows), downtrends (lower highs and lower lows), and sideways trends (horizontal highs and lows).
Support and resistance levels: These are levels that a security's price has historically struggled to go above (resistance) or below (support). These levels are used by technical analysts to help identify whether to purchase or sell an investment.

Chart patterns: Technical analysts search for chart patterns such as head and shoulders, double tops and bottoms, triangles, and flags. These patterns can suggest prospective changes in the price movement of an cryptocurrency.

Moving averages: Moving averages are lines that display the typical price of a cryptocurrency over a predetermined time frame. They can assist smooth out price volatility and give insight into a crypto's general trajectory.

Relative strength index (RSI): The RSI analyzes the strength of a security's price movement. It can assist technical analysts in identifying overbought and oversold situations.

Fibonacci retracements: Technical analysts utilize Fibonacci retracements to identify probable levels of support and resistance. These levels are generated utilizing the high and low points of a crypto's price movement and are based on the Fibonacci sequence.

Technical analysts employ a variety of instruments to find prospective investment opportunities, including these figures and patterns. Technical analysis is not a flawless science and investors should always employ many kinds of research before making investing decisions.

Graph 5 Figures in TA

Source: Own processing (2023)

For better explanation I took as an example Bitcoin/USD pair to show some figures or patterns which technical analyst can use for identifying or predicting direction of the price, however this is only a small part of tools used by traders. More advanced analysts are using way more features, figures and graph settings while they are analyzing market for future investments.

Picture 3 Patterns in TA
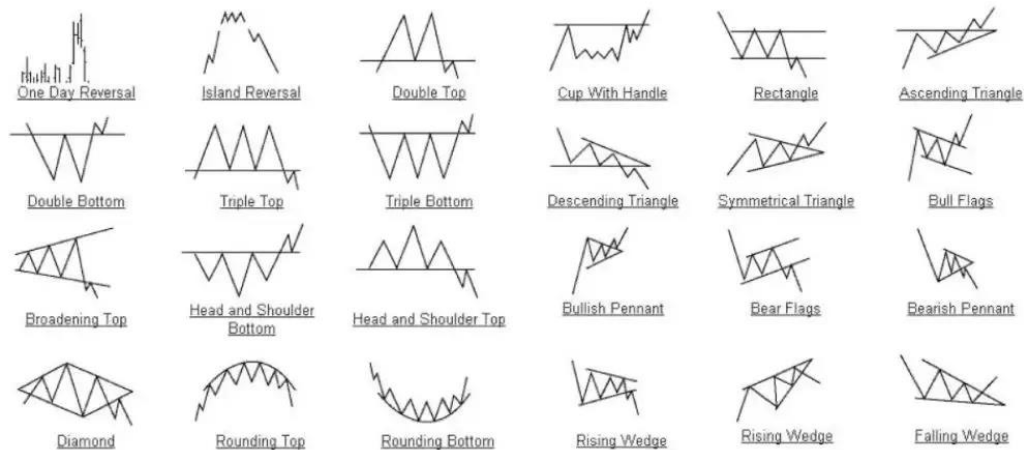
4.4 Short-term investment in ADA coin

Taking a short position on Binance may be a strong trading technique for investors hoping to profit from an asset's drop in value. Borrowing a cryptocurrency from a broker or exchange, selling it at the current market price, and then repurchasing it at a reduced price to return it to the loan is the technique.

Traders frequently utilize short selling to protect against potential losses in a long position or to benefit in a declining market. It is especially effective during times of market volatility because it allows traders to profit from negative price fluctuations in a market when many investors are likely to lose money.

Binance, one of the world's biggest cryptocurrency exchanges, has a number of tools and services to assist with short-selling techniques. Before initiating a short position on Binance, it is critical to conduct extensive research on the asset you intend to trade, analyze the risks involved, and develop a clear trading strategy. Short selling on Binance may be a beneficial strategy for earning profits and managing risk in your cryptocurrency portfolio with proper research and execution.

Bitcoin has a major impact on other cryptocurrencies, particularly in terms of value and price changes. This is due to the fact that Bitcoin is the most popular and well-known

cryptocurrency, and it is frequently considered as a benchmark for the larger cryptocurrency market.

As the price of Bitcoin fluctuates significantly, it can have a knock-on impact on other cryptocurrencies, leading them to rise or fall in value. This is because many investors and traders use Bitcoin as a reference point for evaluating other cryptocurrencies, and changes in Bitcoin's price may drive them to change their investments.

Moreover, changes in market attitude toward Bitcoin can have an impact on attitude toward other cryptocurrencies. For example, if there is a boost in favorable news and emotion around Bitcoin, investors may feel more hopeful about the whole cryptocurrency market, leading to higher investment in other altcoins.

It is worth noting, however, that fluctuations in Bitcoin's price and market sentiment do not influence all cryptocurrencies equally. Certain altcoins may be more closely related to Bitcoin, while others may have distinct characteristics and use cases that distinguish them from Bitcoin and other cryptocurrencies. Investors must undertake their own research and analysis in order to understand the unique elements that may influence the value and profitability of various cryptocurrencies.

For my research I decided to choose a particular altcoin called ADA coin (or Cardano). ADA coin is a digital currency that runs on the Cardano decentralized blockchain technology. It is the Cardano blockchain's native coin, and it is used to exchange products and services inside the Cardano network.

Cardano is a third-generation blockchain platform with the goal of providing a more secure, scalable, and long-term ecosystem for decentralized apps and smart contracts. The ADA coin is intended to enable transaction processing inside the Cardano network and to encourage network members like validators and developers.

One of the most important characteristics of the ADA currency is its support for smart contracts, which are self-executing digital contracts that automate the negotiation and enforcement of agreements between parties. As a result, the ADA currency is a significant

asset for developers and entrepreneurs interested in building decentralized apps on the Cardano platform.

The ADA coin has a set maximum supply of 45 billion coins, about 32 billion of which are presently in circulation. The Cardano blockchain has a proof-of-stake consensus method, allowing network users to authenticate transactions and earn ADA currency rewards based on the number of coins they own and stake on the network.

Overall, ADA coin is a prospective cryptocurrency with extensive features and capabilities for decentralized apps and smart contracts. Its rising popularity and acceptance by a diverse collection of stakeholders make it an attractive asset to follow in the rapidly changing world of cryptocurrencies.

On the picture below on the right side we can see measures used in Binance Futures market that should be filled in before opening any position (no matter whether it's short or long). Such as: Stop price (trigger price for activation an order), Price (entry price of the position), Size (amount of asset you want to buy or sell, usually shows in percentages), Take profit (order will be automatically closed if a number succeed mark price; profit gained) and Stop loss (order will be automatically closed if a number reached mark price; used usually to prevent investor from bigger losses) and PNL (unrealized profit & loss and Return on Equity (%) are calculated based on Last Price).

On the graph I've added Resistance level (green horizontal line), Suport level (red horizontal line), trend lines are blue and a yellow horizontal line is a expected price of ADAcoin (figure 10).

I've set Stop price 0,30800 when the order should open, Size of selling: 15%, Take profit: 0,30020 and a Stop loss: 0,3100 (Figure 9).

Graph 6 Short position Binance
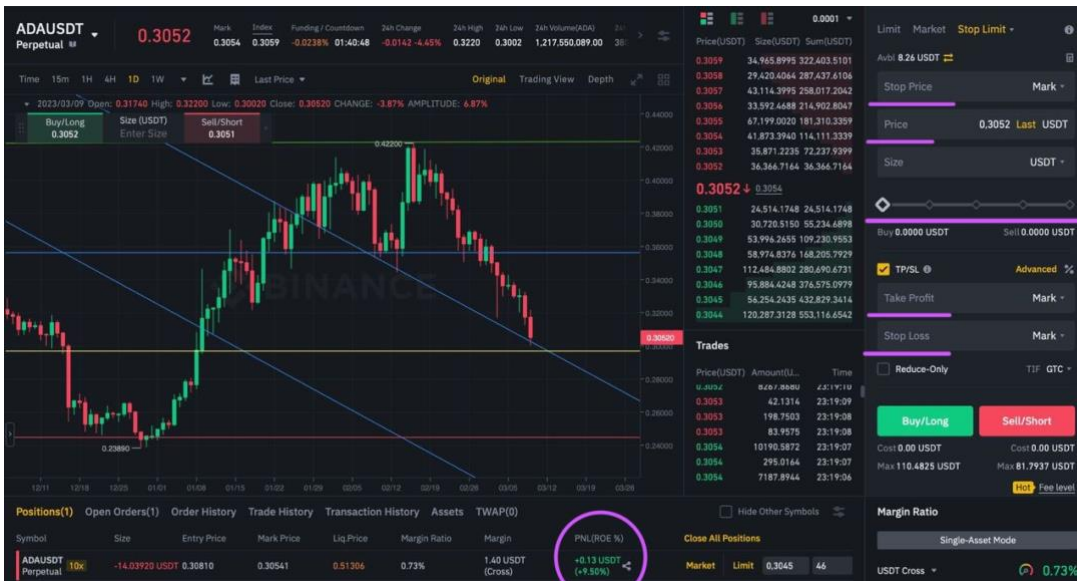
Source: Own processing (2023)

Graph 7 Short position; take profit

Source: Own processing (2023)

Assuming the short position size is 1.40 USDT / 0.30800 = 4.54545454 ADA (rounded to 4.55 ADA) and using a leverage of 10x:

PnL = (Entry price - Exit price) * Position size / Leverage

PnL = (0.30800 - 0.30020) * 4.55 ADA / 10

PnL = 0.03518 ADA

Therefore, in this example, the PnL is a positive 0.03518 ADA, indicating a profit of 0.03518 ADA.

To calculate profit in percentages we can use next formula:

PnL (%) = (PnL size / Initial capital) * 100

Therefore:

the initial capital is 4,55 ADA and the PnL in this case is 0.03518 ADA, which is equivalent to 1,41 USDT, the PnL percentage can be calculated as follows:

PnL (%) = (PnL size / Initial capital) * 100

PnL (%) = (0,03518 ADA/ 4,55 ADA) * 100

PnL (%) = 0.7732%

As the result, in this example, the PnL represents 0.7732% of the initial capital.

This amount of profit gained is very small compared to the profits vast majority of investors could gain, however I tried to explain in a simplest way with a small amount of investment that actually most of us can try to make a research on the market, choose cryptocurrency to invest, analyze a price direction and have a good revenue.

5 Results and Discussion

The study showed that blockchain technology is a decentralized digital ledger that is maintained by a network of computers and records transactions. The development of Bitcoin, a cryptocurrency that enables for safe, decentralized, peer-to-peer transactions, is the most well-known use of blockchain technology.

When it comes to Bitcoin and other cryptocurrencies, there are several investing techniques that may be used. There are numerous techniques that investors may follow when it comes to crypto strategy. Three of them: buy & sell, buy & hold, hedge fund were explained before.

A "buy and sell" method is purchasing Cryptocurrency at a low price and selling it at a high price in order to benefit from the price difference. This method requires knowledge of market patterns as well as the ability to forecast future price fluctuations.

A "buy and hold" strategy is buying Cryptocurrency and holding it for an extended length of time in the hope that its value would rise over time. This method requires patience and a long-term outlook.

A hedge fund strategy entails combining several investing approaches to control risk and optimize profits.

It was also found that technical analysis is a way of assessing financial market price movements and patterns. Line charts, bar charts, and candlestick charts are some of the graphics used in technical analysis. These charts may be used to spot patterns, such as support and resistance levels, and to forecast future price changes. The head and shoulders pattern, which might suggest a trend reversal, and the cup and handle pattern, which can indicate the continuance of an upward trend, are two popular patterns that technical analysts watch for.

It was shown how to place an order on a futures market, considered placing a short position on Finance Futures on example of selling ADA cryptocurrency (a short position is selling a futures contract with the expectation that the underlying asset's price will fall, allowing the investor to repurchase the contract at a cheaper price and profit). There was a positive result

while closing an order with a small profit. It confirmed that with a proper preparation and knowledge people can and should invest in cryptocurrencies for a future benefication.

As it was already found during theoretical and practical parts of this thesis cryptocurrency is a type of digital asset that uses cryptography to safeguard transactions and manage the generation of new units. It is not controlled by a central bank and may be moved directly between individuals without the need of middlemen like as banks or financial organizations.

Although the future of cryptocurrencies is unknown, many experts predict it will continue to grow in popularity and usage. As more people get familiar with the technology and its benefits, demand for cryptocurrencies may rise, potentially leading to greater prices.

Another critical part of crypto strategy is being up to date on industry changes and news. Following key personalities on social media, reading business magazines, and attending conferences and events are all examples of this.

Nevertheless, cryptocurrencies are still new and quickly changing technologies that should be used with caution and careful thought.

6 Conclusion

The thesis covers a development of money, from coinage to credit cards later, deep dive in the history of money. Money's worth is now subjective and determined by a multitude of factors such as supply and demand. The digitization of money has resulted in the creation of numerous forms of digital currencies, which have the potential to solve problems such as decreasing counterfeiting and facilitating access to financial services. The market capitalization of digital currencies has become a popular indicator for determining their worth, with several divisions providing service to various sorts of investors.

The idea of market capitalization is introduced, along with a brief discussion of its relevance and market capitalization categories. The thesis' primary topic is cryptocurrency, including a description of what it is, how blockchain technology works, and the numerous varieties of cryptocurrencies accessible.

The numerous forms of cryptocurrencies, earning from cryptocurrencies in the Czech Republic, the history and value of investing, spot and futures trading, and short and long-term investment methods are all discussed in this case study. The information here gives an overview of the many forms of digital currencies, as well as their characteristics and usage. It also goes into how individuals might profit from cryptocurrencies, as well as the history and significance of investing in general. It also dives into spot and futures trading, two techniques of trading cryptocurrency. Furthermore, we've discussed short and long-term investment strategies, which are methods employed by investors to optimize earnings based on their investing objectives.

We also looked at the process of creation a blockchain and several investing methods in the practical section. The first method, purchase and hold, is purchasing an asset and holding it for an extended period of time in the hope that its value would improve. The purchase and sell technique is purchasing an asset and then selling it for a profit when the price rises. The third option, hedge funds, entails pooling funds from different investors and employing a variety of investing techniques to create profits.

And the last but not least essential topic was covered is technical analysis with a further usage of it while making a short-term investment in Ada coin on the Binance platfrom.

Generally, this thesis gives insight into numerous areas of investing and cryptocurrencies, such as the technological processes behind blockchain networks, various investment techniques, and market trend analysis methodologies.

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8   List of pictures and graphs

8.1   List of pictures

8.2   List of graphs