Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Languages

Bachelor Thesis

Principles of cryptocurrency and cryptocurrency investing strategies, trading, and alternative methods

Koczkás Dávid

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

BACHELOR THESIS ASSIGNMENT

David Koczkas

Economics and Management

Thesis title

Principles of cryptocurrency and cryptocurrency investing strategies, trading and alternative methods

---

Objectives of thesis

The main aim of the bachelor thesis is to create a diversified profitable investment portfolio based on cryptocurrencies and related fields.

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, Investing, Trading, NFT, Blockchain, Altcoins, Mining, Bitcoin, Market

Recommended information sources

Baucherel, K. (2020). Blockchain hurricane : The origins, application, and future of blockchain and cryptocurrency. Business Expert Press. ISBN 9781951527365

Danial, K., Laurence, T., Kent, P., Bain, T., & Solomon, M. G. (2022). Cryptocurrency all-in-one for dummies. John Wiley & Sons, Incorporated. ISBN 9781119855804

Grabowski, M. (2019). Cryptocurrencies : A primer on digital money. Taylor & Francis Group. ISBN 9780367192679

Heck, J. (Ed.). (2006). Investment analysis and portfolio management strategies. Emerald Publishing Limited. ISBN 9781845448929

Laurence, T., & Kim, S. (2021). Nfts for dummies. John Wiley & Sons, Incorporated. ISBN 9781119843313

Expected date of thesis defence

2022/23 SS – FEM

The Bachelor Thesis Supervisor

Ing. Kristýna Kučírková, MSc

Supervising department

Department of Languages

Electronic approval: 15. 6. 2022

PhDr. Mgr. Lenka Kučírková, Ph.D.

Head of department

Electronic approval: 27. 10. 2022

doc. Ing. Tomáš Šubrt, Ph.D.

Dean

Prague on 23. 02. 2023

Declaration

I declare that I have worked on my bachelor thesis titled "Principles of Cryptocurrencies and investing strategies, trading, and alternative methods" 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 DATE OF SUBMISSION 2023.03.15.

Acknowledgement

I would like to thank Kučírková Kristýna my thesis supervisor for her help and guidance, Halász Viktor, Kurdi Levente, Gyurenka Ádám, and everyone else who filled out the questionnaire!

Principles of cryptocurrency and cryptocurrency investing strategies, trading, and alternative methods

Abstract

The topic of this bachelor's thesis is based on how our world's newest financial tool, crypto, is becoming more relevant for consumers and professional investors. This work is a detailed description of how one can profit in this new and complex world consistently and what one should keep considering adding to their investment portfolio both in the long and short term. What was the reason behind this revolutionary tool being created, how it works why is it better than our current financial system? Description of NFTs, the newest branch of this entire industry, why they have great potential in the future, and how they should be treated right now. This work is mainly focused on the trading of cryptos such as normal forex pairs or stocks being traded on exchanges and how they differ in what tools are beneficial to use for one, which leads to consistent profits minimizing their losses on the market.

Keywords: Crypto, Investing, Trading, NFT, Blockchain, Altcoins, Mining, Bitcoin, Market, Analysis

Principipy kryptoměny a kryptoměnových investičních strategií, obchodování, a alternativní metody

Abstrakt

Bakalářská práce je věnována tématu nejnovějšího finančního nástroje na světě, kryptoměna. Tato měna se stává pro spotřebitele a profesionální investory stále aktuálnější. Tato práce je podrobným popisem toho, jak lze v tomto novém a složitém světě konzistentně profitovat a co by měl člověk neustále zvažovat při přidávání do svého investičního portfolia v dlouhodobém i krátkodobém pohledu. Jaký byl důvod vzniku tohoto revolučního nástroje, jak funguje a proč je lepší než náš současný finanční systém? Nejnovější odvětví celého tohoto fenoménu je NFT. Dílčí cíl této práce je popsat proč mají NFT velký potenciál do budoucna a jak by se s nimi mělo zacházet. Tato práce je zaměřena především na obchodování kryptoměn, jako jsou běžné forexové páry nebo akcie obchodované na burzách, a na to, jak se liší v tom, jaké nástroje je pro ně výhodné použít, což vede ke konzistentním ziskům minimalizujícím jejich ztráty na trhu.

Klíčová slova: Kryptoměna, Investice, Obchodování, NFT, Blockchain, Altcoin, Mining, Bitcoin, Trh, Analýza

Table of Contents

1 Introduction

Most of the people may not know when did the concept of crypto even began. The most well-known or accepted beginning of crypto is the creation of Bitcoin, but this is not 100% correct. Way before that in the 1980's a digital currency was formed. The idea was same just as today a currency which does not require any central authority such as banks. In 1995 an American cryptographer called David Chaum created an anonymous cryptographic money called "Digicash". It was not perfect, because it required a software which withdraw money from the "bank", and it also required encrypted keys on both end so transactions could be made. Later in 1998 Nick Szabo created the "predecessor" of Bitcoin called Bit Gold. It required people who were willing to dedicate computer power resources to solve cryptographic puzzles and for their work they got rewarded. If you put these two concepts together, you can clearly see the present methodology behind mineable cryptos. The weakness of this system was its double-spending problem. Digital data can be copied and pasted therefore it can be forged and duplicated. The goal of the systems was to eliminate the "middleman" namely banks. Years later a group or a single person named Satoshi Nakamoto created the first truly working peer to peer digital cash system which we know as Bitcoin that was the point where it all truly began. Satoshi Nakamoto's identity is still unknown.

The real beginning started in 2008 when Satoshi Nakamoto accompanied by Harold Finney who was the very first who received a Bitcoin transaction. Coincidentally Harold lived in the same neighbourhood as a guy named Dorian Nakamoto who claimed has no relationship at all with Bitcoin. Why is this important to mention you may ask? The answer is simple even though we know that there is a person or a group hiding behind the name Satoshi Nakamoto nobody knows who he is, but what we do know that he left Bitcoin to others to improve. In 2011 April 11th would send his last verified email saying that he moved on to another project which nobody knows what it is exactly and vanished. If the rumours are true, that means he is the biggest HODL-er of BTC in the world owning 1 million BTC which never left his wallet which would mean if BTC reaches the 197,000 USD value he would be the richest man alive.

When Bitcoin went viral not everyone agreed on the principles of it. There were things what they wanted to change but others opposed it, so they went their own ways creating their own coins such as Ethereum the second most popular coin on the market. Essentially, they wanted to create a better Bitcoin with their own ideas implemented in it. The lead developer Vitalik Buterin who at the time was working at a publication magazine called Bitcoin Magazine. As he was writing about Bitcoin he realized the major flaws of the system, instead his idea was creating one universal blockchain which everybody could use just like the internet and instead of everyone creating a new blockchain they could focus more on their apps. Bitcoin was lacking a general-purpose programming language and they were limited in capabilities because it was incapable of storing a state. In many people's heads Ethereum is the actual coin but that's not exactly true. Ethereum is the name of the whole structure and the currency it uses is called "Ether". But there are other big companies/coins such as Binance. Binance has its own platform for every major activity what can be done with crypto. For example, their platform can serve as a wallet to hold your cryptos while also moving them in and out and selling them for other cryptos or traditional fiat money. This is not everything that they offer they offer pair trading and NFT trading as well. What is also important that they have their own debit card which is VISA based. Why this is crucial I simple that if you keep a substantial money in crypto wallet in this case Binance you can still spend the money as if it was fiat money from your local bank account. Not Binance is the only one who are offering these kinds of services, but they are the biggest one.

As we know there are numerous of Cryptos out there right now. At the time when I am writing this there are 20178 coins on the market. Bitcoin is the one dominating the market with 42.9% followed by Ethereum 15.2% they are the biggest on the market. Also, very important to mention that how many "Exchanges" are available for Crypto which is around 501. These exchanges are basically the businesses which allow people to trade cryptos for other assets such as fiat money or other digital currencies for example swapping BTC for BNC or vice versa. Not all the platforms are not dedicated to crypto trading they just offer you the option to do so. The biggest exchange is the Binance platform they also offer their own coin as a median for exchange.

2 Objectives and Methodology

2.1 Objectives

The main aim of the bachelor thesis is to create a diversified profitable investment portfolio based on cryptocurrencies and related fields. The focus is on consistent and safe money making instead of fast portfolio growths as it is believed this to be the better option. Cryptos are much more volatile than normal stocks or CFD (Contract for Difference) not to mention that they are much newer than the previous two. Since they are so new their future is currently rather unpredictable. A good portfolio should not rely on one single income, but it should be diversified and in crypto the options are nearly limitless. To fulfil the main objective, it was necessary to set sub-goals consisting of in:

- Cryptos as an investment themselves mainly comparing them to stocks and evaluating the results.
- Cryptos as tradable currency pairs just like EUR/USD such thing as BTC/USDT pair exists and they can be traded just like normal pairs with professional tools and analysis.
- Even newer “market” is the world of NFT-s which rely on the cryptos as payment methods these are the modern worlds art collectibles, but they add other layers and things which must be understood.
- Finally crypto mining is a huge industry which is essential in some cases, and it is going to stay relevant for the upcoming years.

2.2 Methodology

The work consists of two parts - theoretical and practical. The theoretical part is based on the study of secondary sources. The empirical is compiled on the basis of outputs from quantitative/qualitative research. The results and profitability also were presented. Quantitative research by questionnaires to see how people think about Crypto nowadays. This questionnaire researches the faith in the future of Cryptocurrencies and if people see potential in it or not. The trading is be done by the author with an explanation of the methods and strategies using and, in the end, summing up the profitability. And the last method is the NFT market and see how people get around this market what profit one can expect.

3 Literature Review

3.1 Crypto General

Cryptos generally are seen as currencies. Still most people think about these coins as an actual money that you can use in a store, but the reality is that we are not there just yet. It suffers from the problem of volatile value, not enough users, and the usability. Cryptos for now are more of a speculative asset than actual spendable money. Even though there are stores and web shops which accept crypto as a payment they are rare. There is not a huge market yet from the customers behalf to make stores and brands crypto a prioritised way of payment. Basically, the user base of cryptos is so small compared to normal fiat money users that for companies it is just not worth implementing a new system which accepts crypto as payment. Some companies which established their own cryptos figured out a way around it namely giving their users their own debit cards which they can use just as any other debit card because it pays with fiat money instead of crypto. The basic principle behind it that whenever you pay for something the shop gets real fiat money from the company where you hold your crypto and they get the equivalent amount of crypto as they had to pay for your purchase. Just to name a few Crypto.com, Nexo, Binance, Coinbase, TenX. Cryptos are trying to be the saviours of the world's financial problems in a sense. In present days we are facing numerous of issues with our financial systems such as there is always a middleman the bank where you store your money. Just imagine that whenever you pay with your bank card a transaction must be verified by your bank that you have enough in your account and "approve" the payment. In the case of cryptos there isn't really any middleman, but there is a community who keep a publicly accessible ledger which keeps track of every single transaction happening in the world of cryptos they are the so called miners and basically what happens here is that when you try to pay for something the transaction must be approved by multiple miners who check their ledger to see that you have a sufficient amount if they all have the same data that you have sufficient amount the transaction will be done but if one finds a problem that means something isn't correct in the system. This is not how it works, just a way of explanation to see the difference between the two systems. What I wanted to showcase with this is that what is a fundamental difference between the two systems and how the blockchains avoid "cheating". Other great advantage of cryptos against fiat money that they are not controlled by the government, and they run on limited stock such as Bitcoin and it is not like no one knows how many will be in the end when the "production" will end everyone can know exactly and plan accordingly. Bitcoin will top out at 21 million tokens all together, but still, that's a long time until the very last one will be mined as mining gets more and more difficult yielding smaller and smaller rewards for the miners. There are cryptos who are on a completely opposite path that there is no limit how much such is there as Ethereum and Polkadot. (Danial et al., 2022)

3.2 Blockchains

The blockchain is the whole transaction history of a given coin in the world from each person and company. This is the public ledger where every single transaction is recorded and there is no central authority behind it just the community itself. This is the backbone of each crypto an independent system of users and machines which together form the blockchain itself. Thanks to blockchains crypto currencies are immune to counterfeiting, they are not relying on any central authority, and they are protected by complex encryption algorithms. Each block keeps track of how much money goes from where to where and how much "currency" will be on both accounts afterwards. Blocks are linked to each other as they take reference from a previous one. This chain of blocks hence the name blockchain is collectively called "ledger" which is also publicly distributed. If you would try to pay someone with 3 Bitcoins, but you have only 2 in your wallet the transaction would not go through since the system keeps track of your wallet and knows how much you own. Hacking the system and adding yourself Bitcoin out of thin air would not work either since the ledger is public and everyone has a copy of its other miners can flag the invalidity of the block. To dig deeper and how you are protected furthermore is with 2 keys. One of them is the public key which serves as a public address which everyone in the network knows, the other one is your private key which only you supposed to know, and you keep it just as safe as you do with your passwords. Basically, how a transaction goes by to put it simple you as the payer make the order that you want to pay a specific amount to the payee. Your order goes through a hashing encryption using your private key this signs the transactions digitally and it also shows that the transactions came from you. This order is transmitted out in the world using your payee's public key with this the message can only be decrypted by your payee's private key. Different cryptos use different hashing algorithms BTC uses a so called "SHA256", ETH uses "ETHASH" The complex network of computers who validate these blocks with complex mathematical problems are called miners and once they have mined enough, they are rewarded with that cryptocurrency for whom they are mining this process is called proof of work. (Baucherel, 2020)

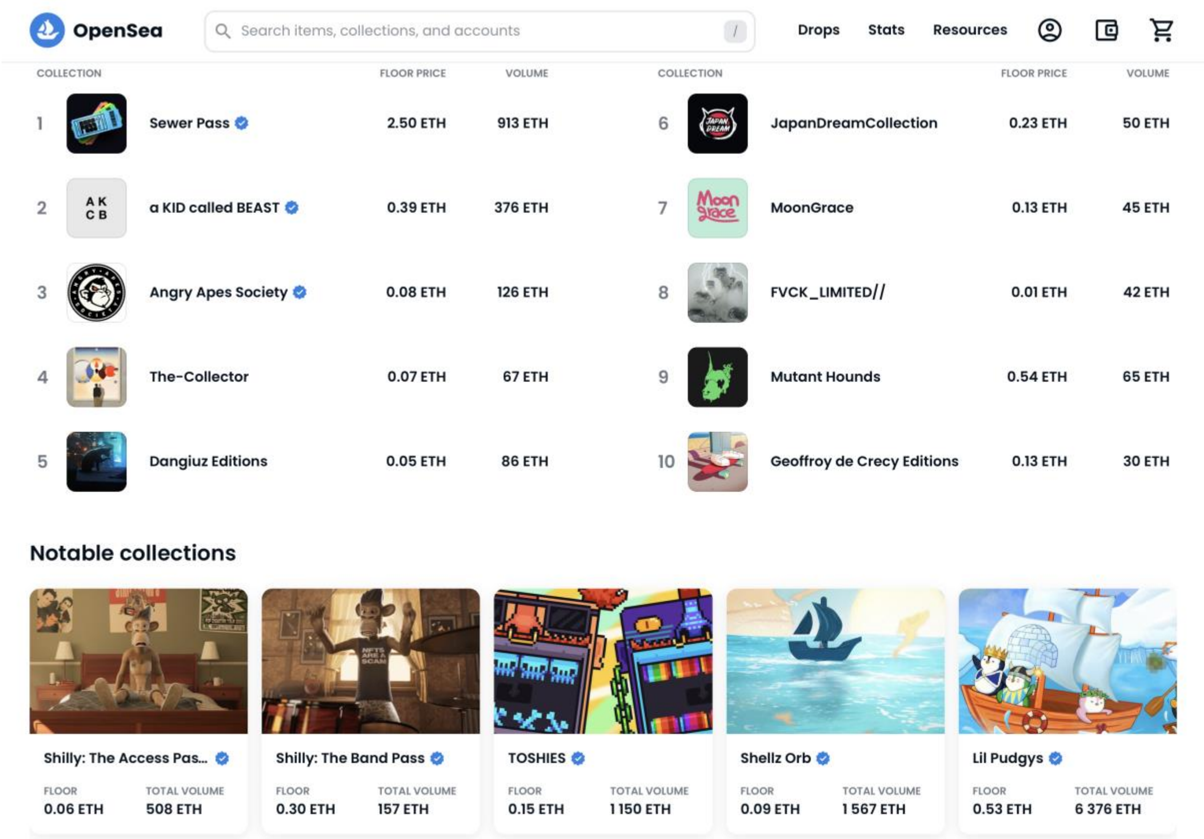
3.3 NFT

NFT stands for “Non fungible tokens".

What is a fungible token in the first place? Things which hold certain value, and they are interchangeable and can be divided into smaller units to represent the same value as the one big piece. For example, a 100-dollar bill can be divided into 2 of 50-dollar bills and they will have the same value and dollars can be produced in masses they will not have different value. A brand new 100-dollar bill essentially has the same value as a same one printed 3 years ago. Unlike dollar the Mona Lisa which is a one unique piece of art and represents a certain value in dollars cannot be divided into smaller pieces or the replicas of a painting are not authentic at all even if they are 1:1 the same. Non-fungible tokens are based on the same principle.

It is essentially selling your ownership over some virtual asset. NFT-s are using blockchain technology to follow who has the original asset of a virtual asset. What they are trying to solve is the monetization of virtual goods. The original creator can set a certain rule to an NFT like if one of their creations is sold, they get a 20% cut every single time when the asset is being sold. There are multiple platforms where NFTs can be traded the most popular and widely used one is the Opensea.io which requires you to have a crypto account set up and connect that to their page to start buying and selling NFTs. Each project can be based on different blockchain some may be Ethereum based some can be Solana based and the prices are given in these cryptos as well.

Figure 1 OpenSea Platform



Source: https://opensea.io

It is a dream for collectors. Just as some people collect rare coins or notes, stamps, comics, or paintings they have nothing in difference than NFTs. Many people say that NFTs have no use and they are obsolete money dumpsters since they don't give you any quality-of-life upgrade, neither do the previously mentioned items, it is purely a layer market who look at these things as pure investments. But not all NFTs are useless as some may think, CS:GO skins can be seen as a predecessor for NFTs even though they are not called NFTs the concept is the same, but what makes them apart is that they have a use in the game even though they are purely just cosmetics there is a place to use them. CS:GO is one of the most popular games for years now and the player base is increasing so does the money pumped into it. While NFTs should be completely unique like the Bored Ape Yacht Club NFT each should have unique combination of facial expressions, backgrounds, clothes etc. CS:GO skins are not like that, for the record different wear-and-tear levels exist there are not as many and even in the same level sometimes hard to tell the top or bottom of each level, but what makes each skin specifically unique is the float value which is essentially how worn down the skin is. (Williams, 2022) (Bored ape yacht club)

Ubisoft Quartz which was announced in 2021 December 7th is a project where they make these unique skins in games such as Ghost Recon Breakpoint which is one of the newer games of Ubisoft into NFTs and fully tradable. Unfortunately, since Ubisoft games are not like CS:GO which is a game meant to last years or decades the interest in these games drops rapidly as players are anticipating the next release of the series thus the low volume of traded goods essentially resulted in this project dying in a year. As the CEO Yves Guillemot communicated this to the press is that they were "exploring" and trying out new state of an art IT technologies as NFTs are, but it did not add any benefit to the player base hence the lack of interest from their behalf. (*Ubisoft is pretending it was never really that interested in nfts* 2022)

It is very important to highlight that NFT market is accessible place to invest, and it isn't as intimidating as the stock market for lot of people or the housing market where you need huge capital to start.

Clubs and events are being formed around NFTs and they come with a planned-out roadmaps, this is not a must have for each NFT project more like a purpose for them "Rude Golems" are just like that. Which is one of the tickets to "Creadore Studios" metaverse.

Their goal with this whole project is quote: "Creadore is an NFTs studio focused on education, facilitation, use and creation of the Web3 world in the simplest way for everyone who wants to learn and/or participate!

Our main goal is to teach about NFTs, Metaverse, Web3, all in a simple and easy to understand way. At the same time, Creadore oversees creating NFTs and digital/virtual worlds for brands and individuals." (*Creadore Studios* 2022)

There are numerous other ambitious projects just like this which plan their plan based around the Metaverse and Web 3.0 the most well-known is The Bored Ape Yacht Club

Having ownership over the NFT still doesn't mean you are the owner of the asset. It isn't giving you the rights over that design to start printing it to shirts and start monetizing them. It just proves that it is your property and yours is the original one and not a copy of the original one.

Also, many people started using NFT-s as a quick cash maker machine not out of the passion of art. These NFT lack uniqueness and creativity many features are same etc. Unlike a true passionate creator who tries to make each one as unique as possible.

ONLY BUY ONE IF YOU DO REALLY WANT IT AND WANT TO SUPPORT THE ARTIST! And if you know what is behind it. If not, then do not do it since it is more of a gambling than actual investment as it is right now.

Most of the time a collection consists of 10 thousand tokens. There are pages where you can check how rare are the attributes on your NFT token. Like for example a crown on your lion how rare it is and how much does it add to its value.

Theoretically behind each NFT project there should be a goal like if someone is producing digital seals. He sets some goals like after 75% of the sold inventory he donates a given percentage to a zoo where seals need this money for something. When an artist is ready with their collection he releases it, and you can "MINT" it basically buys it for a default starting price, but these are random and what you get is also random.

Unlike at the stock market where you can sell your position any time you want even with a loss on your behalf on the NFT market you might never sell your NFT. (*Mapping the NFT revolution: Market trends, Trade Networks, and visual features* 2021)

3.4 Exchanges

A cryptocurrency exchange is also called a digital currency exchange, DCE for short. These services allow people to exchange their FIAT money to cryptos or vice versa, or trade on crypto to another one. There are 3 types of DCE-s.

- Centralized cryptocurrency exchange (CEX): CEXs work just as any other traditional stock exchanges.
- Decentralized cryptocurrency exchange (DEX): DEXs are the types which are staying true to the original philosophy of the cryptocurrencies.
- Hybrid cryptocurrency exchange: They combine the best aspects of both worlds.

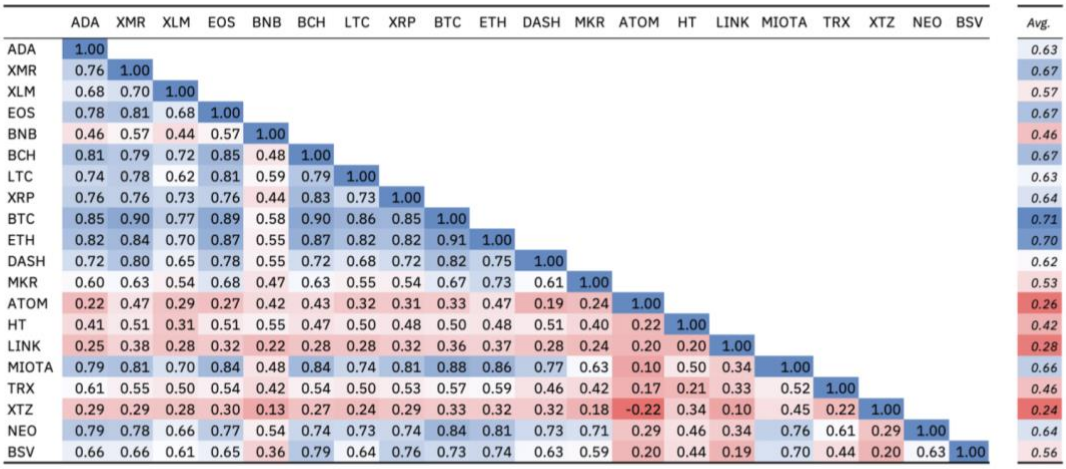
Centralized exchanges are platforms where buyers and sellers trust a middleman to handle their money and transactions. These platforms make money on the transaction via a fee. These sites offer crypto/fiat pairings such as Coinbase for example or there are platforms like Binance or KuCoin which even offer crypto/crypto pairings. These brokers offer some benefits which might push you to use their services such as improved liquidity this would mean your buy and sell orders can be met more easily, but here you are speculating on the volatility of the asset rather than owning it.

The problems with DEXs are that they have very low liquidity so you might end up sitting with your money on the market finding a hard time to get yourself a buyer, moreover they are slower than CEXs and they also apply fees. The most relevant ones are Uniswap, SushiSwap, PancakeSwap and 1inch. (Danial et al., 2022)

3.5 Portfolio Management

Diversification is the base of a good investment portfolio adding cryptos to your other investments such as stocks, bonds or foreign currencies already diversifies your portfolio, but this does not mean that you should only invest in one single crypto currency. Many cryptos and their movements are essentially linked to the BTC. This means that if BTC is having a good day and it is in a bullish momentum other cryptos on the market follow this movement as well. The most well-known ones that have very similar pattern to the BTC are Ethereum, Solana, Ripple and Cardano. Therefore, investing in cryptos which follow BTC-s movement isn’t necessarily the diversification that you are looking for. Instead, you should put your money into cryptos which perform independently from BTC, but this is not as simple as it may seem… Since BTC acts as the major player in the crypto space no real coin is independent from it. It is not like the FOREX market where if one nation performs better over another their currency becomes more valuable in a comparison, but there are smaller and greater correlations among cryptos to BTC. See the chart below as a guideline which could be a good alternative. (Gola, 2020)

Figure 2 Crypto correlation

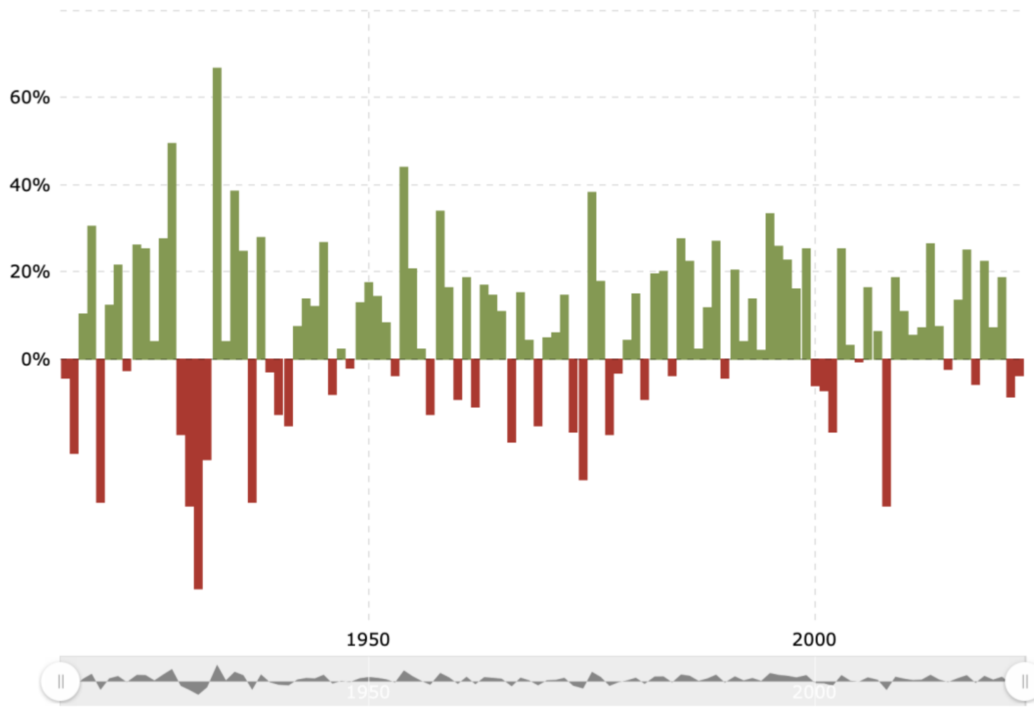


	ADA	XMR	XLM	EOS	BNB	BCH	LTC	XRP	BTC	ETH	DASH	MKR	ATOM	HT	LINK	MIOTA	TRX	XTZ	NEO	BSV	Avg.
ADA	1.00																				0.63
XMR	0.76	1.00																			0.67
XLM	0.68	0.70	1.00																		0.57
EOS	0.78	0.81	0.68	1.00																	0.67
BNB	0.46	0.57	0.44	0.57	1.00																0.46
BCH	0.81	0.79	0.72	0.85	0.48	1.00															0.67
LTC	0.74	0.78	0.62	0.81	0.59	0.79	1.00														0.63
XRP	0.76	0.76	0.73	0.76	0.44	0.83	0.73	1.00													0.64
BTC	0.85	0.90	0.77	0.89	0.58	0.90	0.86	0.85	1.00												0.71
ETH	0.82	0.84	0.70	0.87	0.55	0.87	0.82	0.82	0.91	1.00											0.70
DASH	0.72	0.80	0.65	0.78	0.55	0.72	0.68	0.72	0.82	0.75	1.00										0.62
MKR	0.60	0.63	0.54	0.68	0.47	0.63	0.55	0.54	0.67	0.73	0.61	1.00									0.53
ATOM	0.22	0.47	0.29	0.27	0.42	0.43	0.32	0.31	0.33	0.47	0.19	0.24	1.00								0.26
HT	0.41	0.51	0.31	0.51	0.55	0.47	0.50	0.48	0.50	0.48	0.51	0.40	0.22	1.00							0.42
LINK	0.25	0.38	0.28	0.32	0.22	0.28	0.28	0.32	0.36	0.37	0.28	0.24	0.20	0.20	1.00						0.28
MIOTA	0.79	0.81	0.70	0.84	0.48	0.84	0.74	0.81	0.88	0.86	0.77	0.63	0.10	0.50	0.34	1.00					0.66
TRX	0.61	0.55	0.50	0.54	0.42	0.54	0.50	0.53	0.57	0.59	0.46	0.42	0.17	0.21	0.33	0.52	1.00				0.46
XTZ	0.29	0.29	0.28	0.30	0.13	0.27	0.24	0.29	0.33	0.32	0.32	0.18	-0.22	0.34	0.10	0.45	0.22	1.00			0.24
NEO	0.79	0.78	0.66	0.77	0.54	0.74	0.73	0.74	0.84	0.81	0.73	0.71	0.29	0.46	0.34	0.76	0.61	0.29	1.00		0.64
BSV	0.66	0.66	0.61	0.65	0.36	0.79	0.64	0.76	0.73	0.74	0.63	0.59	0.20	0.44	0.19	0.70	0.44	0.20	0.63	1.00	0.56

Source: https://research.binance.com/en/analysis/annual-crypto-correlations-2019

What makes harder to navigate in Crypto currencies is that it has no such long history as the stock market does. It is inevitable that such investments have bad days or even bad years, and they end up in a loss but on the long term they always tend to come out profitable take for example the DOW one of the main stock indexes between 1947 and 2017 most of the time namely 50 times out of 70 ended the year in profit instead of a loss.

Figure 3 DOW Index



Source: Macrotrends.net

3.6 Author’s Experience - Binance

It might seem like it is a simple task to make a good analysis and wait for the right moment and pull the trigger and jumping into our short or long position but, this is much harder than that. Yes, technical analysis helps a lot to predict where the price movement will head, but it is not a guaranteed success. These analyses rely on technical indicators which feeds information to you the investor and you are the one who makes the decision in the end. **The main goal in the first place is to stay consistently profitable and minimize the risk involved.**

3.6.1 Proper Risk Management

This is the very first point that needs to be discussed because it is the most important part of this whole procedure. Risk management is just as important in trading as the strategy the trader uses to initiate their trades. Even the best ones in the industry are not flawless they can go wrong with their trades, but what they make sure is that their backs are covered no matter what. It may happen that you make the trade, and you must leave your computer and you cannot check your position. If you did not set a “Stop Loss” trigger your entire account or entire stake may be wiped. To put it simple let’s, say theoretically your equity is 1000€ and you start a position with 500€, the trade goes against you which if you are not using leverage may not be an issue but with such small equity to make a living or grow your account you most probably are using one anywhere between 5-20x even up to 100x. Let’s say that our trader uses a 10x leverage which would mean 1% movement is 10% for them. This would mean that a 10% movement in the wrong direction will liquidate their position and they lost 500€ or even in a worse scenario they may go into a negative 150%. How is this possible? Binance offers you a choice at opening a trade to be an “isolated” or “cross” one. If you choose the isolated it is not possible to go below -100%, but if you decide that you are using the cross option that means that you allow the system to use the rest of your equity as a collateral to keep the position open even though you should have been liquidated already. This means that the risk of wiping out your entire account and going to 0 is possible. Although this may sound impossible the risk is indeed very real even if this in our made-up scenario would take 20% real movement in the wrong direction. Such huge movements even for crypto currencies are highly unlikely, but we have seen even worse devaluations. Since the war started between Russia and Ukraine, we had witnessed cryptos dropping down to one third of their ATH value. What can you do to avoid such incident to happen? First, you must set a bar what is the maximum amount what you are willing to risk? Even if you are using that 500€ for your single trade if you set your Stop Loss to -10% would mean that once your ROE reaches the -10% mark it closes the trade and all you have lost is the 10% of the equity used for the trade in this case 50€. Which is 5% of your entire account. Although there is a way to make profit no matter what or at least to break even. When your position is already in profit for example your position is up 1.6% which is the required percentage with a 20x leverage to break even you can wait a little until your position crawls a little higher than that and set your SL to that point where your position reached the break-even point. Therefore, from there on you can do whatever you want to leave the computer and be sure that you will not face any losses when you come back. This can be repeated any time so if you are in plus ten percent, you can set your SL to the plus five percent mark. So even if the price returns to that point you will have guaranteed money in the bank.

3.6.2 Follow the news!

Cryptos are just as sensitive to the events in the world as any other investments. Following the political news is the most important especially the ones which have impact on the USD. The reason behind that is that just as in any other case in the world the USD is the basic comparison to any crypto. If you look at trading sites, the pairs are always compared with the USD. Such things as unemployment rate, inflation rate, interest rates all of these have influence on the USD which determines the compared value to the BTC. The similarity between precious metals and crypto currencies is that they are unregulated. Take for example gold when investors do not trust the official currencies, they tend to invest more into these precious metals cryptos are just another example of this.

3.6.3 Fee explanation

For my own personal use and for this study for trading the Binance platform was used because it is the biggest crypto oriented brokerage offering the lowest percentage of fees and the biggest liquidity. Every brokerage uses fees when a trade is being made the only thing that is different the amount. Binance puts its trading fees into two groups “makers” and “takers”. The fee for regular user on makers is 0.02% and the fee on takers is 0.04% which does not sound a lot, but it becomes more when you factor in the leverage because this fee is based on the leveraged amount of position not your original amount. The reason why the taker fee is higher than the maker fee to put it simple is that a taker position is an instant opening, while the maker position is a “pending” or “to be opened” position once it reaches a certain point. How do you become on or another? When you set a certain price at which you want to open a position you become a maker because you are adding volume to the trading platform and “making an order” in the order book at that certain price. For example, you want to short BTC at 20,000USDT and the current price is at 19,500USDT, basically your short position won’t be opened until the price reaches the value you set. When you are a taker, your order is fulfilled immediately, therefore you are taking liquidity, or volume from the order book. We can say that one has an advantage over the other, but it wouldn’t be true because it comes down to the situation. When you see a great opportunity that a strong trend comes on you better of whit an instant position maximising your profits before the trend gets broken, but you are facing the double amount of fee. On the other hand, if you are not able to sit in front of the computer all day and watch the charts you better off with a limit order setting the price and letting it open by itself. A very important thing is that the fee is applied twice, once when you open the trade and once you close it and it does not matter if you are making any profit or not the fee is applied at the closing. What it means is that even if your position reaches your SL, you must pay the fee essentially putting you in an even bigger loss. As I said earlier the fee is calculated based on the leveraged amount of equity. So, for example if you open a trade as a taker in both cases with 30USDT with a 20X leverage your fee upfront is 0.24USDT and let’s say you close your trade at 5% profit according to the platform your closing fee is 0.252USDT. Conclusion: You made 1.50USDT gross profit, but from that we subtract the two fees which leaves you with a net profit of 1.02USDT which is just 3.4%. (Fee rate - Binance)

3.6.4 Leverage

Leverage is essentially borrowed money which a company or in our case individuals use to amplify their profits. Using leverage helps small traders grow their accounts much faster, but the trade-off is that if their position goes against them amplifies their losses as well. Using too big leverage can but you in the risk of wiping your account easily and this is something which no one ever should do because from there on even the smallest movement in the wrong direction can hit your Stop Loss easily resulting in decreasing account equity. Realistically speaking high leverages make not really sense since the risk is so high compared to the reward that it only favours the broker or trading platform you are using.

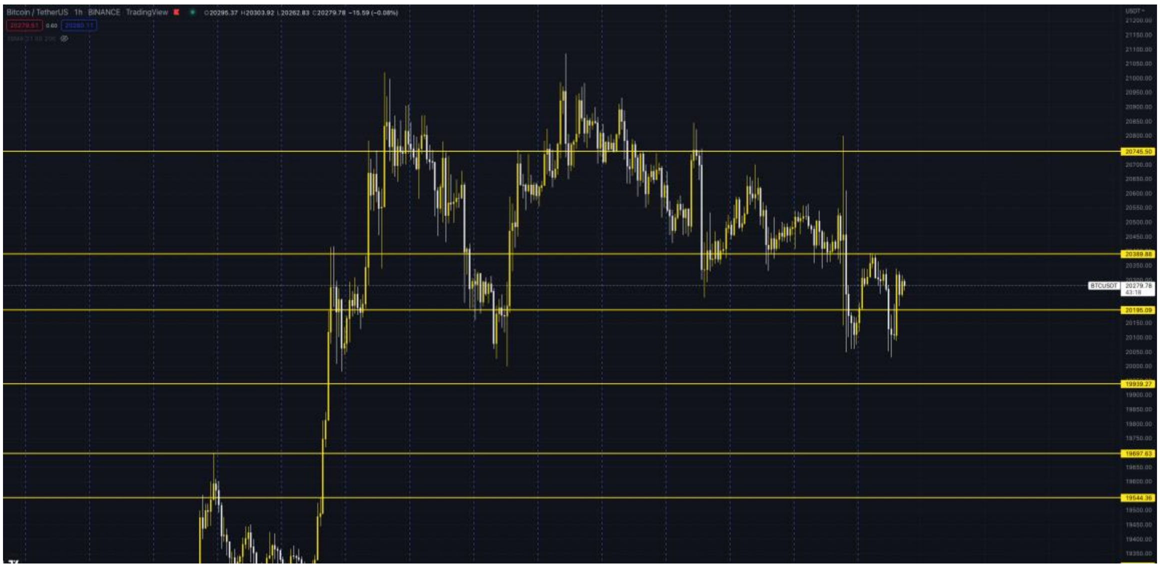
3.6.5 Mindset

The good mindset is just as important as everything else. You must change your attitude and mindset to be a machine exclude emotions and irrational wants from the whole process. What does this mean? You must accept when you lose even if it hurts, calm down and start your new analysis with a clear head, you must avoid rage trading it only makes losses you are rushing not making any rational decisions and most importantly you are doing it from pure emotions from there on. The other trap that beginners fell to is the fear from the minus on their positions. It is normal that your position gets to a negative for a while the price is moving up and down no matter what you do. You must face that period when your position is in the red area and wait how it plays out you must not interfere if things go very bad your stop loss covers you. You also must wait if your position is in green and not fear what will happen and wait until it hits your take profit target unless you see some news event coming up which you might rationally see that it would influence the market. Since our brains are coded that colour green means “go” and colour “red” means stop you must change these two colours on your chart to any preferably neutral colour which will not influence your decision making, this can improve your decision making and emotion control.

3.6.6 Strategies

Beginners might start their careers from an impulse that they had seen somewhere on the internet that how these people live from doing some stuff on the internet and make huge amount of money of it and how simple it is. This is not the case, and these people often promote their “strategy” as the best one which never fails them, and it is the best that exists and everything else is a scam. Every single video which has something similar in the title or they start it with such speech they are probably scam and they are trying to sell you something either a course or signals from them, but think about it if someone is making money on this already and they are so good at it why would they want to show their secrets which make money for them? The best way is to understand what each indicator is trying to show you and use them the way as they are intended. Using just one indicator can be misleading therefore you have to come up with a combination of indicators which gives you enough information and confidence to you that you are going to make profit. Too many indicators can be just as bad as too less of them. If you have too many indicators that would mean that you are waiting for all of these to align perfectly and you miss out too many opportunities. And you know that you are on the right track when the strategy that you are using is keeping you profitable on a constant basis. Before you start adding any indicators to your chart you must analyse the naked chart and define the key points on it such as strong support and resistance lines turning points and add vertical lines to your chart to know in the future what should be your profit expectations and to set your SL.

Figure 4 Support-Resistance Lines



Source: Self constructed – TradingView.com

Something like this where you can essentially create "channels" where you can estimate that where the price is heading. Now that you can see these channels you can see resistance and support points. If the price is getting closer and closer to a certain point you might avoid that trade even if it is tempting because two things can happen either breaks through it aggressively and heading to the next point or it might retest and head back to the previous one. Obviously just from these lines and the candles themselves you cannot really tell what is going to happen. That’s where the indicators come in to help you out.

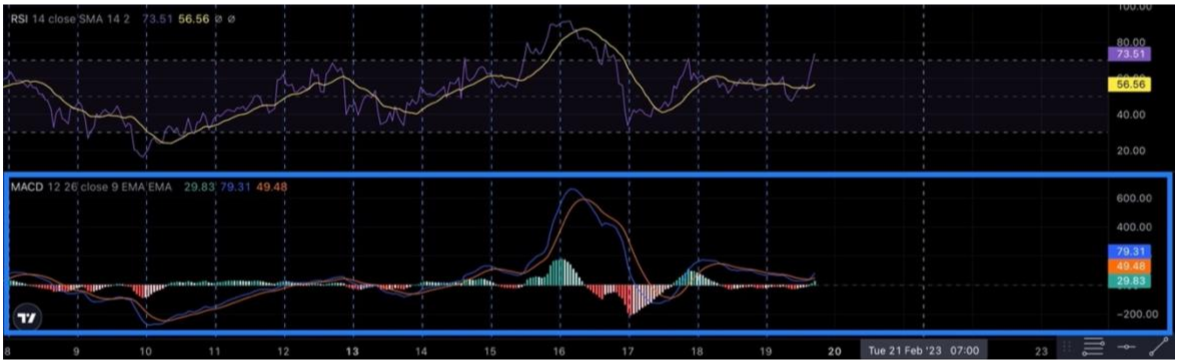
What is used by many traders is a tool called Relative Strength Index, RSI for short. This is a momentum indicator which shows you if the trend is either bullish or bearish. Also showing you that the current trend is going to continue or not with the so-called RSI divergence. Here on this image, we can see a divergence where the price made a lower low on the chart, but on the RSI made a higher low which can be an indication of a potential trend reversal. Because what this means is that the new lowest low in the trend was not that impactful as the previous low even though the RSI is in the bearish momentum. Many people use the RSI as an indicator if the asset that they are looking at is oversold or overbought but this can be misleading because sometimes when the market becomes overbought that means that we are also in a huge bullish momentum and that momentum might go on for a while and the price might even go higher. Usually, those people who use RSI like this consider an asset to be overbought when the RSI is above the 70 line and oversold when the RSI drops below the 30. It might indicate you a potential counter trade but, also might fool you. For my case it is not how I use it, but there are strategies which rely on that indication.

Figure 5 RSI

Source: Self constructed – TradingView.com

MACD (Moving Average Convergence Divergence) is one of the more complex indicators one might use in their strategy, but it proves to be useful. It has 4 main components the MACD Line itself, the Signal Line, the Histogram and the Zero Line. The blue line which is the MACD Line represents 12 candles it is the fast length; the orange is the Signal Line representing the slow length usually set for 26 candles. The histogram stands for the difference between these 2 lines the bigger the difference the bigger the value of the histogram. The Zero Line, which is the centre, is where the Histogram changes its colour from green to red or vice-versa. As this picture represents if the momentum is in an upward trend and the histogram shows greater and greater green columns once the difference starts shrinking it becomes a faded green indicating a change in the trend might occur. If the MACD Line falls below the signal line the Histogram turns red indicating the momentum might change to a downward trend.

Figure 6 MACD



Source: Self constructed – TradingView.com

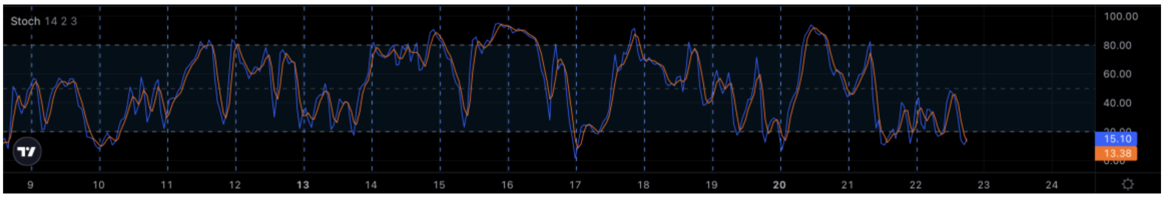
A very basic and useful tool to identify trends is moving averages, many investors use multiple of these the most common ones are the 21,50,200 moving average which show the average value of the last 21,50,200 candles. This can show you if the current price is below or above these moving averages. The way it can be interpreted is once the short moving average moves past the longer one for example of the 21 goes above the 200 one it generally means that there is a bullish momentum, and we are in an uptrend. In the picture below you can see that the price action movement always remained above the 200 line and once it got under the 50 and 21 it started consolidation. The red one represents the 200 MA which is the longest the yellow is the 50 and the purple one is the shortest by 21. The colours do not necessarily hold any meaning just set by ones liking which feeds them understandable and distinguishable information. (How to use moving averages to find the trend 2021)

Figure 7 Moving Averages

Source: Self constructed – TradingView.com

What might be worth considering using is the **Stochastic Oscillator** this indicator’s purpose is to show where the closing price positions itself compared to the price range which is set to. It consists of three parts the %K, the fast %D line, and the slow %D line. What I mentioned what this signal does is what the %K represents usually it is set to 14 periods, The fast %D line is a simple moving average of the %K line, usually set for 3 periods. When the %K line is above the %D line an upward trend is indicated if it is below then a downtrend might take place. The problem with this so far is that the %D fast line is volatile and the %K line is very sensitive to price changes can cause fake signals, that is why we use another %D line as a slow one to overcome this problem. Essentially the slow %D is a doubly smoothed moving average of the %K line.

Figure 8 Stochastic Oscillator



Source: Self constructed – TradingView.com

Fibonacci Retracement – it is named after a mathematician from 1170, but what it important about it is that the Fibonacci number sequence is a range from 0 to 1 where each number is the sum of the two-prior number. In trading they are a bit different they are derived from the mathematical relationship between numbers in the sequence. How the Fibonacci Retracement is used in trading is that the investor takes a high point in the chart that will be the top of the Fibonacci (1) and from that point it is stretched to a new lower point in the graph as seen below which will be our bottom point (0), this applies if one is looking for a short position, the same applies but the other way around if one is looking for a long position. By this a horizontal grid is created which marks some important possible reversal points in our charts. The theory says that one once got their Fibonacci drawn it shows them a golden ratio enter point between the 0.618 to the 0.5 this is where if the price moves back and does not break through it a good point to enter. The white grid line of the 0.382 can also be a good entry point but it is not as certain or profit yielding as the golden zone. Here the Fibonacci was drawn from 25277.26USDT down to the 23569.62USDT mark on the BTC/USDT chart each candle representing an hour. The price perfectly moved back to the golden zone not breaking through it and reaching the first "take profit" zone the 0 mark at 23569.26USDT. This is the point where the trader's profit is 4.12% (and that can be multiplied by the leverage applied). At that point one can close their trade or leave it going to the next point which is the -0.382 level which is more unlikely to be reached but rewards the investor with a bigger profit in the end. This comes down to the trader's liking if they keep their position opened or close it. Other indicators in this case the 3 smooth moving averages are reassuring sings that the Fibonacci drawn downwards is a good idea as the faster moving averages (21,50) crossed the slowest moving average (200), as this is an indication of a bear market's start, what could help deciding if the position is worth keeping opened or not is if the space between the moving averages grow or shrunken. In this case it is growing and as shown the price indeed fall to the second "take profit" zone.

Figure 9 Fibonacci

Source: Self constructed – TradingView.com

3.7 Author's Experience – Mining

The Crypto mining industry had a huge impact with Ethereum switching from proof of work to proof of stake. This eliminated a great number of miners since Ethereum was the most profitable coin which someone could mine without investing ten or even hundreds of thousands of euros into special equipment since this coin was possible to mine with everyday GPU-s. That was the reason why the graphics card prices skyrocketed and had supply issues, but now thousands of cards are entering the market. There are other coins to be mines of course such as Bitcoin but that is impossible to mine with regular GPU-s. Bitcoin mining requirement is so high that there are designed mining rigs that they were built only for this one purpose. Mining always gets slightly more and more difficult therefore resulting in smaller earnings for the miners and they must upgrade these rigs to keep up their margins.

Crypto mining is an essential part of the whole industry or at least that's how it was at the beginning. As times goes on mining always becomes harder and harder not just because of the rewards are being cut for the same amount of work, but the whole world situation makes it harder. When I was mining it was in 2021 from April 10th to May 15th me and my partner were mining Ethereum back then when it was still proof of work instead of proof of stake. It was the most rewarding coin to mine since it was the most valuable as a single coin and "possible" to be minable. Yes, Bitcoin was and still is mineable and it will be mineable, but to mine BTC you need huge amount of HASH power which requires a dedicated machine built for this purpose which eventually becomes obsolete, and it cannot be used for anything else. Essentially an asset which has a single use and a very limited amount of lifetime. That's why majority of casual/semi-pro miners decided to go with ETH instead, because it was mineable with normal everyday GPU-s. The problem was this, everyone who was mining had a huge demand back then for consumer high performance GPUs. The demand was much higher than the supply which Covid-19 did not help at all since many manufacturers were not operating at full potential. If you wanted to buy a GPU back, then you were looking at 2x of the MSRP. Which meant you had to invest even greater amount to invest at the beginning. New cards were basically impossible to acquire at the time. We used 2 generations old cards namely GTX 1660S and 1660 cards in our system and they resulted in 241 MH/s which back then converted into 25-30USD/day excluding the electricity costs, but as this works means that the more work in the system the more reward you get, we were in the best available time there were a ton of transactions going on and we had better days when we had seen 50-60USD/day returns, but these were rare. Realistically speaking we were calculation with six to seven months until we are break-even.

Figure 10 Mining RIG

Source: Own photo

Figure 11 ETH chart

Source: Self constructed – CoinMarketCap.com

What changed since is that ETH switched from proof of work to proof of stake which means that is not mineable anymore. Still the concept of mining is with us, but it is not as profitable as it used to be. As the world slowly restarts and production lines are at their full potential again, they start producing GPUs again but now they fitted some of these cards with an LHR limitation (Low Hash Rate) which was the Nvidia’s try to stop miners buying bulks of their stock and targeting their real audience gamers and professional who needed these GPUs.

4 Practical Part

4.1 People's opinion on crypto – Questionnaire

I conducted a research of what people think about crypto currencies since as I said its future heavily depends on how people and businesses will implement it in their lives and day to day use. In the questionnaire I asked the people if they prefer digital or traditional aka cash as a payment option, 90% of them answered digital form. This is not really all that surprising after all credit and debit cards are here for years now and they are just much more convenient to use unlike cash where you must count it before you pay. Another important part of this study was the level of education of the people and their will to invest. 50% of people who answered had a high school diploma or equal and 41% had a bachelor's degree with only 4,5% having masters and the same amount with less than a high school diploma, so the overwhelming majority is educated and professional people, where 86,4% believed that education has major impact on decision-making when it comes to investments and just 13,6% saying the opposite. 36% of the people answering the poll stated that they have investments with 9,1% wanting to invest even more. 36,4% having no investments so far but wanting to invest and 22,7% having no investments and haven't decided yet if they want to or not with just 5% deciding that they are not interested at all. Sidenote we asked our participants if they would add any personal thoughts to this topic and many answered that education is important when it comes to this topic and it should get more attention in the education system how does this work and not just education but crypto as well.

Now to the part which is crypto related and not general. We set up a scale from 1-5 how familiar people think they are with crypto in general where 1 being the worst and 5 being the best. 59,1% of the participants considered themselves under the average (1-2) either knowing nothing or just barely something about this topic. 18,2% considered themselves somewhere in the middle where they know more than just the things they heard in news or media but not making any decisions when it comes to financials in this topic. And less than the quarter of people answered that they are above average (4-5) where they can make financial decisions when it comes to crypto or at least considering as a good option for their portfolio. When we asked the participants if they could name any crypto 13,6% couldn't say any, those who were able to name any 85,8% of them said straight up Bitcoin, 45% knew Ethereum the second most popular cryptocurrency on the market we can already see a significant drop here even though Ethereum went through a lot in the last months and essentially it could overcome BTC in the still is an underdog when it is asked about. Surprisingly 18% of the people knew Dogecoin which is one of the riskiest coins as it went through a pump and dump, but it was “advertised” or at least mentioned by Elon Musk who is one of the most followed people on Twitter, this is a good indicator how influential a well-known person and media can be in this market. 13,5% known Tether which is a 1 to 1 fiat backed crypto currency and a common one. One person who answered said NFTs which is not a crypto currency, this gives us a mixed data as means that people do not necessarily know what an NFT is, but they know it is associated with crypto and it exists. 45% of people did not know what they could name for the least volatile cryptocurrency. Some answered BTC, ETH and XRP as least volatile, but these cryptos are volatile even though there are no correct or incorrect answers there are much more stable coins than these. Not that surprisingly 86,4% found crypto risky and only 13,6% found it safe.

4.2Long-term Investment

To start of this topic, we must take a look at the pulling force of this entire industry Bitcoin. BTC had its own ups and downs since its launch the very first significant peak in our graph is 2017.12.16. when BTC reached its all-time peak back then with an outstanding 17,760.30USD. One year before that it was just under the 1000USD mark and at the beginning of 2017 reached this milestone, people started noticing crypto and take it seriously. These 12 months resulted anywhere between 18-19x times of ROI. In that time every crypto skyrocketed in value and shortly after this bull rally just in 2 months dropped back below 10.000USD in value. Many people closed their positions or just sold their BTC which they kept in their valets as investment. (Higgins, 2021)

Until 2020.09.16. crypto consolidated without any major breakout or loss although its lowest point after the new ATH was 3,244USD. In 2020.11.20. BTC reached its new ATH at 18,621.32USD, but it did not stop there it reached an insane 63,075.20USD ATH on 2021.04.14. during Covid-19. Theoretically speaking if someone bought BTC at its lowest point in this period (3,236USD) and managed to sell it at the peak it was a 19,58x return if they purchased around 10,000USD still 6,35x ROI so if we take an average of these two data, we get an average of 12,965x return in 3 years. By 2021.07.17. the price dropped back to 31,397.31USD essentially half of its ATH value. What really happened next is that professionals and analysers were stating that do not just sell your crypto yet even though it

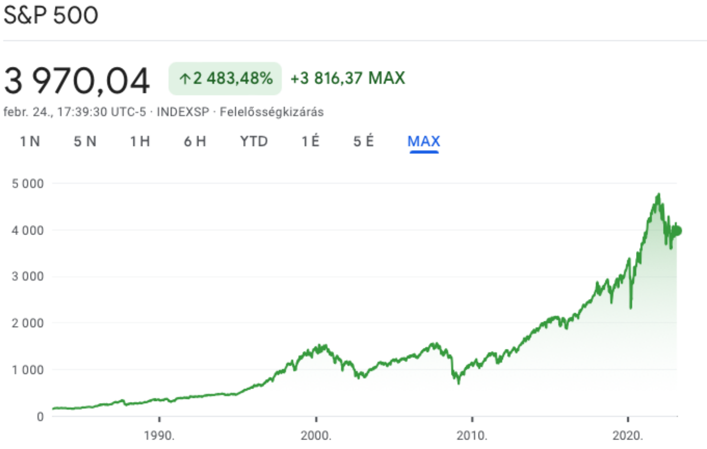
Figure 12 BTC chart

suffered a 50% loss by the end of the year it is going to skyrocket and even surpass the

previous ATH some even stating that it could reach a 120K value. This did not happen, but what did happen is that it reached the 64,863.98USD mark setting a new ATH on 2021.11.12. and after this peak it was falling until 16,291.22USD. The reason behind this fall contains many things involved such as the Russia-Ukraine war and the economic consequences of it, the economic consequences caused by Covid-19.

Speaking of the ups and downs of the crypto since investing into BTC is essentially investing and believing in the future of crypto comparing this to the most well-known index in the world the S&P500 if these astonishing growths are compared to that index, it is obvious that not index comes anywhere close to this type of growth. The S&P500 index between that time when BTC went from 10K to 64K (from the end of 2020 to the end of 2021) kept a much more reliable and sustainable growth but it only went from 3509USD to 4620USD which is a 1.32x growth compared to the 6,35x of BTC that's 4,81x more in the same period(S&P 500 futures).

Figure 13 S&P 500 chart



Source: Google Finance

Comparing these results with other frequently invested in companies here see the attached table below:

Figure 14 Stock Table

Name	Start Price	End Price	Growth
US 500 Cash	3726	4778	1,28
US 30 Cash	30460	36426	1,20
Dow Jones	30487	36247	1,19
S&P500	3509	4620	1,32
Nasdaq	12993	15593	1,20
Tesla	223	360	1,61
Nvidia	132	310	2,35
Apple	132	176	1,33
Microsoft	226	335	1,48
Linde PLC	262	343	1,31
Amazon	160	164	1,03
AMD	90	149	1,66
Block Inc. (SQ)	217	155	0,71
Meta	267	334	1,25
Alphabet Inc Class A (GOOGL)	88	139	1,58
Adobe	490	559	1,14
Alphabet Inc Class C (GOOG)	90	136	1,51
Alibaba Group Holdings Ltd	235	117	0,50
Netflix	537	612	1,14
Intel Corporation	50	51	1,02
PayPal Holdings Inc	233	187	0,80
Qualcomm Incorporated	152	180	1,18

Source: Self constructed

As we clearly can see that if one invested in any of these companies or indexes during the period when crypto was thriving still would make profit in most cases, but some dropped their value resulting in the investors loss.

But to draw a conclusion crypto unlike indexes and stocks are much more volatile as it was proven throughout the last years, so they are much better to grow an account quickly, but they involve a much higher risk. As one can rely in the case of stocks that the company that they are investing in they are doing some business activity and their value is backed by some activity and one can see if they are performing good or not proving them worthy to invest in. As crypto is not backed by anything necessarily but they purely rely on the trust of people and the current economic situation they can be classified as a high-risk high reward investment. One never really can know what is the new lowest low what it is going to reach but they cannot know the opposite either, jumping to this new instrument of investing definitely is beneficial, and if someone decides that they want to start investing in crypto they are in a good position right now as crypto BTC the pulling power of crypto is nearly at its 1/3 ATH so what this means is that the possibility of your investment going upwards is better than going downwards. No one can neglect the fact that this topic is getting more and more spotlight in the world so it must be a part of an investment portfolio as well. The remaining coins of BTC to be mined are always less and less so it’s a limited resource better join when it is still cheap than to miss out the opportunity.

4.3 Cryptos as tradable currencies/CFD

As it was discussed earlier on in this thesis cryptos can be traded in crypto pairs just like Forex pairs. For this part of my practical part, I am going to discuss the findings and results of my own doings. This is a graph of how the last 60 days of trading went and strictly done by me not using any external help only my own methods and strategies developed throughout the time I am into this. What must be stated is that the goal of this thesis is the constant and safe profit realization was and it is achievable sticking to the strategies which one develops as they learn. What worked best for my own research and proven to be accurate most of the time is the use of the combination of the 3 moving averages with the Relative Strength Index and MACD. The signals when all these aligned as they supposed to for the buy/sell orders my profit goal which was 10-15% on one trade using 1/3 of the entire account. The numbers might not be impressive, but the strategy can be applied for any size of an account. Does not matter if one does it with 100 dollars or 100.000 dollars the principles are the same and percentages too. The only thing that changes is that what those percentages represent.

Figure 15 Account growth

Source: Own data – Binance Account

The Fibonacci Retracement is a really good tool to identify good entrance, but it often does not match with other indicators buy/sell signal but when it does it is another layer of confirmation, and it reassures the trader that the trade is heading in the right direction and if these for indicators really align together the results are truly impressive. As one can see here the price entered the Fibonacci gold zone the 3 moving averages were indicating a beginning of a bearish momentum so did the RSI and MACD. Resulting in reaching the second take profit zone as one can see below.

Figure 16 Fibonacci-RSI-MACD signal

Source: Self constructed

Figure 17 Result

Source: Self constructed

As it is now known crypto is volatile so the chance that it moves bigger percentages in a given time period than normal forex pairs or any other stocks or commodities in a CFD is much more likely, and unlike those crypto pairs are also tradable during weekends, but they are less volatile, and the movements are minor making it more difficult to find good entries. Following the news is truly crucial as for this purpose all the graphs are BTC/USDT graphs it is fundamentally the same as it was BTC/USD. As news come out influencing the US dollar that can have a heavy influence on the volatility of the graph. One good news for the US dollar making it "stronger" would mean that for 1 dollar you get more BTC or BTC losing value against the US dollar, but the same is true in the other scenario as well just vice-versa if bad news come to life BTC proves to be stronger. For this additional research and understanding of political and economic news is required. Tradingview shows some, but not all upcoming events which might have influence on the trading pair you are just using. Also, another caveat of this system and this whole idea of trading is that it requires a lot of attention and research. Days or hours might pass until the traded gets just one good signal on one chart. Looking at multiple charts for opportunities if one wants to make a living out of this is essential, but this is where time is against the trader. The same analysis and drawings must be done each time and look at the situation one by one. Many uses self-developed or paid bots to do these for them. The reliability and accuracy of these were not researched in this paper. To conclude everything mentioned above day trading in crypto was proven to be profitable, but by far this is the hardest and riskiest since the potential of the trades reaching the stop-loss is there with long-term investment an investor does not mind if his investment is in a loss in the present as he expects that to grow and sell it with a profit in the future, but a trader requires its funds to open new trades and make money and if the trade is too long time against them they have to move on with a loss. That's why a bigger reward than risk ratio must be maintained.

4.4 NFT

For this topic, it is hard to describe anything practically since we are talking about something which is in its very early stages even more so than crypto. But what we can say with the most certainty is that just as Bitcoin established itself as the leading power for crypto space in the NFT space there are "industry leading" NFT projects which tend to stay among the top 10 of the rank lists. Such NFTs as the "Bored Ape Yacht Club" or the "Mutant Ape

Yacht Club" tend to stay in the top 3 places no matter what period you look at 7 or 30 days or the entire history. But these are not the only noteworthy NFT projects out there're the CLONE X – X TAKASHI MURAKAMI is still standing strong among the most popular ones on the market. But how to implement NFTs in an investment portfolio is up to two ways. Either one decides that they are going to buy a just being released NFT "Mint" it or buy themselves into an already well-established solid project which grows and grows in value and more people join in overbid each other pushing the value upwards. We are talking about an even more limited stock of "entities" than any crypto out there. Once a project is released that is all what exists. The NFT investment is much closer to a long-term investment than to trading and there is no real way to identify good entries other than researching the project and the artists behind it and speculating on the value it will hold. OpenSea offers a tool which shows that the NFT you are looking at how rare of a trait they have, but even that does not really mean anything. So, this point we can say that NFTs in these forms where they have no real use putting money into them are borderline gambling rather than investing. The ones which are going upwards in value they are going up rapidly we are talking about tens or hundreds of ETH jumps, but this is not always the case.

Figure 18 All-time top NFT projects

All categories | All chains | OP | 1h 6h 24h 7d 30d All

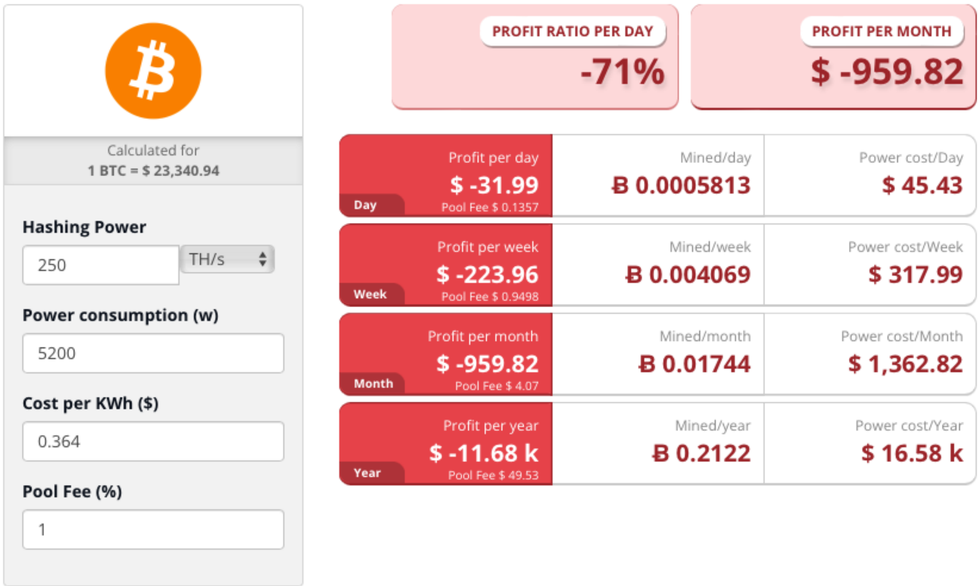
	COLLECTION	VOLUME	% CHANGE	FLOOR PRICE	SALES
1	CryptoPunks	1M ETH	–	–	22K
2	Bored Ape Yacht Club	901K ETH	–	68.70 ETH	30K
3	Mutant Ape Yacht Club	677K ETH	–	15.30 ETH	49K
4	Otherdeed for Otherside	506K ETH	–	1.83 ETH	126K
5	Azuki	405K ETH	–	14.95 ETH	38K
6	CLONE X - X TAKASHI MURAKAMI	335K ETH	–	4.85 ETH	36K
7	Moonbirds	254K ETH	–	6.35 ETH	21K
8	Doodles	226K ETH	–	5.50 ETH	36K
9	Bored Ape Kennel Club	207K ETH	–	7.40 ETH	35K
10	The Sandbox	160K ETH	–	0.81 ETH	92K

Source: OpenSea

4.5 Mining

Mining as it is in 2023 the only way one can really make money out of it is to mine BTC, but for this they require a huge upfront investment since they require specially tuned machines and equipment to be able to even compete with others. Even with these machines one's current pay-out is in negative and essentially, they have to wait until BTC reaches that value where it is worth selling for them to cover their expenses. If someone wants to start mining now, they must be aware of that they are fighting against large companies who dominate the market with facilities and dozens of ASIC mining rigs to make the business running. A Bitcoin miner earns 6.25BTC if they successfully validate a new block on the chain which currently as it is worth 145,625 euros in the moment of writing this thesis. Talking about the environmental impacts that mining brings with itself creating Bitcoin requires 94.2 terawatt-hours of electricity each year. But the thing is even if you buy a dedicated machine for crypto mining, and you set it up in Prague with the current electricity prices 0.364USD/kWh you would lose around 32USD/day with the current price of BTC. (Nibley, 2023) (Czech Republic Electricity Prices, June 2022)

Figure 19 Mining profitability calculator



Source: Cryptocompare.com

5 Results and Discussion

So, to be said cryptos in general are way more different from anything else in investment mainly because as it can be seen many people are lost in this space, people do not know what is safe and what is not, and they barely know how to start this topic, but they are opened to it and want to learn more as the potential is there. It must be stated that as people's trust weakens in the governments and banks and their leaders in general, they tend to look to other places to put their money. The way to counter inflation is making sure that one's currently owned money makes at least that much back that the inflation would cut from its value in the meantime and cryptos just as gold could be the last resorts to counter this. What can be done to make this more effective is to ask professionals to manage individual's funds instead of them managing it as there are way more options out there as humanly possible to research. Looking back at historical data of crypto history, they are growing but they lose value rapidly too it is the perfect example of buying low selling high giving options for newcomers to enter this market. Based on the history and data available this method proves itself to be profitable in the long run.

The day-trading is the most intriguing part of this whole work, it is something that one can learn, but it is hard to master and here just again mentioning that doing this as a human being the smallest cog in the system against banks and brokers who use machines and AI for these purposes to maximize their profits will never be a fair fight. One can make sustainable account growth by sticking to well-developed strategies no matter the account size. This method is profitable.

NFTs are something that right now is something that one rather should stay away from. The reason behind it is that until something has no use to it, they are not that reliable to hold value. Investors are hoping that someone is going to pay more for the artwork that they purchased for a certain price than they did, which might never happen. As Meta was introducing the Metaverse as the new big thing and giving hope for the NFTs to become a thing that's the type of usage the world needs to make them worth considering. High risk and inconsistency and uncertainty not something that one really should rely on.

Crypto mining was a big thing for small individuals as a passive income when big coins such as Ethereum was mineable now it is just not worth it. Bitcoin mining will live and thrive for the time being but as it comes to the last Bitcoin mined eventually everyone is going to abandon this industry unless a new coin that reaches these value territories comes and makes people want to mine it again, but more and more cryptos are switching to the proof of stake method from the proof of work. Currently, because the low value of cryptos is not profitable, it only yields loss unless the miner is willing to wait until the price level goes beyond the break-even point.

6 Conclusion

In conclusion purely relying in an investment portfolio on crypto is not a viable solution if one is looking for constant profitability and safe grows. They are much better to grow a small account than other investments as one can start with little and grow, their account thanks to the higher volatility, but this comes with the same amount of risk. Crypto as long-term investment, crypto for trading are good ways to make money. NFTs for now are a mixed bag if they are good or not, they are more like gambling. Mining for individuals is not possible to make money in a noteworthy way it requires too much time to make back the investment made to it.

7 References

Babypips. *How to use moving averages to find the trend*. (2021, April 23). Retrieved March 7, 2023, from https://www.babypips.com/learn/forex/using-moving-averages

BAUCHEREL, K. (2020). *Blockchain hurricane: Origins, applications, and future of Blockchain and cryptocurrency.* Business Expert Press. ISBN- 9781951527372

Binance.com. *Fee rate.* (2023). Retrieved March 7, 2023,, https://www.binance.com/en/fee/futureFee

Bored Ape Yacht Club. *Bored ape yacht club*. (2021). Retrieved March 8, 2023, from https://boredapeyachtclub.com/#/home#buy-an-ape

DANIAL, K., LAURENCE, T., KENT, P., BAIN, T., & SOLOMON, M. G. (2022). *Cryptocurrency all-in-one for dummies.* JOHN WILEY & SONS. ISBN- 9781119855811

Dow Jones by year - Historical Annual returns. MacroTrends. (n.d.). Retrieved March 12, 2023, from https://www.macrotrends.net/2622/dow-jones-by-year-historical-annual-returns

GlobalPetrolPrices.com. *Czech Republic Electricity Prices, June.* (2022). Retrieved March 8, 2023, from https://www.globalpetrolprices.com/Czech-Republic/electricity_prices/

GOLA, Y. (2020, January 22). *These three crypto assets are least correlated to Bitcoin, data shows.* Retrieved March 7, 2023, from https://www.newsbtc.com/news/bitcoin/these-three-crypto-assets-are-least-correlated-to-bitcoin-data-shows/

GRABOWSKI, M. (2019). *Cryptocurrencies: A Primer on Digital Money.* Routledge. ISBN- 9780429510144

HECK, J. (2006). *Investment analysis and portfolio management strategies*. Emerald Group Publishing. ISBN- 9781845448929

HIGGINS, S. (2021, September 13). *From $900 to $20,000: Bitcoin's historic 2017 Price run revisited.* Retrieved March 7, 2023, from https://www.coindesk.com/markets/2017/12/29/from-900-to-20000-bitcoins-historic-2017-price-run-revisited/

NADINI, M., ALESSANDRETTI, L., DI GIACINTO, F., MARTINO, M., AIELLO, L. M., & BARONCHELLI, A. (2021, October 22). *Mapping the NFT revolution: Market trends, Trade Networks, and visual features.* Retrieved March 1, 2023, from https://www.nature.com/articles/s41598-021-00053-8

NIBLEY, B. (2023, January 30). *Is crypto mining still profitable in 2023?* Retrieved March 8, 2023, from https://www.sofi.com/learn/content/is-mining-crypto-worth-it/

ORLAND, K. (2022, September 12). *Ubisoft is pretending it was never really that interested in nfts.* Retrieved March 1, 2023, from https://arstechnica.com/gaming/2022/09/ubisoft-is-pretending-it-was-never-really-that-interested-in-nfts/

S&P 500 futures. (2023). Retrieved March 8, 2023, from https://www.investing.com/indices/us-spx-500-futures?cid=1175153

SALOMONDRIN, OMAR, CARLOS, JUCA, & WILLYREX. (2022). *Creadore Studios. Creadore Studios – Your way into the metaverse.* Retrieved March 1, 2023, from https://creadorestudios.io/en/

WILLIAMS, K. (2022, March 23). *Why do csgo skins get compared to nfts? and is this valid?* Retrieved March 7, 2023, from https://win.gg/news/why-do-csgo-skins-get-compared-to-nfts-and-is-this-valid/

8 List of pictures, tables, graphs, and abbreviations

9 Appendix