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Bitcoin, Payment Method Of The Future

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2019 Laurea Otaniemi University Of Applied Sciences



Laurea University of Applied Sciences

Shpetim Kamberi, Otto Lyytikäinen
Business Management
Bachelor's Thesis
October 2019

Shpetim Kamberi, Otto Lyytikäinen Bitcoin, Payment Method Of The Future

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2019 2019 Pages 31

The purpose of this thesis was to study the potential of Bitcoin as a payment method. In addition, the thesis aimed to find out if there were any other purposes Bitcoin could be used for. The outcome of this thesis was targeted mainly for companies that could benefit from it in the future and for private investors.

The interest to Bitcoin started from investing in it as an experiment. Moreover, it continued by conducting research because of the need to know more about Bitcoin. Both printed and online books and articles were used for gathering data.

In this thesis, qualitative research methods, were used including theme interviews. The reason for using internet sources was that most of the trustworthy articles are published online. Qualitative research was used because the findings would be transparent. The main objective was to benefit from human interaction and receive a wide understanding of the interviewee's opinions. Finding only one right answer to the questions was not an objective.

The future of Bitcoin is quite unpredictable and it will remain mysterious and leave a question mark for everyone. There are numerous factors, which can affect Bitcoin in a positive way and also in a negative way. At least one noteworthy object where Bitcoin could be considered helpful is developing countries where banks are unreachable for many.

Keywords: bitcoin, blockchain, mining, bank

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1 Introduction

Bitcoin is a modern type of digital money, implemented by using a Peer to Peer (P2P) system. Bitcoins can be used to buy goods, to exchange, or receive them in exchange for a service. It is fully digital, so coins or bills do not exist. By downloading a digital wallet, everyone can send or receive Bitcoins. Sending a Bitcoin to someone just takes a couple of seconds. In addition, sending a Bitcoin is almost free. This is different from what banks normally do. The banks charge quite a high fee and transferring money can take days.

As mentioned, Bitcoin uses the Peer to Peer system. Because of the P2P system, everyone with a Bitcoin wallet can check all the transactions which are made with Bitcoin. Because of all the users are checking the transactions, third parties like banks are not necessary anymore, so the Bitcoin is 'decentralized'.

Buying Bitcoins from other persons or trading offices is not the only option to get Bitcoins. The second option is called 'mining'. Users of the Bitcoin network can volunteer computing power of their computer to verify the transactions. As a reward of this, the 'minors' get opportunities to generate new Bitcoins by solving complex cryptographic puzzles via their computers. By providing a lot of computer power by all the minors, new Bitcoins are generated. The maximum number of Bitcoins is 21 million.

Nevertheless, not everyone is happy with the arrival of Bitcoin. As mentioned before, banks are 'offside' in the Bitcoin game because the system is decentralized and can be used without the service of the banks. Bitcoin can be seen as a competitor for the banks.

Even though, banks are very interested on the Blockchain system of Bitcoin. Banks all over the world are working together to know how they can use the system in the future and how it can be safe for customers. This project is called the R3 project.

By analyzing the competitors, we received a wider understanding of cryptocurrencies in general and we were able compare them. Additionally, it led us closer to our work's research question.

Nevertheless, the research was fulfilled, in order that companies and private individuals, who handle money transactions daily, would gain knowledge of Bitcoins potential. Secondly, there was an intention to receive answers from investors' point of view, so that answers would be justifiable not only opinions. We chose qualitative research method because it would give us a transparent result.

2 Technique of Bitcoin

2.1 Blockchain

Besides Bitcoin being a virtual alternative currency, it is also a so-called crypto-currency, a currency based on cryptography. Each Bitcoin is represented by a unique, encrypted digital code of letters and numbers. This works as follows: before someone wants to pay with a Bitcoin, they have to install a Bitcoin-wallet on their PC or mobile device. After the installation, the person will receive a private key. With the private key they provide each transaction with a signature and each transaction has its own unique signature. This means that it is impossible to do a transaction with the same signature a second time. But how does this work compared with banks?

People trust their money and transfers to banks because the money gets from person A to person B. Therefore, people pay a certain amount of money. In addition, it takes sometimes a couple of days that the money is transferred. This is all based on trust (Cambridge, 2013).

But how does that work by a Bitcoin transfer? Is it made of trust? The answer is no. Bitcoin has been designed so that there is no need of trust. Every transaction with a Bitcoin is saved automatically in the "Blockchain", a collective Bitcoin-logbook with all the transactions. This Bitcoin-logbook is stored at the global Bitcoin network, in which the computers of all Bitcoin users are connected to. Every user of Bitcoin can see the flow of the Bitcoins. That is unlike a bank, in which the bank is the only one who can see transactions.

2.2 Peer to Peer system

The Bitcoin network is based on so-called 'Peer to Peer' (referred to as P2P). Simply put, it means that the Bitcoin-network is formed by software on the computers of all users connected together. Because of this, the users can transmit directly information to each other, making transactions with each other, without using a central hub like a bank or clearing institution. It takes a couple of seconds to get the money (or information) from person A to person B and because of the P2P network, it is impossible to centralize the control of the system (Micha Ober, 2013).

As previously mentioned, a transaction cannot be used twice with the same code. Before each transaction there will be an authentication with the Bitcoin-logbook (Blockchain). After the first transaction, new data of the new holder is stored in the Blockchain. The Bitcoin-network will refuse a second transaction with a copied Bitcoin by the old owner.

2.3 Why is the blockchain so interesting?

The blockchain is a new technology which has many advantages. People are becoming much more demanding if it comes to speed and safety. But the most important thing is the assurance that the system is safe. The transactions are protected by cryptography and the order is protected by Blockchain technology. It is safe because everything is public and anyone, or rather everyone's computer is helping with controlling. Even for hackers it is very hard to hack the system. The blockchain is a system that can be used in the future also for other activities besides Bitcoin. Only five persons are allowed to adapt the programmed Bitcoin protocol to improve the security. Experts say that the Bitcoin will be used in other branches as the financial branch. A good example is the patent branch. By using the Blockchain in this branch, everyone is able to see which patents are already used and they do not need a third party to give the patent. This will save money and time.

3 Dezentralized

3.1 No fees

To clarify this topic, there will be a simple example: If a person from Europe wants to book a holiday in America, he or she has to pay it in dollars. To pay the holiday, the person has to change the money from euro's into dollars and transfer money from Europe to America. The bank will charge a fee for this and it will take time before the money is transferred. This is because America is not part of the SEPA. To transfer money till the SEPA (Single Euro Payments Area) border is free and works almost in similar way in your own country. The most European countries belong to this convention because they use the Euro as currency (EPC list of SEPA scheme countries, 2016). The fee varies by bank and the amount of money, but still it is quite expensive. The banks are the central 'companies' who are taking care of this task. The banks are called the 'third' party in this case. As mentioned before, with Bitcoin there is no third party and the transfer of money will be instant and direct. Also, the fee is very low compared to banks.

3.2 Speed

As mentioned, the money will be transferred in just a second. Most of the banks are not open on the weekends so it takes even longer if a person want to transfer money right before the weekend. It seems that this has only advantages, no fee and a fast transaction. However, there is also no third party who controls the coin or keeps the currency stable. The figure below shows that the Bitcoin is instable as well. Later on in this paper there will be explained why. But how can you get Bitcoins? Can you just buy them or are there any other options? This will be explained in the topic below.

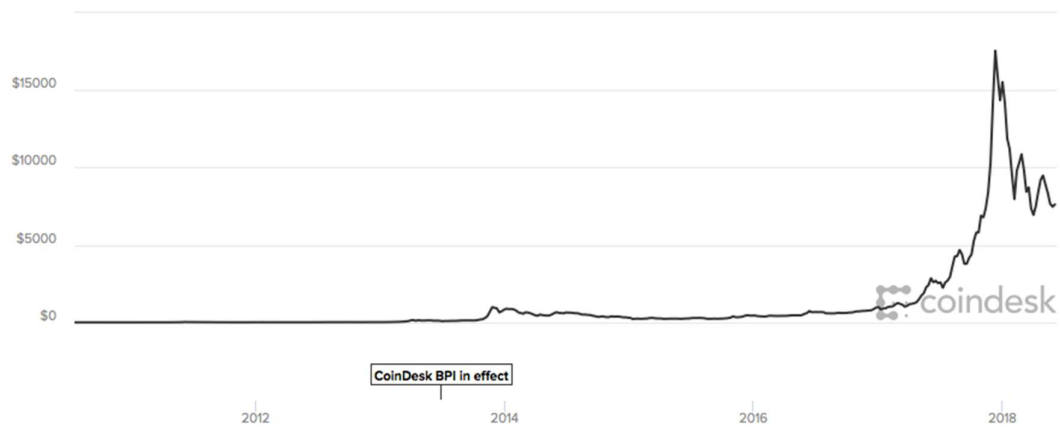


Figure 1: Bitcoin Price Index (Coindesk, 2016)

4 Bitcoin mining

For a regular basis people know that Bitcoins are able to be bought, but to earn Bitcoins in a return for doing almost nothing? That sounds absurd, but actually Bitcoin mining is all about that. Mining is overall legal and it can be done by anyone. The only requirements are to have a specific Bitcoin mining software in able to mine and have the capability to run the software usually 24 hours per day.

Back in 2008, Bitcoin miners could mine using regular CPUs (Central Processing Centre), but since the amount of miners has grown, so has the difficulty of making Bitcoins become and that is why there exist computers designed only for mining. Since difficulty on mining solo Bitcoins has raised, the miners are joining pools to share the task and receive easier a reward after solving the block (Eyal, 2013). The development of Bitcoin have been huge, between the mining aspect and in the point of view of a currency. Bitcoins that will be released and be able to be mined are up to 21 million Bitcoins (BTC) and as mentioned before, the value has changed a lot during the years.

4.1 What is mining and how does it work?

Usually these two questions are new and completely stranger to the general public, but it is not expected that everyone should know the answer. The basic task of mining Bitcoin is to secure transactions that are recorded in to the public ledger of Bitcoin. This ledger contains past transactions and it is called the block chain, whose mission is to confirm the transactions that have already taken place.

Every block must have a proof of work to be able to start the procedure. Bitcoin uses hashcash Proof-of-Work (PoW) -method and this is proved with other Bitcoin nodes every time they receive a block. Most efficient way of mining is to join a pool. Mining in a pool is the most common

choice among the miners, because it eases the mining process and the process of finding the right blocks to mine and receive a reward because of them. The difficulty of blocks has forced miners to come together and mine in a group to be profitable.

For mining nowadays, it is necessary to have a special computer which has the right technology and power to survive this process. There were many things that helped mining, but the more practical changes were based on technology. The best changes to mining has come since the Application Specific Integrated Circuit (ASIC) stepped into the game. Before ASIC, miners used different kind of software, which were in that specific time the best option and solution for mining. From Central Processing Unit (CPU), which is basically a regular computer to Graphical Processing Unit (GPU) and this change made mining up to 100 times faster. Since the hashes became very difficult to solve, there were needed computers with higher mining speed and a higher mining speed needs a computer with capacity. Therefore, Field Programmable Gate Array (FPGA) was created and this allowed the first mining industry to be build. Large Bitcoin mining farms were created, because of its ease of use and power efficiency of the product. Now after ASIC it is assumed that there will not appear any new technology, because of its good features. As up to 100 times faster mining and more hashing power, and reducing the consumption of power. This technology is designed only for Bitcoin mining and will always be for mining, nothing else. The biggest issue about the mining computers is the power consumption and that it can overheat very easily. Because the system runs 24/7, it uses a lot of electricity because of its power. Many miner may choose the location where to mine based on the electricity costs.

4.2 What is hash and SHA-256?

Miners will proceed through a process with the created block of transactions. The information in the block is taken and applied to a mathematical algorithm into it and turning it to a random variety of letters and numbers, and this is called a hash. A hash is an action that transfers data into a number within a certain range. The hash has the property that knowing its output is unpredictable, within the given range and it is a method how to break the secret lock of the block. Secure Hash Algorithm - 256 is a hashing method, that most of the miners use and its function is based on 256 bits of hash value. "Running SHA256 double round hash verification processes in order to validate Bitcoin transactions and provide the requisite security for the public ledger of the Bitcoin network. The speed at which you mine Bitcoins is measured in hashes per second" (Bitcoin mining Guide 2014).

4.3 How does the difficulty level work?

Nowadays mining a Bitcoin block has become difficult, because of the amount of miners that exist and the difficulty to solve the algorithms of the blocks. Since SHA-256 is used for mining, it has made mining even harder. In order for the block to be accepted by the network, hash of a blocks header must be lower than or at least equal to the target using SHA-256.

When many new miners join and start to mine, the rate of the block creation will go up. Because of the increase of block creating, the average mining time will decrease. To keep the system in good hope as the mining time has gone down, the difficulty of blocks rises to be able to compensate. This will in the other hand force the creation rate of the blocks back down. Soon as a block is mined, the miner sends the block to all other miners in the same pool and network to prove that the miner has found it. This specific block contains a list of transactions, the found new hash, the specific random number and a reference to the previous hash. After this the block will be sent to every member in the pool and the network and as the miners receives the newly mined block, they will remove every transaction they are mining in the same specific block. Because they have already confirmed in the block chain and this will be sent to other miners to remove the old block and continue with the new confirmed block.

4.4 Bitcoin reward system

“The Bitcoin network compensates Bitcoin miners for their effort by releasing Bitcoin to those who contribute the needed computational power” (Bitcoin Mining Guide, 2014). When a miner discovers a block and solves the algorithm, it is agreed on the Bitcoin network, that the miner will receive a reward for it. The reward the miner will receive now is 25 Bitcoins, but this can also change depending on the blocks. In a pool the scene is a little bit different. This specific reward system means, that the miner will be paid individually in exchange for the work and effort the miner has put on. The more work power, the bigger share of the reward. Miners receive also transaction fees for new Bitcoins they created and this has become the most important income for a miner in the industry.

5 Central Banks

The global rise of Bitcoin has also attracted the attention of banks, regulators and politicians. In October 2015 the ECB published a fifty-page report about virtual currency to get more clear what the impact of virtual currency schemes will be (Bank, 2015). This also contains a big part about Bitcoin. At the moment the Bitcoin is not a bilateral exchange rate, so speculative trading is not possible.

But what if the digital value can be used outside the digital world to pay for goods or services. In this case the digital currency can compete with the regular currency. Give what said earlier in this paper, Bitcoin carries all these characteristics in itself. This is one of the reasons why the ECB devoted a lot of attention to it.

The ECB mentioned also that there are some positive aspects about the Bitcoin. They called it a ‘financial innovation’. Thereby they mentioned that it could be a new cheaper alternative to transfer money.

But banks are not only positive about the Bitcoin, because there are risks for the banks and as well for the general public. The banking system is partly built on the fact that people are paying a fee for every transaction they make. Besides the banks can check the transactions and know if the money is transferred to the right person. Moreover, there is no central editor of the crypto currencies, which can be held liable, for any damages sustained. The last important point is, that in a lot of countries people get an amount of money if their bank goes bankrupt. This system is called the deposit guarantee schemes (Sibert, 2013). This will not be the case if people lose their money with Bitcoin. Once the money is gone, it is gone for good and there is no way to get it back.

The banks and the governments concluded that Bitcoin is not a good alternative currency. Above the disadvantages for banks are listed and the most important reason is not mentioned yet: the instability. Figure 1 showed us that the Bitcoin is very instable and that the value is changing every day. So the banks are only thinking negative about the Bitcoin? Not at all. Of course there are many disadvantages for them but the thing they are interested in is the Blockchain. The Blockchain can be used for many different bank activities. Below the four most important points for banks will be described.

5.1 The use of Blockchain for banks

First at all, a lot of people lost their trust in the banking industry after the financial crisis. With the use of the Blockchain system, trust is less important. The system is being controlled by all users and banks do not have to worry that the system will be misused.

Secondly, the use of a third party is not necessary anymore. The advantage in this case for a bank is that they do not need information from other parties or have to make costs to get this information. Transactions etcetera will be directly with the bank.

The third point is comparable with the second point. With the use of the Blockchain, old systems can be replaced by the new system. This will save a lot of costs and time after all. The last but the most important point is that the Blockchain can be used for other services. Because Blockchain makes money programmable money, it can be used for things in which banks can also use it. The opportunities for the Blockchain are endless and can not only be used for the finance system but also for other industries.

5.2 The R3 project

In September 2015, nine big international banks started a collaboration with the startup company R3. Since then the project is called the R3 project (Williams, 2015). The banks jointly invest in the startup, which engages in developing applications of the Blockchain technology in the financial sector.

Since the launch, more banks are affiliated to the project, which now has more than 40 members from all over the world. Big players as Deutsche Bank, Bank of America and HSBC have already been added to the project. Banks feel obligated to projects like this because competitors are also participating. To stagnate in a time where innovation is very important, is impossible. R3 is planning new several tests in 2016 and the future.

6 Instability of Bitcoin

As seen in Figure 1, the Bitcoin is very instable. Bitcoin reached even the value of thousand dollars in 2013. If Bitcoin wants to compete with other currencies, it has to be much more stable. But why is the coin so instable? Main reason is the small size of Bitcoin market. At the moment (04/2017) the value of Bitcoins all over the world is estimated 18 billion (Bittiraha, 2017). Basically, buying Bitcoins for 1 million USD will change the exchange rate remarkably compared to buying 1 million euros for 1 million USD.

6.1 No control

The difference between 'traditional' money and Bitcoin is that traditional money has guarantors (banks, regulators and governments) who control the circulation of the money (Hoppe, 2011). Governments and central banks supervise and control the amount and the value of their currency. Bitcoin has no such supervision of control.

6.2 Fluctuation

The Bitcoin is used around the world without a supervisor who monitors the ratio between available money and economic activities. Still, confidence in currencies fluctuated always. Governments require taxation in a particular currency, to maintain the demand for a particular currency. The Bitcoin has not this guarantee which may have as a consequence that the value of the Bitcoin can drop to zero. This causes instability.

The value of Bitcoin can change very fast by an economic situation. An good example to clarify this topic is the tax saving situation in Cyprus in 2013 (Jones, 2013). Individual depositors were forced to bail out their banks. Depositors from other countries were afraid the same would happen to them. Therefore, they were looking for another way to protect their money and Bitcoin was the solution. This led to enormous increase of the price of Bitcoin.

This is what makes Bitcoin so susceptible to price fluctuations. No one is controlling the digital coin or making adjustments in cases of inflation or deflation.

6.3 Status of Bitcoin today

In figure 2, you can see the value changes of Bitcoin between middle of 2017 and middle of 2018, especially the “boom”.



Figure 2: Bitcoin charts, last year; (13.6.2018) [Coinmarketcap2018Bitcoin](#)

7 Competitors

In this chapter we are going to discuss of Bitcoins five main “competitors” by market capitalization: Ethereum, Ripple, Bitcoin Cash, EOS and Litecoin. By that, we received a wider understanding of cryptocurrencies in general and we were able compare them. Additionally, it led us closer to our work’s research question. Down below we illustrated top 10 cryptocurrencies by market capitalization to show today’s status.





















#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	 Bitcoin	\$107 984 081 632	\$6 318,11	\$5 161 300 000	17 091 200 BTC	-6,74%	
2	 Ethereum	\$46 733 049 559	\$467,09	\$2 148 480 000	100 051 916 ETH	-10,68%	
3	 Ripple	\$20 462 455 523	\$0,521412	\$359 862 000	39 244 312 603 XRP *	-9,64%	
4	 Bitcoin Cash	\$14 254 731 313	\$829,65	\$586 453 000	17 181 538 BCH	-8,96%	
5	 EOS	\$8 658 453 009	\$9,66	\$1 263 030 000	896 149 492 EOS *	-10,53%	
6	 Litecoin	\$5 229 883 313	\$91,81	\$377 729 000	56 964 698 LTC	-12,88%	
7	 Cardano	\$4 068 605 544	\$0,156925	\$101 344 000	25 927 070 538 ADA *	-8,56%	
8	 Stellar	\$4 022 241 403	\$0,216199	\$50 006 100	18 604 347 860 XLM *	-10,62%	
9	 IOTA	\$3 265 809 106	\$1,17	\$97 533 000	2 779 530 283 MIOTA *	-13,20%	
10	 TRON	\$2 636 788 569	\$0,040104	\$242 339 000	65 748 111 645 TRX *	-12,99%	

Figure 3: Top 10 cryptocurrencies by market capitalization (13.6.2018) [Coinmarketcap](https://coinmarketcap.com)

7.1 Ethereum

Ethereum is decentralized, autonomic and trustworthy data processing environment that is based on blockchain technology. It was founded by Vitalik Buter who wanted to create something that Bitcoin blockchain technology could not fulfil. His innovation enabled to use coding language to any decentralized application, whereas Bitcoin enables transferring money digitally. With Ethereum anyone could control any software they wanted regardless of coding language being used. Only thing you need is enough time and right amount of data storage. (Ethereum 2017)

Ethereum also has their own cryptocurrency called Ether. Ethereum pays Ethers to people who are processing with Ethereum. With Ether-“money” you are able to trade like Bitcoin. Moreover, it enables a market for “Smart contracts”, which are paid with Either currency. (Ethereum 2017)

As Ethereum is decentralized platform, any third party could not modify or censor the content. Blockchain is the most effective way to carry out multiple interactions at the same time without, for example governments supervision. Ethereum works in a way that not one application created in Ethereum will not stop working neither you cannot shut it down. (Ethereum 2017)

Ethereum has the same stumbling block as Bitcoin, which is scalability. Ethereum can only process 15 transactions per second when bigger payments systems are able to do up to 2000.

Nevertheless, founder of Ethereum Vitalik Buter believes that Ethereum overcomes the problem in the future. (Ethereum 2017)



Figure 4: Ethereum charts, last year; (13.6.2018) [Coinmarketcap2018Ethereum](#)

7.2 Ripple

Ripple describes itself as a global real-time settlement network which works as a backend-infrastructure between banks and finance companies. It was founded by two Americans, Chris Larsen and Jed McCaleb. Ripple's development started in 2012 with the name OneCoin and since 2015 it has carried the name Ripple.

Via Ripple's technology people are able to transact currency in just a couple of seconds which has been a problem between different banks until the present day. Difference between most of the cryptocurrencies is that Ripple always includes a third party member for example a bank. The picture below illustrates the status of transactions between different banks in different countries at the moment. (Bitcoineskus 2017)

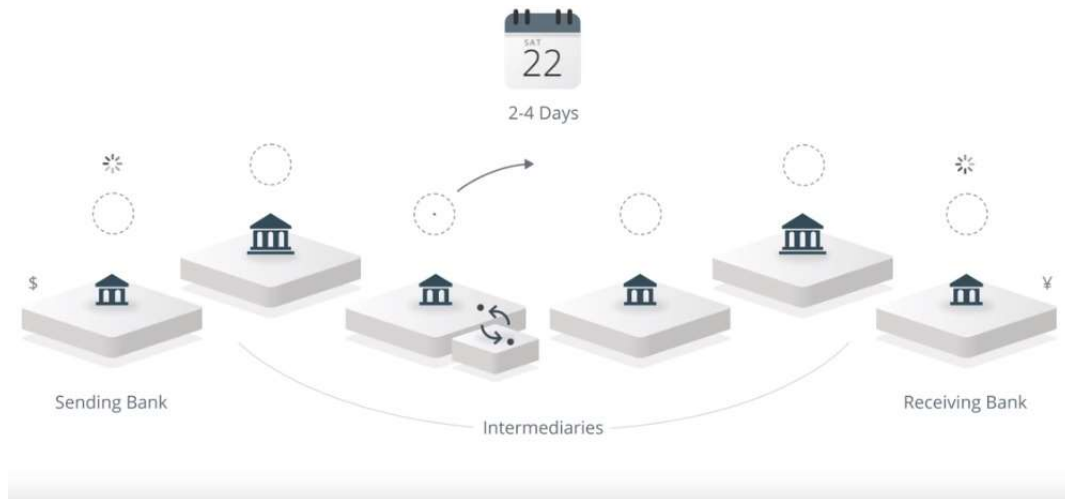


Figure 5: Bank transactions nowadays, screenshot from the video: [Youtube](#)

With Ripple, banks do not have to use any third parties when transacting currency to a different country. Today, banks not only have to pay for the conversion of the currency but also of the work force they are using. What enables Ripple to do this is that Ripple is not using blockchain technology that most of the cryptocurrencies are doing. Ripple is using a technology called ILP that stands for interledger protocol. (Bitcoinkeskus 2017)

Interledger is an open protocol suite for sending payments across different ledgers. Like routers on the Internet, connectors route packets of money across independent payment networks. The open architecture and minimal protocol enable interoperability for any value transfer system. Interledger is not tied to any one company, blockchain, or currency (Interledger 2018).

Since Ripple is not using any blockchain technology, the scalability of the company is way better. Unlike Bitcoin or Ethereum, Ripple is able to process up to 1500 transaction in second. The currency used by Ripple is shortened to the letters XRP. Moreover, a big difference compared to other cryptocurrencies is that Ripple technology does not include mining, which also is a retardant factor in the line of the business. (Bitcoinkeskus 2017)

The benefit that Ripple brings to the companies is reducing costs around 30 % compared to the normal procedures used at the moment. If the companies would chose Ripple as their currency as well, the saving could rise up to 60-70%. Transactions via Ripple are not entirely free but remarkably more cost-effective than using Bitcoin, costing only 0,001 dollars per transaction.

Ripple already has over a hundred finance associates including American Express. (Bitcoinkeskus 2017)



Figure 6: Ripple charts, last year; (13.6.2018) [Coinmarketcap2018Ripple](#)

7.3 Bitcoin Cash

Bitcoin Cash was established in August of 2017 from a fork of Bitcoin Core. Forks are software updates of the code used in Bitcoin. The reasons for the update are several, it can be a bug that needs to be fixed, technical vulnerability, feature developing or fastening the software. In this case it was fastening the software because of the scalability problem which incurred to the newest fork called Bitcoin Cash. (Bitcoinkeskus 2018)

The blockchain Bitcoin is using was so congested because of the “hype”, that it raised transaction cost significantly. Nevertheless, Bitcoin Cash aimed to erase the scalability problem by increasing the size of the block. The size of Bitcoin Cash is now 8 megabytes compared to Bitcoin’s 1 megabyte. It means that the speed of the transactions are faster and moreover, it decreased users’ costs. (Kryptovaluuttojen forkit. 2018)

The chairman of the Bitcoin Cash, Roger Ver, is strongly using the scalability problem of the Bitcoin Core in their own marketing. He often highlights the cons of the Bitcoin Core for the benefit of themselves. Nevertheless, at this very moment every other cryptocurrency using offering a better usability than Bitcoin Core. (Bitcoinkeskus. 2018)



Figure 7: Bitcoin Cash charts, last year; (13.6.2018) [Coinmarketcap2018BitcoinCash](#)

7.4 EOS

EOS is a decentralized application, the worst rival of Ethereum. It can be called as a platform, ecosystem, framework or programming environment for instance. Behind EOS there is a technology company called Block One, which was founded by Dan Larimer and Brendan Blumer. Dan Larimer has already implemented two successful Blockchain projects: Bitshares and Steemit. (Mikä on EOS? 2018)

On Steemit webpage EOS is described: “EOS provides parallel processing of smart contracts through horizontal scalability, asynchronous communication, and interoperability. It will provide databases, account permissions, scheduling, authentication, and internet-application communication” (Steemit 2017).

Difference between EOS and other cryptocurrencies is Larimer’s philosophy in decentralized application development. EOS aims to offer already made blocks helping to build up decentralized applications. According to Larimer, EOS could make possible blockchain scalability to up to 100,000 transactions per second. Another difference is that there are no fees running application through EOS. Furthermore, you receive a certain % of the network storage by holding EOS tokens. In other words, you are renting the network capacity by buying tokens. (Mikä on EOS? 2018)



Figure 8: EOS charts, last year; (13.6.2018) [Coinmarketcap2019EOS](#)

7.5 Litecoin

Former Google engineer Charlie Lee founded Litecoin, often called as Bitcoin's little brother, in 2011. To simplify, Litecoin took Bitcoin's code as a fundament when it started. Its aim to handle smaller transactions and to be faster than Bitcoin is. That to say, it takes 2.5 minutes to process one Litecoin block compared to Bitcoin's 10 minutes. (Mikä on Litecoin? 2018)

In comparison to Bitcoin, Litecoin has a different kind of decentralization algorithm, based on method called scrypt. Instead of using a lot of processing power, mining Litecoins requires plenty of memory storage. Moreover, by the end of 2017, there are 55 million Litecoins when the maximum is 84 million. Nevertheless, Litecoin and Bitcoin both benefit from others' existence. (Mikä on Litecoin? 2018)



Figure 9: Litecoin charts, last year; (13.6.2018) [Coinmarketcap2018Litecoin](#)

8 Research

In this thesis we used qualitative research methods which included theme interviews and moreover, we utilized internet sources. The reason we used internet sources was because most of the trustworthy articles have been published online.

We chose qualitative research method because it would give us a transparent result. The main objective was to benefit from human interaction and receive a wide understanding from interviewee's opinions. We did not want to have only one right answer to our questions. (Vilkka 2015, 118-122)

In theme interview we focused on choosing themes which would lead us for a better understanding concerning the question of the research. To receive wide scale of information about the subject we chose questions that could not be answer shortly. Main goal was to create conversation around the question and theme. (Vilkka 2015, 127-129)

Firstly, the research was fulfilled, that companies and private individuals, who handle money transactions daily, would gain knowledge of Bitcoins potential. Secondly, there was an intention to receive answers from investors' point of view, so that answers would be justifiable not only opinions.

As interviewees, we chose professionals who handle this subject in their everyday work. We interviewed five employees from different companies which line of business is finance and banking. This way we would not stumble upon a problem that our research questions were

unfamiliar. By knowing whom we were interviewing we could process research results more thoroughly. The answers were of course personal and interviewees would not answer on behalf on their company.

As a platform for the interview, we used Survey Monkey, where you can fulfill it free. We formed 10 questions about Bitcoin and its potential. For example, we asked have they used or owned Bitcoin or other cryptocurrencies. In addition, their view if Bitcoin could manage as payment method or is there any else use for it. We also asked about the competitors in order to know possible strengths and weaknesses of Bitcoin.

When the interview was accomplished, we analyzed the answers. We processed the justifiable resemblances to get a strong fundament for conclusions. To do that, we went through every single question and answers one at the time. What made this research reliable, that we used interviewees who had handled Bitcoin or other cryptocurrencies in their working and private life. For them, this line of business and procedures were well known and you could see it from the answers as it included rationalized facts.

The sources we used in our thesis were reliable literature, mainly in a form of online articles. The writers behind the sources are professionals of finance, banking and information technology therefore data we used is trustworthy. Sources were analyzed throughout to receive reliable results.

The work was fulfilled with honesty and material will be processed meticulously. Moreover, during this work good ethics are a significant factor. Interviewees will be kept anonymous because of their working life.

8.1 Research results

In this chapter, we process all 10 research questions and analyze them each by each. We chose five professionals who work in the field of finance and who have handled Bitcoins or other cryptocurrencies in some way. Afterwards we conclude these results.

Research questions:

Do you own / Have you own Bitcoins or any other cryptocurrencies? Why / Why not?

Most of the interviewees have had Bitcoins but only as an investment. Majority answered that they invested in Bitcoin as a test and in hope that it would skyrocket in some point. Two of the

interviewees had not invested in Bitcoin because it included undefined risk: “As an investment the value bases too much on speculation not on fundamental.”

In other words, Bitcoin is more or less an investment with high risk.

Have you ever used Bitcoins or any other cryptocurrencies as a payment method? In what situation?

Most of the interviewees had only used Bitcoins or any other cryptocurrencies only as an investment. Moreover, most of them said they could use them in small payments for example in grocery store or in web stores. However, one contestant replied that Bitcoin’s stable and minor changes in market value are the reason why it should not be used for example in grocery store because people do not want pay 5 or 7 euros from a product without knowing the total.

If Bitcoin safe enough to be a global payment method? Explain why / why not. What should be developed in order that Bitcoin could work out as a global payment method in our everyday life?

Majority said that Bitcoin or any other cryptocurrencies are still unknown concept for most of the people. Firstly, in order to work they should increase basic knowledge concerning cryptocurrencies, how they work and could work. One contestant replied that Bitcoins transactions capacity would not be enough. Moreover, transactions are far too un-ecological considering nowadays consumption. At the moment the procedures are also unsafe in stock market and there have been plenty of scam linked to Bitcoins.

What positive or negative could follow if Bitcoin would be more common in peoples life?

The main positive aspect is that a global currency is always positive and easier for all consumers. Additionally, the aspect that Bitcoins will not create any costs and fast and real-time transactions makes Bitcoin a valuable currency. Nevertheless, there is also a downside. Firstly, mining causes adverse effects to environment. Secondly, Bitcoins have been used to criminal activity, money laundering and terrorism because its origin is almost impossible to track. The positive effect would be in developing countries, for example India, where not everyone is able to have bank account. With Bitcoin, you only need a smartphone to handle transactions. “Furthermore, Bitcoin could be a notable option for countries suffering from hyperinflation such as Venezuela.”

In what services would you recommend Bitcoin to be used and why?

All the contestants except one were unanimous in what Bitcoins should be used, in web stores. Moreover, the main reason was its anonymousness. One contestant replied: "Maybe to transact large equity or on black market."

Describe in your own words why Bitcoin skyrocketed and plummeted in 2017.

The answer was clear, a bubble and "hype" over Bitcoin. This has happened before over the years. However, when it burst out, it caused a mass break out and the value plummeted instantly. One contestant described the pattern understandably: "New innovation - first users - increase in value - mania - crash".

Could Bitcoin replace online bank services?

In order to replace online bank services Bitcoin should build up its trustworthy and stability. Now consumers are relying their assets to banks without any suspicion. One interviewee thought that Bitcoin could never displace online bank services, instead, Bitcoin could revolutionise payment transaction field in the future.

Would you be willing to use Bitcoins instead of online bank and regular credit or debit card?

The possible usage of Bitcoins in the future lean on its stability. That aspect is vital in order that Bitcoin could somehow replace online banks or payment cards. For example banks are built on trust in peoples' minds and Bitcoins or any other cryptocurrencies have not succeed in that mostly because of the significant changes in market value.

Are there any other cryptocurrency that is better by its features?

There are plenty of cryptocurrencies with different features. If we compare Bitcoin to other cryptocurrencies, there are many cryptocurrencies, which are faster and safer. However, it is impossible to say which cryptocurrency is the best by its features because of the function and uses of them.

Do you see Bitcoin more as a payment method of the future or investment? How about some other cryptocurrencies?

Majority said that they would still invest in Bitcoin and in other cryptocurrencies as well. Shortly, Bitcoin is not considered as a worldwide payment method of the future. Moreover,

some other cryptocurrency with preferable features and by building trust to consumers could possibly be a payment method of the future.

9 Conclusions

The future of Bitcoin is quite unpredictable and it will remain mysterious and leave a question mark for everyone. There are huge scale of factors, which can effect Bitcoin in a positive way and also in a negative way. Important issue, which can effect Bitcoins in a negative way is the certain limit of Bitcoins available. Once 21 million Bitcoins are created, no more new Bitcoins will ever be issued (Booker, 2016). What will eventually happen, when all Bitcoins are sent into the market circulation? There are different kind of predictions concerning this specific topic, because anything could happen. Since there are limited amount of Bitcoins available in the markets circulation, the prices could increase very high. A good part of this aspect is, that there is no limit how high the price of 1 BTC could grow, so it could be used as an investment tool to store personal assets. The bad part of this could be that mining is not necessary anymore. Mining in cryptocurrency industry is very important, because of the Blockchain and its continuity for safer transactions. Now every miner is willing to do this in exchange for a mining reward, but when there are no Bitcoins left, which will be set free to enter the markets, the whole community or industry will have to figure something out, otherwise mining could die without any mining reward. Mining will still be the main factor, which will keep the Blockchain ongoing no matter what. Since there will not be any new Bitcoins entering the markets, 1 BTC could become a stable value so it could be used as a payment method or will it stay only in the stock markets and will not be used ever as a payment method? One factor, which will affect the development of the future payment method is, how instable the value of Bitcoin will be and how can they fix it to be more stable in the future. Insofar as the concerns towards variation of the value in the future, it will complicate stable and secured exchanges between parties.

“There are scenarios also, which predict no future as a currency for Bitcoin and this might lead Bitcoin to disappear or to be replaced with another cryptocurrency, which technology is much more developed as the current technology Bitcoin uses” (Sillanpää, 2014). Even though the technology will change or become more advanced, one thing which attracts about the current technology is the Blockchain. The Blockchain technology will have a much wider impact on the financial industry than payments alone. The shared public ledger has the potential to radically simplify banking itself (Karira, 2015). This technology is in the future sight of banking industry and many banks have invested in Blockchain as they see it as a potential game changer in the banking industry. It is seen as the new method banks will use in the future as they have seen it by themselves, how good it works for Bitcoin. In the future, Blockchain may be seen beneficial way since the banks can improve their services. Blockchain can reduce many costs for banks, providing a boost to productivity and making it easier to offer products and services to a global clientele. They can also reduce risk in the industry, particularly in wholesale finance (Tapscott,

2016). Banks will reduce risks using blockchain and make it safer for example different kind of hacking attacks, because of blockchain the information is not stored not only in one place, but in many computer across the world. Blockchain will make a faster way for cross-border transactions and a free way for banks also, because they do not have to take care of the money transformation by themselves, there are other people or “miners” who will do it. It will be Interesting to see how the Blockchain technology is used in the future.

References

Printed sources

Vilkka, H. 2015. Tutki ja kehitä. Jyväskylä: PS-kustannus.

Electronic sources

Bitcoin Mining Guide. (2014). Retrieved June 2016, from Bitcoinmining:
<https://www.Bitcoinmining.com/getting-started/>

Bojanova, G. F. (2014). Bitcoin: Benefit or Curse. Maryland: IT Trends.

Booker, B. (2016, 5 3). 99 Bitcoins. Retrieved from <https://99Bitcoins.com/what-will-Bitcoin-be-worth-2020/>

Buntinx, J.-P. (2016, 4 20). Bitcoin.com. Retrieved from <https://news.Bitcoin.com/2018-Bitcoin-price-tim-draper-unlikely/>

Cambridge. (2013). Public trust in banking. Cambridge: The guardian.

(2016). EPC list of SEPA scheme countries . Brussels: European Payments Council.

Eyal, I. (2013). Bitcoin mining is Vulnerable. Cornell University: Department of Computer Science.

Bittiraha. (2017). Usein kysytyt kysymykset. Retrieved June 2018, from: <https://bittiraha.fi/uk#b3>

Hoppe, H.-H. (2011, Okt). Why the state demands the control of money. Retrieved from MisesInstitute: <https://mises.org/library/why-state-demands-control-money>

Sijoitustieto. 2017. Ethereum - turvallista, hajautettua tiedonjakoa. Retrived June 2018 from: <https://www.sijoitustieto.fi/sijoitusartikkelit/ethereum-turvallista-hajautettua-tiedonjakoa>

Bank transactions nowadays. Youtube. Retrieved in June 2018.

Youtube

Bitcoinkeskus. 2017. Mikä on Ripple?. Retrieved in June 2018 from: <https://bitcoinkeskus.com/2017/12/16/opas-xrp-ripple-sijoittaminen-ostaminen/>

Interledger. 2018. Retrieved in June 2018 from: <https://interledger.org/>

Coinmarketcap. 2018. Retrieved in June 2018.

<https://coinmarketcap.com/>

Bitcoinkeskus. 2018. Opas: miksi Bitcoin Cash herättää niin paljon keskustelua?. Retrieved in June 2018 from: <https://bitcoinkeskus.com/2018/04/14/kryptovaluuttojen-forkit-mita-ne-oikein-ovat/>

Bitcoinkeskus. 2018. Kryptovaluuttojen forkit: mitä ne oikein ovat?. Retrieved In june 2018 from: <https://bitcoinkeskus.com/2018/04/14/kryptovaluuttojen-forkit-mita-ne-oikein-ovat/>

Bitcoinkeskus. 2018. Mikä on EOS?. Retrived in June 2018 from: <https://bitcoinkeskus.com/2018/03/07/opas-eos-kryptovaluutta-blockchain-platform-dan-larimer/>

Steemit. 2017. What do DAPPS require?. Retrieved in June 2018 from: <https://steemit.com/eos/@trogdor/introduction-to-eos-the-epic-blockchain-operating-system>

Bitcoinkeskus. 2018. Mikä on Litecoin?. Retrived in June 2018 from: (Mikä on Litecoin?. 2018)

Jones, C. (2013, March). Cyprus Surprise Savings Tax. Europe's Core Problems Back to the Front

Burner. Retrieved June 2016, from Forbes/Tech: <http://www.forbes.com/sites/chuck-jones/2013/03/17/cypress-surprise-savings-tax-europes-core-problems-back-to-the-front-burner/#27b6a6a33488>

Karira, R. (2015). BankNXT. Retrieved from <http://banknxt.com/52220/can-blockchain-technology-reinvent-banking/>

Micha Ober, S. K. (2013). Structure and Anonymity of the Bitcoin Transaction Graph. Darmstadt: Department of Computer Science.

Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System.

Sibert, A. (2013). Deposit guarantee schemes. London: University of London.

Sillanpää, J. R. (2014). Lappeenranta University of Technology. Retrieved from https://www.doria.fi/bitstream/handle/10024/96627/Bitcoin_Raina_Sillanpaa.pdf?sequence=2

Tapscott, D. T. (2016, 5 16). Huffington post. Retrieved from http://www.huffingtonpost.com/don-tapscott/how-will-blockchain-chang_b_9998348.html

Williams, O. (2015, Sep). 9 massive banks and the Blockchain. Retrieved June 2016, from Business Insider: <http://uk.businessinsider.com/jpmorgan-barclays-and-others-join-r3-on-blockchain-project-2015-9?IR=T>

Unpublished sources

Employee. OP Financial Group. 2019.

Employee. Handelsbanken. 2019.

Employee. Nordnet BANK AB Suomen sivuliike. 2019.

Employee. Nordea Group. 2019.

Employee. Nordea Group. 2019.

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Appendix:

Interview template:

1. Do you own / Have you owned Bitcoins or any other cryptocurrencies? Why? Why not?
2. Have you used Bitcoins or any other cryptocurrencies as a payment method? In what occasion?
3. In your opinion, is Bitcoin safe enough to be used as a payment method? Explain why.
4. What should be developed that Bitcoin could work in our everyday life? Describe thoroughly.
5. What positive or negative would imply if people used Bitcoin more as a payment method?
6. In what services could Bitcoin work with and why?
7. Describe shortly with your own words, what happened to Bitcoin in year 2017 and why?
8. Could Bitcoin replace regular online bank activity?
9. Would you be willing to use Bitcoin instead of online bank services or credit/credit card?
10. Are there any other cryptocurrencies you prefer? Which and why?
11. Do you see Bitcoin as a future payment method or just as an profitable investment? Why?