

TRANSFORMATION OF MONEY

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Chapter 1

The History Of Money

Money was created as a way to make it easier for people to get the things they want. Over time, the way money is used and made has changed. Money is one of the earliest and most significant inventions of civilization, which was essential for commerce development. Without trading money, it is only in the form of bartering. Barter is a relationship between two people who each have something the other wants so that exchange occurs. When you understand the history of money, it helps to understand how to make good choices and trade goods effectively.

The way humans use money has even changed in recent years (2018). Money has been a part of human history for more than 3,000 years, from the origins of bartering to modern money to the current system that continues to evolve. Money has undergone many transformations. Basically, anything that represents value and can be traded for various goods can be money. From beads made from string, seashells, tokens, coupons, and nowadays crypto money appears. A group of people generally receives money in exchange for goods, services, or resources.

At that time, humans did not know money. Humans use cows, sheep, vegetables, salt, and grains as a medium of exchange to get the goods and services needed, which are called commodity money or goods money more than 3000 years ago (Orr, 2012: 14; Hanna, 2015: 48). In 1000 BC China started to produce coins (not coins) or metallic money.

The first coins were created by King Alyattes in Sardis's city in the country of Lydia (now known as Turkey) in

625BC from gold and silver. The first coins ever minted had an image of a roaring lion (Dyson, K, 2014: 116; Choron & Choron, 2011: 33). Coins or coins later evolved into banknotes in the year 1661 AD.

Money was transformed into plastic money in the form of a credit card first introduced in 1946 (Subramanian, 2014: 22; Stockalper, 2016: 44). In 2009, crypto money emerged (Chen, et al., 2018). The emergence of crypto money in 2009 was the beginning of transforming money from banknotes to digitally supported by the inclusion of financial technology that is increasingly digital. In this book, the history of world money from commodity money to digital money is summarized in the "History Of Money Time Line."

History Of Money Time Line 3000 BC

Commodity money, generally agricultural products have been used in the traditional economy with the barter system before 3000 BC. The weakness of commodity money is that it is difficult to move or store (Orr, 2012: 14; Hanna, 2015: 48).



Figure 1. Barley or wheat became a common means of payment in Mesopotamia in 3000 BC. Source: Global Business Connection,2018; Roy, 2012

1200 BC

China started to use shells as a means of payment to replace agricultural commodities (Yang, 2018: 120; Choron & Choron, 2011: 14).



Figure 2. Shell Money was developed in China in 1200 BC
Source: British museum (b), 2018; Choron & Choron, 2011

1000 BC

China developed coins in the form of knives or shovels to replace shells as a means of payment to improve commodity weaknesses because metals are more durable than shells and agricultural products (Choron & Choron, 2011; Wu, X.2017)



Figure 3. Knife Money
Source: Seigerman, 2017

625 BC

King Alyattes in the city of Sardis, Lydia state (currently known as Turkey) developed the first coins made of gold and silver, which tended to be more durable than other metals (Choron & Choron, 2011: 33; Stockalper, 2016: 44; Dyson, K, 2014: 115).



Figure 4. The world's first gold coin
Source: Rare Coins, 2018; British museum (a), 2018

359 BC

Romans adopted coins to replace bar coins (Hartley, 2016; Sellars, 2013).



Figure 5. Roman Bar Money

British Museum (c), 2018

118 BC

China developed fiat money from deerskin (bailupi bi 白鹿皮幣) as the beginning of the development of banknotes in the Han dynasty (141 BC - 87 BC) (Choron & Choron, 2011; Chi, C Ting, 2019: 48).

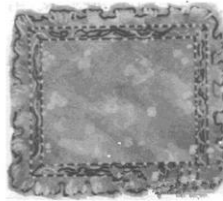


Figure 6. 汉 武帝 的 “白 鹿 皮 币” (deerskin money Han dynasty)

Source: Shima, 2016; Weibo, 2017

30 BC

Augustus Caesar standardized Roman royal coins with almost pure gold, almost pure silver, almost pure copper, and almost pure brass coins (Choron & Choron, 2011; Dyson, K, 2014)



Figure 7. Augustus Caesar's 27 BC Silver Coin

Source: Ancient resource, 2018

AD 1

China developed banknotes (zhibi 紙幣) made of mulberry bark. Besides being used for reading and writing purposes, the mulberry paper has developed into a bill of exchange in China known as bianhuan 便便 which is increasingly popular in its time to replace deerskin or bai lu pi bi 白鹿皮幣 (Lu, 2015: 180; Vogel, 2013).

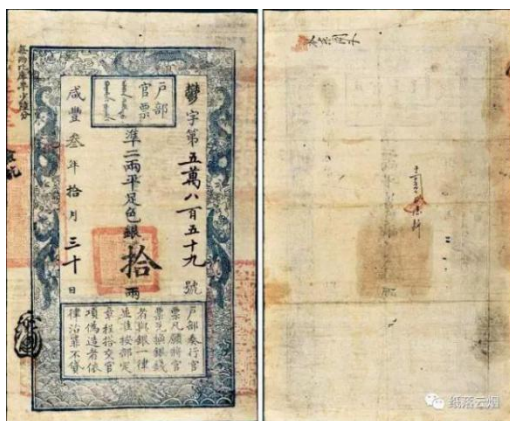


Figure 8. 桑皮紙 (Mulberry Paper)

Source: Sohu, 2017

AD 54

Nero Caesar reduced the quality of gold and silver coins (debasement of gold and silver coinage) by reducing the quality of the authenticity of gold and silver by adding copper (copper) to silver coins and silver to gold coins. The impact of reducing the quality of gold and silver coins is prolonged inflation and is the beginning of the world's first inflation (Lannoye, 2018; Choron & Choron, 2011).



Figure 9. Silver Coin of Nero Caesar 54 AD
Source: Numismatic Guaranty Corporation, 2017

AD 57

Promissory notes (letter of the promise of payment) made from wooden tablets began to be developed in Rome. The wooden tablet represents the amount of gold and silver written in wooden tablets and can be used as a transaction tool (Kruit, 2017: 209; Belohlávek, 2011: 349).



Figure 10. Promissory Notes of the Roman Empire
Source: national geographic, 2018

AD 618

In the Tang dynasty (AD 618 - AD 907) paper money became popular as a representative coin, either gold, silver or copper or the bill of exchange known as feiqian 飞钱 or bianhuan 便便. The popularity of paper money is

considered safer and easier to transfer (Cheaib, 2018: 173; Rahman, 2014: 106).



Figure 11. feiqian 飞钱 Tang dynasty

Source: Tom Chao, 2018

AD 775

The Anglo-Saxon Kingdom of England issued sterling currency in silver coins at an exchange rate of 1 sterling equivalent to 1 pound of pure silver or 453.592 grams of pure silver. And since that time, all goods and services in the UK have been valued in terms of sterling, shillings (1/20 sterling), and pence (1/12 shillings) (Naismith, 2012: 90; Gates & Marafioti, 2014; Parker, 2016).



Figure 12. Anglo-Saxon Silver Coin 800 AD

Source: vcoins, 2018

AD 960

Banknotes became the main currency of the Northern Song Dynasty (960-1127) with the Jiao Zi (交子) and Qian Yin (钱引) currencies (Perkins, 2013; Lu, Y, 2015).



Figure 13. 世界最早紙幣“交子” Jiao Zi's Ancient Banknotes

Source: Takung pao, 2016

Kublai Khan issued the Chao currency (Zhongtong Chao) as the first banknote of the Mongol Empire (Yuan dynasty) as legal tender with gold or silver backing. The chao currency's influence spreads to Asia and Europe (Spek & Leeuwen, 2018; Sehgal, 2015: 46).

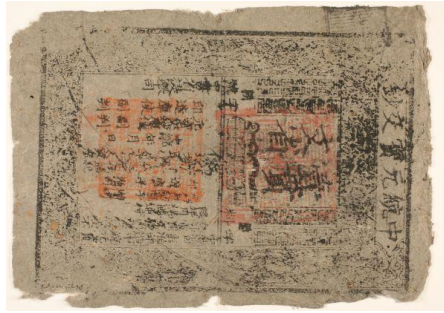


Figure 14. Zhongtong Chao Yuan dynasty
Source: China Numismatic Museum, 2018

1275

Marco Polo returned to Europe from China after meeting Kublai Khan (ruler of the Mongol kingdom or Yuan dynasty) and introduced banknotes in Europe. At that time, Chinese banknotes began to be adopted in Europe as the development of promissory notes, which have been known in Europe as paper money as a representation of gold or silver to be paid the amount stated on these banknotes (Wood, 2018: 116; Childress, 2012: 54).

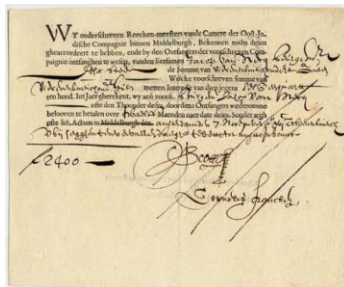


Figure 15. Ancient Dutch promissory notes Source:
1661 Molen, 2018

Johan Palmstruch, founder of Stockholms Banco, the first bank in Sweden, issued the first banknotes in Europe

(Ränge & Schwochow, 2018:75; Berend & Berend, 2013: 152).



Figure 16. Sweden Banknotes (Europe's first banknote),
issue of 1666
Source: Sveriges Riksbank, 2018

1518

Prince Hieronymus Schlick of Bohemia began minting coins known as Joachimsthaler with the standard weight of silver coins 451 grains of wheat, which were abbreviated as taler and developed into many terms. In Norwegian, Danish, and Swedish, it is known as the dealer, Russian is known as талер (táler) and in England and many countries call it the dollar and in 1792, it became the standard for US dollar money (Rickards, 2016: 15; Robison, 2014: 13)



Figure 17.1 Thaler, issue 1519
Source: Numista, 2018

1717

Sir Isaac Newton, as Master of the Mint, determined the price of pure gold in the UK at £ 4.25 per ounce (28.349 gr) as the gold standard against silver in sterling (brazier Saxon sterling 775 AD) (Duckenfield, 2016; Grossman, 2013).

1775

From April 19, 1775, to September 3, 1783, the Continental Congress issued banknotes, supported by "anticipated" tax revenues, which became America's first banknotes (it was hoped that the gold and silver that supported them could be obtained from tax revenues) to finance the American Revolutionary War (Conway, 2013: 32-37; Ferling, 2015: 92).



Figure 18.20 USD issue of 1775
Source: Witcher, 2017

The Congress of 6 July 1785 and 8 August 1786 adopted the dollar as the unit of money for the United States (Lakabung, 2018; Mackey, T C, 2014; Gray & Kamensky, 2013).



Figure 19. 1 US Dollar issue of 1785
Source: Lakabung, 2018.

The Federal Monetary System was established. The United States Congress created the United States dollar as the standard unit of money in the United States using the standard eight-real coin (Spanish dollar) where 1 dollar is equivalent to silver weighing 451 grains (1 troy grain) 29.2

grams in units of The Joachimsthaler calculation. (Baker, 2015: 124; Gashe, 2014: 86; Mackey, T C, 2014: 336-338).

1797

The Bank of England (the British central bank) issues the first 1 pound sterling (£ 1 note) (Bank of England, 2018; Collins, 2012: 32; Kynaston, 2017: 64)



Figure 20.1 pounsterling, published in 1797
Source: colnect.com, 2018

1834

The US switched from the gold and silver bimetallic standard to gold, pegging the price of the precious metal (gold) at \$ 20.67 per Ounce (28.3495 gr) until 1933 (Fox and Ernst, 2016: 596; Wilson, T. 2017: 225).

1861

The issuance of fiat money without the backing of gold and silver is known as GreenBack in America. The greenback is the paper currency (printed in green on the back) issued by the United States during the American Civil War. Published in two types, namely Demand Notes, published in 1861-1862, and the United States Notes published in 1862-1865. Greenback is Legal or legal under American law, but not backed by gold or silver, only the American

government's credibility (Whitfield, 2014: 69; Bagus, 2014: 120).



Figure 21. 10 United States Dollars, issue of 1861
Source: Lakabung. 2018.

1865

"In God, We Trust" first appeared on the two pennies of the US Dollar in 1865 and was used as the motto of the US Dollar bill (Berkin, C., et al., 2013: 640; Peters, 2014: 205-207).



Figure 22. First Coin with In God We Trust Motto
Source: Propertyroom. 2018.

modern bank introduced electronic money transfer services using telegram as the forerunner of today's modern fintech industry (2018) and the presence of digital money in 2009 (Moliterno, 2013: 221; Sethi, 2013: 215).

1877

January 1, 1877, The Department of the Treasury's Bureau of Engraving and Printing began printing all United States currency (Hill & Hill, 2018: 330).



Figure 23. William Barber's US Dollar engraving published in 1877

Source: Usacoinbook. 2018.

1885

American merchants and financial institutions began providing credit cards for agricultural goods and other durable goods in 1885 as the beginning of the emergence of electronic money in the form of credit cards. The credit card concept started to spread to other industries such as hotels and department stores by offering paper credit cards to their customers. The cards were almost exclusively used at one location during that period (Chambers D and Dimson, 2016: 198).



Figure 24. Credit Card 1885
Source: Mangis, 2018.

The concept of using cards for purchases was described in 1888 by Edward Bellamy in his novel, *Looking Backward* (Chishti & Barberis, 2016; Weir, 2013).

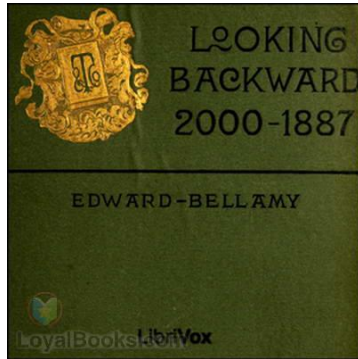


Figure 25. *Looking Backward* 1888 novel Source: loyal books.com, 2018.

1900

The Gold Standard Act establishes gold as the only standard for redeeming banknotes in America (Tanenhaus, 2013; Lewis, N. 2013: 205).

1929

People stockpiled gold during the Great Depression (American Crisis, 1929). The Federal Reserve raised interest rates, exacerbated the effects of the Great Depression, and caused many companies to go bankrupt (Hoover, 2013: 130; Kennedy, 2015: 153).

1933

Roosevelt ordered Americans to convert gold into dollars by creating gold reserves at Fort Knox (Edwards, 2018).

1934

The Gold Reserve Act prohibits private ownership of gold. Roosevelt increased the price of gold for the first time in 100 years.

1944

The Bretton Woods Agreement fixed the exchange rates for all currencies to gold. Because the US holds most of the world's gold, countries peg the value of their currency against the US dollar by setting gold at \$ 35 per ounce (28.3495 gr) in the Bretton Woods agreement. So America is obliged to maintain its gold reserves against USD.

1946

Electronic money began to be developed on a fiat basis, and banks began with developing a fee card developed by a

Brooklyn banker named John Biggins in 1946 with the launch of the Charge-It card. Purchases using the Charge-It card are forwarded to the Biggins bank. Merchants receive payments from customers in electronic transactions managed by Biggins bank, known as a “closed-loop” system. The “closed-loop” system is still used in the development of modern e-commerce payments today (2018).



Figure 25. John Biggins Credit Card 1946
Source: Mangis, 2018.

The Diners Club Card is issued as the first generation cross-region credit card as the world's first multipurpose or multipurpose card. In 1951 it was used by more than 40 thousand Americans, and as the first card that was accepted internationally in 1953 and 1963, it was accepted in 130 countries and became an international digital credit card in 2016 (Dinersclub, 2018).



Figure 26. The Diners Club Card, issue of 1950

Source: Dinersclub, 2018.

Bank of America introduces the first public credit card. At that time, banking regulations limited the geographic reach of each bank, making it difficult for Bank of America to compete with the national Diners Club Card. Bank of America licenses their cards to other banks. In 1972 Bank of America expanded its credit card licenses in 15 countries. To meet the growing demand for credit cards, Bank of America decided to separate the organization that developed credit cards (BankAmericard) from the parent organization currently known as Visa in 1976. In 2006, Visa Cards were accepted in 160 countries (Visa, 2018).



Figure 27. Bank Americard 1966

Source: Mangis, 2018.

1967

The world's first ATM was opened in 1967 by Barclays (Blythe, 2013; Merritt, 2012)

1969

The IMF created special drawing rights (XDR) in 1969 to become an asset held in foreign exchange reserves under the Bretton Woods system of fixed exchange rates. 1 XDR was originally defined as the US \$ 1, equal to 0.888671 g gold (Experts, 2018; Pattanayak, 2018).

1970

The US no longer has enough gold to cover its worldwide holdings of one USD. United States gold reserves were only able to back up \$ 14.5 billion against a \$ 45.7 billion holding. America's total reserves at that time were only 414 million ounces if multiplied by \$ 35 per ounce (according to the Bretton Woods agreement), only \$ 14.5 billion (Baack, et al., 2013: 356; Rickards, 2014: 225).

1971

The gold standard expired on August 15, 1971. Nixon raised the price of gold to \$ 38 an ounce. President Nixon no longer allowed the Fed to redeem dollars for gold. This made the gold standard no longer valid (Lamoreaux & Shapiro, 2019).

1974

July 1974 to December 1980, the XDR was set to consist of a basket of 16 currencies (Middelkoop, 2016)

1981

1981 XDR basket changes from 16 currencies to 6 currencies covering the U.S. dollar, the Deutsche mark, the French franc, the British pound, and the Japanese yen (Chamon, et al., 2019).

1995

Online checking accounts were first used in 1995 by Wells Fargo (Davidson, 2004).

1998

The first online payment processing platform (payment gateway) was established, followed by similar platforms such as Payza and Google Wallet (Sherif, 2017).

1999

The XDR basket changes from 6 currencies to 4 currencies covering the U.S. dollar, the euro, the British pound, and the Japanese yen (International Monetary Institute, 2018).

2009

The first cryptocurrency (Bitcoin) was released in 2009 (Chakravarty & Sarkar, 2020).

2013

December 5, 2013, the People's Bank of China issues a notice about prohibiting the use of Bitcoin in China , followed by other countries from 2014 to 2017 such as Russia, Bolivia, Bangladesh, Kyrgyzstan, Ecuador, and Vietnam to ban bitcoin in 2014 Taiwan banned Bitcoin in 2015 and Colombia banned bitcoin from circulating in the country in 2017 (Hacker, 2019).

The world's first Bitcoin ATM has been opened in Vancouver, Canada, where this machine allows users to exchange their digital currency credits for cash and vice versa (Hollande, 2014).

2014

On March 7, 2014, the Japanese government made a cabinet decision regarding bitcoin's legal treatment. Chief Cabinet Secretary Yoshihide Suga explained that the advantages of bitcoin transactions are reasonable, and the Japanese Ministry of Finance is considering taxing bitcoin (Brummer, 2019).

2017

Japan is the largest Bitcoin market in the world (Haynes & Yeoh, 2020).

2018

Beijing - China has the world's largest bitcoin mine operated by Bitmain Technologies Ltd (Hill, et al., 2018).

The Digital Currency Research Lab at the People's Bank of China (PBoC) was established.

2020

Coronavirus is becoming a global pandemic and accelerating the transformation of money from fiat money to digital money (Benedict, 2020)

Chapter 2

Human Life, Technology , Trade and Transformation of Money

The existence of technological developments and changes for life changes requires a change in the medium of exchange (Transformation of Money). The previous chapter clearly illustrated that money continues to transform according to the times and technology that is increasingly digital.

From 3000 BC, when human trafficking was still regional in nature, money was a general commodity accepted by all communities within a community. In this period, hidden money was not based on the nominal stated on money today (2018). However, money is based on the use-value or benefit of the commodity made into money. It can be said that the use-value = trade value (commodity use-value = commodity exchange value).

Relatively durable agricultural products such as wheat, tea, and salt. However, changes in human life are increasingly modern with the discovery of salt and cross-border trade, which requires a more durable and more transferable medium of exchange so that money is relatively more concise but has economic value to be used as money in the trading process, so that shell money is pioneered. by Chinese merchants in 1200 BC. In this period, the value in use and trading value of money has become unbalanced or trade value in use. Money used as a medium of exchange is no longer emphasized on the value of use, but the value of trade in which commodities used as money are emphasized on brevity, rarity, and durability.

Shell money, which is abundant in the sea, does not have sufficient scarcity to maintain money's internal exchange rate (the exchange rate of money for goods). Money is transformed again into knife money made of iron, which is relatively rarer than shellfish and relatively more difficult to produce than shell money in 1000 BC.

Scarcity has become a reference for the exchange rate for goods up to 2018 regardless of the form of money, whether in goods, fiat, or digital. So that knife coins made of iron were transformed in 625 BC into gold coins, which were relatively rarer and more compact.

Gold and silver are rare and durable metals that are popular as a medium of exchange since 625 BC. Gold and silver became real money throughout the world from thousands of years ago to 1971. The previous section's timeline shows that every nation up to America before 1971 used gold and silver as real money with forms and versions and designations in units. Respective currencies.

Embodying the form of a commodity that focuses on the value of use to money commodities (gold and silver metals) emphasizes the exchange rate against scarcity. Banknotes are compact money developed since 1 AD in China and developed as fiat money representing real money (gold and silver or commodity money). Banknotes encourage the development of trade around the world and expand throughout the world. Money has been transformed from friends into fiat money in more than a thousand years of processing.

1971 was the first year that fiat money actually left real money in its representative value to become a commitment in itself that represented the country's credibility or the value of authority.

The authority value of money itself has been processed since 1861 in the history of the American Green Back, which means that the money printed by the government is interest-free state debt and can be transacted in the form of goods and services or Bruno Hildebrand's theory, the economy. Transformed from the barter period (commodity money before 3000 BC to 1200 BC) to the money exchange period (1200 BC to 1 AD) began the development of notes in the form of banknotes in China called zhibi 紙幣 and promissory notes in the form of wooden tablets in Rome in 57 AD.

The transformation of money continues into the credit period starting from 1 AD until now 2018 with a history of the greenback in 1861 and Nixon Shock 1971 as a trigger for thickening the credit economy with 100% fiat money with its value authority. However, in 2009 with the background of fintech that has been developing since 1885, which is still part of the transformation process to the credit period (from commodity money to fiat), Bitcoin was born a stable cryptocurrency with a concise scarcity value because it is digital. Driving the third money transformation, from fiat to digital money.

The process of exchanging fiat money to digital since 2009 is similar to converting money from commodity money to fiat money starting from 1 AD, which was marked by the emergence of zhibi 紙幣 and was inspired by the 118 BC leather money known as bai lu pi. Bi 白鹿皮幣.

The latest phenomena in the form of pros and cons of crypto around the world and the development of bitcoin from the timeline in the previous section to 2018 and historical facts from 3000 BC to 1971. Crypto has the

potential to replace fiat money in less than a thousand years.

In 2019 there was a surge in the use of technology-based money. Banking reforms adapted very quickly to the latest monetary technology. Money is moving to a more digital form. Various payment technologies and non-cash transactions have emerged.

Chapter 3

The Covid-19 Pandemic And The Acceleration of Money Transformation

The coronavirus pandemic, which has become a global pandemic, has created new normal or new habit adaptations. One of the new habits of adaptations is encouraging the use of non-cash transactions. Of course, the encouragement of using non-cash transactions is accelerating the transformation of cash from cash to digital.

Coronavirus is a member of a large family of viruses called Coronaviridae (Rabadan, 2020). Some of them cause colds in people. Others infect animals, including bats, camels, and livestock. But what about SARS-CoV-2, the new coronavirus that causes COVID-19. The coronavirus was first detected in Wuhan, China, at the end of 2019 and has sparked a global pandemic.

Where did the Coronavirus come from?

Experts say SARS-CoV-2 originated in bats. That's how the coronavirus behind the Middle East respiratory syndrome (MERS) and acute respiratory syndrome (SARS) started. SARS-CoV-2 leaped to humans in one of Wuhan's open "wet markets / wet markets." This is where customers buy fresh meat and fish, including animals that are killed on the spot.

Some wet markets sell wild or banned species such as cobras, wild boar, and dogs. Crowded conditions can allow viruses from different animals to exchange genes. Sometimes the virus changes so much that it can start infecting and spreading to humans. However, the Wuhan market was not selling bats at the time of the outbreak. That

is why initial suspicion also fell on pangolins, also called scaly pangolins, sold illegally in several markets in China. Some of the coronaviruses that infect pangolins are similar to SARS-CoV-2.

When SARS-CoV-2 spread both inside and outside China, it infected people who had no direct contact with animals. That means the virus is passed from one human to another. It's now spreading in the United States and worldwide, meaning that people are unwittingly catching and passing on the coronavirus. This growing worldwide transmission is now a pandemic.

3.1. Past Evolution of Coronavirus

Scientists first identified human coronavirus in 1965 (Mbabazi, 2020). Researchers found a group of similar human and animal viruses and named them after the virus's crown-like appearance. Seven coronaviruses can infect humans. One reason why SARS emerged in southern China in 2002 and quickly spread to 28 other countries (Dry & Leach, 2010). More than 8,000 people were infected in July 2003, and 774 died. The minor outbreak in 2004 involved only four more cases.

At the start of the SARS epidemic, nearly all of the initial index patients had exposure to animals before developing the disease. After the SARS causative agent was identified, SARS-CoV and/or anti-SARS-CoV antibodies were found in masked coconut civets (*Paguma larvata*) and market animal handlers (Tu, et al., 2004). However, later, extensive investigations of captured civets revealed that the SARS-CoV strains found in market civets were transmitted to them by other animals, causing fever, headaches, and respiratory problems such as coughing and shortness breath.

In 2005, two teams independently reported the discovery of a new coronavirus related to the human SARS-CoV, named the virus related to SARS-CoV or SARS-like coronavirus, in horseshoe bats, genus *Rhinolophus* (Dembek, 2007). indicates that bats may be natural hosts for SARS-CoV and that ferrets are only intermediate hosts.

Furthermore, many coronaviruses that are phylogenetically linked to SARS-CoV (SARSr-CoVs) have been found in bats from various provinces in China and European, African, and Southeast Asian countries.

MERS started in Saudi Arabia in 2012 (Janssen, 2018). Nearly 2,500 cases occurred in people living in or traveling to the Middle East.

Many are relatively harmless of the hundreds of known coronaviruses (Nasir, et al., 2020). The coronavirus infects the nose, sinuses, and upper throat. The features of the RNA-based genome, unlike most life on the planet, feature genomic DNA.

The RNA genome in the coronavirus is sensory-positive, which is similar to the cell messenger RNA itself and allows this virus to hijack the host cell's protein synthesis machinery immediately. This feature allows this virus to quickly and effectively take over host cells and develop rapidly.

3.2. Covid - 19, Banks and Cash Digitalization

Cash is no longer king. The greenback has lost its major role as the American medium of exchange in terms of the dollar. Likewise, the world community is increasingly shifting to the use of non-cash transactions. Plastic cards and digital transactions have taken over. And just like

shops, restaurants, and other businesses that want to digitize money.

COVID-19 has accelerated the process of digitizing money for several reasons. Cash cannot change hands over long distances, and besides, who wants to take the bill? Staying at home means more purchases are made over the internet. COVID-19 is mainly spread through droplets released into the air when an infected person coughs or sneezes.

Banks have taken many steps to grapple with the spread of the coronavirus. Banks have also adjusted their hours and reduced the number of time customers is in branches. With the coronavirus spread, this is a good opportunity for consumers to take advantage of their digital bank tools. But it depends on which bank you use and with which you are familiar with digital banking. Some consumers are still customers at branches.

What we call digital-centricity is much higher in the largest banks in regional and medium-sized banks. Mid-sized and regional banks, to some extent, serve aging customers who are less digitally oriented. And I think there you might see a lot more stress and distraction as people have to change how they do their day-to-day banking to a greater degree in someone who is much more digitally savvy and used to doing their online banking.

Some of the bank's customers have adjusted the way they do bank due to the coronavirus. Banks have persisted on business continuity issues, which means keeping them open, the business remains. But I don't know if they can prepare for the psychological impact and help make their customers more comfortable with this situation and more confident.

Some shops and restaurants have stopped accepting cash altogether when the coronavirus pandemic hits the earth in 2020. If you're a snack shop, processing plastics takes less time than waiting for someone to find a dime from their pocket.

The Federal Reserve reports that debit cards are the most frequently used payment method (Federal Reserve, 2012). Cash is used in 26% of all transactions and 49% under \$ 10. But every age group going through baby boomers is doing a lot more of them using digital and plastic means of cash. Not surprisingly, this group of millennial leaders.

Some of us who are not poor prefer cash for legitimate reasons. Those who want to control spending love it because psychologically, cash still feels like real money, unlike a plastic card. Cash is anonymous, making transactions even more private. This protects users from identity theft (although it makes them more vulnerable to pickpockets). Meanwhile, waiters, drivers, and hairdressers seem to like cash tips.

In contrast, for business owners, not having a lot of money on the register deters robbery and saves them from the trouble of recruiting armored trucks. And they don't have to worry about counterfeit bills.

Cash or cash has long been a medium for hiding criminal activity (Madinger & Kinnison, 2011). Digital money helps governments monitor transactions. However, this does not guarantee the safe use of digital money because money's digitalization creates a new type of crime. People with expertise in information technology commit new crimes. Surprisingly, some of these digital criminals are still minors.

Chapter 4

Shifting Value and Transformation of Money

The process of trading goods for a medium of exchange, known as money, has undergone transformation. Money should have a stable exchange rate for goods, which is necessary for the processes of producing and distributing goods. Presently, money (fiat money), as a medium of exchange, has an unpredictable value. The exchange rate of money over goods continues to decline over time. This is known as inflation, which is a global problem that requires a complete solution to uphold the equality of each human being in each respective field of work (Smith, 2007; Cardoso, 2012; Larsson, 2011; Bauer, et al., 2013).

Transaction costs from payments between countries as part of international trade activities have a significant impact on the growth of GDP and the world's oil prices that economic efficiency can be achieved from the efficiency of transaction costs and transparency.

Digital technology is able to increase transparency to reduce asymmetric information and crypto money has proven to make transaction costs more efficient for the cost of exchange fees and transfer fees for authorities regulating the world's finances (Escobar & Chaffotec, 2015; Wang, et al, 2018; Oladosu, et al , 2018).

In 2009, crypto money or the first digital money, bitcoin was mysteriously born. Bitcoin is believed to be made by an anonymous group disguised as a man whose joint name was the name of an electronics company that is Samsung, Toshiba, Nakamichi and Motorola. It turns into Satoshi

Nakamoto. Digital money develops with various types of cryptocurrency. Digital money allows people to transact throughout the world without significant transaction costs. This means that there is no foreign exchange fee, no tax and anonymity. Ideally, crypto money is more efficient in terms of transaction costs (Peterson, 2017; Narayanan, et al, 2016).

Research on the stability of the exchange rate of money against goods is important to understand, map and make decisions both in government policy and at the individual level to adapt to the ever-changing world economic conditions.

Accordingly, the study of money transformation and the ability to maintain stability in exchange rates for goods is very important as a reference for monetary and public policies (Segot, 2018; Ozili, 2018; Beck, 2014).

Money has existed as long as humans have in order to address the increasingly diverse necessities of life. Commodity money was used thousands of years ago (Persson & Sharp, 2015).

In the Bruno Hildebrand Growth Theory, the economy is divided into three periods, namely the commodity exchange period (barter), the period of exchange with a medium of exchange (money) and the period of exchange by means of credit (Peet & Hartwick, 2015; Binswanger, 2013).

In Money Value Theory, every good, both physically and digitally, can be used or turned into money (a medium of exchange) provided that it meets the requirements. Money must be legal (not considered illegal), generally accepted, its value relatively stable, storable, easy to carry, not easily

damaged and easily shared (Rochon & Seccareccia, 2013; Desan, 2014; Hill, 2018).

Money was transformed from commodity money into coins, traditionally printed on metal, and then it was transformed to paper. Paper money was then transformed into electronic entries in institutional accounts, including Dollars, Pounds, Euros and Yen. Money has been expanded from a paper currency to paper checks to plastic credit and debit cards. Currently, it has entered the Fintech disruption phase.

Innovations, such as Apple Pay, M-Pesa, Square and Venmo, are widely used. Cryptocurrency, such as Bitcoin and Ethereum, have been expanded (Hill, 2018; Samid, 2015).

The digitalization of money has become increasingly irresistible. Along with the ease of the transformation of money increasingly abandoning its physical representation, the danger of money itself is greater and the challenges of security from financial crime are increasing (Sampson, 2018; Selgin, 2015).

The period of barter exchange occurred when humans still fulfilled their daily needs in a simple way. At present, business practices often find barter practices that are perceived to be logistically more profitable and time-consuming such as barter technology and barter agriculture with different purchasing power parity for each item or financial services sector (Goher, et al, 2018; Chen & Yi-Cheng Kao, 2010).

In the period of exchange with money, humans exchange goods and services by using money as a medium of

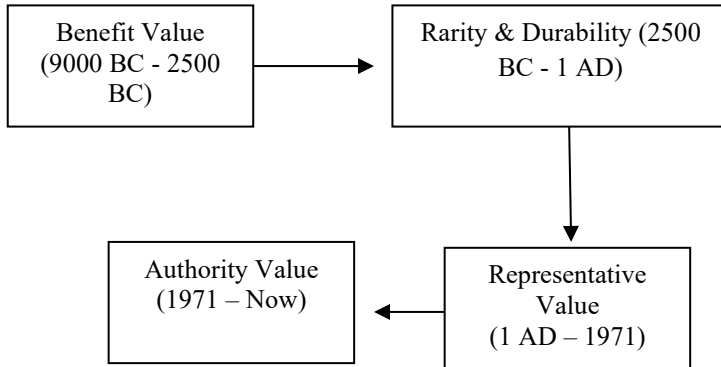
exchange. During the exchange of credit, people purchase goods and services using electronic debt acknowledgement, such as credit cards or promissory note, that the interest has an influence on the price of goods (Peet & Hartwick, 2015; Liu & Kool, 2018; Dotsey & Quintana, 2016).

The period of commodity exchange (Barter) lasted from 9000 BC to 2500 BC. At time, humans began to develop specialization of expertise. However, it still fulfills most of its needs independently. (Peet & Hartwick, 2015; Persson & Sharp, 2015) The period of exchange with the medium of exchange (money) began in 2500 BC until now. And, the period of exchange with credit began in the 18th century to date (Persson & Sharp, 2015).

Money is a medium of exchange that the public generally accept. Money can be anything to employ using a medium of exchange. The common money is in the form of a currency authorized by the law of a country issuing such currency as Rupiah in Indonesia, Dollar in America, and Bath in Thailand. And each of these currencies is also likely to be accepted by humans outside the authority of the issuing country. (Binswanger, 2013).

Commodity is goods and services produced by humans in the world that are consumed to meet human needs. Thus, there is a correlation between the balance of production growth, population growth and the medium of exchange. (Bucci, et al, 2018; Cauwenberg, et al, 2018).

Money will continue to transform into the future, and currently it is still possible to exchange commodities with the barter system. Therefore, all forms of money transformation can be presently used (Chen & Kao, 2010; Goher, et al., 2018; Cardoso, 2012). The following is flow chart of shifting value of money:



Source : Andolfatto,*et al*, 2016; Persson & Sharp,2015;
Davies,2013; Rickards,2014

During 9000 BC to 2500 BC, humans used agricultural and livestock products as currencies. During this period, the value of money was measured from the benefits of the exchanged goods (benefit value).

The value of money was shifting from based on benefits into the value of scarcity and durability of goods from 2500 BC to 1 M. The value of money has shifted since the discovery of paper money in China in 1 M, which was considered to be easier to use both moved and measured according to the nominal value written on paper money that it is easier to use with the foundation of the metal value represented by the banknote.

In the 13th century, paper money were adopted in Europe and were spread throughout the world (Persson & Sharp, 2015; Davies, 2013).

In the 19th century since World War 1, many countries in the world were not able to exchange or back up their money with presentative metal (generally gold). Hence, there was a shift in the value of money occurred from 1971 to the present based on government legal regulations (Rickards, 2014).

It is also inseparable from problems, which is instability of the world's money values (Hevia, & Nicolini, 2018; Nchor & Adamec, 2016; Allen, et al, 2014; Mosler & Silipo, 2017).

The shifting value of money discontinued in the form of paper money. However, since 2009 there has been new money challenging paper money that is crypto money. Crypto money offers use of paper money that is more efficient with the ability to move money (finance mobility), which is faster and lower in the light of transaction costs.

However, crypto money itself has similar properties to gold, which is its fixed amount and needs for mining (Dwyer, 2015, Narayanan, et al, 2016; Persson & Sharp, 2015). The period of exchange with the medium of exchange (money) began in 2500 BC to date. And, the period of exchange with credit began in the 18th century until now (Narayanan, et al, 2016).

Bitcoin has the potential to function as a store of value, as its strict commitment to low (scarce) supply growth was credibly supported by a network-distributed protocol and credible demonstration on the lack of an authority capable of changing supply schedules (Ammous, 2018,).

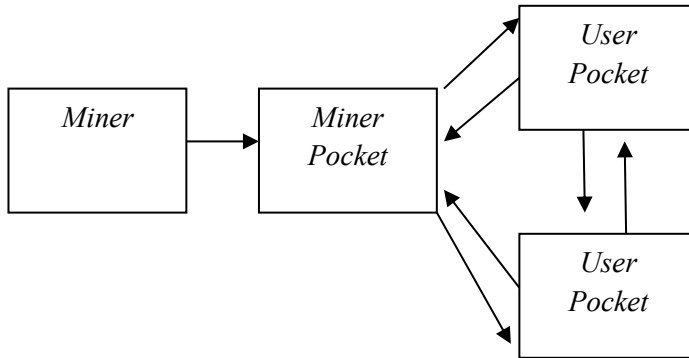
The early generation of crypto money, bitcoin, has a tendency to have similar characteristic to gold. That is, no

authority regulates its production throughout the world. It is scarce and requires relatively higher production costs than the cost of producing paper money. Bitcoin has an exchange rate that tends to increase due to its limited amount and high production costs. In contrast to crypto money, which is under certain authorities, it is precisely similar to paper money.

The stability of crypto money other than bitcoin is also related to certain authorities that tend not to have a level of resistance to volatility in exchange rate stability as high as bitcoin (Adhami, 2018; Ammous, 2018). Alternative medium of exchange, that is crypto money, was pioneered by data packages as called bitcoin along with various expectations of the countries in the world on crypto money, which leads to the assumption of crypto money as an economic threat (Sampson, 2018).

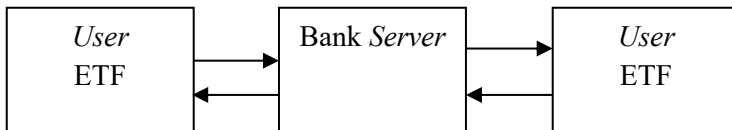
Crypto Money is a data package compiled and transferred via internet network through the process of compiling data using a server computer as called mining from the developed blockchain. The mining results are moved in the miner's pocket and ready to be transacted with the user's pocket of crypto money.

The first generation of Crypto Money called bitcoin have no authority like gold, as those who have the resources to mine bitcoin are able to mine bitcoin and sell it to bitcoin users (Hill, 2018). However, the next generation like Ripple has been authorized by private companies that they are more inclined to the nature of fiat money (Ammous, 2018).



Source: (Hill,2018 ; Ammous,2018)

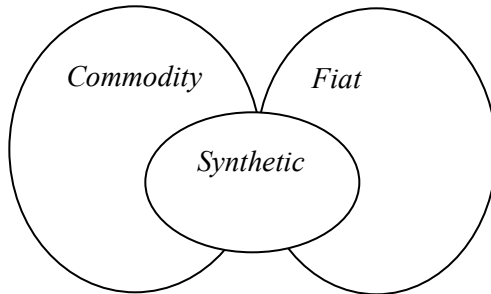
Electronic Transfer Funds (ETF) was first introduced in 1860 by western union using telegram technology and developed in 1886 into a credit card as introduced by Edward Bellamy (MacDonald and Gastmann, 2009). Electronic Transfer Funds is a method of transferring money in accounting using information technology centered on the Bank (Smith, 2017; Jones, 2014).



Source: (Smith,2017 ; Jones,2014 ; MacDonald and Gastmann,2009)

Synthetic money is a form of money transformation that has the combined nature of fiat money and commodity money (gold). Synthetic money has the nature of resembling paper money as it has no non-monetary value but also resembles commodity money as it is very scarce (Selgin, 2015).

Synthetic money can be anything that has a mixture of fiat and commodity properties. It can be either ETF (Electronic Transfer Funds) or Crypto Money or just data like diamond or gold in on-line games. Synthetic money in digital era is very likely in the form of digitizing money with or without authorization from official financial institutions.



Source: (Hill,2018 ; Sergin,2015)

Trade requires fast money mobility, as trading is one of the factors driving the transformation of money and economic growth (Binswanger, 2013; Rickards, 2014; Riekhof, et al, 2018).

International Trade has a positive impact on the distribution of goods and services throughout the world. The existence of trade between countries around the world, has an impact on increasing production based on differences in resources and production capabilities of goods and services throughout the world that each country can produce more efficiently and continue to encourage its production (Mutreja, et, al, 2018; Gokmenoglu, et, al, 2015)

Each currency transformation has a value offered for each money transformation. Each transformation also has a certain ability to maintain exchange rates (Côrtes, et al., 2015; Hevia & Nicolini, 2018; Dwyer, 2015). The volatility of the exchange rate can be caused by business or trade activities, both domestic and trade between countries.

The business or trade climate internationally tends to be volatile. These trading activities also have an influence on the real sector (production). Thus, there is a trade-off between money demand and supply, both in terms of consumption and investment. Each form of money transformation has a different resistance to the upheaval of the real sector (Deviatov & Wallace, 2014; Bloise, 2006; Schinckus, et al., 2018).

In the transformation of money, a shift in the value of money influences exchange rate stability, especially for the internal exchange rate of money (Selgin, 2015). However, there were phenomena from 1971 up to 2009, where gold was still universally accepted. The paper money of any currency was not backed up by gold, and cryptocurrency became an alternative global payment instrument (Davies, 2013; Raza, et. al, 2018; Narayanan, et, al, 2016).

The stability of the money value against goods or internal value of money has an impact on the efficiency of real sector. There is a tendency for humans to seek a medium of exchange that has a perpetual stability of exchange rate. Money is transformed to meet the stability of money and the convenient transfer of money itself at more efficient cost (Chang, et, al, 2011; Shahab, et, al, 2018).

Price fluctuations in a period are influenced by various factors such as money supply, expectations and interest rates (Keyness, 2018). However, price volatility is also influenced by production and population growth (Bucci, et, al, 2018; Arshad, et, al, 2016; Shi & Sun, 2017). It is also same with the stability of internal exchange rate of money that affects the stability of real sector, which ultimately affects production (Chu, et, al, 2017; Hung, 2017).

The money supply itself is influenced by GDP and Interest Rate (Nchora & Adamec, 2014). GDP of a country is a reflection of its productivity (Mankiw, 2016). Each form of money has an impact on price changes. The change in form of the latest money transformation, that is synthetic money, has the potential to have a stable internal exchange rate so as to maintain price levels and is potentially able to provide macroeconomic stability (Selgin, 2015; Persson & Sharp, 2015).

The Bretton Woods Agreement in 1944 focused on the stability of the world exchange rate, it is proven to capably restore the world economy (Steil, 2013; Smith & Rofe, 2017; Voutsas & Borovas, 2015; Clifton, et. al, 2014). However, during the Vietnam war in 1957-1975, the United States required incredibly great amount of war cost, thus it leads to the annulment of gold guarantees on USD fiat money in 1971 (Davies, 2013; Steil, 2013).

The annulment of gold guarantees on US Dollar fiat money has resulted in an imbalance in the exchange rate, especially the instability of the USD internal exchange rate with the trend of internal exchange rates, which continue to decline to date (Lucey, et, al, 2017; White, 2015).

Following the Bretton Woods agreement, the USD became the currency made to be the foreign exchange reserve by many countries, thus all countries that made USD as their country's foreign exchange reserves indirectly contributed to Vietnam's war in 1955-1975 (Steil, 2013; Janus & Crichton, 2015; Kubo, 2017).

With the fall of the USD internal exchange rate, it directly affects the fall of internal exchange rate of all currencies of the countries that made the USD as their foreign exchange

reserve (Chen & Huang, 2012; Kubo, 2017). When economic growth is unable to keep up with population growth, there will be a decline in universal prosperity (Cole, 2018; Cruz & Ahmed, 2018; Gogerty, 2014).

GDP and money demand are intertwined when aggregate welfare grows, the requested amount of money also grows (Urbanovský, 2016; Chaitip, et, al, 2015). The result of increased production from GDP growth when entering the market is money mobility. Money mobility itself is influenced by the transfer of money and the market itself (Xu, et. al, 2010; Fraj, et. al, 2018).

Gokmenoglu, et al (2015) in his research concluded that there is a long-term correlation between oil prices, GDP, and industrial production. This denotes the impact of oil prices with industrial productivity, which ultimately affects the volatility of prices of goods and services as a whole based on the law of supply and demand. This conclusion is supported by the results of research by Nchora & Adamec (2016), which states that GDP influences the level of money demand in the long term while the interest rate affects in the short term.

Synthetic money is proven to capably create stability in the internal exchange rate in a macro economy with a significant exchange rate growth (Selgin, 2015). Bitcoin is proven to be technically safe in networks and cryptography. Bitcoin remains secure even without the authority centralized with peer-to-peer networks. There is no perfectly safe digital security system even though all governments in the world authorize it and although using specialized banking computer network is still at risk of security flaws (Dwyer, 2015). Bitcoin is proven to have

more affordable transaction costs than fiat money in terms of transactions between countries in the world (Kim, 2017).

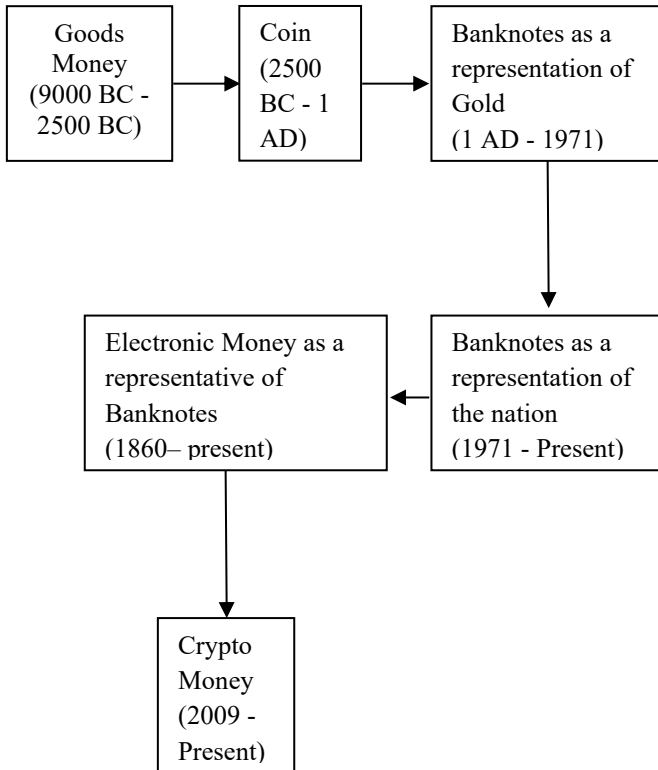
Research on the stability of the exchange rate of money against goods is important in understanding, mapping, and making decisions both in policy for the government and individual decisions in adapting to the ever-changing world economic conditions. Accordingly, the study of money transformation and the ability to maintain stability in exchange rates for goods is very important as a reference for the government to design monetary and public policies in making decisions related to how they choose money that people avoid the inherent risks in money, especially in this digital era (Segot, 2018; Ozili, 2018; Beck, 2014)

The decline in internal exchange rates in all currencies in the world reflects a decline in universal prosperity (Soe & Kakinaka, 2018; Fujii, 2013).

Declining universal prosperity is reflected in the continuous increase in prices without being offset by an increase in income that the people's consumption capacity decreases. The continuous decline in internal exchange rate has caused the price of goods and services continue to increase. There will be decreasing public consumption and decreasing the quality of goods and services produced (Smith, 2016).

The stability of the money value for goods is required to maintain price certainty in order to determine efficient business decisions that trade transactions and wealth transfers can be managed with rational decisions between its participating actors. Thus the tendency of humans to look for a medium of exchange that has exchange rate stability continues to persist. However, the transfer of wealth in this case money is also an important part of

trading transactions that it is transformed to meet its stability and ease of transfer with increasingly more affordable transaction costs. (Kim & Mehrotra, 2017; Kim, 2017; Peterson, 2017) Below is the flow chart of money transformation:



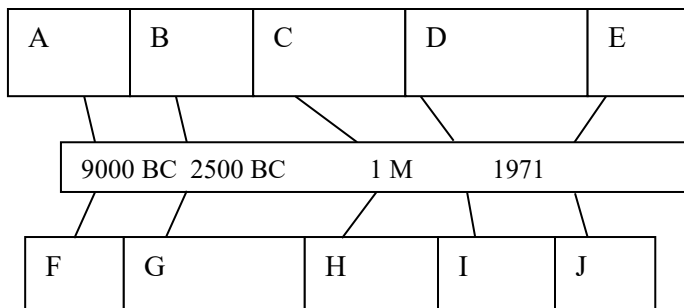
Source : (Davies,2013; Hill,2018; Persson & Sharp,2015; Andolfatto,*et al*,2016)

The amount of money supply and demand has a correlation with the exchange rate. It includes the exchange rate of money for goods. Hence, there is a correlation between scarcity with exchange rates. The scarcity itself is formed from correlation of capital and labor that the value of a

commodity including money is related to the cost of production. Thus, there is a correlation between money, commodities, and production (Hevia & Nicolini, 2018; Urbanovský, 2016).

Demand for money itself is related to the real sector or it can be said that Gross domestic products affect the demand for money (Zhang, et al, 2018; Coën, et al, 2018). The real sector affects the demand for money through investment channels and credit. The fluctuation of money demand also affects the exchange rate of money against goods. This indicates that there is a correlation between money demand and inflation. Thus there is a correlation between interest rate, investment and inflation (Boel, 2018; Albuquerque, et al, 2016; Nchor & Adamec, 2016).

There are several factors causing a shift in money value in the money transformation, such as currency development, trade development, technological development, world economic conditions of shift in value and money transformation summarized below:



Caption :

Transformation of Money

A = Non-Mining Commodity Money

B = Mining Goods Commodity Money

C = Paper money represented Mining Goods
D = Paper money without represented Mining Goods
E = Synthetic Money

Money Value

F = Benefit Value
G = Scarcity and Durability Value
H = Representative Value
I = Authority Value
J = Scarcity

In 9000 BC, human medium of exchange used non-mining commodities, as the economy was still dominated by agricultural businesses that agricultural commodities also developed into a medium of exchange. However, over time, around 2500 BC, gold and silver were commonly used as money in various forms of currency in the coin age era. It continued to be used until the 13th century (more than ten centuries).

The discovery of paper money in the 1st century AD in China, was the beginning of transformation of third money, which was from coins (mining goods) to paper money. The shifting value of money and the fourth money transformation that was fiat money is still dominant until now with bankers as holders of the world's monetary power started in 1971 since America no longer backed up the USD with gold. Paper money before 1971 must be guaranteed with gold. In 2009, bitcoin appeared as an alternative payment and digital-based medium of exchange with a peer-to-peer system.

Bitcoin tends to be like gold, which is scarcity and carries the security value of military standards.

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