

Chapter 2

History of Money: In the Eye of the Beholder



Why should a book about the future start in a journey into the past? Well simply we cannot understand possible futures if we do not understand the past. One of the first things you learn when doing scenario analysis—studies of potential futures—is that the secret to the future rests in the past. The future will not be like the past since it almost by definition will be different from the past, but the future will be shaped by the past.

A digital society will be based on the institutions that were created for the industrial society even if these institutions over time will be adapted to and perhaps replaced as the digital society will be in need of new forms of institutions affecting societies and people all over the world.

A cashless society will be created on top of the society that was formed for a cash-based economy. The speed of the transition toward less cash and the creation of institutions for a cashless society are built on old systems. The way we perceive money, central banks, payments for transactions, savings, success, and wealth (among other things) will be gradually changed—but not radically—as cash disappears and other forms of money takes its place.

This is exactly why cryptocurrencies meet challenges in becoming payment services for the common man and woman. I am not saying that these currencies never will overcome such challenges but I do acknowledge they exist. The idea of bitcoin—another interesting social invention or perhaps innovation—promoted by Satoshi Nakamoto and others where we get rid of middlemen such as central banks and commercial banks is radical, provocative, and therefore highly interesting. But this is not enough to make it an automatic success. The current monetary system has a lot of institutions that become problems or even barriers to the introduction of bitcoin and other cryptocurrencies. Thus in order to understand the transformation of money, we must first turn to the history of money.

The Birth of Historic Forms of Money

It is difficult to pinpoint when the first versions of money were put in use and historians provide different accounts. We know there has been sophisticated systems guiding trade for many thousand years even long before money in the form of coins were created. It is such systems governing exchange and value that led to what we today call money.¹ I must acknowledge that when researching money, I am regularly contacted by researchers and people that have various claims on when money first was used which indicates there are many different views on the history of money.

One early use of money has been connected to the economic system of Mesopotamia around 3500 years ago. Historians have found coins issued by the king Ammi-Ditana, who ruled Mesopotamia in the period 1683–1647 BC, that were made of clay. The coins had inscriptions saying they could be exchanged with a certain amount of corn and that this exchange was guaranteed by the king (Ferguson, 2008). This foundation of money is the same with what we have today where central banks—and in the end the government of a nation—guarantee the value of money. There have of course also been other ways to guarantee the value of money such as metal-based coins. One early version of bills has been connected to the Tang dynasty in China where deposits of coins or metals with the state were proven via a paper-based receipt that in essence became a promissory note issued by the state and that therefore could be used as a means of payments between other parties. The low weight and possibility to make high-value payments in an efficient way made such notes attractive by merchants, and increasingly popular in societies at large.

Money in various shapes and forms has evidently been used for 5000 years and started in Mesopotamia and Egypt and then spread over the world as an important prerequisite for trade and economic development. In 250 BC, coinage in gold, silver, and bronze had become a dominant form of money in large parts of the Mediterranean, the Near East, and India (Williams, 1997). The spread of money in the Mediterranean area was strengthened by the Roman Empire as it became aware of the importance of money for growth and expansion when they realized the limits of barter trade. This is evident in the claim that the Latin word for money, *pecunia*, is derived from the Latin word for cattle, *pecus*, since cattle often was used in barter trade in the early days of the Roman Empire (Williams, 1997, p. 39). This is yet another indication and illustration of the importance money has had for efficient trade and economic development.

Throughout the history of humanity, we have seen many different monetary systems that have been strong and later failed because of the underlying challenge of the provider—a king or a state—to guarantee the value of the money they have issued. Examples include Rome's coins during the Roman Empire, Spanish gold coins during the 1500s and 1600s, German inflation in the 1920s after the WW1,

¹See, for instance, https://www.britishmuseum.org/explore/themes/money/the_beginnings_of_money.aspx

Brazilian money in the 1980s and 1990s, and the hyperinflation in Zimbabwe in 2008. The case of Zimbabwe is especially interesting as the monthly inflation reached an unprecedented and incomprehensible 79.6 billion percent in November 2008 which was halted when people—for obvious reasons—stopped using this currency (Hanke & Kwok, 2009)! Another but less spectacular case is Sweden that had high inflation in the 1970s based on the government's inability to stabilize the economy. The list of examples is endless. It is evidently not easy to maintain monetary stability and trustworthy payment systems over longer periods of time.

Today we take state-backed bills and coins for granted where the value of such money is based on the economic performance of the state and the credibility behind the promise that money has a certain value. Cash has a long and strong history where Sweden was one of the first countries to launch government-supported cash in its current form and now potentially may become one of the first to stop issuing government-supported cash.

To understand what is really happening, we must provide a deeper analysis than just look at cash and the ongoing transformation into cashless societies. I will therefore turn to a discussion of three paradigms—or fundamental principles—of money.

Three Paradigms of Money

An insightful way to understand the history of money is to analyze the fundamental principles behind each manifestation of money. An often used—and often misused—concept when performing such an analysis is a paradigm² approach. In his famous book about scientific paradigms, Kuhn (2012) defines a scientific paradigm in a broad sense as “the entire constellation of beliefs, values and techniques shared by members of a scientific community” and in a more narrow sense as “universally recognized scientific achievements that provide model problems and solutions to a community of practitioners” (ibid).

The essence of a paradigm is that there are some fundamental principles, values, and approaches to problems and solutions that differ between different paradigms. Kuhn discusses scientific paradigms with a specific focus on natural science and provides examples such as the difference between a paradigm resting on the assumption that earth is the center of the universe and all other planets circle around earth and a paradigm assuming the sun is the center of one solar system and that all planets in this system—such as earth—circle around the sun. Depending on which starting point you have, you will understand space and planets differently. Another feature of paradigms is that they tend to be mutually exclusive. You cannot believe

²The word paradigm comes from Greek and means “a typical example or pattern of something; a pattern or model” according to the Oxford English Dictionary <https://en.oxforddictionaries.com/>

Fig. 2.1 Paradigm. Source: author's own illustration



that the sun circles around the earth and that the earth circles around the sun at the same time.

And the examples of such paradigmatic differences are abound. Do you believe that God created life on Earth as we know it today or that evolution did? These are different paradigms—or cognitive models—for how to understand the creation of life on Earth. In the strict sense, paradigms are mutually exclusive and not possible to integrate and combine. In a Kuhnian sense, you cannot believe in both creationism and in evolution at the same time. You must choose. Why? Because the fundamental principles and assumptions are incoherent and contradictive. From a strict paradigmatic standpoint, it is not possible to believe both that God created life and that life somehow was created through evolution. Some tend to believe in one paradigm and others in another. And the idea of paradigms can be applied to technologies and money as well (Fig. 2.1).

Kuhn argued that science should prove what it assumes while Popper argued the opposite, i.e., that science should test and disprove that which is taken for granted. Lakatos' integrated Kuhn and Popper by suggesting there are research programs in which some core ideas should not easily be challenged while more peripheral ideas should be challenged (Chalmers, 2013). This illustrates the challenge we face when aiming to understand ideas. Now, this is not a book in philosophy of science and we can leave this discussion aside. Let me just take the concept of paradigms into a discussion of technological dimensions of different representations of money. This will follow an approach introduced by Dosi (1982) who suggested that technological systems can be understood in a similar way as we understand scientific paradigms.

Dosi argues that “the procedures and the nature of ‘technologies’ are suggested to broadly similar to those which characterize ‘science’. In particular, there appear to ‘technological paradigms’ (or research programmes) performing a similar role to ‘scientific paradigms’ (or research programmes)” (Dosi, 1982).

This implies that we can understand a particular technology or technological field as a paradigm being built on a combination of fundamental principles and values that makes it different from other competing paradigms. We see such battles between technological paradigms regularly in different industries such as those related to nonrenewable versus renewable energy, those related to internal combustion engines versus electric engines, those related to writing on typewriters, versus those related to writing on a personal computer, and so on. Each of these being characterized by particular features related to technological system, need of input factors, logistical systems, production processes, prices, principles of use, but also underlying values related to whether the technology is regarded to efficient, reliable, environmentally friendly, and cool and in other ways deemed better than the alternative. The

paradigm is thus not only about technology but also involve organizational principles and subjective emotions connected to it.

Depending on which paradigm you—consciously or unconsciously—belong to, you will see different things when studying a phenomenon. A socialist will see injustice when a person is richer than another person, while the capitalist will see this as a fair distribution of wealth based on each person’s abilities and efforts. And given the ideological paradigms each person believes in, each person is entirely correct in relation to the paradigm. In addition they will have problems discussing this. The socialist will use socialist ideology to convince the capitalist, and the capitalist will use capitalist ideology to convince the socialist. Will they be able to come to shared solution? No, probably not. At least not as long as they do not acknowledge some of the basic ideas and concepts in the other person’s ideology. But they can of course still live side by side and survive in the same democratic society.

The viewpoint shaped by paradigms can be illustrated by the classical Penrose stairs.³ Where does it start? Which part is on top of the other? What do you see? Once you have decided, it may be difficult to change the viewpoint.

It is the same with money. We can see different paradigms of money that live side by side in the same economy. There are different technological paradigms connected to money. To be more precise, I will argue there are three different technological paradigms connected to money: value-based money, fiat⁴ money, and decentralized money. And they live side by side with each other even if fiat money is dominating the scene. So what do I mean with this?

Value-Based Money

Value-based money is money whose value is based on the inherent value of the metal on which it is based. This includes gold coins, silver coins, bronze coins, and well in fact any type of coin where the value is based on the value of the material it is made of. Value-based money was dominating the monetary scene for thousands of years starting in the third millennium BC (Williams, 1997). This technological paradigm is very intuitive since anyone who receives a coin that has a certain weight and is made of a certain grade of a certain metal can estimate the value of the coin by knowing the price of that metal. The holder of a coin can melt it and sell it as metal for a certain price per kilo (or whatever measure of weight that is used). This technological paradigm is simple and straightforward, and therefore often used, but it is of course not without challenges and problems.

³https://en.wikipedia.org/wiki/Penrose_stairs

⁴Fiat comes from Latin and means “let it be done.” When it comes to money, this means that the value of a certain type of money – a currency – cannot be decided by the provider of this money like a central bank. The value will live its (close to) own life and will be decided by the users in a market. The value will “be done” by the users. <https://en.oxforddictionaries.com/definition/fiat>

Fig. 2.2 Gold—a source to value-based money. Source: <https://www.riksbank.se/imagevault/publishedmedia/6343vlh0uge9jppqihaxf/Guldackor.jpg>



There are countless ways to trick the system and thereby make unjustified gains. One can manipulate the metal content, the size and weight of the coin, and the symbols imprinted on the coin. Why not have a thin layer of a precious metal on the surface and then a center made of a cheap metal? Then hoping the receiver will not check this. In short, any way to trick the receiver into believing the coin is worth more than it actually is—without being caught—can lead to gains beyond that which is motivated by the transaction in itself. Another problem is the practical use, which can be exemplified by the almost 20-kilo heavy bronze coin that was produced in Sweden in 1644–1645.⁵ Not very convenient for anyone. Folklore also tell us about the quadratic coins with sharp corners that allegedly created holes in pockets, fell out, and was lost, yet another kind of practical problem with value-based coins and perhaps the reason why they are round today (Fig. 2.2).

Fiat Money

Our second technological paradigm connect to money is fiat money. Here the value of money is based on the trust we put in the producer of money and his or her ability to deliver the promise that lies in the value of the money printed on it. As many

⁵<http://www.myntkabinettet.se/fakta/foremalsfakta/platmynt>

innovations, fiat money grew from the realization that it had advantages that its preceding competitor—value-based money—did not have. Value-based coins were somewhat inconvenient to carry around and to safeguard which meant that it could be advantageous to develop other forms of money. Paper money as we know it today is claimed to have been invented in China in 1189 AD (Williams, 1997, p. 149) when the ruler realized paper is an interesting way to produce money. Paper is much easier to carry around and to produce even if it—on the other hand—also is easier to destroy. A simple match will do a good job.

At first, paper money was basically a receipt for the underlying value of a security—like the gold that was deposited in a vault—but it soon changed character. Realizing the ease with which money now could be transferred between businessmen if compared to weighty coins, people soon started to set a premium value on paper money. All of a sudden a 100 daler bill became more worth than 100 daler in copper coins. The ease with which money could be stored and used meant a premium in addition to the metal value of the security the paper originally was built on. Seignorage was born.⁶

That is quite remarkable! How could a paper saying it is worth 100 daler be worth more than copper worth 100 daler? And how could a paper saying it is worth 100 daler all of a sudden be worth more than 100 daler? It all boils down to the ease with which it is used and the trust users put in the provider of these papers.

This also became the foundation of a radical transformation of money. Paper not only made trade easier but it also laid the foundation for money as we know it today, i.e., cash. Here it is the trust in the writing and in the signatures on the paper that is the foundation for how much we think the paper—the bill—is worth. If it says 500 euro and this is guaranteed by the European Central Bank, we believe this and are ready to hand over our bike to a stranger if we get this piece of paper in return. Amazing. If it says 20 SEK, we can get a (half-decent) cup of coffee in Sweden if we hand it over to a café owner. To also get a (half-decent) cinnamon roll, you will need one more bill saying 20 SEK. This is the essence of fiat money—we trust the numbers written on a piece of paper if it is guaranteed by a central bank and backed by a government.

The trust does not come from heaven though and we have seen many examples of what happens when trust is lost. High inflation is a typical indicator of when people have lost their trust in the central bank to uphold the value of the bills they have produced. It takes hard and stubborn work from a government and its central bank to keep the trust and remain a low-inflation country and currency. This is important to remember as we today live in a low-inflation era! (Fig. 2.3)

⁶Seignorage is based on revenues that a central bank receives on its coins and banknotes. Equivalent to the return on a central bank's assets corresponding to banknotes and coins in circulation less the central bank's total costs for cash management. <http://www.riksbank.se/en/Glossary/#S>



Fig. 2.3 Examples of fiat money. Source: author's own illustration

Decentralized Money

The third paradigm is what I will call decentralized money. You would probably call it bitcoin, Ethereum, cryptocurrencies, or virtual currencies. Or digital money. Or you are perhaps calling it the future of money free from central banks, banks, and other inconvenient and expensive middlemen? No matter which name you prefer, the essence of this paradigm lies in the decentralization of control and authentication. Let's say we had cash whose authenticity and validity was guaranteed by the community of users instead of by a central bank. That is the principle that bitcoin is based on (but in a digital form).

Bitcoin actually has physical coins too, but the essence of bitcoin is digitalized tokens whose authenticity is controlled by a decentralized ledger accessible by every user of the coin. This ledger keeps stock of transactions and thereby control that bitcoin are genuine and not fake. It is this decentralized ledger that is the essence of the money in the system. And the ledger, which is built on the technology called block chain, is transparent for every user of the system (or at least transparent for their computers). This turns control into a shared responsibility by all users and thus also means that middlemen—central banks and commercial banks—no longer are needed. This in turn means that middlemen fees can be avoided.

It is interesting to note that the bitcoin story starts from the idea of money as value-based money, i.e., the first paradigm outlined above. When Satoshi Nakamoto wrote the conceptual paper that structures the foundation of bitcoin, he or she based it on the analogy of gold. Yes. Gold. The rare metal. The virtual currency bitcoin is built on the idea of a metal found in the ground. This is interesting. Perhaps Satoshi Nakamoto is like King Midas who could create gold from out of plain air by just touching it with the exception that Nakamoto found a way to get around the problem that even the food King Midas was to eat turned into gold before he could swallow it. Satoshi Nakamoto avoided this by making it digital. Smart.

This is how Satoshi Nakamoto summarized the article:

A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is

still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone (Nakamoto, 2008, p. 1).

There are several important things that are worth mentioning when trying to understand what bitcoin is. One critical is that which is called a peer-to-peer system. Nakamoto believes that one of the most critical problems with the current structure of money—the fiat money paradigm—is that it needs middlemen, financial institutions, to control transactions and authenticity of money.

The aim of bitcoin is to build a system where all actors in the system can control it since the digital information contains data about the value of the payment and the authenticity of money, which can be controlled by the receiver—or rather the receiver's computer—when receiving the payment. Since all information about all payments exist in the network of computers that are using bitcoin, the control and information is accessible to all. No need to trust—and pay!—a middleman. This system is called a decentralized ledger that contains information about previous transactions, and this record is used to check history and authenticity of each payment.

In the old days, hotels ran ledgers where all information about guests were written and stored. This information was then accessible to all that had access to the ledger. The digital version is built on the same idea except that the ledgers behind bitcoin are accessible by all.

What then is a block chain? The simple version is that one payment using bitcoin creates a block with information about value, the payer, and the payee, and a collection of blocks create a block chain. The block chain is available to all users in the system and can thereby be controlled by all nodes in the system. Decentralization of information about transactions and holders guarantees transparency and is the foundation for security and protection against double-spend, hacking, and forged transactions—at least in theory.

If, however, someone can control the system, there is a hypothetical opportunity to change the decentralized information in the block chain. No matter whether the security in a decentralized ledger is higher or lower than in a traditional electronic system with middlemen and regulation, it is without doubt that this new technological and new institutional logic offers an interesting and promising alternative to our current systems. But—as in any system built on digital platforms—it is critical to attract users to build interoperability and efficiency.

Luckily enough, Satoshi Nakamoto also knew one or two things about marketing! Even today there is no official information regarding who the person Satoshi Nakamoto is. Rumors fly around and several persons have been pointed out to be

Satoshi Nakamoto,⁷ but at the end of the day, we do not know. We do know that he or she is rich, however. He or she is thought to own about 1 million bitcoin or more. But leaving that aside, I was talking about marketing. If you want to create a hype, why not have a creator that remains a mystery person and then putting him—because the mythical Satoshi Nakamoto is a man—on a pedestal and follow his seminal paper (to all you researchers: this is really a seminal paper!) as if it is written in stone. Smart. Ingenious.

And really strange given that the ruling principle of the dominating paradigm of money—fiat money—is that we know exactly who is providing the money. In this new paradigm, it is an anonymous system that generates new money via a predetermined but self-regulatory process.

Bitcoin is thought of as gold, i.e., something that already exists but needs to be mined in order to be usable and valuable. So I guess Satoshi Nakamoto is not entirely like King Midas since he could create new gold. There is an upper limit of how much bitcoin that can exist which is set at 21 million bitcoin. In theory there will never be more than 21 million bitcoin.

When I write this text,⁸ the total number of bitcoins are 17.4 million and each bitcoin is worth 5507 US dollars, which means that the value of all bitcoin in circulation is around 96 billion US dollars or around 85 billion euro. This is comparable to the value of all US dollar in circulation which was 1463 billion US dollars in the end of 2016⁹ and all euro in circulation which was 1147 billion euro in January 2018.¹⁰ Acknowledging the problem that there are some time lags in these comparisons, the total value of bitcoins in circulation is currently well below 10% of the total value of euros in circulation. These numbers will of course not be entirely correct when you read this book so I recommend you to check the numbers at: www.coindesk.com or www.bitcoin.com (Fig. 2.4).

The analogy of gold does not end there, however. In order to control authenticity and transactions, you need a lot of computing power and this is also supplied via a network of distributed computers, i.e., the computers connected to the network. To incentivize this access, a person who allows the system to use his or her computer (s) will be rewarded by new bitcoins. This is called mining—the gold analogy continues—and the persons are called miners. Mining in the digital world is radically different from that in the old world though. The traditional gold miners got wet, had guns, and ate beans, while the modern ones get tired, have computers, and drink energy drinks. Even a traditionally physical task like digging out the earth to extract metal has been given its digital version in the cryptocurrency community. And there are even physical coins representing the cryptocurrency bitcoin. It is evident that the physical reality also has an important role to play in a digital world.

⁷See: <https://www.coindesk.com/information/who-is-satoshi-nakamoto/>

⁸November 15 2018 via www.bitcoin.com

⁹https://www.federalreserve.gov/paymentsystems/coin_currircvalue.htm

¹⁰https://www.ecb.europa.eu/stats/policy_and_exchange_rates/banknotes+coins/circulation/html/index.en.html

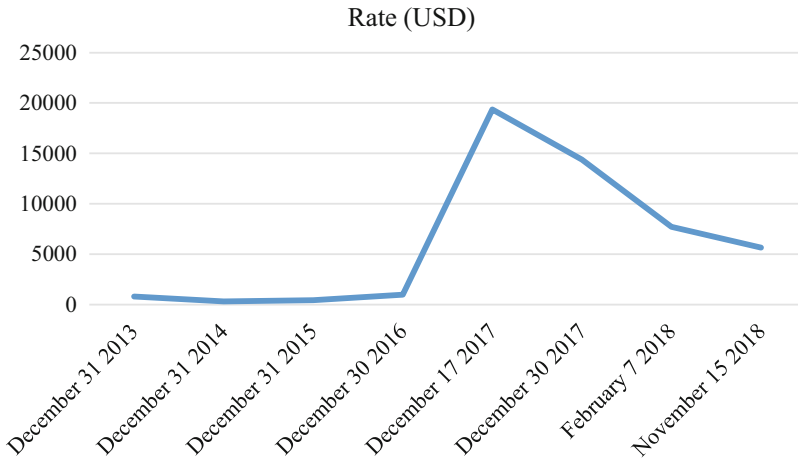


Fig. 2.4 Approximate bitcoin price fluctuations versus US dollars. Source: <https://markets.bitcoin.com/crypto/BTC> (numbers based on prices quoted on www.markets.bitcoin.com/crypto/btc)

The limit of the total number of bitcoin that can exist aims at making it impossible to create inflation in the system. It will not be possible to create new bitcoins once the 21 million ceiling is met, which is projected to happen sometime around 2140,¹¹ i.e., around 122 years from now. This will make it impossible to create new money, contrary to what we see central banks and commercial banks do all the time when they need to and are able to.

The aim is to set a predefined limit of how many bitcoin can exist. It is not clear, however, into how many decimals a bitcoin can be divided, which in practice makes the 21 million ceiling unclear. As of today the smallest amount is one hundred millionth of a bitcoin which is called one satoshi. So one satoshi is 0.0001 bitcoin. Yes, it is named after the founder Satoshi Nakamoto. In practice this means the number of satoshis can be up to 210 billion coins.

As we saw above, the total value of all bitcoins is less than 10% of all euros in circulation. Not bad for a currency that is 10 years old.

Why do I call it a currency? Well, because it is. I would argue that bitcoin has not yet become a competitive payment services—it is a virtual currency that may become a competitive and well-used payment service. To explain what I mean, I will turn back to my discussion of paradigms of money or different systems and logics behind money.

¹¹<https://cryptocoinmastery.com/what-happens-when-all-bitcoins-have-been-mined/>

Understanding the Three Paradigms of Money

There are three different paradigms of money: value-based, fiat, and decentralized. Based on the three fundamental functions of money, means of payment, unit of account, and store of value, I have outlined the three paradigms of money in Table 2.1.

I conclude this analysis of paradigms of money by stating that we cannot understand and compare value-based money, fiat money, and decentralized money if we do not understand the paradigmatic differences between them. If a virtual currency like bitcoin—in its current version—is to replace fiat money like SEK, we need to see a drastic paradigm shift in the way we perceive money, and this shift would require most financial markets as well as commodity markets to transform the way they set prices, calculate risks, and perform transactions. This can of course happen, but it is likely to require some time until the majority of business actors have done it. Another—and probably more important—part of such a paradigm shift is that the fundamental financial and monetary policies must change.

An important tool to handle the economy for any government relates to money. By setting interest rates on sovereign bonds, the government and a central bank can influence the development of the economy. If bitcoin based on decentralized ledgers constituted the money used for all or most transactions, the government would have lost central parts of its power to control the local economy. They could still try to influence the value of bitcoin via open market operations, but this would then be directed to a global currency and not a domestic one. The effects from currency fluctuations of a global currency like bitcoin will of course have unclear effects on a local market such as Sweden or the European Union. Thus, this potential shift is not only about money, but it is also about the power of governments.

To be effective, bitcoin would also have to meet a comparable level in each of the three character dimensions in Table 2.1. Overall these factors explain why there is so much interest and emotions—from enthusiasm to fear—related to cryptocurrencies based on decentralized ledgers.

But it is very clear that even though decentralized money is still in its infancy, this phenomenon is challenging the way we understand money. To cite Camera (2017)¹²: “The institution of money is rapidly evolving thanks to the development in computer-based cryptography.” We may not yet know exactly how this new form of money—decentralized money—will play out, but we can be certain it will change the history of money!

¹²https://www.riksbank.se/globalassets/media/rapporter/pov/artiklar/svenska/2017/170120/rap_pov_artikel_6_170120_sve.pdf

Table 2.1 Three paradigms of money

	Value-based money ^a	Fiat money	Decentralized money
Critical assumptions and underlying beliefs: means of payment	Is based on the liquidity in markets for the metal upon which the money is based and the ease with which the coin can be melted and sold as metal. Even bills have been directly connected to a certain amount of metal (gold) and thereby regarded as value-based money ^b	Is based on the trust users have in the provider, i.e., a central bank backed by the government and the authenticity of the money. The provider backs the money and guarantees its usability. This is institutionalized in central bank law stating that cash is legal tender. Strong institutions safeguarding fiat money makes it possible to use in almost in all situations. The value of fiat money is connected to the trust users have in the state’s monetary policies.	This is based on the trust users have in the decentralized ledger that is underlying the money and the liquidity of the virtual currency on the money markets. It is assumed that the technological system is guaranteeing the money
Critical assumptions and underlying beliefs: unit of account	This is determined by the number of users that set prices in the currency and relate their idea of the value of a good or service in the metal underlying coins and bills	This is a de facto standard as a unit of account in the geographic area in which the currency is legal tender. Taxes, fees for public services, fines, and other publicly available services are priced in the currency. In the end, it is determined by the number of users that set prices in the fiat currency	This is determined by the number of users that set their prices of a good or service in the virtual currency
Critical assumptions and underlying beliefs: store of value	Is based on the fluctuation of metal values. This implies that the store of value of the money is directly connected to the supply and demand of the metal that the money is based on	First the trust that the central bank and the government create around the economic situation of the country in general and its money. Second, the economic policies governing the currency	Is based on the currency fluctuation of the virtual currency, which in turn is based on supply and demand of the virtual currency

(continued)

Table 2.1 (continued)

	Value-based money ^a	Fiat money	Decentralized money
		exchange rate. Third, regulation and licenses around the companies providing services and consumer protection for deposits with these companies	

^aIn this example I discuss value-based money as if it was based on the value of gold, i.e., the traditional circumstance that one could melt the coin and sell it as gold. This is of course not entirely correct today but still used to exemplify the differences between the three paradigms

^bPaper money that is classified as value-based can be exemplified by the early deposit notes in Sweden in the seventeenth century or when currencies were directly tied to the value of gold in the Bretton-Woods era in the twentieth century

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