Reconstructing Money, Toward a Philosophy of Cryptocurrencies

Salman Sadeghi

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Contents

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Abstract

Cryptocurrencies have emerged as a new paradigm that disrupts our general understanding of money, value, and exchange. My thesis revisits the fundamental questions about the nature of money in order to explore how the idea of cryptocurrency would disrupt the general conception of money, exchange, and value. Mainstream economics argues that cryptocurrencies resonate with the Hayekian regime of currency competitions, which he advocated in his book "The Denationalization of Money". While my thesis believes that if this narrative is correct, cryptocurrencies are not, in fact, new phenomena at all and are thus stripped from creating new horizons of possibility. Referring to the works of Geoffrey Ingham, Randal Wray, Katsishu Iwi and Makoto Nishibe, my thesis questions the validity of the philosophical underpinning of the orthodox narrative about the nature of money and argues that the inability of mainstream economics to contribute to the conversation on the current transformation of money would come from its misconception of the nature of money and the role it plays in the capitalist economies. Moreover, deploying the works of Marcel Mauss and David Graeber on money, my thesis tries to develop a debt theory of cryptocurrencies that goes beyond cryptocurrency's capitalistic emergence and echoes gift-based relations.

Keywords

Cryptocurrencies, money, Gift economy, debt theory of cryptocurrencies

Chapter Zero: Introduction

Cryptocurrencies have emerged as a new paradigm that disrupts our general understanding of money, value, and exchange. Cryptocurrencies originated after the financial crisis of 2008 with the intent to reshape a new version and vision of what money could be about. Crises, as David Harvey argues, are an inevitable part of capitalism and are essential to capitalism's reproduction.[1] Crises dramatically change the way we think of institutions, their dominant ideologies, and of the technologies and social relations within that sphere. Money, as the dominant fiction of our world, is under this post-crisis conceptual shift. This ontological shift has been accelerated by the socio-technological transformation of money forms through the advent of cryptocurrencies.

Today, more than a decade has passed since the birth of the world's first cryptocurrency, Bitcoin, with many people having joined crypto-based communities. Due to their unique characteristics, cryptocurrencies have provided many opportunities for human communication and interaction. Throughout history, regulating the productive relations of economic entities has required the creation of financial intermediaries such as banks and nation-states.[2] However now, and thanks to cryptocurrency and its underlying technology, humans have the opportunity to engage in productive activities outside the colonized realm of financial institutions. This is to say, cryptocurrencies promise the emergence of decentralized and autonomous societies in which humans are free from controlling the power of banks and intermediaries.[3]

During these years, there have been lots of debates particularly in the Austro-libertarian circle, or Vienna school, concerning the economic and the philosophical aspects of

[1] David Harvey, *Seventeen Contradictions and the End of Capitalism* (New York: Oxford University Press, 2014), Prologue
[2] Niall Ferguson, *The Ascent of Money: A Financial History of the World* (London: Penguin, 2008), Introduction
[3] J. Z. Garrod, "The Real World of the Decentralized Autonomous Society," *TripleC* 14, no. 1 (2016): 62, https://doi.org/10.31269/triplec.v14i1.692.

cryptocurrencies. The main focus of these debates is on whether cryptocurrencies have the potential to become money, and if so: what opportunities and challenges will they create for the economy.[4] Although much research has been done on whether cryptocurrencies can be money, little research has been done to find out the true opportunities that may arise for humanity with the advent of the phenomenon of cryptocurrency. Mainstream economic regimes are increasingly inscribing their historical knowledge and the power of money and banking within the domain of cryptocurrencies. This orthodox-logistical modality traces the theoretical roots of cryptocurrencies to the libertarian ideals that can be called the Austrian School, especially promoted and perceived by Friedrich Hayek.

The right-wing libertarian circle argues that cryptocurrencies resonate with the Hayekian regime of currency competitions, which he advocated in his last contribution to the financial world "*The Denationalization of Money''*.[5] In this book, Hayek expressed a theoretical foundation for a regime of currency competition in which the state is no longer in power to produce money. In the economy of which Hayek favors, entities and individuals are free to establish money; and the market would lead individuals to choose better currencies. This narrative, which today dominates the orthodox literature, reduces the concept of cryptocurrency to a form of non-governmental currency, which, according to orthodoxy, can increase the level of currency competition. In other words, for the orthodox domain, the advent of cryptocurrencies is a sign of a linear evolution for money, which is a tremendous improvement in the transfer of the state's monopoly over money to the invisible hands of the market.

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[4] Laura Davidson and Walter E.Block, "Bitcoin, The Regression Theorem, And The Emergence Of A New Medium Of Exchange," *Cornell Internation Affairs Review* 9, no. 1 (2015): 312, https://doi.org/10.37513/ciar.v9i1.476.

[5] Luca Fantacci, "Cryptocurrencies and the Denationalization of Money," *International Journal of Political Economy* 48, no. 2 (April 3, 2019): 105, https://doi.org/10.1080/08911916.2019.1624319.

If this narrative is correct, cryptocurrencies are not in fact new phenomena at all and are thus stripped from creating new horizons of possibility. The orthodox narrative disregards any possible futurity with this emerging phenomenon, all the while many theorists believe that cryptocurrency has revolutionary potentialities that can technically lead to the formation of new theories about money.[6] The reason for the inability of mainstream economics to deal with the phenomenon of cryptocurrency could be due to the fact that their theoretical understanding of money is wrong, or as Randall Wray argues, is not based on the real facts of human societies. In other words, the fact that the market-oriented economists are blinded to see the true potentialities of the cryptocurrency would come from their misconception of the nature of money and the role it plays in the capitalist economies.

Thomas Kuhn in "*the structure of scientific method"* remarks that an anomaly or phenomenon that cannot be explained by the established scientific paradigm may lead to the formation of new scientific practices.[7] According to Catharine Malabou, Cryptocurrency arguably promotes a reconsideration of money and exchange in the capitalistic sense and as the result, challenges the general conception of economy as a whole.[8] The question of cryptocurrency at least recalls once again the question of money. This is to say that cryptocurrency, as an anomaly, calls for reconsideration of the dominant theories on the nature and evolution of money. These new and abstract forms of money necessitate a new interpretation

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[6] Beat Weber, "Can Bitcoin Compete with Money?," *Journal of Peer Production*, no. October 2013 (2014): 2, http://peerproduction.net/issues/issue-4-value-and-currency/invited-comments/can-bitcoin-compete-with-money/.
[7] Thomas S. Kuhn, *Introduction to The Structure of Scientific Revolution* (Chicago: University of Chicago Press, 1962), 52.
[8] Catherine Malabou, "Cryptocurrencies: Anarchist Turn or Strengthening of Surveillance Capitalism? From Bitcoin to Libra," *Australian Humanities Review*, no. 66 (2020): 149, http://australianhumanitiesreview.org/2020/05/31/cryptocurrencies-anarchist-turn-or-strengthening-of-surveillance-capitalism-from-bitcoin-to-libra/.

of money, a narrative that can contribute to the conversation on the current transformation of money; and as a result reveal the true potentials of cryptocurrencies.

The primary aim of my thesis is to revisit the fundamental questions about the essence and nature of money in order to understand how the idea of cryptocurrency would disrupt the general conception of money, exchange, and value. The motivation of my thesis comes from the inappropriateness of the dominant theories of money, finance, and economics, and their inability to contribute to the conversation on the current socio-technological transformation of money through the emergence of cryptocurrencies. The secondary aim would be to uproot cryptocurrencies from their right-libertarian origins in order to build true liberatory literature for them. My thesis's main argument is that it would not be possible to investigate the true potentialities of cryptocurrency, as a new form of money, while the presupposed assumptions of mainstream economics mislead the educational narrative on the nature of money.

Money is a mythical reality of our world. The question of money, according to Geoffrey Ingham, is one of the fundamental questions of economic theory. On one hand, money's infrastructural power expands human's capacity to make surplus values; while on the other hand, its despotic characteristic is inherently a source of power.[9] Marx wrote in *"The Economic and Philosophic Manuscripts of 1844"* that money is the bond that binds society to humans and nature, and at the same time, is the bond of all bonds and the general agent of separation.[10] This is to say that money has a derivative power and serves a dual role in capitalist economies. One can understand the objective role of money in its power to facilitate exchange relations and its subjective role in its differential power that spreads throughout society.

[9] Geoffrey Ingham, *The Nature of Money*, *Polity Press* (Cambridge: Polity Press Ltd, 2004), 4.
[10] Karl Marx, *Economic and Philosophic Manuscripts of 1844*, trans. Martin Milligan, *Dover Publications* (New York, 2007), 121.

From the time of Aristotle to the medieval age, it was widely believed that money was a kind of useful commodity that satisfied three main functions: 1) money is a suitable medium of exchange that enables an indirect and multilateral exchange of goods and services; 2) money is a means to store abstract values in order to provide future purchasing power; and, 3) money is a unit for accounting which enables monetary calculations.[11] But it is not possible to answer the question of the nature of money by describing its functions as Nishibe states; it traps us in a circular logic[12]. According to Ingham, to address the question of money, one must first answer the question of how money came to exist and how it has evolved throughout history. Today, there are two dominant economic theories on the nature and evolution of money: 1) the Commodity Theory of Money which argues that money first emerged spontaneously to reduce the cost of bartering; and, 2) the State Theory of Money which asserts that money first came to exist through the enforcement of law or by a social convention.[13]

The commodity theory of money, which is the dominant theory in academia, asserts that money is just another commodity that sprang originally in response to the inconvenience of barter exchange. This theory can be traced back all the way to the works of Adam Smith and his *"The Wealth of Nations",* supposes that at the beginning the market existed and money, as a useful commodity with intrinsic value, emerged to reduce the difficulties associated with barter exchange.[14] Later, the 19th-century economist Carl Menger contributed to Smith's ideas about the nature of money and developed a hypothetical theory to describe how money can emerge out

[11] Ingham, *The Nature of Mone, 3*.
[12] Makato Nishibe, *The Enigma of Money* (Springer, 2016): 3, https://doi.org/10.1007/978-981-10-1819-0.
[13] Katasuhito Iwai, "Evolution of Money," in *The Evolution of Economic Diversity*, ed. Pagano, Ugo and Antonio Nicita (London: Routledge, 2001), 396.
[14] Ingham, *The Nature of Money, 17*.

of an exchange-based society. According to Ingham, the commodity theory of money is the foundation of all economic theories that are known today as neoclassical economics.[15]

The core philosophical underpinning of the commodity theory is that human drive is based on self-interest. Menger starts his theory of money from the very beginning of economic development where the difficulties of direct exchange provide the causality of the human subject to accept certain kinds of commodities for the exchange of everything it has produced. In his book "*On the Origins of Money*", Menger explicitly rejected the Chartalist position, or state theory of money, which was the dominant theory since Aristoteles, and claimed that the classic notion about the origin of money is wrong. Menger argued that the state theory about the origins of money is not correct as it believes that money was first invented by the state while it is not true to suppose a state without the existence of money. In fact, Menger believed that exchange was the basis of social dilemmas and the early economic subject, led by its self-interest and without any external intervention, consciously decided to exchange its products for the most saleable of goods which is money[16].

Although mainstream economists accept the Mengerian theory of money and deploy his notions in all economic theories, many researchers have questioned the validity of the Mengerian hypothesis. For example, Randall Wray in "*Introduction to an Alternative History of Money"* describes how the orthodox narrative of money is in sharp contrast with the findings of historians and anthropologists. According to him, the formalist methodology developed by the orthodoxy may reveal some of the truth about the evolution of coinage, but it is not consistent with

[15] Ingham, 16.
[16] Carl Menger, *On the Origins of Oney*, trans. C.A Foley (Alabama: Ludwig von Mises Institute, 2009), 12.

archaeological and anthropological findings of historians about primitive societies.[17] As well, Katsuhito Iwai in "*The Evolution of Money"* simulated a hypothetical society based on Menger's story and concluded that the high salability of good, which Menger regarded as a given characteristic of good itself, is in fact an endogenous variable which is determined by the market itself.[18] It should be considered that, as Iwai himself points out, the inaccuracy of the Menger hypothesis about the origins of money is not a proof of the state theory of money, for; both these ideas only reveal in part the truth of the enigma of money.

Beyond the traditional war between these two opposing economic theories, where one sees money as the natural fruit of early exchange relations and the other finds it external to that, anthropologists have developed a different account of the origins of money. In this alternative narrative, money came into existence as a tool to quantify the mere obligation, which existed prior to the emergence of coins and tokens.[19] This theory which is known as the "Debt Theory of Money " argues that creation of money is the same as creation of debt. In this sense, sale and purchase with money is not the exchange of one commodity for another, but the exchange of one commodity for credit. Debt theory traces the history of money to the old system of gift exchange and argues that humans in primitive societies had a different economic model based on a system of reciprocity[20]. This narrative underscores the hypothesis that credit money preceded commodity money. Moreover, debt theory introduces debt relations as the foundation of all human societies. This also resonates with Nietzsche's ideas about the foundations of human society in his masterpiece "On the Genealogy of Morality".

[17] L Randall Wray, "Introduction to an Alternative History of Money" (New York, 2012): 6.
[18] Iwai,"Evolution of Money, 400".
[19] David Graeber, *Debt, the First 5,000 Years* (Brooklyn: Melville House, 2012):21.
[20] Wray, "Introduction to an Alternative History of Money, 10."

My thesis questions the philosophical underpinning of the orthodox narrative about the nature of money as it believes that this is the reason behind the inability of orthodox economics to see the emerging potentialities of the cryptocurrency phenomenon. In order to critique the mainstream conception of money, cryptocurrency, the employment of institutional economics seems necessary. The analysis of money in my thesis is going to build upon the debt theory of money that is more consistent with the findings of historians and anthropologists. In contrast to mainstream economics which introduces money as a commodity or symbol thereof, in this research the history of money will be studied as the history of debt. Considering the debt identity of money through the lens of philosophy will open up doors to address the basic questions about the nature of money at the same time as it can provide a comprehensive framework for the analysis of the evolution of money through the emergence of the cryptocurrency phenomenon.

The main objective of my research is to investigate and reveal the potentialities of cryptocurrency, in an effort to build new economic horizons at the age of money experimentation. Considering the impact of money on human relations in the capitalistic society, this thesis will reveal how changes in the monetary construction of communities would affect the superstructures of that given society. Moreover, this thesis tries to go beyond cryptocurrency's capitalistic emergence to uproot cryptocurrencies from their libertarian origins and reinterpret them to serve not individual choice but collective intentionality, not calculations of self-interest, but collective speculations on the future which need to be shared. By exploring the gift-based exchange mechanism in primitive societies, this thesis seeks to rearrange the productive relations in crypto-based communities in order to enable future changes in the superstructures of those communities.

An Outline of the Research

Chapter One introduces Bitcoin and blockchain technology and presents fundamental constructs of cryptocurrency, as a newborn phenomenon. The purpose of this section is to provide readers with the main characteristics of cryptocurrency so that they can better communicate with the ideas of the thesis. Readers who are familiar with cryptocurrencies may skip reading this chapter.

Chapter Two is divided into two sections the first section investigates the philosophical underpinning of the orthodox interpretation of money. In this way, the works of three great economists of the Austrian school, those being Menger, Von Mises, and Hayek, will be studied. As it will be shown, the dominant literature concerning the cryptocurrency phenomena is built upon the mainstream economics conception of money. Thus, the aim of this section is to highlight key concepts in the orthodox interpretation of money so that the reader will better communicate with the established literature surrounding cryptocurrencies. In the second section of Chapter Two, I will review how mainstream economics interpret cryptocurrencies. The literature introduced in this section draws from a variety of resources including reports from major central banks around the world and academic papers.

Chapter Three is written in order to critique the right-wing libertarian interpretation of cryptocurrencies. This chapter tries to explain why the rightist interpretation of cryptocurrencies would fail to see the true potentialities of cryptocurrencies. In this chapter, I will argue that the inability of mainstream economics to see the truth of cryptocurrencies derives from their misinterpretation of money, its origin, and the role it plays in capitalist economies. My critique of the libertarian understanding of money, cryptocurrency, will be built upon the works of economists Geoffrey Ingham, L. Randall Wray, Katsuhito Iwai, and Makoto Nishibe.

Chapter Four presents an alternative account of money. Citing the works of anthropologist David Graeber, the history of money in this chapter will be introduced as the history of debt. Understanding money with the notion of debt will open up doors to become acquainted with the dual nature of the monetary relationship. In fact, as I will clarify, debt reveals the powerful and even inherently oppressive side of money. When Money = Debt, it does not contain any external references in the present but only in the future exploitation of labor, nature, and society. Drawing upon Graeber, I will show how money violently makes humans fundamentally calculable and exchangeable. Moreover, I will discuss how cryptocurrency can provide the condition in which the peculiarity of humans would be maintained while new ways of abstracting values emerge. Besides that, I manifest that the revolutionary character of cryptocurrencies is not just in cutting off governments from the process of money fabrication, but in and through itself provides us the ability to make other kinds of productive relations possible.

The last chapter of my thesis, Chapter Five, is devoted to Catharine Malabou's argument on cryptocurrencies. Through this chapter, I will highlight Malabou's key points in her discussion on cryptocurrencies. Furthermore, I will investigate why the philosopher is skeptical about the revolutionary potentialities of cryptocurrencies. I will argue that this comes from the fact that she unconsciously presupposes the master narrative, the libertarian narrative, about the nature of money. With respect to Alain Badiou's logic of contradiction and by focusing on Catharine Malabou's understanding of cryptocurrencies, this chapter argues that due to the transparency and confidence that blockchain builds, it is possible to create an economy based on a total system of giving in which tokens only represent the extent to which individuals participate in human production.

My thesis conceives of cryptocurrencies as a rupture in the continuous repetition of the historical forms of money and believes that this time money can be passed through an infinite yet imminent domain of a decentralized ontological existence whereby the mode of production merges with the ownership of that mode as defined by all actors equally. If so, the very way that capitalism exploits human activity, which is by separating the forces of production from the means of production, would be rendered obsolete. In such a society, as Marx pictured, there could emerge the condition in which one can exchange love with love and honesty with honesty, in a truly human economy.

Chapter One: What is Cryptocurrency?

Introduction

This chapter provides a basic understanding of cryptocurrencies, bitcoin, and blockchain technologies. To establish a constructive dialogue between this thesis and the reader, it seems necessary to understand the technology's fundamental characteristics. As Adam Greenfield points out in "*Radical Technologies"*, understanding blockchain is difficult, even for highly capable and well suited people. The text does not provide a technical explanation of blockchain technology, as it is not instructive for the purpose of the thesis, but it does try to present a simple definition of all necessary concepts. The following descriptions of cryptocurrency and blockchain technology are drawn from multiple resources, including the original Nakamoto paper. Readers who are familiar with the idea may skip reading this chapter.

What is Cryptocurrency?

Cryptocurrency is a digital currency that, generally, uses blockchain as its core technology to verify and execute transactions. Because of the blockchain, the need for centralized verification of transactions is eliminated and information and data are stored automatically. Typically, cryptocurrencies are community-based tokens that are designed to present the traditional roles of money based on the capabilities of cryptography. Cryptography allows the secure and costless transfer of cryptocurrency units and increases transparency and efficiency in digital platforms.

According to Catalini, cryptocurrencies have the potential to eliminate three major costs of traditional platforms: the cost of verification, the cost of networking, and the switching costs.[21]

[21] Christian Catalini and Joshua S. Gans, "Some Simple Economics of the Blockchain" (Cambridge, 2016): 4.

The basic concepts of secure and untraceable virtual currencies have existed for more than three decades and can be traced back to the early works of the cypherpunk movement. Concerns in the newborn control societies over the intensification of Mass Surveillance (besides the intellectual interest to introduce alternative means of communication and exchange) allowed the emergence of digital currencies whose movement could not be tracked easily.[22] In 1994, David Chaum, a cryptologist at the University of Berkeley, who had been working for many years on developing anonymous financial transactions, introduced DigiCash, the world's first electronic payment system. Although DigiCash transactions were unique and revolutionary in their kind, the project did not successfully gain widespread attention at the time. Subramanian and Chino in *"The State of Cryptocurrencies, Their Issues, and Policy Interactions"* count several attempts that had been made during the following ten years to create a well-designed cryptographic currency. They also studied the reasons behind the failure of all these projects to gain non-trivial acceptance.[23]

In 2008, the pseudonymous Satoshi Nakamoto introduced Bitcoin. As the first cryptocurrency of the world, Bitcoin was invented to become a non-governmental and trustless Peer-to-Peer payment system.[24] Today, there are thousands of cryptocurrencies that are implementing different algorithms and protocols different from, but influenced by, Bitcoin. All these projects share Bitcoin's main characteristics, as it is the most significant cryptocurrency in the world. Considering this, understanding the Bitcoin network's architecture will be informative to understand how most of the cryptocurrencies work. The following paragraphs try to explain

[22] Arvind Narayanan, “What Happened to the Crypto Dream?, Part 2,” *IEEE Security and Privacy* 11, no. May/June (2013): 4, https://doi.org/10.1109/MSP.2013.45.
[23] Ramesh Subramanian and Theo Chino, “The State of Cryptocurrencies, Their Issues and Policy Interactions,” *Journal of International Technology and Information Management* 24, no. 3 (2015): 27.
[24] Satoshi Nakamoto, “Bitcoin Whitepaper” (bitcoin.org, 2008), https://bitcoin.org/en/bitcoin-paper.

Bitcoin's main characteristics as it can shed light on the abstract idea of cryptocurrency in general.

What is Bitcoin?

As mentioned above, Bitcoin, in its simplest terms, is a virtual currency or a virtual exchange of ownerships upon certain digital information.[25] Bitcoin uses blockchain to implement and store its transactions. The Bitcoin network, like other cryptocurrencies, provides an incentive scheme for its participants. Unlike government-backed currencies, Bitcoin runs a peer-to-peer network in order to execute and verify its transactions, the process which is known as mining. According to Subramanian, the idea of bitcoin consists of three fundamental constructs: the blockchain, transactions, and the peer-to-peer network.[26] To perceive how the bitcoin network works, it is crucial to have a clear understanding of all these three concepts.

The Blockchain

In 1991, two researchers named Stuart Haber and W. Scott Stornetta introduced an innovative way to store data. The aim was to implement a system where document timestamps could not be tampered with. The result was published in the Journal of Cryptology at the time, but it took almost two decades for their proposed system to gain its first real use application. Blockchain is the core technology behind cryptocurrencies. Simply, a blockchain is a type of distributed database. Technically, a blockchain is a distributed ledger that keeps a record of all digital events that have been executed among participation parties.[27]

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[25] Subramanian and Chino, "The State of Cryptocurrencies, Their Issues and Policy Interactions, 28."
[26] Subramanian and Chino, 28.
[27] Michael Crosby, "BlockChain Technology ,Beyond Bitcoin," 2015:1, https://scet.berkeley.edu/wp-content/uploads/BlockchainPaper.pdf.

In a conventional centralized database, data and information are validated and maintained by an individual server (ledger). While, in a blockchain-based system, all committed transactions are verified and kept by distributed servers. The fact that blockchain is a distributed database means that it can escape the single point of failure condition, which constantly threatens centralized databases. Blockchain also increases the level of decentralization, persistence, and anonymity in digital platforms.[28] Today, blockchain technology's applications go beyond cryptocurrencies and reach areas such as cybersecurity and the Internet of Things (IoT). Commentators believe that blockchain's inherent characteristics, such as transparency and immutability, have led to the technology finding a wide range of non-financial applications. However, the main focus of this thesis is on the financial application of blockchain technology. It should be noted that the aim of the use of blockchain in all these technologies is to verify and store data in a distributed manner.

As mentioned earlier, blockchain is the underpinning technology behind most cryptocurrencies. In fact, it is the bitcoin blockchain that allows individuals and parties in the Network to make unlimited transactions without the need for third-party verification.[29] Without blockchain, it is not possible for Bitcoin to prevent the double-spending problem and keep the credibility of the network immune. As its name suggests, the Bitcoin blockchain consists of a sequence of blocks. Using cryptography, the bitcoin blockchain keeps a growing list of digital information in a chain of blocks. Block here is a digital space that has a specific capacity to store information about transactions and participants. It is not easy to alter the block's contents when they are added to the blockchain. Each block in the bitcoin blockchain has a unique identity

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[28] Zibin Zheng et al., "An Overview of Blockchain Technology : Architecture , Consensus , and Future Trends," *2017 IEEE International Congress on Big Data (BigData Congress)*, 2017:558, https://doi.org/10.1109/BigDataCongress.2017.85.
[29] Nakamoto, "Bitcoin Whitepaper."

called the hash. This hash is developed based on the block's header's information, such as a version number, a timestamp, the nonce, the target hash, and the hash of the previous block. Since blocks have specific hashes consisting of the cryptographic hash of the previous blocks, it is nearly impossible to change the blocks contents in the blockchain. Changing a single block in the bitcoin blockchain requires enormous computing power, as all hashes after that single block must be recalculated.[30]

To sum up, blockchain enables cryptocurrency and is essential to establishing trust in a digital economy. Blockchain technology removes the need for intermediaries or central authorities to verify and execute transactions. As a result, data and transactions are not under the control of any third-party organizations. As mentioned above, blockchain as an encryption technology can produce secure connections between persons and persons, persons and things, and also things and things. In other words, blockchain can revolutionize areas that involve transactions and interactions. Considering all the revolutionary advantages of blockchain, it is facing some technical challenges today. The scalability of the Bitcoin blockchain is the main concern of its proponents, the problem that may cause more centralization as fewer users would be happy to maintain the whole blockchain.[31]

Transactions

In the Bitcoin network, a transaction can be considered as a direct transfer of value from one entity to another. In order to make a transaction in the network, users need Bitcoin client software (bitcoin wallet) to generate public and private keys. Public keys are then used as the wallet address to receive Bitcoin units, and private keys are used to prove ownership of the

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[30] Adam Greenfield, *Radical Technologies: The Design of Everyday Life* (London: Verso books, 2018), 138.
[31] Zheng et al., "An Overview of Blockchain Technology : Architecture , Consensus , and Future Trends, 561."

wallet and sign new transactions. When a new transaction happens in the Bitcoin network, it is not added to the blockchain immediately. However, it is held in a memory pool until miners gather transactions from the pool into a "new block." The authenticity of this new block is, or should be, verified by the Bitcoin peer-to-peer network. When most of the network approves that the new block is healthy, it can be added to the blockchain immediately.

Peer to Peer network

Bitcoin like Napster and BitTorrent uses the Peer-to-Peer network architecture. It means that all computers that run the Bitcoin protocol are equal and there is no special node in the network. Although nodes are equal, they serve different responsibilities based on their particular role in the network. There are four types of nodes in the bitcoin network: the routing node, the mining node, wallet services, and the full nodes.[32] All nodes execute the routing functions and verify and execute transactions but only a Full node keeps the complete and updated history of the blockchain. Miners compete to solve mathematical equations in order to create new blocks. In fact, miners contribute their computing power and earn rewards. One may say that miners are the communities decentralized authority, ensuring the credibility of the Network. It is mining in the Bitcoin network that allows for a network-wide consensus without reliance on a central authority. In Bitcoin’s decentralized architecture, new blocks should have the "network consensus" to be added to the blockchain. This means that the majority of the Network must agree that these transactions are valid. The bitcoin blockchain uses the Proof-of-Work mechanism for its network consensus. It is designed to ensure that a lot of computational power is used to validate blockchain. It is said that the invention of decentralized mechanisms for emergent consensuses in the bitcoin network was the primary invention of Satoshi Nakamoto.

[32] Andreas M. Antonopoulos, *Mastering Bitcoin*, *Journal of World Trade*, vol. 50 (Oreilly, 2016): 140, https://www.bitcoinbook.info/.

Today, there are different consensus algorithms which are more cost-efficient than the Proof-of-Work.

Chapter Two: The Libertarian Narrative of Cryptocurrencies

Introduction

For many, cryptocurrency is an expression of extreme technological libertarianism. At the heart of the philosophical underpinning of this school of thought is a distrust of states in favor of individuals. The advocates of this theory believe a free market economy can best facilitate individual will. According to them, in a real free-market economy, neither states nor corporations are acceptable intermediaries. The fact that cryptocurrency abolishes the role of states and corporations as intermediaries, has attracted the interest of these market-oriented theorists. The right-wing libertarian circle finds the philosophical roots of cryptocurrency in the Austrian school of economics, especially Hayek's thesis for monetary systems.[33] They believe that cryptocurrency represents the real-world implementation of Hayek's notions of privately issued monies, which he advocated in the book *"The Denationalization of Money "*.

The right-wing logistical modality argues that cryptocurrency resonates with the Hayekian dream of currency competition. Hayek is known for his interest in classical liberalism. In his all monetary contribution, Hayek was in favor of a type of market economy in which each entity and individual is free to establish money. He believed that in an economy based on competitive monies, the market would lead individuals to choose better currencies. In "The Denationalization of Money" he established a theoretical foundation for a regime of currency competition in which the state is no longer in power to produce money.[34] In his understanding of the roles that money plays in capitalist economies, Hayek fundamentally relied on his predecessors in the Austrian school of economics. In fact, he developed his theory of competitive

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[33] David Sanz Bas, "Hayek and the Cryptocurrency Revolution," *Iberian Journal of the History of Economic Thought* 7, no. 1 (2020): 16, https://doi.org/10.5209/ijhe.69403.
[34] Fantacci, "Cryptocurrencies and the Denationalization of Money, 106."

monies based on the notions of other economists of the Austrian school including Carl Menger and Ludwig von Mises.

In an attempt to better communicate with the economic and philosophical underpinning of the libertarian interpretation of cryptocurrency; this chapter reviews the logic behind the orthodox conception of money and its nature. As the dominant literature concerning the cryptocurrency phenomena that has been built upon the orthodox narrative of money, understanding the key concepts in the orthodox interpretation of money would help readers better communicate with the libertarian literature surrounding the cryptocurrency phenomenon. This chapter is divided into two sections. The first section investigates the philosophical underpinning of the orthodox interpretation of money. In this way, the works of three great economists of the Austrian school, Menger, Von Mises, and Hayek, will be studied. The second section tries to review how mainstream economics interprets cryptocurrencies. The literature introduced in this section draws from a variety of resources including central bank reports and academic papers. This chapter tries to develop our understanding of how mainstream economics pictures cryptocurrencies.

Section One: Money, the Libertarian story

> "Men have been led, with increasing knowledge of their individual interests, each by his own economic interests, without convention, without legal compulsion, nay, even without any regard to the common interest, to exchange goods destined for exchange for other goods equally destined for exchange, but more saleable."[35]

It was in the late nineteenth century that Carl Menger, the prominent economist and the founder of the Austrian school, published the book *"On the Origins of Money"*. In this book, Menger claimed that money first arose through the original process of the free market. From his point of view, the institution of money came into existence, as a result of human interactions and with the

[35] Menger, *On the Origins of Oney, 34*.

aim to reduce the costs associated with bartering. Later, one of Menger's students, Ludwig von Mises, incorporated Menger's ideas about money into the theory of Marginal Utility and laid the theoretical foundation for what is known today as neoclassical economics. Through those decades, money was a tangible commodity, gold and its convertible symbolic paper, and the accepted theory of money was the theory of the Gold Standard. Therefore, as Geoffrey Ingham in his treatise *"On the Nature of Money"* remarks, it is not surprising to see general consensus among economists on a theory of precious metal coinage.[36]

Menger built his theory of the origins of money based on Adam Smith's conception of money. Smith supposed that the sole function of money is to lubricate the exchange of goods and commodities and believed that the inconvenience of barter had led to the use of precious metals in economic exchange.[37] Drawing upon Smith, Menger tried to develop a theory to explain how money could emerge out of a society based on exchange. In this way, he provided a unique interpretation of the origins of money which contradicted the historical belief about the roots of money. In fact, he was opposed to the Aristotelian notion of the origins of money which asserts that money, as the general medium of exchange, first came to exist through a social convention or by legal dispensation.[38] He believed that the historical belief about the origins of money is wrong as it presupposes a theory of saleableness of commodities at the heart of its philosophical underpinning. He stated that in order to reveal the truth of the origins of money, one must first answer why in the early stage of economic development some sort of precious metals or other commodities became an accepted medium for exchange relations. Through his book, he tried to

[36] Ingham, *The Nature of Money, 16*.
[37] Ryan Hanley and Maria Pia Paganelli, "Adam Smith on Money, Mercantilism, and the System of Natural Liberty," *Adam Smith's Moral Philosophy: A Historical and Contemporary Perspective on Markets, Law, Ethics, and Culture*, January 1, 2014, 189, https://doi.org/10.1017/CBO9780511610646.
[38] Menger, *On the Origins of Oney, 34*.

provide an explanation of a general and homogeneous course of actions persuaded by individuals which resulted in the emergence of money as the medium of exchange.

Menger's theory of the origins of money starts with describing the rationality of early economic humans (*homo economicus*) and the process in which they gradually understood the benefits that lay for them in the exchange. Like Smith, he supposed that the human drive of self-interest is based on the tendency to barter. According to him, exchange is the basis of social relations and money emerged in order to minimize the costs associated with direct exchange. He wrote at the beginning of his book:

> "It is obvious even to the most ordinary intelligence that a commodity should be given up by its owner in exchange for another more useful to him."[39]

According to Menger, bartering was the primary mode of exchange. In his account, when the productive relations in primitive societies were not complicated, *"homo economicus"* used to bring their excessive products to the exchange of what they needed from the productions of other parts of the society. For Menger, it was the matter of rationality and choice that the homo economicus gradually understood the benefits of exchange. In this hypothetical market economy, every product should have its barter price in terms of all other products, which according to Menger, limits a free flow of exchange of commodities. Menger highlights the limitations associated with the direct exchange of goods:

Bartering was only possible when both parts of the exchange needed what was possessed by the other. For example, an egg dealer who wanted a pair of shoes needed to find a shoe dealer who wanted eggs at the very same time. Now suppose the shoe and the egg dealers meet at the

[39] Menger, 11.

same time, now supply and demand should coincide quantitatively. Menger himself described these limitations:

> "Think, indeed, of the peculiar difficulties obstructing the immediate barter of goods, where supply and demand does not quantitatively coincide; where, e.g., an indivisible commodity is to be exchanged for a variety of goods in the possession of different person, or indeed for such commodities as are only in demand at different times and can be supplied only by different persons."[40]

In Menger's account, in more complicated situations when the double coincidence of wants is not the case, the direct exchange would fail. In such cases individuals, due to their rationality and because of their economic interests, tried to exchange their goods for goods with higher demand in the market. The driving force was that they knew that it is more likely to find someone who is willing to accept a high-demand good for the exchange of what they possessed. Menger thought the fact that people were willing to accept commodities they did not need in exchange, presents a generic phenomenon of economic life: the difference in the degree of saleability of commodities. He believed that the difference in the degree of saleableness of goods is the highest degree of importance for the theory of the origins of money:

> "The theory of money necessarily presupposes a theory of the saleableness of goods."[41]

The saleableness of commodities in Menger's theory is a quantitative factor. It identifies the degree of facility with which a commodity can be disposed of at economic or approximately economic prices. The smaller the difference between the purchasing and selling price of a product, the more saleable it is to be.[42] For Menger, the saleability of a commodity is not related to the quantities of the commodities exchanged, but it is related to the facility with which

[40] Menger, 20.
[41] Menger, 21.
[42] Menger, 25.

commodities can be sold at normal prices at any convenient time. Here, time plays an important role in the degree of the facility of exchange of commodities.

> "The interval of time within which the disposal of a commodity at the economic price may be reckoned on is of great significance in an inquiry into its degree of saleableness."[43]

Menger saw this difference in the degree of the saleability of commodities as an obvious and fundamental difference that exists in the connection between commodities. He also believed that the degree of the saleability of commodities depends upon the number of circumstances. For example, it depends upon the number of persons who are in want of that commodity and their purchasing power. It also depends upon the divisibility of the commodity and the development of the market. Moreover, he counted two fundamental limitations to the saleability of commodities: spatial limits and temporal limits. According to Menger, an example of the spatial limits of the saleability of commodities is the degree of transportability of commodities, and examples of the temporal limits to the saleability of commodities are the durability and the cost of preservation of commodities.

In short, Menger tried to explain that the difference in the degree of saleability was an inherent characteristic of commodities and each individual, from her own interest, gradually realized that it is beneficial for her to exchange her products for goods with a higher degree of saleability. In his view, not all parts of a nation acquired this economic knowledge at the same time.

> "It is certain that this knowledge never arises in every part of a nation at the same time."[44]

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[43] Menger, 27.
[44] Menger, 36.

He also explained why certain features of some commodities, like durability, ease of transportability, and fitness for preservation, had made them suitable for being an accepted medium for exchange relations. According to him, a popular and saleable commodity should ensure to the possessor a power over all other market goods at economic prices; and this power should not only exist here and now, but nearly as possible, should exist in all space and time.[45] In his view, for instance, a more durable commodity is more suitable to become money as it could hold this power for a longer period of time.

According to Menger, the higher saleability of some goods in contrast with the lower saleability of other goods was the cause they have been able to become the generally accepted medium of exchange. His idea was an explicit rejection of the theory that asserts money had its roots and origins in a social convention or legal dispensation. Menger did not deny the fact that it is possible for money to have been institutionalized somewhere by way of legislation. He only argued that the primary mode in which money has taken its origins is the way of a natural process in the free market. In other words, in his account, money is an organic member of human relations.

> "Putting aside assumptions which are historically unsound, we can only come fully to understand the origin of money by learning to view the establishment of the social procedure, with which we are dealing, as the spontaneous outcome, the unpremeditated resultant, of particular, individual efforts of the members of a society, who have little by little worked their way to a discrimination of the different degrees of saleableness in commodities."[46]

From the orthodox point of view, the fact that the *homo economicus* had brought a less saleable good to the market was willing to exchange it for a more saleable one promoted the degree of the saleability of the latter commodity and increased its demand in the market. Menger

[45] Menger, 35.
[46] Menger, 38.

believed that it was only in this process that some sort of commodities became a universal medium for exchange relations. The intervention of the state, according to Menger, only emphasized the difference in the saleableness of some commodities.

At the end of his book, he provided a number of reasons why precious metals, gradually, became a proper medium for the exchange of commodities. He thought that precious metals, because of their special utility and beauty, were in high demand prior to becoming a medium of exchange. Natural scarcity, appropriate geographical distribution, unlimited durability and ease of preservation are among the most important reasons that Menger counted to explain why precious metals gradually became money of account.

> "Finally the precious metals, in consequence of the peculiarity of their color, their ring, and partly also their specific gravity, are with some practice not difficult to recognize, and through their taking a durable stamp can be easily controlled as to quality and weight; this too has materially contributed to raise their saleableness and to forward the adoption and diffusion of them as money."[47]

The important point in Menger's understanding of the origins of money is that money has not been generated by law or social convention and this notion is alien to that. In his analysis, money, like other social institutions, primarily emerged spontaneously and so far, has been perfected and adjusted by the sanction of the state. Menger believed that it was only because of individual self-interest that in some economically advanced nations precious metals became accepted as money, a challenging idea that is one of the most basic keys to understanding neoclassical economics. The libertarian narrative about money, at the heart of its philosophical underpinning, presupposes that humans intrinsically pursue their self-interest, which is economic interest.

[47] Menger, 50.

Mises's Contribution

Ludwig von Mises is another renowned economist of the Austrian school who wrote the important book *"The Theory of Money and Credit"* in 1912 and his thought made a profound influence on the liberal conception of economy. In his theory of money and credit, he basically relied on Menger's understanding of the nature of money. Like his teacher, Mises believed that in a society in which there is no centralized system of production and private property consists in both consumption and production goods; money should exist to face the inconvenience of the direct mode of exchange. He also saw the basis of the social dilemma in exchange and believed that the main motivation of humans in establishing relationships is self-interest.

In his book, Mises explicitly mentioned that in a pure socialist commonwealth society, a society without private property, money is not needed. In fact, in his analysis, money is only needed in an economy based on the division of labor and private property of all orders of goods. In such a society, production is anarchistic and the owners of the means of production decide what and how to produce. In this society, according to Mises, production is not just for the producer's need, but it is for the consumption of other members of the community who have their own estimation of the use-value of their desirable commodity. The function of money in this state of society is to lubricate the exchange of commodities and be a common medium of exchange.

Like Menger, he also points to the limitations of direct exchange of goods and argues that barter was diminished gradually by the advent of the capitalistic methods of production and further division of labor. From his point of view, it was the requirement of the market that individuals preferred to exchange their goods not only with a more marketable but with the most marketable commodity.

> "The greater the marketability of the goods first acquired in indirect exchange, the greater would be the prospect of being able to reach the ultimate objective without further maneuvering."[48]

Following up his teacher, Mises also considered the natural qualities of precious metals, both physically and chemically, to be the main reasons for the acceptance of these commodities by different communities as a common medium of exchange. Gold and silver, in his analysis, had both ornamental applications and were equally serviceable for the satisfaction of human wants. In his point of view, if in a community two or more goods have equal marketability, and none have superiority over others in its degree of saleability, the development toward a unified monetary system would fail. He thought that the use of several kinds of money would harm the free exchange of goods and involve many economic disadvantages.

He, like Menger, defined money as the most marketable goods. What Mises mentioned in his theory of the origin of money, but Menger skipped, was the fact that the story of money presupposes a specific type of economy, a capitalist one, in which the division of labor and private property is developed to a certain extent. Moreover, like Menger, he also understood the primary and fundamental function of money in facilitating exchange and believed that there is no important function for money other than that. In fact, both of them, and the whole of the Austrian tradition and neoclassical economics, count the function of money in facilitating credit transactions as the secondary function of money. According to Mises, money as a standard of deferred payment is nothing but just a part of its basic function as a medium of exchange.

> "Credit transactions are in fact nothing but the exchange of present goods against future goods."[49]

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[48] Ludwig von Mises, *The Theory of Money and Credit* (New Haven: Yale University Press, 1953, 1912), 32.
[49] Mises, *The Theory of Money and Credit, 35*.

To explain why the other role of money, as the transmitter of value through space and time, derives from its basic function as a medium of exchange, Mises referenced his teacher. As mentioned earlier, Menger thought that the inherent characteristics of some goods, such as durability and low cost of preservation, have increased the communal tendency for hoarding them. The special suitability of some goods for hoarding, according to Menger, has played the most important role in their gradual qualification for being a medium of exchange.[50] In fact, money is not money because it circulates among individuals, as many goods circulate, but it is money because it is hoarded by individuals. Accordingly, Mises believed that as soon as a certain commodity became the common medium of exchange, individuals began to store it up so that it could be used in the future. The future existential worriers are the cause that people tend to hoard money, the most marketable commodity, as it can provide them to satisfy their future needs no matter what happens.

> "Money still functions today as a means for transporting value through space. This function again is nothing but a matter of facilitating the exchange of goods."[51]

In Mises's analysis, exchange with money divides the parties to the exchange into two separate parts which carry no obvious connection except the ultimate intention to acquire their desirable goods. Nobody owes anything to each other and the relationship would be finished after the exchange is done. Thus, the sale and purchase are independent proceedings and considering that money would not be more than an object which facilitates dealing in commodities and capital. Mises believed that the roots of all misunderstanding of the fundamental function of money can be found in the juristical conception of money and habits of economic thoughts.

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[50] Menger, *On the Origins of Oney, 28*.
[51] Mises, *The Theory of Money and Credit, 35*.

Hayek's Denationalization of Money

Another important economist of the Austrian school who made an important contribution to developing a libertarian theory of money was Friedrich Hayek. Hayek was a Nobel Prize winning economist who is known for his interest in classical liberalism, and his thought has made a profound influence on the intellectual foundation of the Chicago School of economics. Hayek was a radical economist especially when it came to monetary institutions. While a return to commodity money, like gold, is the ultimate aim of a typical Austrian argument, Hayek was in favor of privately issued, competing fiat currencies. In the Austrian economics tradition, some arguments legitimize Fractional Reserve Banking, which is the existence of central banks without having any special privilege from the government. Others consider it intrinsically misleading. But all agree that fiat money is the worst kind of money. Their alternative solution to this horrible creation of the state is commodity money, say gold, as this is what the free market would always settle on as the underlying base money. On the contrary, Hayek's good money was pieces of paper that are not backed with any production or consumption goods.

In all his monetary contributions, Hayek was in favor of neutral money, a kind of money that increases in its supply and has no influence on production and relative prices of commodities, including the rate of interest.[52] To better understand the neutral money of Hayek, it can be supposed that the state of things in which money is neutral, is exactly similar to the state of things in which there is no money at all and events took place as *if they were only influenced only by the real factors.*[53] Hayek conceived money only in its function as a facilitator of exchange and believed that neutral money is the only means to avoid misdirection of production.

[52] Piero Sraffa, "Dr. Hayek on Money and Capital," *The Economic Journal* 42, no. 165 (March 1932): 42, https://doi.org/10.2307/2223735.
[53] Friedrich Hayek, *The Denationalisation of Money* (Institute of Economic Affairs, 1967): 86.

His understanding of money, in this book and across all his contributions, was clearly influenced by Menger and Mises's ideas on the roots and functions of money. He also supposed that money emerged as the most marketable good through the natural process of the free market. Similar to his predecessors in the Austrian school, Hayek considered that the primary and fundamental function of money is to facilitate exchange and believed that all other functions of money derived from this important role which can be played only by money.

He thought that the unavoidable and recurring inflation in the capitalist economy is the result of the operation of the monetary institutions, the idea that he elaborated in detail in his book *“Monetary Theory and the Trade Cycle”.* Hayek just did not question the role of the government to issue money because of inflation, but he also blamed the government for economic depression and the trade cycle.

> “The past instability of the market economy is the consequence of the exclusion of the most important regulator of the market mechanism, money, from itself being regulated by the market process.”[54]

In fact, Hayek opposed the intervention of the central bank as the lender of last resort. He believed that the central bank itself is the cause of excessive credits and this is due to its mismanagement over money that an economy faces recession and depression.[55] Later in 1978, he wrote the book *“The Denationalization of Money*” in which he expressed his proposal to introduce a theoretical framework for a regime of currency competition. The book incorporated Hayk's old ideas of neutral money which he had been developing since the 1930s. The central thesis of Hayek’s argument in this book was that the historical monopoly of government on money should be abolished in order to cure the recurring waves of inflation and deflation

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[54] Hayek, 102.
[55] Fantacci, “Cryptocurrencies and the Denationalization of Money, 108.”

attributed to the capitalist economy. He believed that all governments in history have used their transcendental power on the fabrication of money to exploit human activity and to devalue its socially necessary force. He held the belief that money is the childbirth of the market phenomenon and its fabrication and valuation process should be passed to the market. Hayek's "*The Denationalization of Money"* is of the highest importance as it is the most referenced book in the rightist interpretation of the cryptocurrency phenomenon.

The book begins with a short history of the evolution of the idea of currency competition. In Hayek's point of view, the initial monopoly of the government on money was necessary to establish a uniform way of measuring the weight and authenticity of coins, say gold and silver, in the metallic monetary system. In other words, Hayek thought that regulating the productive activities of individuals and entities in the primitive stages of economic development required the creation of states to verify and execute transactions among different parties. But as soon as the government realized the revenues lie in this monopoly, they deployed the idea that national currency was essential to national sovereignty and authority. The rest of the history of the evolution of money for Hayek is the history of manipulation of money by the sovereigns. Hayek was against any kind of government's intervention on money as money is what organizes the way that the economy operates.

Hayek wrote his book at the time when the living costs in Britain had risen over 500 percent in 25 years. The same was the economic situation of all other parts of the world. For Hayek, even minor inflations, which he put the blame on the government, would cause depression and unemployment. He questioned the historical responsibility of the government to issue money when all economists, most of them in favor of Keynesian interventionism, were discussing how to improve the performance of this transcendental monopoly of the government. From his point of view, self-interest would bring better results rather than relying on the benevolence of the politicians on issuing money. In fact, he was against fractional reserve banking and a central bank with the responsibility of issuing money. In other words, along with his complete faith in the market, Hayek was deeply pessimistic about governments and their interventions.[56] He explicitly declared that throughout history the government has failed to supply good money.

Hayek called for a system of privately issued, competing fiat currencies in which every institution can create money; and the market would lead individuals to choose more stable currencies. Through all his economic contributions, Hayek held the opinion that a good currency is a currency with stable purchasing power. The value of good money should be constant (it does not mean it should be always fixed). In other words, stability for Hayek is the constant purchasing power of money against a basket of underlying consumption goods. The self-interest of monetary agencies in Hayek's claim would urge them to propose better and more stabilized money because if they did not, they would lose their livelihood in the competitive market. He reversed Gresham's law which asserts that in a competitive monetary system individuals tend to hoard good money and get rid of bad money and in the end, it is the bad money that circulates and drives out good money. He argued that Gresham's law only applies when there is enforcement for a fixed rate of exchange between the different forms of money. He stated that when there is a floating rate of exchange in the economy, good money drives out bad money.[57]

Hayek believed that the regime of currency competition which he advocates has two main advantages over the state-backed monetary system. First, it removes the power of the

[56] Sraffa, "Dr. Hayek on Money and Capital, 50."
[57] Hayek, *The Denationalisation of Money, 42*.

government to inflate the money supply and as a result, devalue money. Second, it makes it difficult for the government to inflate its own expenditure. It was not for him a return to a gold-standard monetary system. In his opinion, competitive paper currencies would work even better than the gold-backed monetary policy. He believed that paper currencies would work better than gold if their supply could be controlled in favor of users and not issuers. In fact, Hayek was dismissive of the idea which indicates that with economic growth comes inflation. So he proposed that by properly controlling the quantity of money, it is possible to maintain the value of money constant in terms of its purchasing power. The limitation of the government on issuing money (which itself is a precondition for a limitation of the scale of government) is the ultimate goal of Hayek in *The Denationalization of Money*. He saw currency competition as a necessary and sufficient condition for regulating the regulator of the market, which is money.

Section Two: Cryptocurrency, the Libertarian Story

In the previous section, I have reviewed how orthodox economics interpret money. I highlighted the economic and philosophical underpinning of the orthodox conception of money through the works of great Austrian economists. Now that we have reviewed the basic concepts of the orthodox understanding of money, it would be more constructive to present the way in which mainstream economics responds to the issue of cryptocurrency. Arguably, mainstream economics research on cryptocurrencies can be categorized into two groups. The first group examines to what extent cryptocurrencies can fulfill the roles that money plays in capitalist economies. The aim of this research is to understand whether cryptocurrencies are an evolution of money or just they are just another class of financial assets. The key point is that the understanding of money in most of these researches is based upon the orthodox conception of money. The second group understands cryptocurrencies in relation to Hayek's thesis for competitive monies. While Hayek's idea of competitive money has been abandoned for years, these researchers try to picture Hayek's proposal as a more workable idea.

In this section, I try to review how mainstream economics responds to the phenomenon of cryptocurrency. The literature introduced in this section draws from a variety of resources including central bank reports and academic papers. As the logic behind the libertarian interpretation of money has been discussed earlier, it would be easier for readers to understand this section. Various sources have been studied in this section in order to show that the mainstream economics understanding of cryptocurrencies is based on the economic and philosophical underpinnings of the orthodox narrative on the nature of money.

Can Cryptocurrency Fulfill the Functions of Money?

Some mainstream economic scholars concerned with the cryptocurrency phenomenon try to investigate whether cryptocurrencies can fulfill the functions that money plays in capitalist economies or not. Saifedean Ammous, in "*Can Cryptocurrencies Fulfill the Functions of Money,"* evaluates cryptocurrency in regard to three main roles that money plays in the capitalist economy. He believes that cryptocurrencies can theoretically serve as a medium of exchange. As we can see that today there are hundreds of thousands of merchants around the globe which accept cryptocurrencies in exchange for their services. But he claims that due to their price instability, they cannot be used as a unit of account or store value. While he asserts that cryptocurrencies cannot be money, he confesses that bitcoin has good capabilities to be a means to store value. His research highlights the fact that being a medium of exchange and a means to store value is not enough for a commodity to become money and cryptocurrencies have a long way to become universal means of exchange.[58]

Eddie Gerba and Margarita Rubio in *"Virtual Money: How Much do Cryptocurrencies Alter the Fundamental Functions of Money?"* draw a conclusion similar to Ammous's studies. They also studied cryptocurrencies in regard to the main functions that money plays and concluded that cryptocurrencies cannot meet the criteria associated with the roles of money. They highlighted that cryptocurrencies are being used as a medium of exchange; they are not units of accounts for loans and mortgages and this fact shows that they would not be the new form of money for the economic system. They admired the technology behind cryptocurrencies and argued that cryptocurrencies can potentially create more distributed payment systems.[59] They called cryptocurrencies new financial assets with high degree of volatility in terms of price and in fact, killed any future possibility with them.

Many researchers have investigated whether cryptocurrencies can practically serve the same roles and functions of money. The results of all this research is more or less the same: Although most cryptocurrencies are being used as mediums of exchange, they cannot fulfill other roles of money as units of account and store value. The important point here is that the understanding of money in all these studies is based on the orthodox conception of money. In addition, some scholars believe that cryptocurrencies theoretically cannot serve the roles of money because they have no non-monetary value. Referring to Mises's Regression Theorem; they believe that a commodity should have a direct use-value to become an acceptable medium

[58] Saifedean Ammous, "Can Cryptocurrencies Fulfil the Functions of Money?," *Quarterly Review of Economics and Finance* 70 (2018): 51, https://doi.org/10.1016/j.qref.2018.05.010.
[59] Eddie Gerba and Margarita Rubio, "Virtual Money: How Much Do Cryptocurrencies Alter the Fundamental Functions of Money?," *Monetary Dialogue Papers* (Luxembourg, 2019): 24, https://doi.org/10.2861/913096.

of exchange. They argue that cryptocurrencies have no intrinsic value and thus are stripped away theoretically from becoming money.

Introduced by Ludwig von Mises in his book *"The Theory of Money and Credit"*, the regression theorem asserts that the exchange value of money derived from its intrinsic use value as a commodity.[60] As discussed in the previous section, Menger believed that money was originally the most saleable good when there were no money prices at all. It means that money, because of its high degree of marketability, must have been valued in the barter economy. The fact that bitcoin has no direct use value has brought some theorists to argue that cryptocurrencies invalidate Mises's regression theorem. For example, Luther in *"Is Bitcoin Intrinsically Worthless?"* considers the subjective value argument of non-monetary economists in the case of bitcoin and concludes that the emergence of bitcoin as a medium of exchange invalidates the regression theorem. Moreover, he studied two reasonable views on the value of bitcoin and stated that the possible monetary success of bitcoin means the regression theorem is not applicable any more.[61]

On contrary to Luther who argued that cryptocurrency invalidates the regression theorem, Pickering believes that the aim of the regression theorem is not to limit the emergence of potential monies, but to explain the subjective purchasing power of money with the theory of marginal utility of value.[62] He counted that if a commodity is subjectively valued by individuals and hence directly exchanged, its future possibility to take the roles of money does not violate the regression theorem. Furthermore, Laura Davidson and Walter E. Block in *"Bitcoin, the*

[60] Mises, *The Theory of Money and Credit, 6*.
[61] William J. Luther, "Is Bitcoin Intrinsically Worthless?," *Journal of Private Enterprise* 33, no. 1 (March 1, 2018): 40, https://doi.org/10.2139/SSRN.3000068.
[62] George Pickering, "The Relevance of Bitcoin to the Regression Theorem: A Reply to Luther," *Quarterly Journal of Austrian Economics* 22, no. 4 (November 24, 2019): 605, https://doi.org/10.2139/SSRN.3492642.

Regression Theorem, and the Emergence of a New Medium of Exchange" showed that cryptocurrencies do not violate the regression theorem because this theory is only applicable when a new medium of exchange arises out of a pure barter economy.[63] They argued that in respect to the regression theorem, there is no need for a new medium of exchange to have direct use value. They conclude that as Bitcoin did not emerge from a pure barter economy, it does not need to have a direct use value; the result being that it can only serve the functions of money theoretically.[64]

Is Cryptocurrency the Realization of the Hayekian Dream?

In spite of the fact that cryptocurrencies can fulfill the functions of money in theory and practice, many academics believe that cryptocurrencies specifically recall Hayek's last work, *"Denationalization of Money".* As I discussed in the previous section, Hayek believed that the historical monopoly of government and the process of money-issuing should be abolished. Hayek's proposal was theoretically a system of private monies where the forces of competition among money-issuers would provide the whole society a stable means of exchange. In fact, he believed that the process of money fabrication should be opened to the market in order to cure the never-repeal inflation of the capitalist economy.

Not only Hayek, but all typical Austrian arguments consider inflation and depression the result of government interventions in the works of monetary institutions. The libertarian economists believe that the boom and bust of the capitalist economy could not be tackled by central banks and fractional reserve banking. As a result, they advocate cutting the government monopoly on the provision of money. Today and thanks to the cryptocurrency and its underlying

[63] Davidson and E.Block, "Bitcoin, The Regression Theorem, And The Emergence Of A New Medium Of Exchange, 316."

[64] Davidson and E.Block, 316.

technology, it is straightforward for any entity, even individuals, to create a cryptocurrency without facing the problems of double-spending and over-issuing. These are the problems that justify the existence of Central Banks in the current monetary systems. Thus many theorists and academics believe that the advent of cryptocurrency could provide the condition in which the need for central banks to monopolize on the issuance of money would become obsolete and the Hayekian dream of currency competition would come true. As I will discuss, the established libertarian literature surrounding cryptocurrency understands it in relation to the Hayekian idea of 'competitive monies'.

In a report published by the European Central Bank on the issue of cryptocurrencies it is explicitly mentioned that the theoretical foundations of cryptocurrencies can be found in the Austrian school of economics and especially in the monetary contributions of F.A. Hayek.

> "The theoretical roots of bitcoin can be found in the Austrian school of economics and it's Criticism of the current fiat money system and interventions undertaken by governments and other agencies, which, in their view, result in exacerbated business cycles and massive inflation."[65]

In fact, The ECB tries to recollect Hayek's notion of a competitive market for money issuing with the emergence of cryptocurrencies. This is the way that almost all central banks in the world deal with cryptocurrencies. They do this with the aim to conclude that cryptocurrencies would fail to implement the Hayekian dream. They have confined cryptocurrencies as a new class of properties called Crypto Assets and thus stripped away any future possibility with cryptocurrency as a new form of money. In another report supported by the Federal Reserve Bank of Philadelphia, Sanches and Villaverde share a similar argument.

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[65] European Central Bank, "VIRTUAL CURRENCY SCHEMES" (Frankfurt, 2012): 22, file:///C:/Users/lotus/Downloads/virtualcurrencyschemes201210en (1).pdf.

> "Technological developments over the last few years have made Hayek's proposal a reality, but as the result of many individual decisions and not as the outcome of a planned policy change."[66]

They confess that cryptocurrencies are more than the financial notes issued by private sectors during the period of free banking. However they argue that not only the cryptocurrency market but the whole idea of Hayek's competitive money would not succeed in providing a stable means of exchange for society.[67]

This is not just the position of central banks, which Hayek himself hated the most, to link cryptocurrencies to Hayek's notion of competitive monies. Most theorists in academia concern themselves with how cryptocurrencies can visualize the Hayekian dream rather than truly investigate new possibilities that emerge with the potentialities of cryptocurrencies. For instance David Sanz Bas in *"Hayek and the cryptocurrency revolution"* states a similar argument.

> "Among other consequences, cryptocurrencies have reanimated interest in Denationalization of money (1990), the bold work that Friedrich Hayek published in 1976."[68]

In fact, his analysis of the phenomenon of cryptocurrencies takes form from the viewpoint of the theoretical assumptions offered in Hayek's "*The Denationalization of Money*". The rest of his research investigates the fact that the current cryptocurrency market satisfies the Hayekian dream of currency competition. While he rejects that Bitcoin and other cryptocurrencies are practically Hayekian money, he finds a close relationship between the concept of Stablecoins and private monies of Austrian economics. He concludes that it is possible to design non-collateralized Stablecoins that can maintain a stable purchasing power

[66] Jesús Fernández-Villaverde, "Cryptocurrencies: Some Lessons from Monetary Economics" (Philadelphia, 2017): 1.
[67] Fernández-Villaverde, 2.
[68] Sanz Bas, "Hayek and the Cryptocurrency Revolution, 15."

over time and fulfill the Hayekian dream.[69] Nonetheless, through his interpretation of the cryptocurrency phenomenon, he also presupposes the Austrian narrative of money and its functionality.

On the contrary to those who claims that cryptocurrencies are, at least to some extent, the visualization of the Hayekian regime of currency competition, Luca Fantacci in "*Cryptocurrencies and the Denationalization of Money*" states that this is just an attempt to glorify the cryptocurrency movement.[70] He confesses that cryptocurrencies have unique characteristics and appear as a dramatic departure in the evolution of money forms. But he believes the fact that cryptocurrencies are not issued by central authorities and do not need central verification cannot be considered as a decisive step toward the "denationalization of money" advocated by Hayek.[71] He investigates the similarities and differences between the competitive monies idea of Hayek and the current cryptocurrency market and concludes that there is a major difference between the market for cryptocurrencies and the idea of currency competition advocated by Hayek. Although he arrives at a unique conclusion in his study, like other theorists, he cannot go beyond the rhetoric surrounding the idea of cryptocurrency. In fact, looking through the lens of Austrian economics disabled him to see new potentialities that could emerge with the advent of cryptocurrencies.

[69] Sanz Bas, 27.
[70] Fantacci, "Cryptocurrencies and the Denationalization of Money, 123."
[71] Fantacci, 117.

Conclusion

In this chapter, I have discussed the orthodox theory of money which argues that money is just "another commodity", created by the original process of the free market. This theory, which is known as the Commodity Theory of Money, traces the origins of money to a hypothetical barter society. According to this theory, while the practice of barter was not possible in more complicated situations, money emerged as a neutral veil to lubricate the process of exchange of commodities. Moreover, I have also shown that the whole Austrian economics tradition understands money in its function as the medium of exchange. I highlighted the philosophical underpinnings of the liberal conception of money which supposes that human drives with its self-interest. I also tried to picture how the Hayekian dream of privately issued monies is the most radical monetary position the right-wing libertarian tradition could take.

Moreover, I argued that the established scientific paradigm surrounding cryptocurrencies presupposes the orthodox conception of the nature of money. Mainstream economists study cryptocurrencies to investigate to what extent they can fulfill money's fundamental functions. In their most radical position, market-oriented economists try to reimagine Hayek's proposals in *"The Denationalization of Money"* and claim that cryptocurrencies can provide the condition in which the Hayekian dream of currency competition comes true. In the next chapter I will show how the orthodoxy does not properly comprehend money and reduces its functionality and thus neglects its destructive characteristics which result in bubbles, inequality, and economic crisis. I will argue that the misinterpretation of money results in misinterpretation of cryptocurrencies. I will do this as I believe it will open up doors to reveal the truth of the cryptocurrency phenomenon.

Chapter Three: A Critique of the Libertarian Understanding of Cryptocurrencies

Introduction

As I have shown in the previous chapter, the whole Austrian economics tradition, from Menger to Hayek, understood money in its function as a facilitator of exchange. They believed that money arose as a consequence of the free act of individuals who voluntarily decided to choose a commodity to be the common medium of exchange. As a result, they argued that the medium of exchange is the primary function of money and all other roles played by money in the capitalist economies, including being a unit of account and a store of value, are derived from this fundamental function.[72] I also showed that the philosophical foundation of mainstream economics is built upon the notion that the human drive is based on self-interest, which is ultimately based on economic interest. Moreover, I indicated that mainstream economics considers exchange as the basis of all human sociality and acts as if money exists as an indigenous organ of human relations.

I also presented the way in which mainstream economics understands cryptocurrencies. I argued that mainstream economic regimes of power are inscribing its historical knowledge and the power of money within the domain of cryptocurrencies. I discussed that the orthodox-logistical modality reduces the concept of cryptocurrency to a form of non-governmental currency, which, according to orthodoxy, can increase the level of currency competition. At their most radical position, they try to picture Hayek's thesis of privately issued money within the domain of cryptocurrencies. According to orthodoxy, the regime of currency competition, thanks to the "invisible hands" of the free market, would provide the economy with good money. I also

[72] Mises, *The Theory of Money and Credit, 34*.

concluded that this is the ultimate possibility that right-wing libertarians can portray with cryptocurrencies.

According to Ardalan, the invisible hand, as an ideology, acts as a cognitive metaphor in mainstream economics understanding of all emerging domains. The invisible hand, which was first introduced by Adam Smith, is a metaphor for unseen forces existing in the laissez faire economics. This economic philosophy appreciates free market, private property rights and encourages limited government interventions, and believes that the invisible hand would lead the society to best facilitate individuals' will thus serving social commons. The proponents of this ideology believe that the invisible hand in a free market economy would translate self-interested behaviors of individuals into improvement for society as a whole.[73] The adoption of the cognitive metaphor of invisible hands within the domain of cryptocurrency, like all other emerging domains, results in abstraction from practical social possibilities that are emerging with the advent of cryptocurrencies. In other words, the inability of mainstream economics to contribute to a constructive dialog with cryptocurrencies comes from the adoption of the cognitive metaphor of the invisible hand in their interpretation of the technological transformation of money.

According to Geoffrey Ingham, the misinterpretation of the nature of money is the root cause of the significant deficiencies of mainstream economics thoughts on new economic phenomena.[74] Ingham believed that mainstream economics reduction of money to just "another commodity", or a symbolic representation of that, or to a veil that neutrally represents the existing values is a powerful ideological tool. It neglects the powerful and even destructive

[73] Kavous Ardalan, "Invisible Ideology of Mainstream Economics: The 'Invisible Hand,'" *World Review of Political Economy* 5, no. 3 (2014): 297, https://doi.org/10.13169/WORLREVIPOLIECON.5.3.0297.
[74] Ingham, *The Nature of Money, 16*.

nature of money, which is embedded in all social relations that are inherently the relations of power and inequality. Through this chapter, I will show how the orthodox interpretation of money is historically falsified and abstract from the real facts of human societies. I will provide a critique of the orthodox conception of money using the works of economists including Ingham, Wray, Katsuhito Iwai, and Makato Nishibe as I believe this would consequently question the mainstream interpretations of cryptocurrencies. I will argue that the use of the cognitive ideological metaphor of invisible hands in the domain of cryptocurrencies would result in misunderstanding the true potentialities of cryptocurrencies in human social relations. I believe a critique of the right-wing libertarian interpretation of money will open up doors to develop a truly liberatory literature of money, which can then contribute to the conversation on the new transformation of money through the emergence of cryptocurrencies and reveal its true potentialities.

A Critique of Libertarian Conception of Money

The orthodox understanding of money and its origin is not based on archeological and anthropological findings and has few historical foundations. Many theorists and economists have rejected the mainstream conception of money. In "Introduction to an Alternative History of Money", Randall Wray provided a heterodox critique of the mainstream understanding of money. He argued that the orthodox narrative of money, which conceives money as a transaction-cost minimizing medium of exchange, is not consistent with the findings of historians and anthropologists.[75] He asserted that the formalist methodology adopted by the orthodoxy, abstract from the material life process of society and is not applicable to all human societies. He claimed that in order to provide a powerful critique of the mainstream conception

[75] Wray, "Introduction to an Alternative History of Money, 1."

of money, a substantivist methodology should be developed using the findings of comparative anthropology and comparative economics.

In his critique of the orthodox understanding of money, Wray highlights the fact that the methodology used by the orthodoxy is logical but not historically accurate. According to him, the free market economy, assumed by the orthodoxy, in which neutral money is used primarily to lubricate the exchange of commodities, is hypothetical and not historical. Thus, it is not true to compare the hypothetical free-market economy with an economy that is an exact replication of that with only one difference, the absence of money, and as a result, it cannot be concluded that money came into existence to reduce the costs of bartering. In his analysis, the present is not just a linear descendent of the past. He believes that the orthodox economics presumption that exchange was the basis of social dilemma and all societies are based on exchange, would be only true if all human interaction be assumed as an exchange.

Wray is against the formalist methodology adopted by orthodox economists which asserts economy begins with a rational economic agent who has unlimited wants and faces scarce resources. He is actually in favor of institutionalist methodology and believes that the economy is a component of culture and cannot be abstracted from the material forces of societies that help to shape economic processes.[76] In his study of the origins of money, he deploys a comparative methodology as he thinks it is the best way to analyze and isolate the originality of different societies. He thinks the problem of money is the problem of production and distribution and claims that the comparative method can extract the real causes from the multiplicity of factors that play a role in the formation of an economic phenomenon.[77] Citing Polanyi, who believed

[76] Wray, 1.
[77] Wray, 6.

that in precapitalist societies production was closely integrated with other social activities, he highlights the fact that it is only in the capitalist economy that productive activity is in its highest degree of liberation from other social activities.

According to Wray, in pre-capitalist societies, it was the responsibility of the community to provide for the basic needs of its members, and self-interested behaviors, if they existed, were non-economic. This is in contrast with the Mengerian hypothesis that self-interest was the motivation of early economic subjects to exchange their goods for the products of others. In spite of this, he, like Stanfield, believes that the realities of capitalist economics are rooted in non-economic social relations of pre-capitalist societies. In order to truly reconstruct the origins of money, as Wray recommends, the understanding of what money is and what money does in capitalist economies seems necessary.[78]

Unlike orthodox economists, for a heterodox economist like Wray, money cannot be understood by its physical characteristics or by its function as a means of payment. He rejects the idea that the fundamental function of money is to be a medium of exchange, which was the idea of the whole Austrian economics traditions. He distinguishes between money and money-denominated assets, like bank deposits, and argues that these notes can only fulfill the function of money as means of payment and are not in fact real money. With respect to the operation of the economy as a whole, Wray subscribes to the fact that money is the social measure of value. For him, money is an abstract measuring unit. In his argument, the problem with the orthodox narrative of money is that they seek to find evidence that in primitive societies some objects performed some of the functions of modern money. While, by reinterpreting money and

[78] Wray, 8.

revealing its fundamental role in the capitalist economy, being a social measure of value, it will become apparent that primitive monies are not real money.

In his argument, Wray remarks that there are some institutional prerequisites to the development of market exchange out of primitive barter economy. Barter requires the existence of private property, division of labor, and self-interested behavior. Yet there are few historical pieces of evidence to prove the existence of any of these characteristics.[79] In short, Wray's critique of the orthodox interpretation of money can be concluded in three arguments which are all in sharp contrast with the Austrian understanding of money. First, the existing market economy is not rooted in a primitive barter economy; second, money did not come to remove the costs of primitive exchange, and third, credit money predated commodity money. As I have shown in the previous chapter, all these hypotheses that Wray rejects are presuppositions of neoclassical economics.

Wray is not the only economist who dismisses the general understanding of money. Geoffrey Ingham in the book *"the nature of money"* provides a well-established critique of the orthodox narrative of money. He rejects fundamental assumptions of the mainstream economics narrative of money which asserts that money arises as the most saleable of commodities and is a neutral veil in the working of real economy. Like Wray, he believes that the most important attribute of money is the fact that it brings monetary calculations. Money as a measure of value provides the possibility of monetary calculation and is a means for the progressive rationalization of social life.[80] He argues that the establishment of a universal medium of exchange presupposes the existence of money of account as an abstract measure of value. In other words, an abstract

[79] Wray, 11.
[80] Ingham, *The Nature of Money, 37*.

Money of account in his conception is anterior to other functions of money including medium of exchange and store of value.

Ingham expresses that the methodological individualism deployed by neoclassical economics ignores the fact that "*advantageous money presupposes the existence of money as an institution in which its 'moneyness' is established"*.[81] In other words, the existence of the advantages of money for individuals, which is the logic of the orthodox economists by which they justify the spontaneous and natural emergence of money, presupposes the existence of the quality of "moneyness", the same institutional prerequisites that Wray also mentioned in his critique of the Austrian understanding of money. He declares that economic orthodoxy has failed to specify how money was used to store, or represent, abstract values while its primary function is to reduce transaction costs for individuals.

> "The fundamental problem in economic orthodoxy, from which all the other difficulties stem, is the misunderstanding of money as an account."[82]

As opposed to Menger who believed that the existence of money presupposes the existence of multilateral indirect exchange, Ingham argues that the multilateral indirect exchange itself presupposes a money of account. He highlights that direct exchange creates a myriad of diverse exchange ratios and it is not possible to reach a fixed exchange ratio without the interference of externalities. To say, the exchange ratio between two commodities should be fixed by an authority. It also confirms Wray's argument that money was not injected into a real economy. He concludes that the idea of money as an abstract measure of value predates money as a medium of exchange. In other words, abstract money of accounts cannot have been created by the original process of the free market.

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[81] Ingham, 23.
[82] Ingham, 24.

> "The very idea of money, which is to say, of abstract accounting for value, is logically anterior and historically prior to market exchange." [83]

Ingham explicitly mentions that when a commodity becomes money, the value of which should be fixed by law or custom. His argument can be conceived as a confirmation of the hypothesis that credit money precedes commodity money. He points out that what orthodox economics describes as primitive monies were rather a settlement of debts which were calculated by the money of account. Moreover, for him, money, which is nothing more than a promise to pay, embodies social relations that are intrinsically relations of hierarchical power and inequality. From his point of view, the orthodox reduction of money to natural commodities or the neutral representation of values is a powerful ideological power that is an integral part of the dominant paradigm in modern economics.[84]

There are many theorists and thinkers who refuse the mainstream economics understanding of money with different approaches. For example, Katsuhito Iwai in "Evolution of Money" studied a hypothetical barter economy by developing a search-theoretical model. He analyzed the different theories about the origins of money from the perspective of infinite expectations based on human rationality. He deployed the Nash equilibrium in a simple model of decentralized economy and showed that the barter system requires prerequisites such as division of labour and distribution of needs among individuals, the fact that both Wray and Ingham specify in their arguments. Iwai denied the validity of the commodity theory to explain the origins of money. He claimed that other theories about the origins of money such as the State theory, which will be discussed in the next chapter, are not valid either. According to him, it is

[83] Ingham, 25.
[84] Ingham, 37.

fundamentally impossible to explain the root of money as it is transcendence from reality and information.[85]

Makato Nishibe in *"the enigma of money"* calls the Menger's theory of money one-dimensional. He believes that orthodox economics interpretation of money, as a convenient circulation tool, neglects money's destructive drawbacks which result in inequality of income and wealth.[86] According to him, money is more than a tool that makes the exchange of commodities convenient. He questions the validity of the idea of a market without money and claims that it is money that creates the market and not vice versa. He discusses a generative theory of money from the standpoint of the commodity theory of money and concludes that the fact that money was a saleable commodity is not true because there should not be a commodity before the existence of money. He highlights that the institution of money does not emerge spontaneously and it should already exist as it is prior to the existence of economy. He emphasizes that the understanding of money is a key to truly understanding the market and any economic phenomenon.

Conclusion

My thesis believes that the question of what cryptocurrency is raises the question of what money is. It would not be possible to truly see the potentialities of a new economic phenomenon while the insights are based on false economic and philosophical presuppositions. As I mentioned earlier, to clarify the enigma of money one must first answer how money came to exist. Understanding the origins of money can help to become acquainted with the true nature of money and the role it plays in capitalist economies. And it is only through this process that the

[85] Iwai, "Evolution of Money, 425."
[86] Makato Nishibe, *The Enigma of Money* (Springer, 2016), 30, https://doi.org/10.1007/978-981-10-1819-0.

true potentialities of cryptocurrencies may unfold. The established literature surrounding cryptocurrency is unable to contribute to the conversation on the current transformation of money forms. The reason is that their understanding of money is deficient. To face the cryptocurrency phenomenon, the right-wing libertarian circle presupposes the master narrative of money; and as this theory is not based on historical facts, gets blinded to see any new futures with decentralized currencies.

All the theorists that I discussed through this chapter, question the validity of the orthodox economics history on the origins of money. As I have shown, they argue that the roots of money can be traced back to the credit relations of pre-capitalist societies. This contradicts the philosophical underpinning of the orthodox argument that the foundation of social relations is based on economic exchange. They reject the orthodox narrative which conceives the primary function of money as a medium of exchange. They believe that the orthodox story of money reduces money to a neutral veil which has no effect on the operation of the real economy, especially in the long run. In the next chapter, I will provide a debt theory of the nature of money, which is arguably more consistent with the real facts of human societies and as the result, as I will show, can contribute to a constructive conversation with the emerging cryptocurrencies.

Chapter Four: A Debt Theory of Money and Cryptocurrencies

Introduction

Economists have so far developed two competing theories on the evolution of money.[87] The Commodity Theory of Money, which goes back all the way to Adam Smith and his *The Wealth of Nations* and asserts that money was just another commodity that sprang originally in response to the inconvenience of barter exchange, and the State Theory of Money which argues that money first emerged through a social agreement or by a legal dispensation and thus; is not the fruits of the natural process of the free market. Along with these two dominant economic theories, anthropologists have advanced a new theory of the origins of money which finds the roots of money in the ancient system of gift reciprocity in tribal communities. This theory believes that money, even commodity money, is nothing more than a promise to pay and thus can be equated with debt.

In previous chapters, I discussed the way in which mainstream economics interprets money. I highlighted the key concepts in the orthodox understanding of money and showed how misinterpretation of money by the orthodoxy provides the condition in which the potentialities of the cryptocurrency phenomenon cannot be revealed. The mainstream economics regime of power reduces the concept of cryptocurrency to a form of non-state backed currency and thus strips away from seeing any possible futurity with cryptocurrencies. Moreover, I argued that the inability of mainstream economics to contribute to the conversion of the current socio-technological transformation of money forms comes from their misunderstanding of the nature of money and the role it plays in capitalist economies.

[87] Iwai, "Evolution of Money, 396."

Through this chapter, I try to deploy an alternative account of money, rather than the orthodoxy economic narrative, in order to build a condition in which the true potentialities of cryptocurrency, to create new horizons of possibilities, unfold. The understanding of money in this chapter is going to be built upon the debt theory of the origins of money that is more compatible with the findings of historians and the real facts of human societies. From a debt theory point of view, money came to quantify the mere obligation which existed prior to the emergence of coins and tokens. In contrast to the Commodity theory of money, which conceives money as just another commodity or a symbolic representation of that, the alternative interpretation of money states that money emanated from an organic credit system. Later, drawing upon Brain Massumi and David Graeber, I will try to picture how looking through the lens of debt would open up doors to reveal the true potentialities of cryptocurrencies.

Money is Debt

> "Not only is it money that makes debt possible: money and debt appear on the scene at exactly the same time." [88]

David Graeber, American anthropologist, in *Debt, the First 5000 Years* states that a history of money is a history of debt. By using historical, ethnographic, and archaeological studies, he provides convincing evidence that the simple and straightforward answer of orthodox economics to the myth of the origins of money is wrong. He questions the validity of the philosophical underpinning of orthodox economics which asserts that human drives with its self-interest. In fact, he rejects the Mengerian hypothesis that money emerged out of a barter system. As discussed earlier, the history of money for orthodoxy begins with barter exchange and continues with commodity money and credit money. On the contrary, Graeber believes that coins and

[88] Graeber, *Debt, the First 5,000 Years, 21*.

tokens came with empires as a side-effect of conquests and wars; while money has its roots in the forms of obligations.[89]

Graeber makes an argument that money came into existence as a tool to quantify the mere obligation, which existed prior to the emergence of coins and tokens. For him, the history of money is completely the reverse of the mainstream economics argument and credit/debt is the precursor to money.[90] According to Graeber, in primitive communities, like ancient Mesopotamia and Eurasia, the whole community operating on the basis of communism and hierarchy and commerce was based on trust. Within these pre-money communities, everyday items of human life, like clothing and foods, were traded freely in a form of a “gift”, in accordance with a strong sharing ethos, something that he calls a “social currency”. In these pre-money economies, or as Graeber called human economies, trade in the form of simultaneous exchange of one good with another only happens outside of the community and is limited to the strangers of that community.

Graeber does not deny the existence of spot exchange in human economies but he holds that exchange only occurred between strangers who had no shared moral ethos. For example spot exchange might happen in far distance trades, when one tribe wanted to exchange its products with another tribe. Furthermore, he shows that what mainstream economics calls primitive monies, like cattle, wine, teeth etc., were in fact only tools with which human social relations rearranged.[91] These social currencies, in the Graebarian sense, which can be found even in societies without division of labor, served specific functionalities in some course of events like

[89] Graeber, 166.
[90] David Graeber, “On the Invention of Money,” The anarchist liberary, 2011, https://theanarchistlibrary.org/library/david-graeber-on-the-invention-of-money.
[91] Graeber, *Debt, the First 5,000 Years, 60*.

marriage, funerals, or in compensation for blood. In other words, they were not used as a medium for exchange relations.

In what Graeber regards as human economies, when someone kills the son of another family, he should pay a conventional equivalent of these primitive currencies to rebuild the relations between two families, otherwise, it was considered a war declaration[92]. Paying the injured family, according to Graeber, does not mean that the accounts have been settled, as in human economies there is nothing materially equal to human life, but it presents the indebtedness of the killer to the injured family and his intention to rebuild the relationships. In short, as Graeber argues, social currencies in human economies were not used for everyday transactions. But they were used to restore social relations and were only the representation of the pedigree or personality of their owners. In other words, they had only sacred use cases.

Heterodox economists have also deployed ethnographic findings of historians to develop an alternative account of the origins of money. Like Graeber, Wray also subscribes to the fact that primitive trade in tribal societies was fundamentally different from today's understanding of economic exchange. In his alternative history of money, Wray highlights that in pre-capitalist societies there was no fixed exchange rate for different commodities as the exchange rate was largely dependent on the status of the participants of the exchange.[93] He believes that productive activities in primitive communities were highly integrated with other social activities, and what mainstream economics interprets as primitive currencies were not used in the same way as we characterize money in our capitalist economies. Wray also refers to primitive loans and argues

[92] Graeber, 148.
[93] Wray, "Introduction to an Alternative History of Money, 10."

that they are intrinsically different from the loans in monetary economics because they were not undertaken with the prospect of surplus gain.[94]

The fact that gift reciprocity is the primary mode of economic behavior was the main argument of Marcel Mauss, French sociologist, in his work *The Gift*. Mauss believed that there is no historical evidence to prove a society based on self-interest has ever existed; rather, he held that communism is the foundation of all human sociality.[95] Written in 1925, in his article Mauss investigated human economic behavior in archaic societies, including the Pacific Northwest early civilizations, and concluded that their economic practice centered on a different economic system within which the practice of gift-giving and gift-receiving; and more importantly reciprocity was exercised.[96] Unlike what Menger theorized about the origins of money, Mauss found that the main motivation of individuals to participate in gift reciprocity was not their self-interested behaviors. Rather, he states that the prestige and honor, i.e. Social standing, which was created by the act of gift-giving, was the driving force of individuals to participate in gift-based interactions.

Unlike market economies, human economies are not about the accumulation of wealth. As Graeber points out, the human economy is concerned with the creation, destruction, and rearranging of human relations.[97] While in the market economy, competition means that could benefit more, in gift economies competition means who could give gifts the most in order to acquire a higher rank of honor and prestige. As an example and according to Mauss, the

[94] Wray, 11.
[95] David Graeber, "On the Moral Grounds of Economic Relations: A Maussian Approach," *Journal of Classical Sociology* 14 (2014): 68, https://doi.org/10.1177/1468795X13494719.
[96] Catherine Lucas, "Marcel Mauss 'The Gift' – Critical Review | Anthromodeology," 2012, https://anthromodeologist.wordpress.com/2012/10/15/marcel-mauss-the-gift-critical-review/.
[97] David Graeber, "David Graeber on MAUSS," free words, 2021, http://www.freewords.org/graeber.html.

hierarchical relations within and between the groups in the American Northwest was reinforced through the potlatch, which is an old system of gift reciprocity. To say, the social standing created through gifts, which is the key element in Mauss' argument, provides the obligations for all parts of the community to participate in reciprocity and thus; immediately establishes an economic cycle. For example, among the Samoans, keeping gifts and not participating in the economic cycle was considered dangerous and immoral because, as Mauss stated, gifts intrinsically seek to return to their original owner.[98]

Mauss's key argument in his study is that in primitive communities, although some sort of self-interested behaviors may exist, they were not economic or dominant in the sense that they could shape humanity's perception of the world. In those small communities what truly matters is the relations between the people. In fact, Mauss recognized the diversity of economic transactions across human societies, but he argued that the dominant economic institution in human economies was not exchanging. The aim of the exchange in those societies, according to Mauss, was only to make friendships or work on obligations. In other words, the fundamental institution which shapes the very basic perception of humanity in those communities was not barter exchange which is based on the self-interested behaviors of individuals.[99]

Mauss held that in primitive societies the economy was about the creation and distribution of wealth and had nothing to do with the self-interested behaviors of its participants. And if there can be some sort of selfish behaviors, they were none-economic and considered immoral and dangerous to the existence of society. This is not the fact that only anthropologists confess. Wray, as an economist and one of the main contributors of the Modern Monetary

[98] Graeber.
[99] Graeber, *Debt, the First 5,000 Years, 100*.

Theory, also subscribes to the fact that the economy at that time was a component of the material life process of the society. Referring to Polanyi, he highlights that economic activities in pre-capitalist societies were shaped by the norms of the society, where the selfish behaviors of individuals, if existed, were non-economic. In these pre-money societies, the whole community takes the responsibility of its members and the embedded culture and norms prohibit self-interested behaviors in economic activities. According to Wray, in these societies, valuable objects only incidentally moved from hand to hand and there was no room for utility calculations of exchanged qualities.[100]

Graeber constructed his analysis of the history of human economic activity based on Mauss's studies and made the argument that primitive communities were built on a sense of mutual obligations; the obligation which he refers to is debt. Primitive money, as Graeber points out, came later in the form of a unit of account to keep track of primordial debts. The first pricing systems, according to Graeber, came into existence as a side effect of non-state bureaucracies like the Sumerian temples.[101] For example, shekels, an ancient silver coin used in the Middle East, was invented as a means of account in ancient Sumer at around 3500 BCE. According to Graeber, shekels were used only to record debts between different departments of the Sumerian ancient bureaucracy and did not function as media of commercial exchange among individuals.[102] He made his argument that the first monies were invented as a series of fixed equivalents to facilitate long-distance trade and keep the records of temple's stockpiles. From anthropology's point of view, this can be considered as the emergence of money as a conventional unit of account.

[100] Wray, "Introduction to an Alternative History of Money, 11."
[101] Graeber, *Debt, the First 5,000 Years, 380*.
[102] Graeber, 214.

As mentioned above, although Sumerian temples used silver coins to estimate their reserves as well as inter-organizational settlements, the day-to-day exchanges in society were still based on credit. In other words, money was used as a unit of account but it had no functions as a medium of exchange and store of value. According to Graeber, the modern coinage system was established in different empires around the world, primarily in Persia, China, and Northern India at around 800 BCE.[103] Graeber believes that physical money was primarily invented to pay soldiers or tax conquered lands. In other words, coins were invented to make debt transferable and put the price on the obligations.

Graeber stipulates that in the time of conquests, when soldiers were required to put themselves in danger of death, something physical was needed to pay them in advance. The credit relations or a promise would not work for those who may be killed by the stranger's armies. Besides that, the conquered land was forced to pay tribute to the conqueror. The credit relations would neither work here and thus coins with different forms and shapes were invented as a side-effect war, slavery, and conquests. The small communities now turn to states which rely on their army and the ability to tax conquered lands. With the use of slavery and as a result of the militarization of societies, more people were forced to use bullions, and thus, the modern coinage monetary system was established.

According to Graeber, the Axial Age, which begins in 800 BC and lasts till 600 AD, was dominated by coinage and the rise of metal bullions. As mentioned earlier, coined money was invented as a side-effect of conquests and through warfare and the use of slavery. Coinage, which was invented to finance wars, led to the development of markets where soldiers and locals could sell and buy immediately what they needed. The proliferation of money as a means of

[103] Graeber, "On the Invention of Money."

exchange, as Graeber states, changed the very perception of humanity from the world and nature.[104] In other words, the rise of army-driven markets in this period of history fundamentally changed human's cultural mores and society's institutions.

As Graeber states, in the market economy, everything can be exchanged for money, even honor and prestige, and, the same as slaves, each individual's life has equivalence in the language of money. In the market economy, all participants find themselves, strangers, to each other and there is no interest in forming ongoing personal relationships among them. To say, in the market economies society is considered as the collection of strangers. Moreover, the motives of participants of the market, soldiers, and civilians, were how to get the most from each other and the words "profit" and "advantage" came into the language of human relationships.[105] Graeber points out that the result was the establishment of a new way of thinking about human motives and desires which lasts till today and forms our basic conception of the world.

As claimed by Graeber, the history of money moves between virtual credit money and bullion money. He refers to warfare as the cause of this periodic historical shift between credit and bullion. The cyclical history of money for Graeber which began with virtual credit money and continued with coinage now sees a return to credit money at around 600-1450 AD. According to Graeber, what characterize this historical stage were the rise of monasteries and the dissolution of centralized armies. According to him, in the Middle Ages, big cities declined and a new type of local feudalism was established by religious authorities. As a result, small villages become more self-sufficient and the use of slavery, a means to maintain big cities, vanished.

[104] Graeber, "On the Moral Grounds of Economic Relations: A Maussian Approach, 67."
[105] Graeber, *Debt, the First 5,000 Years, 262*.

Credit relations once again took back their importance in everyday transactions and markets, especially in Medieval Islam, which largely operated based on credit and IOUs, 'I Owe You'.[106]

Graeber believes that contrary to the Axial Age where materialism is the defining mode of thinking, in the Middle Ages what characterized thought and perception of the world was transcendental religious thought. He asserts that the impact of this ideological shift in human perception of the world can be found in the nature of money which is used in each historical stage.

> "If there is an essence to Medieval thought, it lies not in blind obedience to authority, but rather in a dogged insistence that the values that govern our ordinary daily affairs-particularly those of the court and marketplace-are confused, mistaken, illusory, or perverse. True value lay elsewhere, in a domain that cannot be directly perceived, but only approached through study or contemplation."[107]

Thus the value of money in the Middle Ages would not rely on the intrinsic value of precious metals; rather it fluctuates depending on social conventions. The key point in Graeber's argument is that virtual credit money, like the previous form of money, is also a representation of debt. According to him, new religions and new ways of thinking treated debt in different ways.

Graeber claims that the Middle Age is when the foundation of modern capitalism was born. As stated by him, in order to systematize the risk of trade away, large organizations partnered with the governments and as a result created intense monopolies primarily in Western Europe. In his account, the Age of Capitalist Empires begins around 1450 with the return from credit money to precious metals, especially gold and silver. As he maintains, with the discovery of new sources of gold and silver in the Americas and the influx into Europe, traditional credit

[106] Graeber, 321.
[107] Graeber, 297.

societies turned once again upside down. For Graeber, a return to cash and bullion in the era of great capitalists is meant a return to slavery, professional armies, wars, and also materialist philosophies. In those centuries, the Chinese dynamic economy, which basically operated on silver, demanded large quantities of silvers imported from America into Europe in exchange for what it mostly produced such as silk and porcelain. According to Graeber, this Asian trade was the determining factor in the establishment of the global economy and made European merchants fantastically rich.[108]

In the emergence of capitalism in the modern period, and although this epoch is a return to the material values of the Axial Age, there exists an ontological difference between capital and bullion that distinguished the latter from the former. In the Axial Age, utilitarian behaviors, profit-seeking behaviors, to increase the amounts of bullion was to serve the expansion of politics and the military. While in the capitalist era, all organizations centered around profit-seeking motives due to the fact that capital is the money with the expectation to grow.[109] Graeber's key point is that in the Axial age money always remained a political tool in the service of empires while under the capitalist order, political and military power was to serve the logic of capital, which is the logic of profit seeking.

According to Graeber the transition from an economy of credit to an economy of interest, happened when the state legalized interest/usury and criminalized debt. He argues that the imperative of capital to grow would not have been possible without the support of the state and military in the first place. Usury, lending money with the expectation of high rate of interest, which used to be limited to commercial loans, now was applied in all types of loans, and all

[108] Graeber, 312.
[109] Graeber, 320.

money was assumed to be capital. According to him, if in the Axial Age the collapse of empires and the dissolution of armies mean the destruction of the whole apparatus, in the Capitalist era the logic of money was granted autonomy.[110] In other words, the fall of governments no longer signified the disappearance of the apparatus, as the logic of capital, money now for money more later, always maintained itself through revolutions and conflicts.

Money in our today's economy is once again credit. It is generated and verified by the state as a unit of measurement and is not a commodity with intrinsic value. Since the exit of the United States from Bretton Woods and the Gold standard in 1971, a new monetary era has begun in the world. Graeber describes it as a return to the virtual money economy. It is necessary to mention two points here. First is that the US dollar is now the global reserve currency, and second is that the US has become the world's debtor. In the ancient world, the rich were the major creditors but now the situation has been flipped and the rich are debtors. So as Graeber himself points out, it is not important who is the creditor or debtor, it only matters who owns things and who controls political power. In a conceptual reverse in our time, masses are the creditors and the rich are the biggest debtors to them. Yet the rich still own all the means of production and wield political power.

Further discussion on the nature of money

"Money is what organizes the violence of competition". Alain Badiou

Through this chapter, I have argued that money can be equated with debt. Money more seems to be the product of wars, slavery, and violence, rather than an organic member of human societies or a product of human rationality. Furthermore, Money can take the form of both coins and IOUs. As I have shown, in each historical stage, money takes a different form. In fact, the history

[110] Graeber, 321.

of money moves between virtual credit money (IOU) and coinage. In peacetime, money is more likely to be IOU and in times of war and insecurity, it becomes a commodity. Besides that and in contrast to mainstream economics' understanding of money, commodity money was not the first form of money as money had existed prior to the emergence of coins and tokens in the form of obligation and debt. In fact, money came to quantify debt and make it transferable.

With the development of market economies, money which aimed to rearrange human relationships and represent the incommensurability of human life turned into a general equivalence of all qualitative objects. While the introduction of money enabled creation manner of observations, monetary observations, but at the same time it made other observations impossible.[111] Money which in the right-wing liberal theory enables economic calculations and is the best way to present qualitative values seems to have no external references other than the future exploitation of human activity and its socially necessary force. As I have shown, money violently made humans and their productive activity, which are unique qualities, capable of being exchanged for numbers and quantities. Money is a veil that obscures the truth of qualities and violently separates them from their network of relationships, their context, and translates them into the language of numbers, thereby corrupting them.

Orthodox economics considers exchange as the basis of social dilemma and argues that money came to minimize the costs of direct exchange. I have shown that this is not historically true and there can be found no primitive society based on exchange. The orthodox logistical modality argues that in the beginning market existed and humans, driven by their self-interest, economic interest, gradually understood the benefits that lies for them in indirect exchange, While, I have shown that market and economic interest emerged as a side-effect of wars and

[111] Ole Bjerg, *Parallax of Growth: The Philosophy of Ecology and Economy* (Polity Press Ltd, 2016), 231.

conquests and with the use of slavery. Mainstream economics considers an economic regime of competition to be the best way to regulate human productive relations and believes that the "invisible hand" would lead the socially necessary labor of the society in the best way and for the benefit of society as a whole. While I believe, a system based on violence and separation will never be able to be in harmony with nature and create a truly humane society in which there is no contradiction and exploitation.

In the market economies, money, as the general equivalence, stands in front of all objects of desire. Thus, the passion for the object of desire translates into the passion for money, and According to the philosopher Alain Badiou, the passion for money then becomes absolute and general and, as a result, immediately necessitates a regime of competition. Thus it is not exchange that requires money, but it is money that requires the exchange and an economic regime based on competition. A competitive regime that operates on the basis of this premise that the main motivation of human beings is their self-interest and use the money to organize its inherent violence. An economic power that considers the accumulation of money as the basis of productive activity and develops a moral system based on it. The economic structure in which money, as a means to facilitate exchange, turns to capital and therefore, provides no external reference except in an ongoing desire to increase itself, which means to increase debt.

Graeber argued that debt is the foundation of all human sociality. Drawing upon Nietzsche, he showed that both theories about the nature of money, the state theory and the commodity theory, conceive of the human relationship with the cosmos in debt. On the one hand, the state theory of money starts with the premise that humans are all indebted to society and the state is the embodiment of creditor. And on the other hand, the liberal idea of Adam Smith supposes that humans, as creatures of exchange, owe no one, While, in exchange, debt is created at the beginning of the relationship and cancelled at the end. The condition for continuing the relationship is the permanent presence of a debtor. According to Graeber, this is a false dichotomy as both these theories stem from the same assumption and they take reciprocity as the only logic that can govern social relations.[112] The former confesses itself in theory, and the latter becomes what it denies. The misconception of both two theories, as Graeber pointed out, is that they think that debt encompasses all moral relations.

Studying the evolution of human societies will help us acquire a better understanding of the process which results in the construction of the current economic logic that governs our societies. According to Graeber, humans have evolved from early communist societies in a historical process to Gift economies (human economies), and ultimately to the market economies. Human economies are where money first came to exist. These social currencies were not used in everyday affairs as they were only to rearrange the relations between people. Most importantly, in human economies money was used to express the incommensurability and uniqueness of human lives. With the advent of the market and its logic, the moral norms existing in human economies became perverted and changed their nature. Honor, which once represented human dignity, now represents a power with which one can buy another human dignity. In market economies, everything is supposed to be tradable with money. Although I do not argue that violence only exists in market economies, the transition from hierarchical societies to market economies requires more intolerable violence as it begins with exchange (equality) but in a hierarchical realm (domination).

We are now in the era of virtual money and cryptocurrencies. In an eternal return to the basic form of money, that is virtual credit money. Cryptocurrencies have given us the

[112] Graeber, 384.

opportunity to retroactively reinterpret money so that we can turn what is into what it can be. Here the main question of my thesis arises: how can we get rid of money, this main cause of separation, and the bonds of all bonds, and recreate it in a new form with less stupidity? Really, in our new space and time, how can we highlight differences in this eternal repetition of money forms and restore the quality of human productive activity?

Conclusion: Reconstructing Money with Cryptocurrencies

Throughout my thesis, I have tried to deploy an alternative theory of the nature of money, which is more in line with the findings of historians and anthropologists. The aim was to uproot cryptocurrencies from their libertarian origins and redesign them to serve not individual choice but collective intentionality. It was the novelty of the cryptocurrencies themselves that necessitated a retroactive return to the literature around money. I reviewed the libertarian story of money and highlighted its inability to deal with cryptocurrency, with this in mind that a new phenomenon requires a new look. I discussed the way in which the orthodoxy interprets cryptocurrencies to show how the misconception of money results in the misconception of cryptocurrencies. The right-wing libertarians inscribe the cognitive metaphor of the invisible hand in their understanding of all emerging economic phenomena. They use their historical knowledge of money and banking as an ideological power and kill any possible futurity which may come with the emergence of cryptocurrencies.

Moreover, I have shown how both seemingly contradictory theories about money, the socialist theory and the liberal theory, stem from the same false assumptions that reciprocity is the only moral ground of human sociality. Drawing upon Graeber, I argued that the mainstream economics regime of power premised that sociality begins with voluntary exchange which presupposes equity, while the dominant hierarchical construct recreates debt to sustain its relations. In other words, both these theories presuppose debt in the economic form to sustain human sociality and introduce money as the most rational means for the calculations of human indebtedness. My thesis believes that reconsidering the ideas about money and exchange will provide the condition in which the truth of cryptocurrencies unfolds.

In our capitalist world, money determines the political realm of countries. Each political district is identified by a specific fiat currency. Marx wrote in *"The Communist Manifesto*" that the working class has no country. Marx's statement can be understood that the workers of the world do not need money to regulate their productive relations. Or the workers of the world need a kind of money that is less-than-money to regulate their excessive existence. Now how can we design a new form of money that is no longer money? How can we take back value and free it from its quantitative representation? These are the questions that are arising from the literature I reviewed through my thesis.

In *"99 Theses on the Revaluation of Value",* Brian Massumi Emphasizes the need to reconsider ideas about money and exchange, in the post-capitalist era and proposes conceptual tools to examine value in qualitative manner. He believes that to take back value is to get free from the standard of judgment. To do that, according to him, one must revalue value and move it beyond the reign of judgment itself.[113] Massumi believes that the capitalist definition of money as a unit of account, medium of exchange and store of value presupposes that value is by nature quantifiable. He sees all the roles of money as the development of its role as a measure of value and finds the capitalist definition of money in circular logic[114]. From his point of view, in the capitalist market, individuals' perceptions of value are influenced by the idea of more money in

[113] Brian Massumi, *99 Theses on the Revaluation of Value : A Postcapitalist Manifesto* (London: University of Minnesota Press, 2018): 4.
[114] Massumi, 5.

the future, and separation occurs between the use-value of a commodity and exchange value, the fact that reveals the truth of capitalism as a fundamentally speculative phenomenon.

Massumi believes that value should remain qualitative. From his point of view, the first step to revolutionizing value is to separate it from quantification. He stresses that the process of revolutionizing value must be this-worldly as it should avoid resorting to transcendent values and moral qualities. Now a question arises here: how can we get rid of the moral norms of comparison and judgment, which are the roots of the quantitative valuation, if the exchange is the only moral ground of all human sociality?

To answer this question, I think, reconsidering the nature of the process in which quantitative valuation is possible introduces the practice of new ways of communication and interaction. Graeber in *"On the moral grounds of economic relations: A Maussian approach"* argued that there are three moral grounds for productive relations which are communism, hierarchy and exchange.[115] Referring to Mauss, he stresses that each economic system, like the market economies or gift economies, elevates one principle above others, for example, capitalism elevates exchange or hierarchical economies elevate hierarchy, and shapes human's basic conception of the world based on that. Humans, on the other hand, use a combination of all three of these principles in their everyday affairs. The important point is which principle becomes the dominant institution and forms the human perception of self and existence.

Capitalism elevates exchange above other principles, hierarchy and communism, and develops its morals which produces a calculating subject who conceived life as a marketplace and herself as an isolated individual entering exchange relations, The morality which works on

[115] Graeber, "On the Moral Grounds of Economic Relations: A Maussian Approach, 65."

the basis of evaluation in relation to transcendental moral opposition of good and evil. With this in mind, it can be concluded that in order to reclaim value, the very material conditions in which the subject is produced must first change, I mean the relation of production. Then we can expect a new subject to create an entirely new world in which value keeps its quality and money is rendered and obsoleted the domain of human indebtedness.

Graeber considers communism to be the basis of many everyday human relations and believes that human cross-cultures around the world share the fundamentals of communism. He defines communism as from each according to their abilities and, to each according to their needs.[116] He believes that human collective experiences show that the best way to organize human interactions is allocating tasks based on the ability of individuals and giving them the things they need to perform their tasks. According to him communism does not simply mean communal property and is not just a moral act. According to him, sharing is the basis of pleasure, because human pleasurable experiences are essentially associated with sharing. In communistic relations, accounting has no place because it basically has no function and the whole society would not conceive itself as the collection of strangers.

By extending this logic of communism to the relations within and between cryptocurrency-based communities, debt, which takes on an economic form both in the right-wing liberal understanding of money and in its social narrative, can take on an ethical form. In this case, the economic debt can be obsolete and take its new form, which is collective. This mutual indebtedness would seek to reconstruct the field of ethics and as a result, create new subjectivities that are indifferent to the criteria of judgment and are really this-worldly. Cryptocurrencies and the technology beyond that, the blockchain technology, can create the

[116] Graeber, 67.

condition in which processual ethics, which Massumi describes in his postcapitalist thesis, would replace the morality of judgment and allow values to remain qualitative.

My thesis believes that cryptocurrencies can provide the very condition in which humans' new consciousness (decentralized consciousness) would be able to create an entirely new world in which one can exchange love with love and honesty with honesty. Cryptocurrencies are all about the decentralization of power and governance. They remove the need for centralized verification and planning. They can provide the condition in which new ways of governance and responsibility can emerge and obsolete the previous forms of exploitation. Decentralized Autonomous Organizations (DAOs) are a specific expression of the potentials of cryptocurrencies. In simple terms, DAOs are a new type of organization where all members' interactions are mediated by smart contracts and cryptocurrencies. In a true liberatory DAO, cryptocurrencies would be only used to keep track of the time that each member devoted to the community to rearrange human relations with the aim to increase equity and fairness within the community. Individuals' relation within these communities would be not based on exchange but based on communism and thus, money's destructive role as store of value would be eliminated. The DAO would take the responsibility of all its members and no one considered herself as an isolated subject entering exchange relations.

DAOs can create an altar-economy based on a total system of giving with a complex space of relations in which tokens and coins only determine the extent to which individuals participate in human production, a human space full of the generosity of value exchanges and not liquidity of money. This can lead to transition from the idea of money where it corrupts value, which is a qualitative concept, and stores it in the language of numbers and provides the state of exploitation of labour and time. Because of the transparency and confidence that blockchain builds via infinite and not perceived in the present, humans can accumulate their surplus and build communities that do not work based on money predicated on the logic of profit. The emergence of NFT (Non-Fungible Token), which is a way to prove the unity of the values produced digitally, unleashes much potential that could pave the way for the realization of the Masumi hypothesis. Cryptocurrencies can remove the need to translate human activity into the language of money and thus help retain its quality. When there is no money, as a means to store value, there is no creditor/debtor relationships and debt, and there is no class struggle. In this society called de-centralized communism, debt would be rendered incoherent and thus disappear, and humans may have the opportunity to pay her debt to herself, which is her future.

Chapter Five: A Note on Catherine Malabou's Reading of Cryptocurrencies

Introduction

> "If philosophy is something useful, if it is something else than an academic exercise, if philosophy is something really useful to our life, it must propose the possibility of a real future or to examine the condition for the existence of a real future." – Alain Badiou

Cryptocurrencies have emerged as a new paradigm to disrupt the general understanding of money, exchange, and value. They enable the creation of decentralized and autonomous communities which do not rely on a central authority. Because of the core technology that cryptocurrencies deploy, namely blockchain technology, the potentials of these cryptographic tokens go beyond financial applications and reach all areas that involve human interactions and communications. What is unique with the cryptocurrencies from other currencies and forms of exchange throughout history, which were regulated by productive relations of economic entities that required the creation of centralized intermediaries such as banks and nation-states, is that now cryptocurrency and its underlying technology, humans have the opportunity to engage in productive activities outside the colonized realm of financial institutions.[117]

For many, cryptocurrencies are an expression of extreme technological libertarianism. At the heart of the philosophical underpinning of this school of thought is a distrust of states in favor of individuals. The advocates of this theory believe a free market economy, thanks to "the invisible hand", can best facilitate individual will. According to them, in a real free-market economy, neither states nor corporations are acceptable intermediaries. The fact that cryptocurrencies can abolish the role of states and intermediaries has attracted the interest of

[117] Ferguson, *The Ascent of Money: A Financial History of the World, introduction*.

market-oriented theorists.[118] Mainstream economic regimes of power are increasingly inscribing their historical knowledge and the power of money and banking within the domain of cryptocurrencies. The right-wing libertarians deploy the cognitive metaphor of “the invisible hand” in their understanding of all emerging economic phenomena. They use their historical knowledge of money as an ideological power and kill any possible futurity which may come with the emergence of cryptocurrencies.

The orthodoxy traces the theoretical roots of cryptocurrencies to the libertarian ideals that can be called ‘the Austrian School’, especially seen by Friedrich Hayek.[119] In his famous book *‘denationalization of money’* Hayek expressed a theoretical foundation for a regime of currency competition in which the state is no longer in power to produce money. In this Hayek-ian society, entities and individuals are free to establish their own money; with the market leading individuals to choose better currencies.[120] This narrative, which today dominates the orthodox literature around cryptocurrency, reduces this emerging phenomenon to a form of non-governmental currency, which, according to Hayek, can increase the level of currency competition. If this narrative is correct, cryptocurrencies are not in fact new phenomena at all and are thus stripped from creating new horizons of possibility. For the ‘orthodox domain’, the advent of cryptocurrencies is a sign of a linear evolution for money, which is a tremendous improvement in the transfer of the state's monopoly over money to the invisible hands of the market.

But what if there was a countervailing narrative that alighted from a decentralized ontology and practice? What if the privatization of money is not the truth of cryptocurrency?

[118] Sanz Bas, “Hayek and the Cryptocurrency Revolution, 16.”
[119] Fantacci, “Cryptocurrencies and the Denationalization of Money, 105.”
[120] Hayek, *The Denationalisation of Money, 34*.

Calling to the text's primary question: is it possible to escape the determining force of traditions, the power regime of knowledge, and go beyond the capitalist emergence of cryptocurrencies? Can we provide a condition in which the truth of decentralized currency unfolds as it renders obsolete the dominant neoliberal narrative? The fundamental question of the present article is how to deal with the idea of cryptocurrency as an 'anomaly' and to imagine a real but decentralized future within it. The aim is to uproot cryptocurrencies from their libertarian origins and reinterpret them to serve not individual choice but collective intentionality, not calculations of self-interest, but collective speculations on the future which need to be shared.

With this question in mind, I will focus on the article *"Cryptocurrencies: Anarchist Turn or Strengthening of Surveillance Capitalism?"* which was published by Catherine Malabou in the Australian Humanities Review. I will highlight Malabou's central thesis and raise some critical questions in order to develop a further understanding of cryptocurrencies. My theoretical apparatus draws upon the work of the French philosopher, Alain Badiou, with respect to his discussions on *"True and false contradictions of the crises"*. I will also make reference to David Graeber and his understanding of money as found in the work, *"Debt: The First 5000 Years"*. As well, I deploy Brian Massumi's proposal in his *"99 Theses on the Revaluation of Value: A Postcapitalist Manifesto"* to picture how cryptocurrencies can engineer a radically new concept of money and value.

In the final analysis, I believe a critical reading of Malabou's ideas under the philosophical tradition of Alain Badiou should move us beyond the foreclosure of a capital interpretation of cryptocurrency and help us to build true liberatory literature for decentralized currencies. I will do this from the perspective of a decentralized ontological architecture. In this way, we may thus catch a sideways glance of an emancipatory horizon of existence about which my work is focused in a different space.

The False Contradiction

Malabou begins her discussion by referring to John McAfee's *'Declaration of Currency Independence,'* where McAfee explicitly emphasizes the need to break free from the banks and intermediaries' domination and says that '***We humans are coins and currencies'***.[121] She is keen on the war language deployed by McAfee; however she names the contention organized between cryptocurrencies and the central banks an internal war captured within the domain of capitalism, 'A war between two brothers':

> "The enemies are brothers. In fact, what we are witnessing today is a conflict internal to capitalism. Capitalism is beginning its anarchist turn."[122]

She continues her line of questioning:

> "What else are we to describe such phenomena as decentralized currencies, the end of the state's monopoly ….and the decentralization of exchanges and transactions?"[123]

Malabou is a sharp-sighted philosopher. She truly sees the capitalist emergent of cryptocurrencies. She points out that the need to conform to the logic of profit does not allow for an actual exit from capitalism. So, she argues that capitalism is in the process of transition to what she calls later, 'Ultra-capitalism'. And yet, she also identifies a shocking paradox in this transition:

[121] John McAfee, "Declaration of Currency Independence," 2018, https://medium.com/@currencyindependence/declaration-of-currency-independence-b404296bf03b.
[122] Malabou, "Cryptocurrencies: Anarchist Turn or Strengthening of Surveillance Capitalism? From Bitcoin to Libra, 146."
[123] Malabou, 146.

> "How can we speak of anarchy in a period marked by the growing and unprecedented concentration of power?"[124]

She interprets this paradox as the new crisis of capitalism where, on the one hand, the necessity of the transition in capitalism has led to the emergence of state-backed fascist policies. And on the other hand, this transition has a tendency toward anarchism. The upshot of this paradox, according to Malabou, is the disappearance of the idea of states and even nations. She argues that now that the state's social functionality has withered away we can thus witness the disappearance of the state apparatuses.

So far, Malabou's message for us is to see this internal contradiction in capitalism and understand the synthesis of this contradiction as "ultra-capitalism," which again necessitates the logic of profit in a new register. But if this is the cryptocurrency narrative according to Malabou it raises a mysterious question: why did Malabou sign the Declaration of Currency Independence?

She herself provides us with the answer. Because she can see the light of resistance! Because she is informed by the work of Michel Foucault even better than we are: *'Wherever there is power, there is resistance!'* She writes:

> "I will persist in seeing in capitalism's conflict with itself the paradoxical possibility of the emergence of a new type of resistance, of an anti-capitalism that will wrench a liberatory anarchism from the grip of its counter model, libertarian anarchism"[125]

Referring to Jeremy Rifkin's '*The Zero Marginal Cost Society',* Malabou points out that a cryptocurrency-based economy can solve the market and collaborative common dichotomies.

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[124] Malabou, 148.
[125] Malabou, 150.

She brilliantly sees the possibility of the emerging of new forms of communal organizations that will resist its capitalistic necessitation.

The most exciting part of Malabou's discussion comes at the end, where she refers to the blockchain-based praxis of two anti-capitalist philosophers, Erin Manning and Brian Massumi, and calls it a kind of intellectual resistance against the capitalism transition. In an attempt to revolutionize value and occupy its surplus for a postcapitalist future, these two philosophers, both under the influence of Deleuze and Guattari's interpretation of capital in *"Anti-Oedipus"*, are developing a blockchain-based economy that is not analogous to a capitalist economic architecture. In their "Alter Economy ", there will be a complex space of relation for individuals to create emergent collectivities through mobilizing a surplus of organizing potentials, the task that money does in the capitalist economy. A new type of decentralized organization in which "Collective emergency" or what Massumi calls "Temporary Autonomous Zone" is created by sharing all members' excessive existence beyond the capture of the capitalistic symbolic register. In fact, they want to create a space around a currency without individual ownership and other classical functions that money plays in capitalist economies, such as being a means to store value. In fact, they want to revalue value and get back its qualitative nature. And here we arrive at a novel insight: an economy without money. This is precisely where the true contradiction heightens in the precise mode of its constellation:

> "This true contradiction—which must serve as the framework of our Thought and action—is one that opposes two different visions of the unavoidable break with the hierarchising symbolic tradition. That is, the opposition between Western capitalism's a-symbolic vision, which creates monstrous inequalities and pathogenic upheavals, and the vision that is generally called communism."--Alain Badiou *"True and False Contradictions of the Crisis"*

Toward a full-blown war!

> "Beyond the state it is money that rules, money that communicates, and what we need these days definitely is not any critique of Marxism, but a modern theory of money as good as Marx's that proceeds from where he left off." --Gilles Deleuze

At the end of her article, Malabou emphasizes that the disappearance of the idea of nationalized money is politically problematic. She argues that this problem requires us to redefine our analysis of capitalism in a new key. She considers this renewal to be the most challenging problem of philosophy in our time.[126] This has been the primary purpose of the text from the beginning: to build liberatory literature for money that can contribute to the conversation on the current transformation of money through the emergence and logistical procedures of decentralized currencies. As Thomas Kuhn states in *"The Structure of Scientific Method"*, only anomalies or the phenomena that the established scientific paradigm cannot explain adequately can lead to the emergence of new scientific practices.[127] This is to say that cryptocurrency, as an anomaly, calls for a fundamental reconsideration of the dominant theories around the nature of money. These new and abstract forms of money necessitate a new interpretation of money altogether: rather than the Austro libertarian narrative, we are presented with a new story one that contributes to the conversation on the current transformation of money, and potentially reveal the true potentialities of decentralized ontologies materialized-digitally in the form of cryptocurrencies.

The right-wing Austro Libertarian School understands exchange as the basis of the social dilemma. This was the idea that Carl Menger, the founder of Austrian economics, theorized in his book *"On the Origins of Money"*, which is the foundation on which the entire Austrian

[126] Malabou, 153.
[127] Kuhn, *Introduction to The Structure of Scientific Revolution, 55*.

school builds its economic and philosophical foundations.[128] This idea conceives money as other commodities and claims that money was originally the result of the early markets' exchange processes. This narrative sees money as a liberatory tool and a means to minimize transaction costs. Under this assumption, money was the result of the rationality of the early abstract economic subject (homo economicus) to choose a veil in the market and has since evolved in a linear historical process from oysters, rice, and slaves to coins, fiats, and bitcoin, the story that understands money as a neutral representation of exchange value and neglects money's subjective, even destructive characteristic.[129] Therefore, it should come as no surprise that Friedrich Hayek's utopia is a world in which money management is left to the market, the world he talks about in detail in his book *"The Denationalization of Money".*

This intellectual tradition and these ideas are now the key to understanding the cryptocurrencies for the right-wing libertarians. According to Ardalan, the invisible hand, as an ideology, acts as a cognitive metaphor in mainstream economics understanding of all emerging domains. The invisible hand, which was first introduced by Adam Smith, is a metaphor for unseen forces existing in the laissez faire economics.[130] This economic philosophy appreciates free market, private property rights and encourages limited government interventions. The proponents of this ideology believe that the invisible hand in a free market economy would translate self-interested behaviors of individuals into improvement for society as a whole. Now the right-wing libertarians understand cryptocurrencies reductively in relation to the cognitive metaphor of the invisible hand. They believe that cryptocurrencies resonate with the Hayekian

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[128] Ingham, *The Nature of Money, 16*.
[129] Ingham, 16.
[130] Kavous Ardalan, "Invisible Ideology of Mainstream Economics: The 'Invisible Hand, 297.'"

regime of privately issued currencies. Their whole contribution would be to investigate to what extent cryptocurrencies can fulfill Hayekian's dream of currency competition.

According to Geoffrey Ingham, the misinterpretation of the nature of money is the root cause of the significant deficiencies of mainstream economics' thoughts on new economic phenomena.[131] Using the cognitive ideological metaphor of the invisible hand by orthodox economics in the domain of cryptocurrencies would result in misunderstanding the true potentialities of cryptocurrencies for human interaction and communications. In other words, the inability of mainstream economics to contribute to the conversion of the current socio-technological transformation of monetary forms comes from their misunderstanding of the nature of money and the role it plays in capitalist economies. To understand cryptocurrencies correctly, money must first be understood correctly. Cryptocurrencies, as Malabou herself points out, necessitate a reconsideration of the general understanding of money, an alternative theory that can reveal the truth of decentralized currencies.

The orthodox story of money, although logical, is not based on actual archaeological and anthropological findings.[132] Many thinkers have criticized this understanding of social institutions including money. Certainly the most important of those was Nietzsche, who described debt as the basis of the Social Relations in his "*On the Genealogy of Morality",* an approach that is both in opposition to the whole tradition of classical political economy, which sees the paradigm of the social in exchange and to Marx, who understood it in the relation between labor and capital.[133] Later, many economists and sociologists developed an alternative

[131] Ingham, *The Nature of Money, 16*.
[132] Wray, "Introduction to an Alternative History of Money, 6."
[133] Maurizio Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition.*, trans. Joshua David Jordan (Cambridge: Semiotext(e), 2012): 39.

account of the origin and nature of money that was consistent with Nietzsche's ideas. David Graeber, American anthropologist, in *"Debt, the First 5000 Years"* states that a history of money is a history of debt. By using historical, ethnographic, and archaeological studies, he provides convincing evidence that the simple and straightforward answer of orthodox economics to the myth of the origins of money is wrong. He also believes that as the history of money moves between virtual credit money and coinage, we are in fact in an eternal return to the previous forms of money.[134]

Graeber rejected the liberal narrative which asserts that money emerged out of the primitive barter economies and argued that money came into existence as a tool to quantify the mere obligation, which existed prior to the emergence of coins and tokens. For him, the history of money is completely the reverse of the mainstream economics argument and credit/debt is the precursor to money.[135] Graeber constructed his analysis of the history of human economic activity based on Mauss's studies and made an argument that primitive communities were built on a sense of mutual obligations; the obligation which he refers to as debt. Primitive money, as Graeber points out, came later in the form of a unit of account to keep track of primordial debts. For Graeber, money can be equated with debt and the process of money creation would be the same as debt creation. For him, Money and the market are the products of wars, slavery, and violence, rather than an organic member of human societies or a product of human rationality.

Graeber is not the only theorist who argues that money is debt. Many economists and anthropologists have seen the roots of money in creditor-debtor relationships. They trace the history of money to the old system of gift reciprocity and argue that humans in primitive

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[134] Graeber, *Debt, the First 5,000 Years, 166*.
[135] Graeber, "On the Invention of Money."

societies had a different economic model based on a system of gift-giving and gift-receiving. For example, Randall Wray in his *"Introduction to an Alternative History of Money"* shows how the orthodox approach to money is historically flawed. He believes that not all human societies are based on exchange and that not all human interactions in pre-capitalist societies can be called exchange relations. He argues that money and market developed together and this is why production in the market is always monetary production.[136] Like Graeber, Wray sees credit relations as prior to exchange relationships. He also believes that orthodox misunderstanding of the roots and origins of the institutions of money is the reason for all economic misconceptions of neoclassical economics. Wray's arguments underscore the hypothesis that debt preceded commodity money.

Understanding money with debt helps us to become acquainted with the powerful side of money and to picture how new forms of money and cryptocurrencies can revolutionize the way in which humans interact with each other, While mainstream economics draws attention to the passive nature of money, i.e. Money as a means of exchange. Understanding money via the notion of debt reveals the powerful and even inherently oppressive side to the story of money. When money = debt, it does not contain any external references in the present but only in the future exploitation of labor, nature, and society. In his book "*The Making of the Indebted Man"*, Maurizio Lazzarato, inspired by Deleuze and Guattari, links "Nietzsche's *Genealogy of Morality*" to Marx's (*Das Kapital*) theory of money and provides an analysis of the state of neoliberalism today. He argues that debt represents an economic relationship that is inseparable from the construction of the debtor subject and her morals. For him, the debtor-creditor relationship is the product of power relations between owners and non-owners. According to

[136] Wray, "Introduction to an Alternative History of Money, 12."

Lazzarato, this relationship makes class differences, an indebted class whose all aspects of life and morals are built exclusively on debt repayment.[137]

Now, if cryptocurrencies can provide the condition in which economic debt renders incoherent and obsolete and a new form of collective indebtedness takes the role of capital, can they still be considered as an internal transition in capitalism? If they can create a new possibility for regulating human productive activities in which intermediaries are eliminated and governance is fully decentralized, and money becomes something less than itself, are they still starting an internal war with banks and states? I think no, the whole point is our understanding of money and cryptocurrencies. It is important how you call something.

The Austrian understanding of money does not allow the possibility of a future existence within a decentralized logical unfolding as expressed through cryptocurrencies outlook. The right-wing libertarians use their historical knowledge of money and banking as an ideological power and kill any possible futurity which may come with the emergence of cryptocurrencies. They argue that cryptocurrencies are the enemy of central banks and powers, but they want to rebuild the same structural power in new forms with cryptocurrencies, the fact that Catherine Malabou explicitly points out in her article, calling the war between cryptocurrencies and central banks an internal war in capitalism and a war between two brothers. From this we see her understanding of money unconsciously presupposes the master narrative about the nature of money and limits her to see the true potentialities of cryptocurrencies and move beyond their capitalist emergence.

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[137] Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition, 11.*

In short, the libertarian version of reality traps us with a false contradiction. This contradiction is false because one thing is common to both sides of this contradiction: the absence of futurity. This article believes that reconsidering the ideas about money and exchange is necessary to see any possible future with cryptocurrencies and it is only through this process that one can affirm a true contradiction with the orthodox literature, and unfold the truth of cryptocurrencies. According to Badiou, it is only a true opposition that gives us the opportunity to picture a real future:

> "An opposition between Western capitalism's a-symbolic vision, which creates monstrous inequalities and pathogenic upheavals, and the vision that is generally called communism". -- Alain Badiou *"True and False Contradictions of the Crisis"*

In Search of Lost Time

In capitalism, the future is not real, but only the mechanical repetition of the past in the present. In *'The Communist Manifesto'* Marx wrote that in the capitalist world, the past dominates the present. According to him, in capitalism, the socially necessary force becomes the abstract force of labor. The form of value and the form of commodity take the form of capitalism. Value loses its quality and becomes alien to itself in the language of numbers. Human activity is thus violently reduced to working hours and becomes idolized in the form of goods and commodities. This destructive apparatus is exacted and colonized via the libertarian story of money when it is a means to store value. Said differently, Money is the domination of past over the present, the best domination of the past over present and thus cancelling out any future outcome not already entailed by a stabilized store-house of money.

Cryptocurrency gives us the opportunity to think against the grain by retroactively interpreting money and its nature as gift exchange. The revolutionary character of cryptocurrencies is not just in cutting off governments from producing money, but in and through itself provides us the ability to make other kinds of productive relations possible. Graeber in *"On the moral grounds of economic relations: A Maussian approach"* argued that there are three moral grounds for productive relations which are communism, hierarchy, and exchange. He stresses that capitalism elevates exchange above the other principles, hierarchy and communism, and develops its morals which produces a calculating subject who conceives life as a marketplace and herself as an isolated individual entering exchange relations and then introducing money as the best way to organize exchange relations.[138] However, according to him, communism is the basis of many everyday human relations and human cross-cultures around the world share the fundamentals of communism.

Cryptocurrencies enable us to extend the logic of communism, from each according to their abilities and to each according to their needs, to workgroups. Because of the transparency and confidence that blockchain builds infinitely and is not perceived in the present, humans can accumulate their surplus and build communities that do not work based on capital predicated on the logic of profit. Cryptocurrencies remove the need for centralized verification and planning. They can provide the condition in which new ways of governance and responsibility can emerge and become obsolete from the previous forms of exploitation. Debt, which takes on an economic form in the right-wing liberal understanding of money, can take on an ethical form. In this case, the economic debt can be obsolete and take its new form, which is collective. This mutual indebtedness would seek to reconstruct the field of ethics and as a result, create new subjectivities that are indifferent to the criteria of judgment and are really this-worldly.

Decentralized Autonomous Organizations (DAOs) are a specific expression of the potentials of cryptocurrencies. In simple terms, DAOs are a new type of organization where all

[138] Graeber, *Debt, the First 5,000 Years, 65*.

members' interactions are mediated by smart contracts and cryptocurrencies. In a true liberatory DAO, cryptocurrencies would be only used to keep track of the time that each member devoted to the community to rearrange human relations with the aim to increase equity and fairness within the community. Individuals' relations within these communities would be not based on exchange but based on communism and thus, money's destructive role as a store of value would be eliminated. The DAO would take the responsibility of all its members and no one considered herself as an isolated subject entering exchange relations. DAOs can create an altar-economy based on a total system of giving with a complex space of relations in which tokens and coins only determine the extent to which individuals participate in human production, a human space full of the generosity of value exchanges and not liquidity of money. This can lead to a transition from the idea of money where it corrupts value, which is a qualitative concept, and stores it in the language of numbers and provides the state of exploitation of labour and time. Remember, '**We humans are coins and currencies'**. When there is no money, as a means to store value, there is no creditor/debtor relationships and debt, and there is no class struggle. In this society called de-centralized communism, debt would be rendered incoherent and thus disappear, and humanity may have the opportunity to pay her debt to herself, which is her future.

Conclusion

In this article, I have shown that Malabou's interpretation of cryptocurrencies presupposes the master narrative of the Austrian approach to the concept of money and its functionality socially, politically, and economically. And it is for this reason that she is dubious about the emancipatory potentialities of a cryptocurrency social space and calls the war between decentralized currencies and central banks an internal war. I have argued that the mainstream economic regime of power reproduces its historical understanding of money in the domain of cryptocurrencies, and thus eliminating the possibility of any unpredictable future with cryptocurrencies. I also have shown that there are alternative explanations of money from the perspective of a decentralized ontology, a different narrative that traces the history of money to the old system of gift-giving and gift-receiving and equated money with debt. This is why we can reclaim a future not determined by a universal concept of money. This article argues that a new analysis of money and its functionality in the capitalist economy is required to see the truth of cryptocurrencies unfolding.

Lazzarato believes that neoliberalism is the privatization of the commons. In the neoliberal economy, Public goods such as health, education, and culture, along with other human needs, have taken the form of commodities. Community members have to pay to use these commodities, the money they earn from selling their labor, and it causes a distorted relationship, a dual mask to meet two values. If money is understood as a means of regulating the debt relationships of members of society, then one can imagine the revolution that cryptocurrencies can create in relationships that lead to production. This article believes that Cryptocurrencies are the socialization of the privatized. By cutting the hands of intermediaries and building a true transparent history of records, a new form of productive relationships can be made. Money can be passed through an infinite yet immanent domain of a decentralized ontological existence whereby the mode of production merges with the ownership of that mode as defined by all actors equally. If so, as Marx told us, one can exchange love with love and honesty with honesty. In a money-free society, morality can be redefined without the presence of the "Big Other." And the worker of Prévert's poem no longer taunts the sun that his employer has robbed her time and her ability, indeed her very dignity. But she may say to the sun this time:

“Eh, Camarade Soleil,

tu ne trouves pas

que c'est plutôt magnifique

de reprendre une journée pareille

à un patron"

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