

# **For a Better Form of Money**

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# Abstract

This work has been developed as part of a wider research regarding the nature of Money as an abstract concept. Herein I am mainly focused in money's "Credit & Debt" facet according to Alfred Mitchel-Innes' Credit Theory of Money. I am using a semiotic framework to assess to which degree various forms of money fulfil the classical trichotomy of functions (measure of value, store of value, medium of exchange) with a particular focus on fractional-reserve banking "credit-money". To this purpose am using a controlled lexicon to help differentiating between *valor* (the value of money as a symbol which represents its own trichotomy of functions), value (the economic value) and worth (as a generic and contextual interpretation of value). During this work a distinction between *supra-monetary* agents and *intra-monetary* agents emerged, exposing how fractional-reserve banking establishes an irreversible state of eternal unredeemable debt. I argue that this eternal debt inevitably leads to endemic competition environments observed at the root of a wide array of societal problems. I also argue that by viewing economics as hard science that detached the economic and monetary subjects from ethics and moral, classical and neoclassical theorists have been disregarding the social contract innate to the "Credit & Debt" facet of money. The work further investigates how fragile the relation between productivity and value creation is within economic systems operating in economies served by fractional-reserve banking. I conclude that contemporary mainstream monetary theories and policies tend to favour commodity interpretations of money (aligned with classical and neoclassical views). These tendencies dismiss social sciences, humanities and liberal art contributes to economic and monetary disciplines. Finally, I suggest that it is only by creatively reviewing the way a monetary praxis interweaves the various the economic agents and reclaiming economics research to realm of the humanities, that societies can cultivate stability and harmony within their economic systems.

**Deke:** Jan, the ship is stable. They're gonna be alright. I need you to go home.

**Jan:** Fine. Turn the box back on.

**Deke:** I'll see what can d...

**Jan:** Now! Turn the box back on now.

**Deke:** Well, there's security protocol in...

**Jan:** Well, I don't give a damn. I got a dozen cameras on my front lawn, Deke. Do you want me telling them what's going on?

**Deke:** Jan, you have to trust us. We've got this under control. We've...

**Jan:** No, you don't. All these protocols and procedures to make it seem like you have it under control. But you're a bunch of boys making models out of balsa wood. You don't have anything under control.

*Argument between Jan Armstrong (Neil Armstrong's wife) and Deke Slayton (head of the NASA's Astronaut Office) after a serious incident involving Neil Armstrong in Gemini 8 in which NASA turned off the sound box given to Jan to hear all Gemini 8 communications between earth and the ship – taken from the movie First Man, 2018*

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## Grammatical first person disclaimer

It is often said that humanities and creative disciplines tend to use the grammatical first person (marked by words such as *I* and *we*) more than economic disciplines or exact sciences<sup>1</sup>. It is also repeatedly declared that first person pronouns hint a biased writing. For this reason many writers reject the use of the first person to retain credibility and opt for the third person (to state *one's* own perspective from a seemingly distant point of view).

To make sense of economics and monetary policies this work dives into other subjective fields of human knowledge (besides exact sciences like mathematics). Semiotics, logic, service and system design, and deontological ethics, all of which can help with their different methods and tones. Regardless of the discipline on which shoulders I'll try to stand, it seems pertinent to clarify I will use as many grammatical persons as needed to convey ideas as clearly as possible. I will try to be as impartial as possible and will use self-references sparsely to help me clarify this or other particular perspective. I believe that by using these references I will be exposing my bias leaving in your (the reader's) hands the freedom to judge if and where ideas on this work are clouded by my point of view. Refusing to use the first person as a matter of principle would force the use of the passive voice which is naturally inclined to create longer sentences. This is another reason to favour the use of the first person: the passive voice often drops the subject to the end of the sentence, sometimes even omitting it making it harder to read.

I will therefore be using *I* or *we* every time I need it.



# Barter as credit

Trading resources for resources will always be a common social gesture. Bartering is an accepted commercial activity we can say, and it's often free from any type of monitoring. It is a human right that can be sparked by mundane needs, by simple expressions of generosity and acts of gratitude and retribution. Philosophers have always looked at barter as a way to try to better understand money. For instance, when Aristotle wanted to explain what in the world actually gives money its value and legitimacy he thought about money as he would think about a commodity (Shroff, 2014)<sup>2</sup>:

Theorizing money can be traced back to Aristotle, who suggested that the most suitable medium of exchange was commodity and that all commodities have intrinsic value. (p.7)

Adam Smith<sup>[1]</sup>, regarded by many as the father of modern economy, in his belief that money was nothing more than a commodity closely followed and furthered Aristotle's belief. According to this historical understanding of money, before the 'invention of money' people would simply trade without it — and if there was no money we would need to assume that for a successful barter to occur, we would need a 'double coincidence of wants' wherein, during a transaction, both individuals must simultaneously have the good the other wants and want the good the other has.

But there is a non-mainstream yet very elegant theory that has also passed the test of time. Plato argued what later Alfred Mitchell-Innes developed and is now known as the Credit Theory of Money (Ibid, p.3), "also known as chartalism, which suggests that (instead of being a commodity) money is a symbol of a debt/credit relationship and derives

its value from its social meaning". In simple terms for Plato, Innes (and others), money is not a commodity but a social contract: an agreement of credit and its flip side debt.

So for Aristotle and Adam Smith, bartering is trading without money, thus in order for a successful barter to occur there would need to be a "double coincidence of wants". But for Plato and Innes, because money is a credit-&-debt social contract, money was always there since our first trades even if it had no physical form. My interpretation assumes that money has both properties simply because both properties have been observed and both have been useful to the study of money and economics. Much like light can be studied both as a wave and as a particle, money can be studied both as credit-&-debt and as a commodity: *credit-&-debt/commodity duality* of money.

More recently the anthropologist David Graeber in his book *Debt: The First 5000 Years* (2011), highlighted that this 'double coincidence of wants' has been poorly documented throughout history. By almost all accounts bartering is a complex ritual (sometimes involving feasts, violence, sex, dancing, and other complex human behaviours). At times, those rituals do not respond to immediate or essential needs but they are nevertheless enacted to establish trust, allowing for individuals to trade in future encounters. Even in its most simple forms, a bartering ritual can resolve itself without a 'coincidence of wants' by using an tacit or explicit agreement that guarantees a trading routine. The only premise that is necessary for simple trades to occur is that two people can build enough trust to meet and trade every once in a while. Graeber exemplifies introducing us to two neighbours<sup>[2]</sup> Henry and Joshua (Graeber, p.36)<sup>3</sup> [Figures 3 & 4]:

Henry's wife is chatting with Joshua's and

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1 Aristotle before Adam Smith, Karl Menger (1892) and Ludwig von Mises(1953) and many modern neoclassical economists assumed money-less civilizations come to market systems through barter transactions.

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2 Joshua and Henry are fictional characters that helped Graeber explain the types of stories in that had been documented in periods where civilisations didn't use physical commodities as currencies.

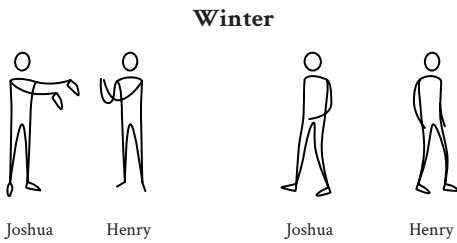


Figure 1: Joshua offers Henry shoes in the winter. Credit and debt are created.

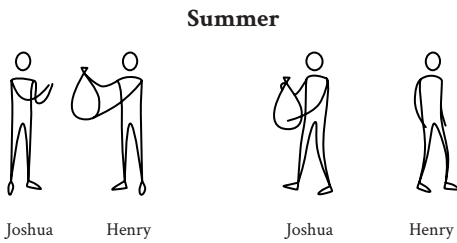
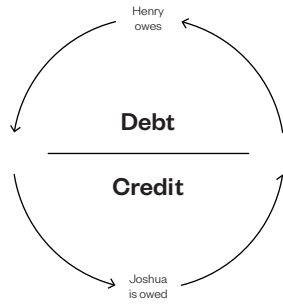
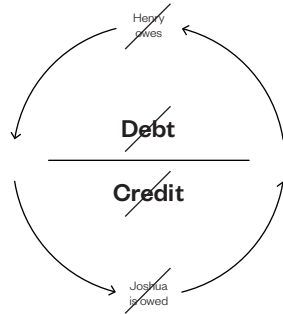


Figure 2: Henry offers Joshua potatoes in the summer. Credit and debt are canceled.



strategically lets slip that the state of Henry’s shoes is getting so bad he’s complaining about corns. The message is conveyed, and Joshua comes by the next day to offer his extra pair (of shoes) to Henry as a present, insisting that this is just a neighbourly gesture. He would certainly never want anything in return. It doesn’t matter whether Joshua is sincere in saying this. By doing so, Joshua thereby registers a credit. Henry owes him one.

Now here we might wonder why would Joshua be so generous to start with. Plotkin & Stewart’s study using the Prisoner’s Dilemma<sup>[3]</sup> might help us understand why generosity is an intrinsic part of human behaviour (University of Pennsylvania, 2013)<sup>4</sup>:

When people act generously they feel it is almost instinctual, and indeed a large

literature in evolutionary psychology shows that people derive happiness from being generous,” Plotkin said. “It’s not just in humans. Of course social insects behave this way, but even bacteria and viruses share gene products and behave in ways that can’t be described as anything but generous. “We find that in evolution, a population that encourages cooperation does well,” Stewart said. “To maintain cooperation over the long term, it is best to be generous.

So if just enough time is given, Plotkin & Stewart contend, elements of a collective that share the same needs and that inhabit the same space and time, will instinctively know that in the future a partner might have something that we might want. Humans will quickly assume that if we give something now, we can ask for something in return later.

A different study tested this theory with a simple mathematical model running the same Prisoner’s Dilemma. This second study further found that even if the partner fails

3 The prisoner’s dilemma is a standard example of a game analysed in game theory that wanted to show why two completely rational individuals might not cooperate, even if it appears that it is in their best interests to do so.



to retribute, by keeping the interaction, the individuals will “facilitate the evolution of co-operation” (Kurokawa, 2019)<sup>5</sup>. The prevailing final argument is that generosity is somewhat hard-coded in life (as in the phenomenon of life) because it generates long term cooperation which in turn leads to evolutionary success. This generosity/gratitude loop is and integral part of social cohesion construction and, economically speaking, is embodied in the Credit Theory of Money. Here, money acts as a bonding agent. In Joshua’s and Henry’s case the currency does take different shapes: the shoes (at first) and the retribution of potatoes (later) while the credit-&-debt money ‘property’ was there as a placeholder of value (positive and negative) in the time between transactions: when Joshua lost his shoes to Henry, Joshua gained credit; in turn Henry paid his debt by offering potatoes to Joshua later.

Some present-day ‘sharing economy’ systems like book-sharing schemes, skill-sharing credit systems or hour banks, are reinterpreting these same bartering techniques. But at the heart of these projects there is still a system of credit and debt designed to prevent deceit, frustration and loss of trust. It is rare to find ‘sharing economy’ projects that remove credit from its procedures that can operate in a global scale – exception granted to peer-to-peer (P2P) and wiki models that share knowledge, software and other digital assets but even these often have some kind of accounting and accountability structures and ways to nudge or enforce ‘good behaviour’. Accountability is a crucial aspect to money as both credit-&-debt and commodity’s interpretations. Generally speaking, across all types of commercial trades we now trust that when a transaction goes wrong, laws, courts, police, prisons and other contemporary institutions can ultimately enforce justice without the need for unregulated forms of power and violence. One of the main challenges for cryptocurrencies and

blockchain is to actually be able to replace this forms of authority. All these modernisations have indeed brought new power structures to the economic context. Undoubtedly the current monetary system and accountability system has been detached from Joshua and Henry’s generosity and gratitude loop: but credit and debt are still essential abstraction layers and crucial elements of all types of trading [Figures 3 & 4].

Looking at credit in particular we can quickly describe it as a placeholder<sub>(4)</sub> that the seller retains, that stores the value of the sale, until the seller later finds another useful trade, where he (the seller) becomes the buyer using that money/credit (placeholder of value) to acquire the right to another commodity or service. These measure of value, store of value, and medium of exchange are the three most important classic functions of money – the three primordial functions almost every economist in the world agrees money is apt to fulfil better than any other commercial asset or tool. I will elaborate more on the classic three functions of money later.

For now I am focusing on the notion that money is an abstract tool to build trust through systems of accountability observed in all forms of trade. To emphasis this idea, Graeber makes a compelling case for why the oversimplification of barter has done us wrong. Simply putting it, Adam Smith’s agenda, was to establish economics as an independent field of study. And that did not fair well with the notion that barter had been documented as a complex ritual concerned with documented as a complex ritual concerned with subjective interpretations of value, primal ‘instincts’ and behaviours, and moral:

For there to even be a discipline called “economics,” a discipline that concerns itself first and foremost with how individuals seek the most advantageous arrangement for the exchange of shoes

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4 The placeholder can come in the form of a token, a coin, and other representations of accounting. It can even be memorised.

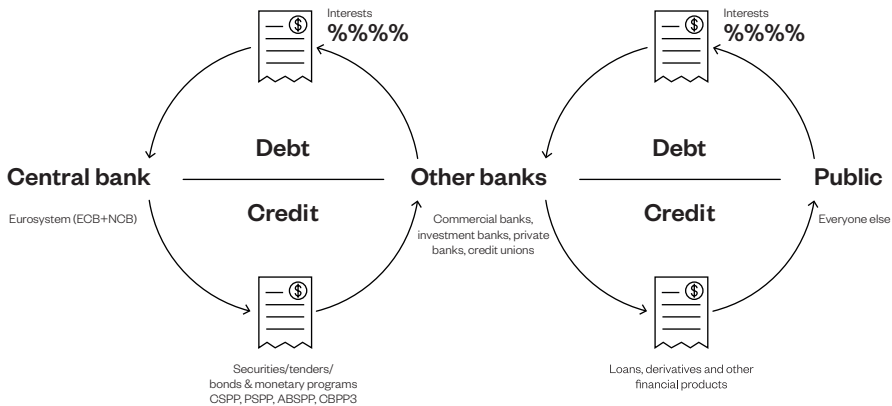


Figure 3: Much like Joshua and Henry's diagram modern Money mechanics (Credit and Debt)

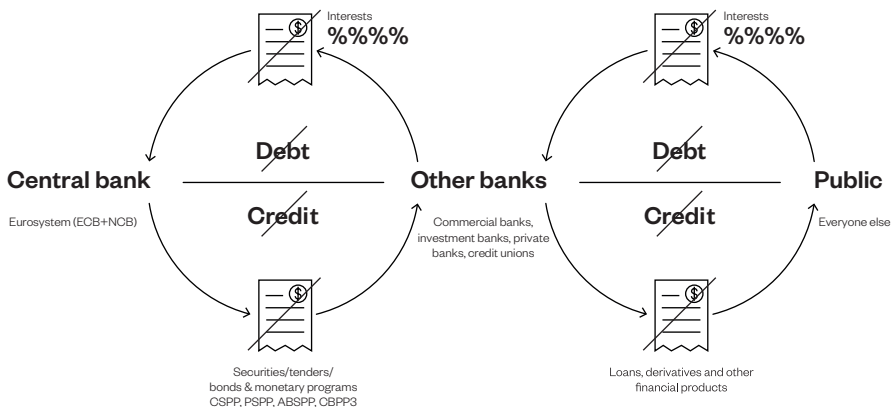


Figure 4: Unstable (Securities/tenders/ bonds & monetary programs CSPP, PSPP, ABSPP, CBPP3) and unredeemable (interests) aspects of Money

for potatoes, or cloth for spears, it must assume that the exchange of such goods need have nothing to do with war, passion, adventure, mystery, sex, or death. Economics assumes a division between different spheres of human behaviour. This in turn allows us to assume that life is neatly divided between the marketplace, where we do our shopping, and the “sphere of consumption,” where we concern ourselves with music, feasts, and seduction (Ibid, p.32)

This partially explains why in the year 2021 most mainstream ideas about money are still entrenched in this notion that money is just a commodity. One of the goals of this work is to

de-ideologise money as much as possible – to center it in the seek of balance and consensus. In all probability I will fail at it, but I believe a perspective is only as rich as the amount of viewpoints it can draw from. In other words, I hope that by trying to release my train of thought from any specific ideological rail I will able to build using different frames of reference at the same time

### Fortune-telling

The work of those who gamble on economic and financial forecasts has been almost as useful as the accomplishments of all the fortune-tellers in the world. Newspapers, special-

ised publications, experts, academics, bankers, intellectuals, entrepreneurs, managers and accountants, everyone has something to say about the future of economy. Still, no one so far was able to respond satisfactorily to the following question about Fractional-reserve banking money:

Where and when, in a world where capital flows freely and where the production of money is limited to some institutions, is created the money to pay the interest demanded by money issuers?

During this study, in an interview to an MBA graduate who works in a bank, the interviewee answered that “the money needed to pay the interest to the banks comes from the clients who would work and use the results of work (the profit from sales) to pay banks the loan and the interest”. This answer is insufficient and even deceiving. Bank customers (companies and workers and even some governmental institutions) are merely in the midst of a trading chain (of products and services). Although they use money in their commercial activities, they cannot produce the type of money required to pay interest. Banks often resort to pawn and repossessing to make up for what is not payable by the borrower. This allows for a conceptual and practical distinction between intra-monetary agents and supra-monetary agents:

**Supra-monetary agents:** are either granted the right to produce money and/or remain indifferent to monetary mechanics — Central banks and commercial banks,<sup>5]</sup> [the first two agents on Figure 3]

**Intra-monetary agents:** are prevented from creating the forms of money accepted and created by the supra-monetary agents — general public, companies, most public and private institutions [third agents on Figure

3] are some of these intra-monetary agents

We could however infer that when a borrower accumulates money in the chain of exchanges, he gains the ability to pay the capital (and interest) and that by doing so that borrower would be contributing to the increase of GDP. The commercial bank would get to keep the interest. The question remains: where does the borrower find the excess money to pay the interest? In that scenario, the central bank would be able to emit more money without devaluing money because new wealth would have been created to leverage that increase in money supply. It seems to make perfect sense, except for the part that the second batch of credit would be emitted after the demand for payment. Moreover, the tools banks have to measure the fluctuation of wealth lack precision and are very much detached from any code of conduct. There is no way to assert if a specific intra-monetary agent success injures or benefits another intra-economic agent. Mainstream economy sweeps this problem under the rug of ‘externalities’. Even if modern economies could accurately measure ‘externalities’ there is no monetary apparatus binding the generation, destruction and distribution of money to a particular sector of economic activity when it creates new wealth. So in brief, we grant the current monetary system a moral disclaimer and we also allow it to operate within mathematically impossible procedures: all intra-monetary agents need to redeem their debts before the money to that effect is created. In this scenario, much like in the game of Musical Chairs, when the music stops someone loses. Bankruptcy is therefore a demand of the prevalent *modus operandi*. And as constant crisis unfold the public is slowly losing faith in this system.

## Deus ex-machina?

It is naïve to think financial and economic indexes are closely related to the reality of intra-monetary agents. When GDP increases

5 Some emperors, and gods would also fall under this category

there isn't much in the current financial and monetary system ensuring that the quality of life of the population is improved. Besides that, when debt is paid, even if a central bank swiftly injects more money into the economy (with an adjacent interest rate) the amount of existing debt will always be always greater than all the existing money to pay it. This debt will be expanded and perpetuated. Are there reasons to be optimist? As Keynes(1963)<sup>6</sup> said:

This is only a temporary phase of maladjustment. All this means in the long run that humanity is solving its economic problem. I would predict that the standard of life in progressive countries one hundred years hence will be between four and eight times as high as it is to-day. There would be nothing surprising in this even in the light of our present knowledge. It would not be foolish to contemplate the possibility of a far greater progress still.

Any first year student of accounting and economics knows that the definition of a company is a legal entity (a representation of one or more people) who sells goods and/or services for the purpose of profit. Almost all economic agents are governed by this premise.

During the twentieth century it was established that only some financial institutions were authorised to create fiat money, so nowadays, monetary policies are strongly influenced and even defined by supra-monetary agents. This last group often operates within a vast and largely unrulled financial system. These institutions' purpose should be to maintain and improve the health of economic system. But the current paradigm sustains that even supra-monetary agencies can legally seek the accumulation of wealth through profit maximisation — financial entities who have the privilege to issue money also seek profit. And herein lies a large part of the problem. According to Krugman and Wells(2009)<sup>7</sup> :

One of the key themes in microeconomics

is the validity of Adam Smith's insight: individuals pursuing their own interests often do promote the interests of society as a whole(p.3)

This not only an issue of microeconomics<sup>6</sup>. The problems actually escalates in macroeconomics aggravated by the emotional distance, cultural differences, and even ideological splits between monetary decision makers (supra-monetary agents) and general population (intra-monetary agents).

The succession of bankruptcies, the lack of liquidity of destituted commercial entities, the aggravation of private and sovereign debt, the increasing economic gap between rich and poor, are clear signs that something is going wrong.

In the European Union, to address urgent economic issues, new collective funds have been created after the 2008 Crisis and more recently for the Covid19 pandemic, the but these monetary practices are not reforms and they are still grounded in the same monetary system (credit with an added interest rate). Our supra-monetary agents are simply not doing enough to solve any of the endemic problems. On the contrary. We are going at it again with the same strategies.

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<sup>6</sup> A abbreviated definition of microeconomics: 'The study of how individuals make decisions and how these decisions interact' (Krugman and Wells, 2009:p.3)

## Endnotes

- 1 To “We” or Not to “We” — The First Person in Academic Writing, Oxford Editing (7 Oct 2015) — Available at: <https://oxfordediting.com/to-we-or-not-to-we-the-first-person-in-academic-writing/> [Accessed 24 May 2019]
- 2 Shroff, S. (2014). Reimagining Money (W. Streeck, Ed.). — Available at: [https://www.academia.edu/7384606/Reimagining\\_Money](https://www.academia.edu/7384606/Reimagining_Money)
- 3 Graeber, D. (2011). Debt: The First 5000 Years. Melville House Printing.
- 4 Stewart A. J. & Plotkin J. B., Department of Biology, School of Arts and Sciences, University of Pennsylvania. (2013, September 3). Generosity Leads To Evolutionary Success, Biologists Show. ScienceDaily.— Available at: <https://web.archive.org/web/20201126140108/https://www.sciencedaily.com/releases/2013/09/130902162716.htm>
- 5 Kurokawa, S. (2019). The role of generosity on the evolution of cooperation. Ecological Complexity, 40, 100778. <https://doi.org/10.1016/j.ecocom.2019.100778>
- 6 Keynes J. M. (1963), Essays in Persuasion, New York: W.W.Norton & Co.,
- 7 Krugman, P. and Wells, R. (2009). Microeconomics. 2nd ed. New York, NY: Worth/Freeman.

# The Nature of Money

When discussed in isolation what money “is” may seem an esoteric matter of concern only to historians and a select few disciplinary specialists. This opinion, however, would be a profound error. The nature of money bears directly on the nature of the socio-economic processes that are core to the way we live.

(Armstrong & Siddiqui, 2019. p. 115)<sup>1</sup>

When considering the nature of money, economists and historians find no trouble in agreeing that money is a social and psychological construct. As Harari puts it (2015)<sup>2</sup>:

Money is ... a system of mutual trust, and not just any system of mutual trust: *money is the most universal and most efficient system of mutual trust ever devised.* (p.201)

The study of money is in some ways similar to the study of politics, anthropology, law, language, arts and other humanistic disciplines: if money is a concept it can be subject to the same investigation as any other idea. All humanistic studies can in some way or another share fields and a multidisciplinary approach can shed light on otherwise disregarded aspects of money.

Historically, cash (not money) is a direct descendant of units of measure of tradable goods (normally the weight of something valuable), but unlike cash, money doesn't require a material form. An initial broad definition of money is helpful to keep the subject present. So what is money?

Money is a tool to build trust via accounting and accountable systems of cooperation.

As society and technology evolved, so did money and it can now be transferred instantly over long distances without any attached commodity. For us, common users, money repre-

sents its own functions<sup>3</sup>; if we couldn't trust it as a tool that keeps its mathematical value it would be of no better use than any other run-of-the-mill commodity. This allows us to look at money as a symbol – its token ('coin') can be traded for different things at different times but in essence, it doesn't represent any service in particular nor does it represent any specific commodity – Money is a symbol of its own functions. Being a symbol (an abstract construction) it is capable of extending the traits of the earliest forms of currency, of evolving, and of being able to go to wherever humanity's reason and imagination can reach.

According to Harari, money is based on the notion of “universal trust: with money as a go-between, any two people can cooperate on any project.” (p.206). Harari warns that “these seemingly benign principles have a dark side”. By facilitating the global operation of anonymous market agents, they also “corrode local traditions, intimate relations and human values” (p.207).

If we take a small step back, the mere nature of global trading implies an idea of change. At a local scale trading forces a change of ownership (or right to a service). And when things and services are traded they carry with them artefacts from one system to another. Consequently, as the scale of trading changes so does the culture of all places involved in those trades. As Beer wrote (1974)<sup>3</sup>:

Humankind has always been in battle with his environment. But until quite recently in history our battles were on a reasonable scale, a human scale. We could alter our house, if we would brave the weather: we did not have to take on the whole city planning department and the owners of our mortgage and our overdraft.

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<sup>1</sup>The three functions of money are expressed in a system that facilitate transactions, retain value, and allow for book-keeping.

There are a few ideas we can take we can take from this:

- 1) global economics, monetary policies, ever growing forms trading, and technologic developments are adding complexity.
- 2) in state-money (money issued by states accepted at public pay offices) bureaucracy is inevitably at the heart of the system.

This present's us a dilemma: the variety and complexity is raising, however, bureaucracy struggles to accept variety and seems to be simply raising new barriers where once only 'natural'<sup>[2]</sup> frontiers used to stop us. For the world to be able to let go of its tensions, relax and stabilise, a bureaucracy needs to be able to accept difference and variety. Moreover, if we want to design a 'better bureaucracy' it's essential to keep in mind we should always make it easy to navigate. Service and System Design play an essential role. So how can we approach this complexity within organisation-al limitations of state-money and its essential bureaucracy? We need to start with the basics.

## Money basics

All monetary theories agree on the following trichotomy of functions which money must perform:

**Measure of value:** money allows us to measures the value of things precisely; although goods can be measured in rational numbers and even kept in books as real numbers, money provides an abstraction layer with direct mathematical precision for routine operations — imagine a transaction between a goat owner and chicken owner; both traders agree a goat is worth 9.5 chickens and they both want the animals

alive; money can be used to account for the difference

**Store of value:** in savings, instead of keeping pieces of metal, chickens or bags of potatoes (these can deteriorate and are not insured of value and acceptance by any contractual agreement), money serves as a contract between its issuer and its bearers; under this proposition money is a formal assurance that certain conditions will be fulfilled; if these conditions are of any value for the society, money is of purpose and significance

**Medium of exchange:** money replaced barter goods and old forms of currency in our current commercial exchange; with money we go to the supermarket without taking goats, chickens, heavy pieces of metal or even pieces of paper. Money is again here an pre-agreed contract – we know it will be accepted by a vast array of sellers.

Throughout time, money, this very special abstract construction, brought civilisation a great deal of changes. Money carries incalculable benefits but, as stated before, it can also bring nefarious consequences to its users.

It is futile and sometimes even misleading to assess money's value in simple numeric terms, as if all values embedded in trading could be quantified by applying rules of calculus. Mainstream economics, in the effort of turning economics into an amoral and impartial field (like physics or chemistry) has favoured a view of money that accounts mainly for its commodity aspect. Indeed money has a commodity facet. But it also has a social one. By the end of this chapter I hope to have shown that when we consider that social aspect the flaws of our current monetary system become evident. I will argue that economics is a social science and, similarly to other social sciences, it uses statistics and other mathematical tools. But its character can't be reduced to the nature of those tools. As such it must dare

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2 This distinction between "natural" and "artificial" is here for demonstration purposes. My perspective is that, in an the broader picture, "artificial" human constructions are part of the "natural" world.

to walk the same paths of philosophy, politics, law and other humanities.

## Semiotics application

Monetary structures are social constructions. The ability to trade, much like the ability to read and write, can be a common good from which we all benefit. Taking this analogy further we can think of monetary structures and their rules the same way we think about linguistic structures and their rules.

There are almost as many monetary systems, theories and models as there are alphabets and scripts, perhaps even more, and on closer inspection all monetary systems share some kind of elemental logic, just like alphabets and scripts. Therefore, to demystify the underworld of money I chose to start this research with a semiotic approach.

Semiotics studies the value of signs and suggests an effective framework for the analysis of language. The analytic tools of semiotics can inform most, if not all logical reasoning. In this sense, it is useful to consider money as a *sign* — by Peirce's (1902) original definition of a sign, as stated and introduced by Justus Buchler (2012)<sup>4</sup>.

A sign or representamen, (as) something that stands to somebody for something in some respect or capacity. (p.99)

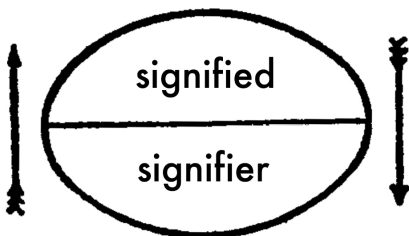


Figure 1: Saussure's sign's: actual denomination | Ed: replaced the initial terms for Saussure's own words

Signs are cultural constructions.<sup>[3]</sup> "According to the relation of the sign to its object" (Peirce, 1902)<sup>5</sup> there are three types of signs:

**Icons:** which carry a formal resemblance to the object (like a pictogram)

**Indexes:** which point at the phenomenon (smoke is an index of fire)

**Symbols:** which do not need to relate to their meaning in time and space so they are easily removable from their context; they do not need to share any quality with what they refer to; symbols are defined by a previously agreed "law" and can be based on arbitrary criteria; the radioactive and biohazard<sup>[4]</sup> signs have no resemblance with the shapeless concepts they announce; a font for a specific brand logo doesn't have to share anything with the brand's values; a cross, a dove, two triangles, are not consequences, causes or depictions of the dogmas of any set of beliefs; these are all examples of symbols — arbitrarily pre-agreed signs.

In this sense Money is a symbol. But what values does it represent? The notion of value is omnipresent in both semiotics and economics. In rhetorics, having various meanings (values) for the same word is of great power. The fact remains, that value can mean different things depending of the context in which it is used. Hereafter, to dissect the subject of money under a semiotic framework I will clarify: when needed and used in a strictly semiotic sense, I will write *valor* (value in Latin and italic) — assuming that the value of a sign (*valor*) depends on the context and rules of a specific

3 A small but important footnote to state is that not all information transmission needs to have its origin in human intention but because money is a human construction, I will refer to signs as cultural constructions.

4 Radioactive and biohazard symbols were intentionally designed as symbols by Dow Chemical to be both memorable and meaningless, so as to avoid any chance of cultural misunderstanding



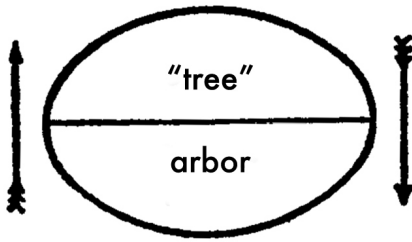


Figure 2a: The ('signified') English word "tree" representing the same French term *arbor* (the 'signifier') – this is how Saussure presented this concepts – Illustrations, Course in General Linguistics, Ferdinand de Saussure (1966)

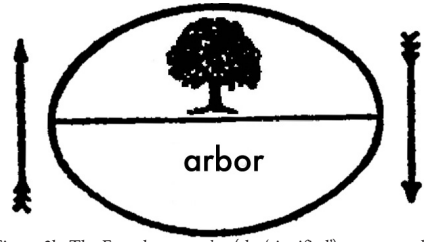


Figure 2b: The French term *arbor* (the 'signified') represented by a pictogram of a tree and the English word "tree" (two 'signifiers')

semiotic system. In economics the word value mostly refers to the utility or desirability of a good or service. This last interpretation of the word considers that the value of something has a subjective nature (it can change from subject to subject depending, for instance, on human physiological needs – which are completely unrelated to any semiotic system). In brief, from this point forward, **worth** (as a noun) indicates a vague use of value, free for interpretation according to the context; **value** (in regular type and no quotation marks) invokes the economic value<sub>[s]</sub>, whereas **valor** will always refer to semiotics.

Most economic views accept that the *valor* of money (the semiotic 'value') is subjected to the fulfilment of the previously mentioned three basic functions (measure of value, store of value, medium of exchange). On the other hand, the value of money (the economic 'value' of money) is not consensual. This monetary value will be explored later in the sub-section: *'What's the relation between a monetary system and GDP?'*

### Saussure's signifiers and signifieds

According to the terms Saussure used in his work *Course in General Linguistics*, all signs are composed of a 'signified' part (the concept) and a 'signifier' in which humans recognise the meaning (the 'psychological imprint'). Figures 1 and 2(a & b) visually capture this notion. These apparently simple diagrams

show a vertical reciprocal relation between whatever concept one wishes to materialise and whatever 'psychological imprint' we keep in our mind.

The beauty of delving into a constructivist theory of signs is the tautological nature of signs themselves. Any form of communication chosen to convey ideas about signs will need to use signs to illustrate the components of a sign: the 'signifier' and the 'signified'. This renders all expressions of meaning related to these concepts seemingly redundant. Figure 2(a&b), for instance, illustrates how the same 'signifier' – the written French word *arbor* – can relate to two different psychological patterns (the idea of 'tree' written in the form of the English word 'tree', also illustrated by a pictogram of a tree). Upon closer inspection we realise that the same figures could convey the same message, keeping all statements true, if the reading would be vertically inverted. Compare Figure 2a and Figure 2b captions, you will recognise both are true and both expose the same. Saussure acknowledges this in Chapter I of the section 'Nature Of The Linguistic Sign':

The two elements ('signified' and 'signifier') are intimately united, and each recalls the other. Whether we try to find the meaning of the Latin word *arbor* or the word that Latin uses to designate the concept 'tree', it is clear that only the associations sanctioned by that language appear to us to conform to reality, and we disregard whatever others

5 Not necessarily a synonym of price

might be imagined. (pp.66-67)

The debate into linguistics is a long and deep one, far more than the scope of this book<sup>[6]</sup>. For this reason, and as this is a work about money, to construct our most simple symbol for money I will solely borrow from Semiotics what I need:

**From Saussure:** the vertical reciprocal relation between 'signified' and 'signifier'; the differential horizontal relation

**From Peirce:** the three types of relation of the sign to its object (icon, index and symbol); the definition of sign as 'something that stands to somebody for something in some respect or capacity';

Back to money — we reiterate our basic definition of money according to the Credit Theory of Money and the mentioned three principles:

Money is a tool to build trust via accountable systems of cooperation, and...

Money is a symbol that stands to an accountability system for the fulfilment of the three basic functions:

- Measure of value
- Store of value
- Medium of exchange

This means that money can take many shapes but according to the vast majority of theories and this text, its full *valor* is maintained when it is capable of generating trust, and when it is a safeguard to the three fundamental money functions. There is no form of money that can perform all three functions forever and for everyone but, depending on the intended system of cooperation, some forms may be closer than others. Some types of money do not even

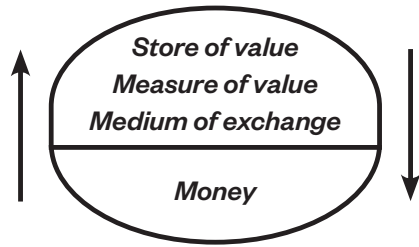


Figure 3: Simple money sign: the 'signified' concept are money's three basic functions; the English word 'money' is what, for us the society, represents the three money functions.



Figure 4: Goods (and resources) can be used as means of exchange, they are not always capable of storing and measuring value precisely.

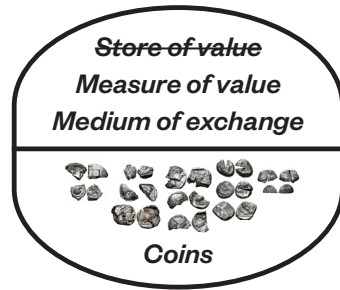


Figure 5: Hacksilber and coins can be means of exchange, accurately measure value; but are unreliable to store value

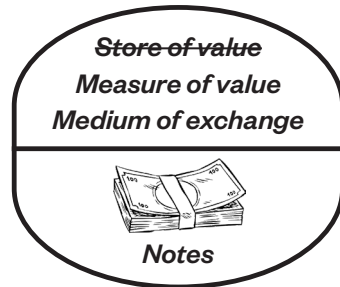


Figure 6: Paper money can be used as medium of exchange, measure value; but it cannot store value efficiently

6 For a far-reaching analysis of different definitions of language refer to *Language and Linguistics* (Lyons, 1981).

attempt to fulfil the essential three monetary functions outside a very specific context (take casino chips or supermarket vouchers for instance). To others, their very form and context prevents it — like ‘yard sticks’ or ‘salt’ which particular physical and contextual limitations. Nonetheless we will still refer to them as money throughout this text (we will consider everything that has currency as a monetary system

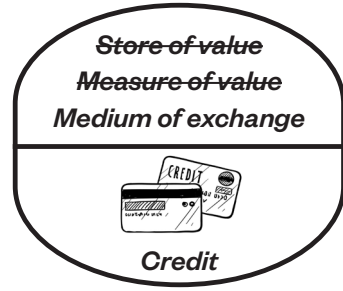


Figure 7: Credit can be used as means of exchange, but almost all of current credit-money forms are unruly and unruled and thus failing to fulfil money’s basic functions

## Money’s *valor*

This section exposes where some of the trading tools may fail to fulfil the *valor* of money if we intend to understand and design a ‘better’ form of state-money. To analyse bartering-commodities, ancient types of currency, coins, bank notes, cheques and various forms of credit, I will hold money’s trichotomy of functions as a first marker of the problem.

Figure 3 shows how Saussure’s vertical relation between ‘signified’ and ‘signifier’ can generally be applied to the money symbol. Figure 4 attempts to represent the *valor* of money of basic commodities, such as farming goods: although we can use these commodities as means of payment, not all goods can be divided into smaller fractions. Therefore this form of money is far from being an effective measure of value. It is also hard to make sure live goods keep their value for long periods of time as some are quickly perishable and lose their virtues as a relatively short period time passes(store of value).

To enhance money’s capacity to store value some communities (nations and empires even) designed their money based on some type of direct correlation to a durable substance: pounds and shekels<sup>[7]</sup> were initially divisible measurement units that, amongst other things, measured precious metals like silver. Figure 5 shows some early attempts of putting

this concept into practice. Coined pieces of metal would last longer than grains of barley, spices or eggs. These early coins could have different weights and could be carried by all traders. But as time passed, the value of these pieces also changed: in some cases their market value (the value of the metal) became higher than what they represented. In others it decreased and whatever unit of measure could previously pay for a whole year of a skilled labourer could no longer satisfy the payment at a later date<sup>7</sup>.

It’s tempting to say that political instability would be the sole reason for these fluctuations. It’s hard for any form of money to keep its value if it is not acknowledged by some stable form of authority. As Graeber (2011)<sup>8</sup> explained:

If we look at Eurasian history over the course of the last five thousand years, what we see is a broad alternation between periods dominated by credit money and periods in which gold and silver come to dominate. Why? The single most important factor would appear to be war. Bullion predominates, above all, in periods of generalized violence. There’s a very simple reason for that. Gold and silver coins are distinguished from credit arrangements by one spectacular feature: they can be stolen. (p.213)

For argument’s sake, let’s imagine a resilient

7 “The first recorded use of money was in ancient Iraq and Syria, in the Babylon civilisation, around 3000BC. In Babylonian times people used chunks of silver which were accounted according to a standardised weight known as a shekel.”

and fair empire would have kept the same coin system throughout times. Would it be possible to “store value” in coined metal? The physical properties of metal, which can erode, alone would have prevented initial coins from keeping their value as they passed from hand to hand during a long period of time.

This inability to retain value is also expressed in modern money forms [Figure 6]. Bank notes, cheques, securities, and other current forms of money such as electronic money can fluctuate in value even if there is political stability. Not so much because of erosion but because of the way we have designed our monetary and financial tools: the quantity of money supply, interest rates, exchange rates and other trading “conventions” influence money’s value. Central banks can change money’s value by decreasing or increasing interest rates and more importantly by creating more or less credit thus obstructing or facilitating the access to money, thereby decreasing or increasing money’s value and inflating or deflating prices. To a lesser extent perhaps, the ‘store of value’ function of money is in also weakened by the current financial, economic and monetary system.

## Credit-money

Credit (Figure 7) deserves its own section not only because it is considered the most coherent and comprehensive form of money according to various economists<sup>[8]</sup>, but also because it is a form of money that opens a clear space for a Social Contract — in the form of an IOU<sup>[9]</sup>. Alfred Mitchell-Innes clearly summarised this idea back in 1913<sup>9</sup>:

A first class credit is the most valuable kind of property. Having no corporeal existence, it has no weight and takes no room. It can easily be transferred, often without

any formality whatever [...] Whether... the word credit or debt is used, the thing spoken of is precisely the same in both cases, the one or the other word being used according as the situation is being looked at from the point of view of the creditor or of the debtor.

For Armstrong & Siddiqi (2019)<sup>10</sup> this idea peacefully coexists with Knapp’s State Theory of Money’ (chartalism) in which money is seen as a legal token issued by the state “which is accepted at the public pay offices”<sup>11</sup>. However the vast majority of credit/debt we create and use today is not really state money. It is instead an extensively commoditised and unregulated form of money tied to a wide array of distinct protocols that vary from contract to contract, institution to institution, and country to country. For instance: a mortgage can allow a bank to create money against

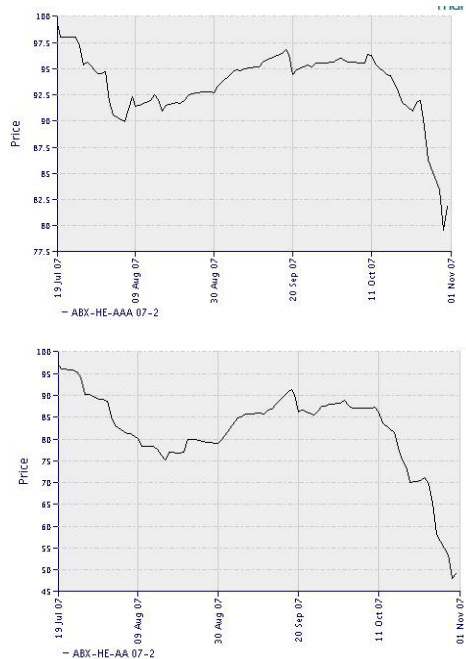


Figure 8: Above the Collateralised Debt Obligation’s (CDO) crash in November 2007 at the beginning of the 2007/08 financial crisis: AAA tranches value (just over 80 cents in the dollar) and AA tranches (just under 50 cents in the dollar).<sup>24</sup> It is hard, if not impossible, to normalise and legislate on the value of credit/debt when it becomes commoditised in a global free market.

8 Phil Armstrong, Kalim Siddiqi, Henry Dunning Macleod, Alfred Mitchell-Innes, Joseph Schumpeter, to state a few.

9 A signed document acknowledging a debt.

the guarantee that the bank will gain at least the value of the building (plus interest); a simple personal loan granted by a commercial bank can also be leveraged by any other form of property of the guarantor (the person who borrows money can ‘pawn’ something agreeing that ownership of the property will revert to the money lender in case of default); in countries where education is privatised, a student loan can also be given against the promise of labour, forcing young adults to work for a public or private lender until the loan has been repaid. At a macro scale conflicting interests have kept effective regulation and fiscal policies at bay. Tranches in mortgage-backed securities can bind and scale all types of credits/debts with a panoply of rather creative financial tools such as collateralised obligations (amongst many others<sub>[10]</sub>).

In the current circumstances credit-money is not a standardised form of money. Its various inconsistencies and the unregulated way it is circulated prevent it from retaining its value, making it an unreliable way to store and measure value. As if these issues weren’t enough, the interest compounded on most forms of credit cast up to a total amount of debt which is impossible to redeem. The total amount of Debt accumulated by governments, corporations and household is approximately 322% of global GDP (Tiftik & Mahmood, 2020)<sup>12</sup>:

Global debt across all sectors rose by over \$10 trillion in 2019, topping \$255 trillion. At over 322% of GDP, global debt is now 40 percentage points (\$87 trillion) higher than at the onset of the 2008 financial crisis—a sobering realization as governments worldwide gear up to fight the pandemic.

## A market based on perpetual debt

<sup>10</sup> Short list of creative financial mechanisms and tools for credit/debt trading: Shares, Bonds, Securities, IPO, ICO, CDO (collateralised debt obligation), CFO (collateralised fund obligation), CMO (collateralised mortgage obligation), CLO (collateralised loan obligation)

The advantage of the gold standard was precisely the imposed scarcity, while the problem with fiat money is that it can be “dropped by helicopters,” as in Friedman’s famous analogy. Hence in the absence of linking money to gold, we must find another way to constrain its supply so that the money supply just matches demand at a stable price.

L. Randall Wray (2014)<sup>13</sup>

The fractional-reserve banking system (used in most modern economies) comes with detrimental aspects to the economy that monetary policy authorities find hard to solve:

By adding interest rates, the fractional-reserve banking system dictates that at any given moment, the existing debt is always greater than the total amount of money available to pay it.

This particular aspect creates scarcity, not by limiting the pool of money, like the gold standard (and some cryptocurrencies), but by constantly issuing more debt than currency to pay it. The total debt of a western modern monetary system can be calculated where:  $M$  = amount created and owed,  $C$  = initial capital or monetary basis,  $i$  = interest rate,  $t$  = time,  $D\infty$  = perpetual debt.

Total debt amount (calculated with simple interest, only on the initial capital):

$$M = C + (C \times i \times t)$$

If  $C > 0$ , if  $i > 0$  and  $t > 0$ , then the money in circulation is always less than the existing debt:

$$\underbrace{\text{Money in circulation}}_{Ca + Cb + Cc \dots} < \underbrace{\text{Money owed}}_{Ma + Mb + Mc \dots}$$

To calculate the total of irredeemable debt we only need to subtract money in circulation to the money that is actually owed:

$$(Ma + Mb + Mc \dots) - (Ca + Cb + Cc \dots) = D\infty$$

This implies something very simple: when the wheels of economy slow down, less money is created, and normal obligations persist, bankruptcies and distressed equity buyouts will happen. They are the only fall back plan.

Banks have been agile in protecting their ‘interests’ so this is usually not a dramatic problem for most of them. But even these supra-monetary institutions are not always on safe ground. Smaller commercial banks are often not resilient enough to endure moments of continuous economic contraction. The unruly growth of the financial world operating within the current monetary system, for instance, has proven catastrophic, as witnessed during the 2008 crisis. As stated by Mervyn King, former Governor of the Bank of England, to the Worshipful Company of International Bankers (2009)<sup>14</sup>.

Banks are dangerous institutions. They borrow short and lend long. They create liabilities which promise to be liquid and hold few liquid assets themselves.

Focusing on a commodity-based interpretation of money, the current fractional-reserve banking system is bound to create scarcity of money. When it comes to the common citizen who has no power to create money, this system forces individuals and organisations involved in normal economic activity to constantly produce and compete to amass enough money to repay the debt — even if their products or services are not creating any real wealth. If someone can obtain money from selling something, then debt can be repaid. As a consequence humans regularly find themselves working for the sake of productivity alone. This obligation can be seen as a negative externality that the banking system passes to their clients (Dyson et al., 2016)<sup>15</sup>:

Banks reap the private benefit of creating money, in the form of interest on the debt

that backs that newly-created money.

However, the social costs of their creation of money fall upon society more widely. Since banks do not face the ‘negative externalities’ of their private money creation, they face powerful incentives to create ‘sub-optimally large’ volumes of credit and money, and direct most of this credit into property and asset markets.

Most monetary theories agree that some kind of reference (from money to value) is essential. In that respect, be it a bank-note, or credit account, it is reasonable to believe that money’s *valor* (the trichotomy of functions) and the social contract it performs are still the most agreeable safeguards of worth for those who use it: we think money is of worth because we can trade with it (it is a means of exchange), we can use its mathematical nature (it is measured in numbers) and we can save it (it is a store of value). This is the present scenario: current monetary systems and economic models are failing heavily to keep this canonical trichotomy of functions in almost all the forms of money. Some monetary theorists are so baffled they are willing to forget money’s classical triad of functions. For instance Stefano Sgambati, sociologist and lecturer at City, University of London, in his paper *The Significance of Money Beyond Ingham’s Sociology*<sup>16</sup> (2015), surrenders money’s *valor* to two other functions instead of the afore-mentioned triad. By analysing the financial and monetary anomalies that occur within credit economies Sgambati concludes that the key attributes of money are not the classic trichotomy of money’s functions, but money’s conceptual nature of ‘purchasing potential’ and ‘power to buy time’.

But what does this even mean to a citizen? In rough terms it means that according to Sgambati, money’s functions are not storing value, nor measuring value — money simply has to 1) represent that someone can buy something, and to 2) keep the ball rolling.

Reverting to the semiotic analogy – money

as a linguistic symbol: the study (and practice) of a language can be more or less ‘prescriptive’<sup>17</sup>. Some languages accept new vocables without relinquishing classical forms (words do fall out of use but they stay grammatically correct and you can still use them to write a perfectly valid contract for instance). Likewise, the study of money and economics can preserve older meanings and functions of money (the triad of classical functions in this case) while acknowledging the need for new instruments and perspectives. Therefore under a less restrictive approach there is no convenience in abandoning money’s classical trichotomy of functions in favour of the ones Sgambati takes from Geoffrey Ingham (British sociologist, political economist). Sgambati’s conclusions seem to be prudent though:

To bring the question of ‘money as value’ into being, we must start from the common sense of what makes money so *worth* being pursued in the daily praxis: *purchasing power*.  
 As ‘credit cycles’ unfold, economic agents are likely to get caught in speculative practices of debt financing, to the point they will seek money to merely pay interest on outstanding liabilities (see Minsky 1977; 1986; Ingham 2008, pp.40–43; Nesvetailo-

va 2007; 2010)

When the economy reaches this ‘Ponzi stage’, money is sought-after mostly to procrastinate the final fulfilment of debt commitments. As it were, towards the end of its ‘life-cycle’ money reveals itself as the power to buy time.

This vision highlights the ‘eternal-debt’ design deficiency entrenched in the fractional-reserve banking system. When debt is unredeemable the only way to purchase time is to push more credit and debt into the system. Sgambati realises the predicament and warns:

What everybody fails to see, or perhaps choose to ignore, is the material cost that many must incur or anyway charge for ‘living the dream’ of owning (in fact, *owing*) without necessarily having to pay for it: debt without end... Admittedly, by conceptualising money in these terms I am here calling for a tremendous re-consideration of what is today significant about it. For it is not true, as Ingham (2004, p12) asserts, that “something can only be issued as money if it is capable of cancelling any debt incurred by the issuer”. Rather, something can only be issued as money if it is capable of buying time for both the issuer and the

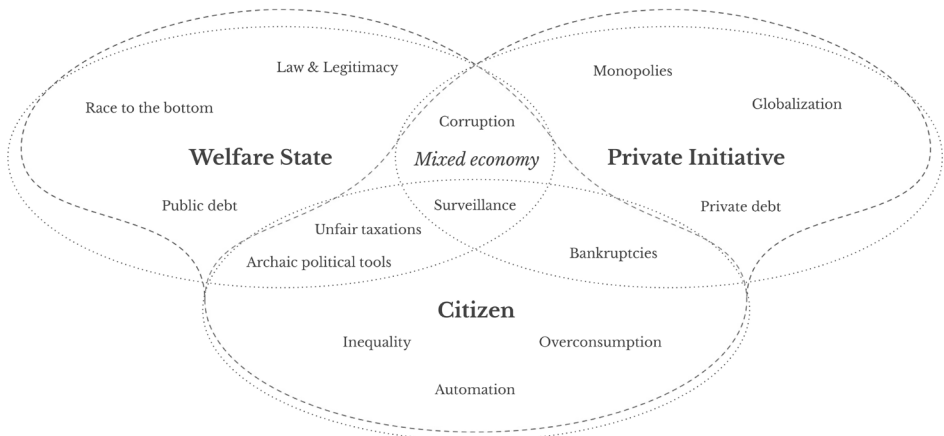


Figure 9: The wider Problem space of Fractional-reserve banking money: in which the citizen, private sector organisations, and the state, are left unequipped to deal with a wide array of systemic socio-economic challenges.



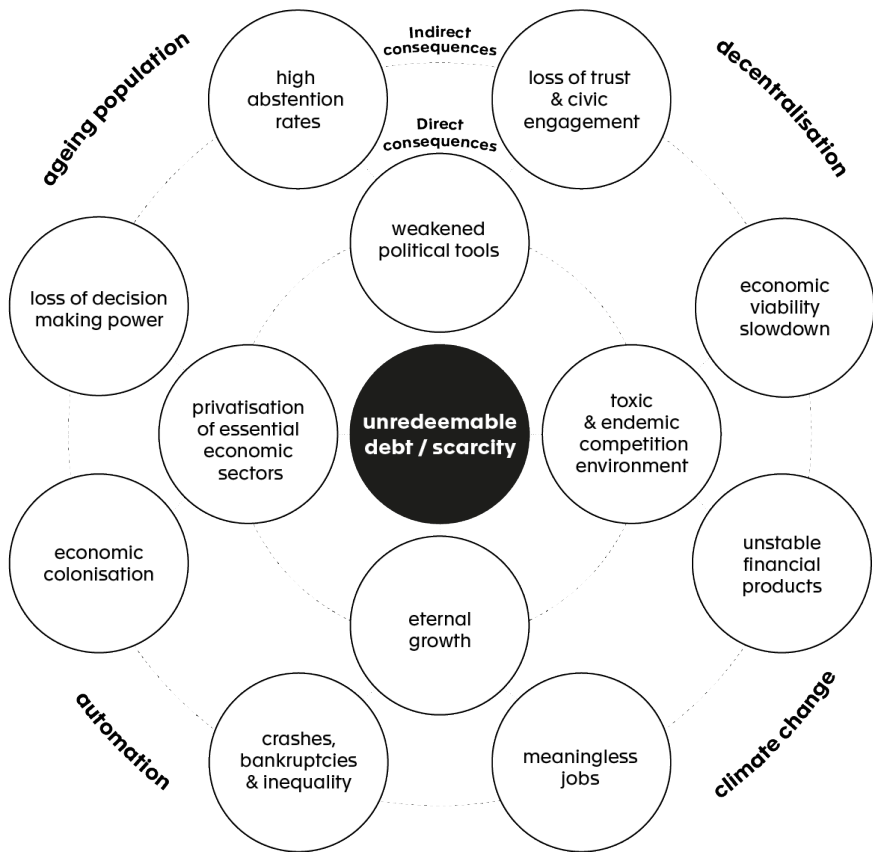


Figure 10: A wheel of direct and indirect consequences and four external pressing signals of a near future

acceptor, by granting them the possibility to access historically-specific and contextually contingent markets for debts. As a result, money cannot exist without the simultaneous existence of a *debt that it will never redeem* because of an underlying conflict of interests among proprietors that nonetheless converge on the necessity to keep the overall spiral of debt relations ongoing. (pp.27–28)

Sgambati specific interpretation of money’s *valor* and value does therefore resides in these two innate properties: its *purchasing power* and its *ability to buy time*. But what Sgambati doesn’t attempt to explain is why a new monetary model has to implicate a *debt that it will never redeem* in its design. It is

certain however, that the current monetary financial tools of fractional-reserve banking (bond, securities, tenders, derivatives) and big monetary programs are all trapped by this predetermined fate.

There is an added scale problem inherent to this system: while the potential benefits for the population are watered down during a trickle-down process, regular citizens are left outside dealing only with money in their commercial bank accounts. And this money always comes from some form of loan: even the money to pay for work always comes from a loan somebody else took out that hasn’t been paid yet. This unredeemable deal creates an endemic competition environment and pushes for the notion of eternal growth — where the only way out of bankruptcies is to continu-



ously push more credit and more debt into the system. This limiting and endemic competition environment is at the very root of many other problems.

Most sectors of economic activity have slowly been forced into a degenerative process while trying to remain solvent and viable throughout time. Because competition is endemic it extends across all aspects of society, even politics. The current financial model burdens the goodwill of already struggling governments, the responsibility to fund research projects that cannot guarantee short or medium term return on investment. And as this happens, even popular governments in developed nations battling financial imbalances, quickly lose the trust of the public. When struggling with financial imbalance, public administrations have been forced to privatise essential public services (some of which are natural monopolies most suited to centralised administration) such as water, energy production, the electric grid system, public transport, postal and delivery services, even health and education. This has often lead to an increase of costs to the citizen to access foundational civic programs (such as education) or even of services essential to survival (such as health). The competition environment is therefore contributing to the erosion of nuclear aspects of the social contract offered by 'developed' nations.

We can observe the consequences across most areas of research that depend on monetary viability. These days the developments we see are almost always about technology and rarely about humanistic studies. Researchers will often have to wait for the market to demand a particular development. While it is true some technologies can find funding through the market (venture capital, crowd-funding), deep-tech research, for instance, demands a completely different type of financial strategy. These difficulties are not limited to the deep-tech world. To get funding, the humanities, culture, and liberal arts often have to bend their focus, change

their research and work mechanisms to meet the expectations of funding institutions and potential donors. All this may lead us to useful questions: How can philosophy, sociology, anthropology and other humanities fund their work? Is there a way of dissipating the risks of investing in big collective interest projects? Is the fractional-reserve banking system capable of doing it or is it bound to reduce the array of economically viable human activities?

Can an alternative monetary system provide the solution?

## The neoclassical hubris

Monetary systems should benefit their users (society). They should be improved and sophisticated whenever they cannot serve society anymore. It has become clear that the current monetary systems lacks the structural refinement to articulate the various facets of money in a globalised world — in particular the social contract that can be established between states and their citizens. While it is true that the economic systems operating within current monetary systems have created wealth, it is also undeniable that they have widened the economic gap between rich and poor. Most modern mainstream economists are unconcerned with justice or welfare. Léon Walras, one of the two main designers of what became know as the neoclassical economics, even tried to elevate economics to an exact science (Mazzucato, 2018)<sup>18</sup>:

For him (Léon Walras), 'the characteristic of a science properly speaking is the complete indifference to any consequences, advantageous or undesirable, of its attachment to the pursuit of pure truth'.

With this hubris, the modern mainstream economics discourse was able to convince the population of its own reliability. By announcing itself as a neutral and amoral science, the field bypassed the gates of economic and monetary thinking and trended into other

disciplinary discourses, including journalism, finance, law, and international politics. All of these are sectors of activity that hold positions of power, essential to the functioning of contemporary societies (and none of which a particularly exact and hard science). Nowadays, even the forms of democratic governance we have created and designed to represent and act for a majority of voters, have their decision-making powers extremely reduced within the current monetary and economic framework. Mellor (2015)<sup>19</sup> described this phenomenon as “Handbag Economics” in which politics is placed under a stranglehold by the supra-monetary agents:

A handbag (purse) is here seen as symbolic of the public, as a ‘housewife’ dependent on an allowance from the capitalist ‘head of household’.

In this context even the most well-intentioned politicians are no more than secondary actors. Lesser players (often awaiting for an ensuing job offer in the financial sector) who have refrained from intervening on behalf of the population. The same population from whom they derive their legitimacy to legislate on all matters of public interest. For the most part, politicians and media commentators can convince voters that there is only one solution for a specific economic equation.<sup>[11]</sup> But although the mechanics of money are based on logic, they are not exclusively based on mathematics. They rely on many other contextual and subjective concepts. Allow me a quick metaphor: the physics of sound are measurable and predictable but this does not imply that

the music playing is any good – it just means it is loud enough to be measured. Maintaining this last analogy, given the objectives of pop-music/state-money, such concert/economy should always be meaningful for citizens. It is fruitless to take and glorify any narrative about economics and money if the majority of the population struggles to find its ‘beat’.

When arguing for a better form of money we must first define what we mean by ‘better’? ‘Better’ is first and foremost a qualitative adverb. And qualities may have different benefits and detriments depending on the context. For instance: Bitcoin may be adequate to serve the contract between a Bitcoin owner, the rest of the blockchain, and Bitcoin trading platforms but it might not be suitable for a shopping malls, casinos, and corner store operations; casino chips on the other hand are a form of money designed to serve hotels, and casinos and gamblers, but they are not apt for governments to use at a national scale. The point being, at the centre of money’s *valor* (as a system to build trust amongst all users and stakeholders) there is always a social contract. The capability of fulfilling a specific social contract between a group of users emerges as the benchmark to evaluate if a certain monetary system is ‘good’ or ‘bad’ for their users. This assessment is naturally inclined to be qualitative for the simple fact social contracts are ethical, moral, political, and philosophical constructions.

When thinking about a monetary model for a state we must *a priori* study the social contract that a state wishes to uphold. Commonly, contemporary states offer safety, security, a legislative system, health services, and other basic services and infrastructures deemed essential to keeping the nation’s peace and contribute to collective development. This varies from nation to nation, but any monetary system performing ‘national money’ (or even ‘supranational money’) functions will always be bound to some form of agreement between the collective (a nation or a group of nations) and their citizens: “I will use

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<sup>11</sup> As an example, the 2008 crisis led to a political belief in Austerity, an ideology that claimed that the only way to balance the public accounts was to privatise public resources. Thus, it is only natural that today the political discourse about economics is often centred in the struggle between public benefit and private profit. While some preach the teachings of the neoclassical economic school of thought that state *governments should reduce legislation on economic activity* and that *markets always find solutions*; others believe that governments should enforce fundamental laws of money and commerce as they feel they are being held hostage to unruly global financial markets.

Euros because I can pay my tax in Euros in my nation, have some essential basic services provided at the lowest cost possible, and will be able to use Euros in other Eurozone countries”.

Looking at the problem from this perspective, money is here treated as an essential basic service in itself. In the midst of this, semiotics and pop-music metaphors may help to regain perspective but they will not suffice. A new monetary model must emerge. A model is needed, with a better form of money, that can tie accounting systems, politics, law, basic human needs. It must also leave space for human desires, subjective valuation, innovation, and leisure instead of imprisoning nations and citizens with a trading framework that neglects and erodes its own social contract.

## Productivity and value

Stiglitz wrote (2006)<sup>20</sup> when criticising GDP, one of the most used financial and economic indices for assessing and comparing the value of different nation's economies:

For much of the world, globalization as it has been managed seems like a pact with the devil. A few people in the country become wealthier; GDP statistics, for what they are worth, look better, but ways of life and basic values are threatened. For some parts of the world the gains are even more tenuous, the costs more palpable. Closer integration into the global economy has brought greater volatility and insecurity, and more inequality. It has even threatened fundamental values. This is not how it has to be. We can make globalization work, not just for the rich and powerful but for all people, including those in the poorest countries. The task will be long and arduous. We have already waited far too long. The time to begin is now.(p.292)

More recently Robert Constanza, professor of ecological economics and Vice-Chancellor's

Chair in Public Policy at the Crawford School of Public Policy of the Australian National University in Canberra, also quoted Kuznets (2020<sup>21</sup>) to reiterate this point:

Growth of crime demands more police and security devices; these add to GDP, but more crime is not desirable. Increases in air and water pollution, serious illness and divorce are all counted as positive in GDP, whereas the distribution of income is ignored, as are the value of household and volunteer work, ecosystem services and community support. As economist and statistician Simon Kuznets, GDP's main architect, warned, a country's welfare cannot be inferred from GDP: "Goals for more growth should specify more growth of what and for what."

When GDP increases nothing in the current financial and monetary system ensures that the quality of life of the population is improved by these detached statistical values. Breast feeding, parents playing with their children, growing vegetables in a communal plot, taking care of kitchen-gardens, hobbies, free time, jogging – none of these contributes to GDP growth.

## What's the relation between a monetary system and GDP?

In the majority of current economies, according to standard macroeconomic theory, an artificial increase in the supply of money is likely to lower the interest rates charged by banks. Lower interest rates could be leading to more borrowing, which can lead to more consumption. In the short run, this may increase the total internal spending, thus increasing GDP values.

The amount of *ifs* is immense so it is hard to find here a useful analytical correlation between Monetary systems and the GDP. The most obvious direct link between these two seems to be that GDP is measured in monetary terms (in whatever currency): it is the

total monetary value of all the services and goods produced by a country.

However, as things stand I would add that the relation between GDP and the Monetary system is also important insofar the monetary system itself generates the endemic competition environment that gives meaning to GDP. Because there is never enough money supply to redeem the total debt, peers (individuals, institutions, nations) need to compete between each other to try to remain solvent. Here, GDP emerges as a productivity performance indicator that allows countries and big financial institutions to discuss at the big table. Productivity is here seen as the most important measure of growth. In other words, the monetary system creates more debt than credit, forcing individuals and organisations to compete (to repay their debts), thus contributing to a rise in GDP.

Despite all this, even according to conventional macroeconomic theories, GDP is normally seen as a rather flawed scorecard of the country's economic state and value creation. The consensus is: the higher GDP, the better. It is not important if GDP growth occurs because it has been a good year for agriculture, or if it rises because the countries are now including its underground economy in GDP calculations<sup>22</sup>. What is important is that people are trading and paying for things — with money. As Rutger Bregman puts it (Bregman and Manton 2018)<sup>23</sup>:

Besides being blind to lots of good things, the GDP also benefits from all manner of human suffering. Gridlock, drug abuse, adultery? Goldmines for gas stations, rehab centres, and divorce attorneys. If you were the GDP, your ideal citizen would be a compulsive gambler with cancer who's going through a drawn-out divorce that he copes with by popping fistfuls of

Prozac and going berserk on Black Friday. Environmental pollution even does double duty: One company makes a mint by cutting corners while another is paid to clean up the mess. By contrast, a centuries-old tree doesn't count until you chop it down and sell it as lumber. (pp.105–106)

In the struggle to keep productivity at the heart of measuring wealth we insist on using GDP for all types of macroeconomic evaluations and decisions, even when we know GDP is bad at doing its job. This frail theory of value extends itself to monetary theory — money is mainly treated a commodity (rarely as social contract), so the scarcer money is in comparison to other goods, the more valuable money becomes.

In other words, today, a rise in economic productivity (more tradable products and services) does in theory increase the value of money in circulation<sup>[13]</sup> — thus countries with stronger currencies are in the main able to buy more assets from another countries. This theory is also expressed in the way the foreign exchange markets operate. But applying simple supply and demand rules to currencies (the more people want a coin the higher its price) is hindering the chances of political action to tackle social and economic problems. I am arguing this marginalist approach — the 'value in the eye of the beholder' (Mazzucato, 2018) — is, amongst other things, failing to see a monetary system as a social contract. A contract through which nations states provide basic services at the lowest cost possible emitting a currency to fulfil that promise whilst still leaving space for a free market and free commodity interpretations of money. I am not arguing against the freedom the marginalist

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12 In the EU for instance, the production of drugs, smuggling, prostitution, gambling, reproduction of copyrighted material, all fall inside the production boundary so they must be included in national accounts estimates regardless of aspects of legality

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13 If a country does not create new money, since each unit of currency would subsequently stand against more newly available goods and services. In these cases goods and services then lose monetary value, and money correlatively increase its purchasing power in the national and global economy

approach brings to markets — that subjectivity is imperative — only that the applications of the theory, not least to the monetary system in which it operates, should not be taken as a natural law applicable to all aspect of an heterogeneous economy (Ibid., p.70)

Straffa and Robinson argued that ‘capital’ is heterogeneous and so cannot be used as an aggregate concept. That is, it cannot be aggregated since it would be adding apples to oranges.

The current approach to monetary policies is largely dismissing that some government are privatising essential sectors (i.e., health and education), and others are supporting welfare states with not-for-profit sectors, and that a lower health and tuition fee, for instance, have paradoxically a lower contribution to GDP). The ideology supporting the current system is obvious: countries that privatise more assets are inclined to get higher GDP valuations as even essential sectors are left free to fetch the highest marginal utility value from (ever imperfect) markets. In parallel to this, the neoclassical approach is also often framing technological development, temporary or permanent relocations of big groups of people such as mass tourism and migration respectively, as abnormal factors or externalities while all of these changes are likely contribute to long or permanent new states of social and economic order.

Conclusively, if we keep placing productivity at the heart of value creation and look solely at money’s commodity facet (neglecting the social contract facet), we will keep on failing to create a functional society that works for all. We will also fail at harnessing the possibilities of the so called ‘abnormal’ economic behaviours.

The current approach has reduced international monetary and economic policies to a GDP shoulder rubbing context detached from real value creation. It is leaving society within a system that is based on an overconfident set

of economic assumptions. What we find at the core of our contemporary economic apparatus is a monetary sector incapable of addressing urgent social and global issues. The current system could only make the slightest sense if the rise of GDP would actually account for a rise in welfare and common wealth — which it doesn’t. The classical and neoclassical perspectives are no longer equipping us, if they ever were, to face the expected technological and social changes.

Nobody chooses where and when to be born<sup>[14]</sup> and yet the economic opportunities vary immensely from nation to nation, time to time, and individual to individual. Today the 4th Industrial Revolution and the Human induced Climate Change are reviving the global debate around theories of value.

It is accurate to say that money is unlike any other service: it performs a special trichotomy of functions better than any other product or service: it is a unit of measure, a means of payment, and a store of value – all in one unique abstract tool that allows us to build trust via accountability and accountable<sup>[15]</sup> systems for cooperation. It is by reviewing (researching and designing) the way a monetary praxis interweaves the various economic agents, that we can try to simultaneous bring sense, stability, and harmony to the economic system. That task will be difficult to achieve without the support of the humanities, social sciences and liberal arts.

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14 Or in other words, there is a moral imperative of parity in the face of luck that defeats the exultation of meritocracy.

15 If you are wondering I have used ‘accountability’ and ‘accountable’ in the same definition: accountability refers to the ledger (the mathematical facet closely related with the commodity interpretation of money “how much of it?”), ‘accountable’ refers to the social contract (the political part, innate to the way people grant legitimacy to money: “what can I pay with it?”)

## Endnotes

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