The Cypher Capital

DRAFT Oct 1, 2022

The Galactica ecosystem possesses the properties of Web3 and Web2 paradigms as well as a set of traditional political, monetary and fiscal primitives, however is built upon a much richer substrate; that of open on-chain nation state or *Cypherstate*. We believe that this new breed of protocols, the one explicitly modeling politico-economic interactions rather than merely economic, will define the next wave of crypto (and, broadly, Web3) adoption and is a logical next step in evolution of DeFi. Their societal substrate is far richer than anything that can be achieved in physical, Web2 or non-reputation augmented Web3 design spaces.

Web2 and TradFi Politico-Economic Fabric

1. TradFi is a state-of-the-art system designed for maximum capital efficiency, and most of the time is reasonably successful in achieving it. From nation states to banking empires, the fabric that enables this efficiency is the concept of reputation - from hedge funds, to corporate executives to investment and even central banks, ultimately, our society rests upon humans' persistent identities as referenced by others. [1]

2. Yet, when speaking about TradFi, we ought to acknowledge that the system's broad tech stack is massively outdated both technologically and philosophically to the extent that it is incapable of advancing the goals of higher distributional optimality, financial inclusion, accountability and monetary as well as financial stability. The causality here stems from the inherent opaqueness of the TradFi settlement layer a.k.a. the global financial system and tendency of capitalism to degenerate into highly concentrated power structures. As a result, the world we live in is plagued with ubiquitous conflicts of interests, various forms of corruption and forced information asymmetries all of which result in a continuous process of adverse wealth redistribution and concentration of money and power in the hands of the few. [2] [3]

3. In the majority of advanced western economies, the framework setting the rules for distribution of power is that of representative democracy. Capitalism, the prevalent economic order, is the name of the game defining the rules of wealth distribution. The two are intimately intertwined and, given the Web2 technological stack, the resulting politico-economic system is known to produce suboptimal outcomes [18]. If given an uneasy task of highlighting the core system flaws in the most succinct manner, we would arrive at the following:

a. Web2-powered democratic systems are plagued with moral hazard and information asymmetries, thus are not and cannot be meritocratic in framing the distribution of power [19]. **Quis custodiet ipsos custodes?** Why does a currency have power? Governments have the monopoly on violence. The only process that is meritocratic in such a setup is wealth concentration - smart and willing do get richer. Rich get richer. Public goods are funded only to the extent that it benefits the rich. Distributional dynamics of power and money will deterministically lead to a dystopian state.

b. Capitalistic systems tend to ultimately converge to the state of monopoly, and, thus, cannot be meritocratic in wealth distribution.

Each of these statements needs unpacking. While both statements are philosophical in nature, they also are empirical. We argue that the core phenomena that precipitate to the formation of either one of them are fiscal and monetary policies insofar as they address the problems of ***public good financing*** and ***inflation*** - truly the core determinants in the process of formation of the wealth of nations.

4. There are two key mechanisms facilitating wealth redistribution that are both in the control of the elected power centers: taxes as part of the fiscal policy toolbox [4] and monetary policy-induced inflation [5]. Rate of production and rate of innovation define long term economic growth. Taxes perform a dualistic function of funding innovation (inherently being a result of public goods financing) and, indirectly (and in absolute terms), wealth redistribution from the rich to the poor. While (theoretically) not having a long term effect on economic growth, inflation performs the opposite function and intricately is a fuel of a powerful flywheel widening the gap between the rich and the poor. It is a hidden massive tax on the poor [6]. The distinction between the rich and the poor is a shallow narrative tool and henceforth will be disregarded as such. Instead, we will be using the notions of merit and inclusion. **Our core thesis is that capitalistic economies existing within the framework of representative democracies and Web2 technological stack fail in being meritocratic in both power, and wealth distribution and fail to be inclusive in wealth distribution**. Proving and elaborating upon the causality behind both of these theses will require digressing into thousand page tractates. We claim that both of them are empirical in nature as ellaborated upon elsewhere. Let us dig in fundamental causes for both of these adverse phenomena instead.

5. In advanced western economies, the government through its fiscal function, performs a socialistic act of capital redistribution [8] correcting market failures and eradicating externalities (that lead to market failures). Unfortunately, in the presence of information asymmetry and moral hazard, this function is corrupted and abused. A textbook example of a market failure is the problem of public goods financing. Taxes, among other things, are

used to fund public goods. Innovation produces macroeconomic growth and wealth creation. Universities are the core engines of innovation, research and development being the primary example of public goods that are funded by taxes, yet thereafter internalized by corporations. Thus, ultimately, citizens fund innovation but have only a derivative (through the betterment of infrastructure) and/or residual (through the public sector) claim on its fruits [20].

6. Inflation is a hidden tax on the poor facilitating adverse distributional effects. Reckless monetary policies inflate financial markets that serve as the natural hedge against effects of inflation. At the same time, the vast majority of the population lacks either skill, spare wealth or ability to gain access to financial instruments while the items comprising the core inflation make up a much larger share of their monthly bills [9]. At the very end, the adverse effects of inflation end up being passed on to consumers. At the same time, lately, more often than not central bank policies have resulted in fueling the stock market mania rather than serving the price stability mandate [10].

7. Within some nation states with a strong socialistic governance footprint (Dubai [11], Norway [12]), natural resources are considered to be at least partially the assets of the people. Every person by virtue of being a citizen of the state receives a share of the proceeds generated by the value chain resting upon a given natural resource. So citizenship of such a country is a claim on its resources. The scale is binary - a human either is a citizen and has the claim or not. For the network state, the citizens are the core segment of the value chain as networks are known to exponentially increase in value as their user base grows. But the contributions of users to the value of the network are not equal. The merits of the citizens are not equal, neither are they homogeneous. But here we are getting too far into the next segment of this paper.

8. We have discussed the politeconomic setup of nations. How does Web2 fit into the picture? In the *Information Age* we see Web2 as the underlying infrastructure that in and of itself, while enabling massive informational and thus capital efficiencies, is a dystopian construct. Web2 is architecture for opaque authoritarian surveillance and social control, architecture that, with time, has become the very platform hosting and facilitating adversities described above [13].

9. *"Whereas Web2 often relies on top-down artificial bureaucracies to confer identity (a "driver's license"), DeSoc relies on horizontal ("peer-to-peer") social attestations. Whereas DeSoc empowers Souls to encode their own relationships and co-create plural property, Web2 intermediates social connections or monetizes them with opaque algorithms that can polarize, divide, and misinform [14]. DeSoc sidesteps top-down, opaque social credit systems. Web2 forms the basis of them. DeSoc treats Souls as agents, whereas Web2 treats Souls as objects."*

Web3 and DeFi Meta Economic Substrate

1. We know that the economic and political systems are the pillars upon which mankind's evolution rests. We have established that in their traditional 'physical' implementation, capitalism and representative democracies create highly concentrated power and capital structures [21], which, when formed, lock the system in a self feeding flywheel of adverse distributional effects. What about Web3? Today, it's mostly about DeFi.

2. Indeed, when it comes to defining the scope of Web3, *"it aspires to transform societies broadly, rather than merely financial systems. Yet today's social fabric—families, churches, teams, companies, civil society, celebrity, democracy—is meaningless in virtual worlds (often called the "metaverse") without primitives representing human souls and the broader relationships they support. If Web3 eschews persistent identities, their patterns of trust and cooperation, and their composable rights and permissions, we see, respectively, sybil attacks, collusion, and a limited economic realm of wholly transferable private property—all of which trends towards hyper-financialization."* [22]

3. Today DeFi, while (if done right) successful in evading explicit centralization, manifests its own dystopia, and is highly capital inefficient in that [23]. Without an explicitly modeled political layer, DeFi is the substrate of the most predatory manifestations of capitalism with rent-seeking, collusion, and other forms of power abuse that ends up being no better than traditional markets in its tendency towards the ultimate state of monopoly. Here it merits mentioning that DeFi has demonstrated a remarkable resilience [24] in the face of system risk concentration due to its transparency and public nature of risk engines embedded in Web3 lending vehicles. This resilience, however, comes at a cost of massive capital inefficiency due to the requirement of overcollateralization embedded in its system design.

4. *"Monopolies don't always surface as the Standard Oils of the past. Collusion can even happen at higher and far-removed levels of an ecosystem. In DeFi too, the same "whales" and VCs accumulate larger shares across each level of the stack and across competitors within a stack, perhaps voting in token governance, or delegating it to the same class of delegates, who are also similarly correlated across the network. Without any social substrate for sybil-resistance and correlation discounts to force-function decentralization, we should also expect to see more monopolies funded by whales, as monopolists increasingly become the largest pool of available investment capital. As "the money class" and users diverge, we should expect to see (and already see) greater and greater levels of incentive misalignment and rent extraction."[22]*

5. In short, in its politico-economic properties, DeFi is largely a replica of the centralized system it's been created to outshine and eclipse. Being a

capitalistic system at its heart, DeFi suffers the same adversities in power and wealth distribution. In fact, we can define the properties thereof, absent of which it is destined to degenerate into a hyperbola of the TradFi system we have elaborated upon above. Absent the sybil resistance of one form or the other, one-token-one-vote is the predominant governance system. Absent the concept of persistent reputation, this governance system cannot be meritocratic. Absent explicitly modeled expressive meritocratic governance layer, there can't exist regulation and hardly any form of lasting punitive action. Absent these primitives, we cannot really speak of meritocratic governance, UBI, quadratic voting or funding and a whole plethora of other mechanisms that otherwise could correct the adversarial distributional consequences of the design of the world we live in today. [25]

6. The polit economic substrate of web3 is the parody of its web2 counterpart and in its state today is the biggest barrier to adoption of its otherwise beautiful crypto economic foundation. We have come a long way. The crypto economic foundation of immersive capitalism is built and the toolbox is richer than ever. There's yet, a major step to be made to transition from predatory crony capitalism and bought-and-sold representative democracies of the past to the future of Cypher Capital [26]. *But how can one define the set of those making up the vanguard of souls?*

Citizenship

1. While being ubiquitous and even beyond obvious in the pre-web3 meta, the concept of citizenship has not yet been given a deep meaning in the realm of crypto. Citizenship ultimately is a primitive defining set of agents within the politico-economic realm of a state. With it come the rights and so do the responsibilities. For now we will skip the rights of being protected by law and the responsibility of having to abide by it. Let us give a narrow and non-exhaustive list of the key rights that come with citizenship: people of traditional states have a claim on its resources, its infrastructure, have the right to vote and system of ranks and taxonomies to be distinguished from other citizens due to merit or achievement [15].

2. What about citizenship in the Web3 paradigm? The ownership of a token (especially an NFT) is normally associated with the membership in a club. Theoretically, it is the claim on value generated therein (excluding IP), but what if anything constitutes the citizenship of a network? Today there is no such concept as citizenship of layer 1, like Ethereum as the absence of a richer societal substrate in and pseudonymous nature of the existing networks prevent it from emerging.

3. Let's assume that owning the protocol token to be a weak proxy for citizenship, what hypothetical rights, and claims on resources and infrastructure

would it entitle you to? Fundamentally, it's not much different than asking whether holding a nation's currency is equivalent to being its citizen. If we collapse the power and economical dimensions of the nation-state's politico-economic into one unit-of-currency proxied dimension, we end up in a state of anarcho-capitalism [16]. With it come all the stigmas of classic capitalism that will forever manifest the single largest barrier to adoption of web3. Shall we ask, whether there is any value in citizenship decoupled from that of owning the local currency? Is there any reason for a unit of state's currency, rather than citizenship, to be a more expressive primitive to the claim on its value, or rather, value generated therein? [27]

4. *A wise man once wrote: "A network state is a social network with a moral innovation, a sense of national consciousness, a recognized founder, a capacity for collective action, an in-person level of civility, an integrated cryptocurrency, a consensual government limited by a social smart contract, an archipelago of crowdfunded physical territories, a virtual capital, and an on-chain census that proves a large enough population, income, and real-estate footprint to attain a measure of diplomatic recognition." [17]*

5. Our definition of network state will differ from the one above in more ways than one and for now is an evolving notion. Let us start with a narrow basic definition and see where the network evolution will bring us: From the network state perspective, citizenship is a contingent claim on assets and infrastructure generated within and manifesting the network respectively [18]. We don't know what a network state is, but what we do know however, is that the path to defining it starts with the concept of ***Cypher Capital***.

Galactica Network, Cypher Capital and Cypher State

Definitions

1. Cypher Capital is the aggregate economic and political capital generated within and available to the decentralized technoeconomic ecosystem.

2. Cypher State is a decentralized technoeconomic ecosystem defined by a set of persistent identities, smart contracts and their endowments where the distribution of cypher capital follows explicitly model political process.

3. Cypher State Citizens are persistent identities within the Cypher State that have contingent claims on Cypher Capital generated therein.

4. Galactica Network is a Capitalistic Cypher State, characterized by a capitalistic economic setup and a laissez-faire representative meritocratic political framework, optional citizenship and socialistic rules of distribution of economic Cypher Capital.

Politico-Economic Principles

1. Economic Cypher Capital distribution process integrated into a tiered inflation schedule where Citizen's ultimate inflation induced wealth dilution is a function of one's endowment (i.e. stake) and merit, as proxied by reputation.

2. Political Cypher Capital of a Citizen is driven by merit and endowment. It's linear in merit and sublinear in endowment.

3. Reputation is not and cannot be homogeneous, neither can it be constant in time. It is an evolving metric for every Citizen of Galactica network, both accumulating in time and evolving within the cross-section of disciplines. Being an input into one's ultimate voting power on various matters, reputation is a form of Cypher Capital (both, social and political) within the Galactica Network.

4. Inflation funded public goods with explicitly modeled generation of on-chain IP and non-alienation of IP created as a result of developing public goods. Those creating the innovation (read, IP) ought to have a disproportionate allocation of its fruits.

5. Explicit segregation of public and private goods, and explicit modeling of public/private goods transition. The process of opaque transition of the fruits of publicly financed innovation within traditional economies into the pockets of the few without awareness of the many is among the most disproportionate acts of adverse wealth redistribution in the web2 governed world we live in today. Innovation produces Cypher Capital. Galactica Citizens have a claim on it through UBI.

6. Quadratic reputation-augmented UBI, where UBI's composition is a diversified innovation portfolio. Galactica Cypher Capital is strictly increasing in value long term the more innovation is produced within the network. This innovation, however, needs to remain, at least partially, as the economic capital of its Citizens, young or old, reputable or otherwise. Anything invented within Galactica ends up fueling the innovation portfolio, and every citizen has a claim on economic capital sitting therein. This claim itself, however, is heterogeneous depending on Citizen's merit, and endowment.

7. Citizenship is optional and manifests institutionalized persistent identity. Zero-knowledge and MPC cryptography to shield sensitive information and choices of any Citizen.

8. Long term deflationary token supply, with deterministic token emission schedule. The value of a unit of system economic Cypher Capital is increasing in economic activity through network effects and deflation and

effective publicly financed innovation. It decreases through inflation. Inflation is the only systematic driver of capital redistribution.

9. Code is the only law. Citizens are the only judges.

Cypher State exists above and manifests itself far beyond any of the traditional states. Albeit it relies on traditional states to establish some basic primitives of persistent identities and ownership or real world assets, this is not mutual. What happens in a Cypher State forever remains in the Cypher State, unless its Citizens decide otherwise.