Scientific Research Publishing

Theoretical Economics Letters, 2024, 14, 125-163
https://www.scirp.org/journal/tel
ISSN Online: 2162-2086
ISSN Print: 2162-2078

Harvesting, Tokenizing, and Sharing the Influence of Planetary Abundance to Mitigate the Global Debt Catastrophe

Fazal Raheman

Blockchain 5.0 Ltd., Kesklinna Linnaosa, Tallinn, Estonia
Email: drfazal@bc5.eu

How to cite this paper: Raheman, F. (2024). Harvesting, Tokenizing, and Sharing the Influence of Planetary Abundance to Mitigate the Global Debt Catastrophe. *Theoretical Economics Letters, 14,* 125-163.
https://doi.org/10.4236/tel.2024.141008

Received: November 22, 2023
Accepted: February 24, 2024
Published: February 27, 2024

Abstract

The global debt crisis of mega proportions is heading towards the collapse of our economic systems. Posing as one of the existential threats to humanity, the perpetually increasing debt/GDP ratio projected to rise to 1300% by 2030 has no cure unless a radical new approach replaces or complements our current scarcity-focused, centralization-prone economic approaches. One such approach evolved from the 2008 economic crisis that resulted in the birth of a technology that made decentralization of any ecosystem free of human biases and prejudices. Hailed as the greatest advancement since the invention of the internet, blockchain is a liberating force of the digital age and a potential enabler of the 21st-century sharing economy (Sharonomics) that transforms scarcity-centered legacy economic systems to one of abundance. Tokenizing that planetary abundance to offset the massive global debt may be a utopian dream at the present time but by applying the law of accelerating returns to the technology advancements of this century, a credible path can be hypothesized and pursued. The principle aim of this research is to provide theoretical support to such a hypothesis suggesting future research avenues towards a possible solution. The research methodology follows the narrative and integrative literature review approach based on peer-reviewed reports.

Keywords

Sharing Economy, Global Debt, Abundance, Existential Threat, Blockchain, Financialization

1. Introduction

1.1. Background

A new world is coming, and denying the existence of the biblical prophecies of

the horsemen of the apocalypse will, at best, be complacency and economic ignorance. The New Testament's horsemen of apocalypse remain popular as metaphors describing the end of the world. In modern times, they have always surfaced in different avatars as apocalyptic threats to humanity's existence on planet Earth. In today's times, one of those existential threats is the mega financial crisis that the world finds itself in. Underplayed mainly by the governments and the press, the magnitude of the crisis is earth-shattering. Continued complacency to over $2 quadrillion in total global debt (Von Greyerz, 2023) when repaying capacity is limited to a minuscule $96 trillion (Özsoy & Gürler, 2023) is fatally suicidal.

Not counting the derivatives and unfunded liabilities, global debt reported by government agencies is at an all-time high of $305 trillion (Campos, 2022). "Global debt is now $45 trillion higher than its pre-pandemic level and is expected to continue increasing rapidly [as] government borrowing needs remain elevated," the IIF (International Institute of Finance) said (Smith, 2023). In fact, if "the hidden debt" that our financial systems do not count, the actual total world debt reaches as high as $2 quadrillion (Von Greyerz, 2023). The catastrophic calamity threatening the world population is often underplayed in the press, and the common man remains oblivious to the fiscal reality. Informed experts acknowledge this is an impending Economic World Crisis of mega proportions (Ausman, 2018). It will have devastating consequences in the near future if governments across the globe maintain their status quo and keep borrowing to support their deficit budgets. There seems to be no way out. Ideally, all governments should put aside a certain amount of money each year to pay down their debt, but that's not happening. On the contrary, borrowing continues to show an upward trend, and unfortunately, there seems to be no hope that the colossal debt will ever be paid. Where will all of this lead? At some point, the debt will need to be repaid. How can the government get more money from the people to pay its debts? It can tax them more, as happens in many countries. It can seize money from citizens' savings accounts, as happened in Cyprus, and print more money that has no real value, which is happening in countries around the world. Since today's fiat money is not backed by collateral of equal value, governments can print as much money as they choose to flood the marketplace with currencies. This will reduce the purchasing power of fiat currencies, increasing prices as the currency value falls and inflation results. None of these choices to solve the problem of debt are good choices. But sooner or later, the debts will have to be paid. How do we do that?

1.2. Framing the Hypothesis

Can planetary assets be tokenized to generate sufficient liquidity to mitigate the global debt crisis?

The hypothesis question may be too speculative, but so was President Kennedy's 1962 moon speech at Rice University, Houston, and the flying dream of the

Wright brothers at the beginning of the 20th century. Many critics thought Kennedy's moonshot was a lunatically absurd idea that would never happen and was a waste of money, and so was the Wright brothers' dream of flying. Today, at least four countries have touched the moon, and over a million of us are airborne at any given moment (Morris, 2017). Moonshot thinking refers to an approach of choosing a huge, seemingly insurmountable problem and proposing a radical solution to that problem using disruptive technology. Monumental effort and a lofty goal. That unsurmountable and lofty goal is paying off the ~$2 quadrillion debt (Von Greyerz, 2023), which is more than 2,000% of the ~$100 trillion income (Özsoy & Gürler, 2023) when convention places that ratio at around 40% (Hwang et al., 2013). All that a moonshot mission needs is a credible path to the final goal. This paper provides a credible path.

1.3. Research Objectives

The key objectives of this research are:

1) To estimate the government-reported global debt and GDP through 2030.

2) To estimate the total projected output of the world economy through 2050.

3) To estimate the total global debt, including outstanding derivatives.

4) To estimate the planet Earth's total worth and net present value (NPV).

5) To explore the utopian goal of financialization of planetary assets by deploying blockchain tokenomics for reversing the inverse pyramid of the debt/asset ratio to mitigate the colossal global debt.

6) The final objective is to propose an asset-backed monetary regimen of the future that averts the impending existential threat to humanity from the enormous global debt.

1.4. Study Layout

The paper is structured as follows: Section 1 provides a brief background and research methodology to frame the hypothesis to be investigated in this study. Section 2 navigates through a detailed literature review to highlight the circumstances culminating in the present economic situation from the historical perspective and where it is heading. Section 3 elaborates on the research methodology, while Section 4 defines the state of democracy worldwide and highlights the need for digital democracy. Section 5 discusses the merits of tokenization compared to traditional securitization and creating ideal money. Section 6 discusses the ambitious goal and strategy to harvest, share, and redistribute the 21st century abundance, while section 7 highlights the study's key findings before summarizing the conclusion of this research in section 8 that apparently may drive the direction of future research in dealing with the colossal global debt problem.

2. Literature Review

Achieving any success in piercing this tenacious terrain of our economic adversities is a long-drawn process. We begin the journey by trying to map the arti-

facts that lay down the milestones that shape the roadmap to our final destination. In the process, we review the established concepts de novo and redefine them if necessary to suit the new perspective.

In the first quarter of 2022, the volume of global debt reached $305 trillion (Campos, 2022; Smith, 2023). With global GDP at just a fraction of the debt, the global economic and financial crisis has become a reality with uncertain prospects (Luchian & Filip, 2022) (**Figure 1**).

It took the world 2000 years to take global debt from virtually $0 to just under $100 trillion. Most of that $100 trillion was during the second and third industrial revolutions. In the last two decades, debt has trebled from $100 trillion to $305 trillion and is expected to jump to a mindboggling $2 Quadrillion in the next 5 - 10 years (Von Greyerz, 2021). **Figure 1** illustrates these trends and explains why the global economy is in big trouble.

As illustrated in **Figure 2**, the rapid, exponential growth of global debt from about 16% of the global GDP in 1971 to about 100% in 2000, 300% in 2023, is projected to be about 1300% in 2030 (Von Greyerz, 2021) (**Figure 2**). As compared to relatively linear growth in GDP the growth in debt is exponential. Although this analysis is based on different data sources measuring different economic parameters at different time points from different perspectives, confounding the estimates' accuracy, broadly, they are sufficient to demonstrate the overall trends in the changing dynamics of the global economy's assets and liabilities. The current outlook is poor, with debt growing much faster than GDP and scant prospects of contraction (Osband et al., 2023). The disproportionate liabilities are such a ticking time bomb that the financial carnage will be devastating when they finally implode. In the US alone, a default in servicing its $33 trillion debt will result in a devastating eight million lost jobs and a severe recession,

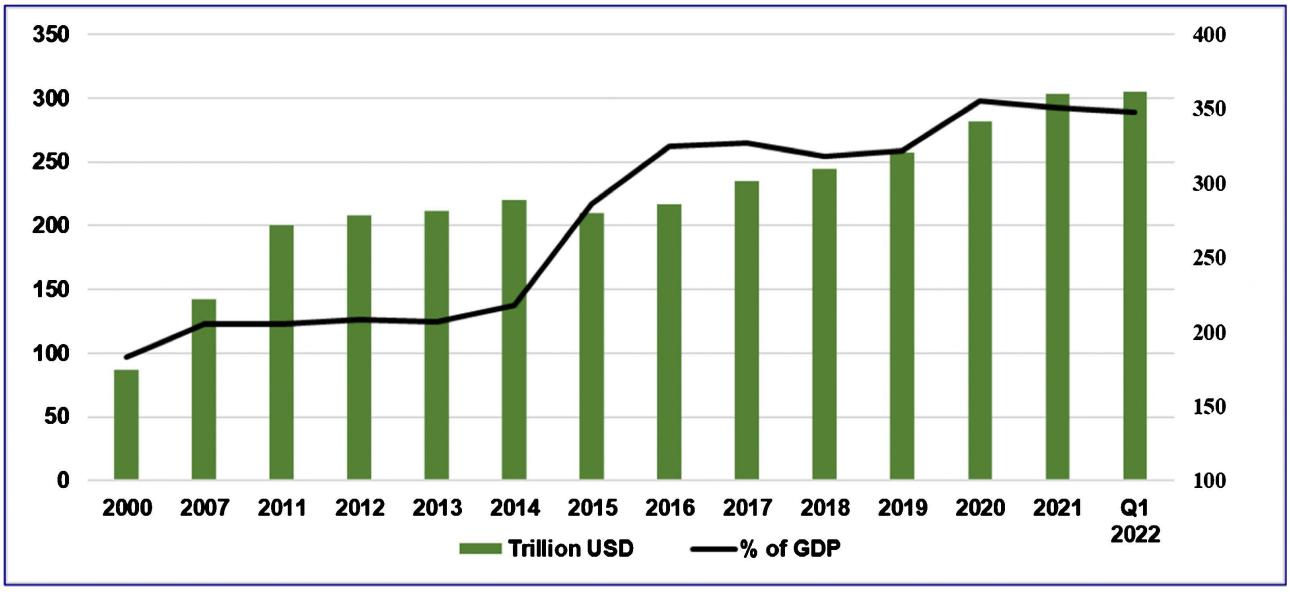

Figure 1. Global Debt Dynamics. Source: Lucian and Filip (Lucian & Filip 2022).

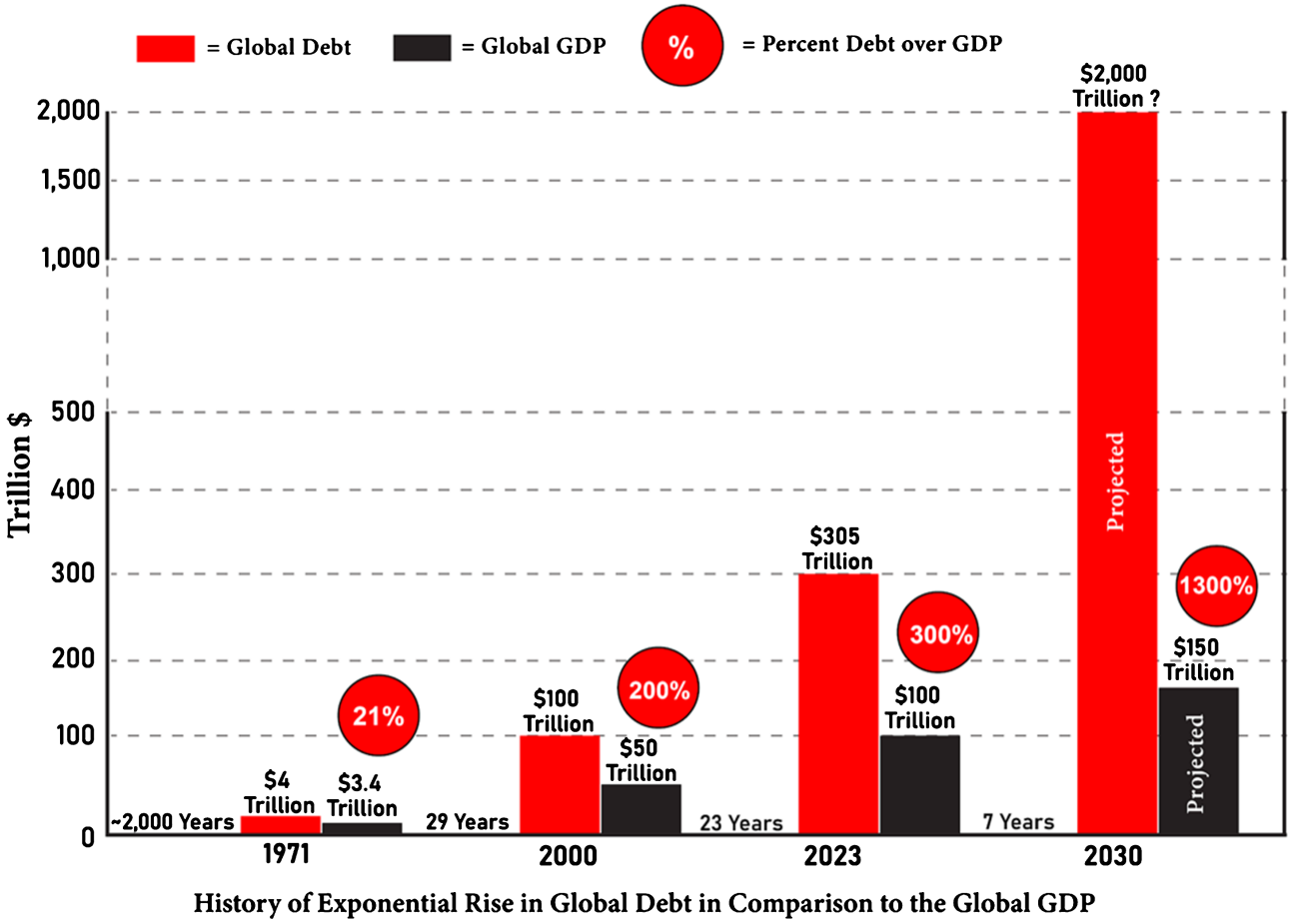

Figure 2. Global Debt/GDP ratio from 1971 through 2030 projection (Von Greyerz, 2021).

with the economy shrinking by more than 6 percent (Rennison, 2023). Although the US Congress imposes a debt ceiling, that ceiling has been raised on 78 occasions since 1960-49 times under a Republican president and 29 times under a Democrat (Murray & Cabral, 2023). Modern Monetary Theory (MMT) adherents emphasize that governments issuing debt in fiat currency bear no insolvency risk since they can always print enough currency to repay (Mitchell et al., 2019; Mitchell, 2020). Will such borrowing for debt repayment merely by printing more money without any corresponding reduction in government spending or increase in tax collection go on forever? The logical answer is a categorical NO. Almost across the board, economists either advocate finding ways to reduce liabilities or revert to the era of the gold standard, none of which seem to provide any credible means to avoid the impending financial catastrophe that the world faces now. The trends from the previous couple of decades indicate that it is virtually impossible for governments even to check the growth of liabilities, forget reducing them. Recommending gold over other assets may be wise advice from a financial adviser to an informed individual investor. Still, there's no way $2 trillion of global gold assets support $2 quadrillion of global debt. Theoretically, a third way out may be growing the global GDP at a pace higher than the

growth of debt, but the historical evidence makes it as impossible as the other two. That precariously leaves us in a catch-22 situation with no apparent option but to wait and watch the financial carnage coming.

2.1. Derivatives and Exter's Inverse Pyramid of Collapsing Values

A derivative is a contract that derives its value and risk from a particular security (like a stock or commodity)—hence the name derivative. Derivatives are sometimes called secondary securities because they only exist due to primary securities like stocks, bonds, and commodities. Derivatives are complex financial instruments, including financial obligations to either or both parties to the transaction. At a point in time, which could be the balance sheet date, those obligations are disclosed as liabilities and represent the state of the derivative at that particular point in time. The value of derivatives contributes to the estimation of the "net debt" of an organization. According to the most conservative estimates from the Bank for International Settlement, the total value of all derivatives in the world exceeds $2 quadrillion (Kakulia & Chikobava, 2023). However, it must be noted that these figures are somewhat arbitrary because no one has a complete picture of the off-balance sheet operations of banks and companies. During the crisis of 2008-2009, the inability of many banks and companies to fulfill their obligations under derivatives led to their bankruptcy. Some authors call derivatives *"a financial weapon of mass destruction"* (Moosa, 2016).

To get a fair bird's eye perspective of the crisis, let's look at it from the eyes of a contemporary economist. John Exter, a 20th-century American economist, studied historical financial panics and concluded that during a crisis, investors rush to liquidity, reaching the tip of his pyramid of collapsing values (**Figure 3**). An advisor to the Federal Reserve, his theory on the liquidity of market investments

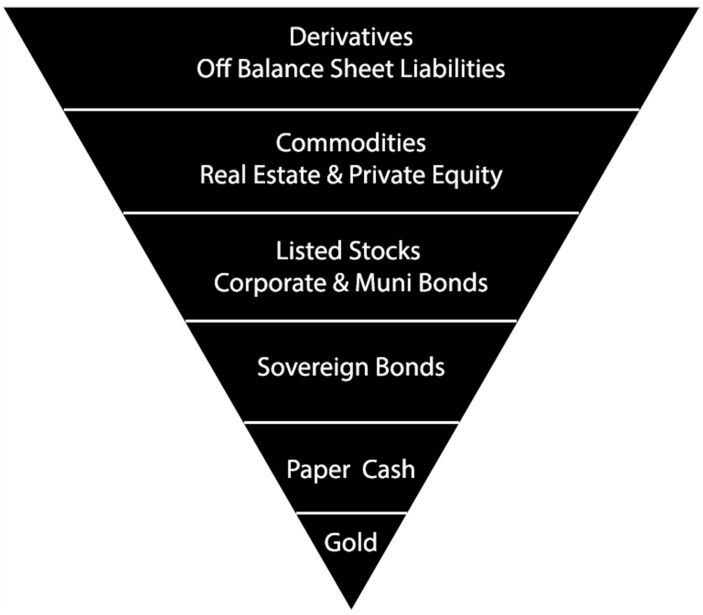

Figure 3. Exter's inverse pyramid of collapsing values.

and how much risk they carry have often been cited by market observers who wanted to show where money flows to during economic crises. Exter believed that Keynesian economists failed to understand money and debt, predicting that the US would suffer a deflationary depression and the Fed would be unable to prevent it with their existing monetary tools. It was from this realization that Exter developed his pyramid, with true money on the bottom and all derivative financial products on top. In his original pyramid, he included junk bonds, illiquid debtors, commercial paper, bankers' acceptances, developing economies' debts, CDs, federal government debt, corporate and municipal bond debt, and finally, paper currencies. If there is significant uncertainty, investors will try to unload the illiquid assets and move down the pyramid toward gold (**Figure 3**). *While* Exter's original pyramid placed Third World debt at the top, today derivatives hold this dubious honor (**Figure 4**). Gold aficionados often use the Exter rationale to promote the idea that gold is the ultimate safe haven. There is no reason to believe that gold will play a different role this time than it has done throughout history. Gold may have been the sole protector of a sound currency system and the only money that has survived throughout the ages and may forever remain the safe haven. But the global economy has expanded so much that it cannot rest on the tiny amounts of gold holdings that money regulators can claim to hold. Global gold production cannot keep pace with economic growth, making the gold standard logistically impractical. This doesn't mean gold isn't viewed as a safe haven at all. It just means that the gold strategy has no role to play in denting the global debt to any extent.

From the perspective of Exter's pyramid, over $2 quadrillion of debts and liabilities resting on a foundation of $2 trillion of government-owned gold that makes a gold coverage of 0.1% or leverage of 1000X! (Von Greyerz, 2022). As illustrated

Figure 4. Enormous $2 quadrillion debt sitting on $2 trillion gold.

in **Figure 4**, such an inverse pyramid with a weak foundation will likely implode the paper assets (Herman, 2023). Quadrillions of debts and liabilities cannot be sustained resting on this meager amount of gold. If gold went up 100 times to $160,000, the coverage would still be just 10%, which would hardly be acceptable.

Our current economic system is a global house of cards that will eventually collapse in the not-too-distant future. Obviously, central banks, in desperation, will print unlimited amounts of money, buying up to $2 quadrillion of outstanding derivatives and turning them into balance sheet debt. This will create a vicious circle of more debt, higher interest rates, and higher inflation, with probable hyperinflation as debt markets default. No government or central bank can solve the problem they have created with over-borrowing to support growth. They continue to borrow to pay the debt. More of the same just won't work, resulting in the gigantic risks that the world is now facing.

There's very little certainty in this kind of forecast, but what is certain is that risk of this magnitude is inevitable, and the system is destined to collapse at some point. There is an urgent need to find solutions. A sound financial system needs a very solid foundation of real money. But what are these sound financial and real money systems, if different from what we already have? This study looks into the possibility of building such a financial system and a more tangible currency regime.

2.2. How Did We Arrive Here?

Economics has always been the epicenter of our sociocultural fabric and industrialization of the global economy. The financialization of the economy during the 3rd and 4th industrial revolutions brought unprecedented growth and abundant prosperity but at the expense of further skewing the sociocultural inequalities and raising this gargantuan mountain of debt. A problem can only be solved if we understand what caused it in the first place. The current "global debt crisis" is caused by many different factors, but it all boils down to the governments, who are the arbiters of the money supply and, consequently, interest rates, have been spending more than it collects in taxes and other revenue, resulting in a deficit. Economic growth, population expansion, and increased government spending continue to drive the need for borrowing. Governments may issue debt to finance essential public investments, to meet the demand from institutional and individual investors for safe assets, or to prolong unsustainable overspending and enable graft. Sovereign debt is the sum of a country's central government's outstanding bonds and loan obligations. Moreover, excessive financialization is often blamed for the 2008 financial crisis (Wang, 2019). Financialization refers to the increasing importance of finance, financial markets, and financial institutions in an economic ecosystem. Financialization intermediates capital from financial institutions to financial markets through mechanisms such as securitization. Principally driven by profit-making ambitions, securitization is a global multi-trillion phenomenon embodying material wealth-producing finan-

cialization that simultaneously poses challenges to democracy, fundamental rights, social inclusion, inequalities, and sustainability. Alternative business models to counter excessive financialization based on democratic and participatory principles prioritizing their societal mission over their profits exist. However, economic inclusiveness, equality, gender balance, and economic, social, and sustainability will always elude the optimum, as evidenced by the 2007-2008 financial disaster (Cornand & Céline 2012).

2.3. Debt and Financialization Fuels Unprecedented Growth in the 21st Century

Notwithstanding the 2008 recession, our present economy has traversed a long way from the economy of scarcity to the economy of abundance (Raheman, 2022). However, our economics practice remains one of an economy of scarcity, i.e., only scarce commodities have economic value. Our old-school legacy makes scarcity the mother of economics (Zaman, 2012), advocating that "the **needs** far outweigh the ***haves.***" The classical economic systems may have been founded on those principles, but today's circumstances are completely different. Today's economics must go beyond Adam Smith's "laissez-faire," Keynesian "welfare capitalism," and Robbins' "scarce means." Apparently, the global scarcity thriving during that era justified the "scarce resources" based definition of economics. It was essentially because of the economy's inability to harvest the resources, introduce liquidity into the harvested resources, and redistribute them. The architects of legacy economic systems made perfectly reasonable choices and economic trade-offs for their world. But our world is very different. The scarcity-centered economic rules of their world have failed to stop gender, socioeconomic, and cultural inequalities or the colossal debt despite the abundance that we are living in today. Today's economic environment has changed, making the legacy economic systems too outdated to adapt to the realities of the new world.

The broader transformation of the US economy emerged in the wake of its stagflation crisis of the 1970s. The introduction of money market funds in 1975 marked the birth of *financialization* in the United States. These money market funds invested in highly liquid money market instruments (e.g., Treasury bills, commercial papers, etc.) while offering their investors deposit-like shares that could be withdrawn on demand. Financialization is essentially the increase in size and importance of a country's financial sector relative to its overall economy. It is a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production. Financialization led to securities becoming the primary credit channel, making securitization a global multi-trillion phenomenon that embodied financialization. Many of the assets are difficult to physically transfer or subdivide, so buyers and sellers trade paper that represents some or all of the assets instead. Applying well-known techniques of securitization of assets to make an asset investable is the basis of the modern financialized industry. Securitization is converting a

batch of debts into a marketable security backed, or securitized, by the original debts. Most debt securities are made up of loans such as mortgages made by banks to their customers. However, any receivables-based financial asset can support a debt security. Securitization is the packaging of assets to mitigate risks or to make them investable. It is the practice of pooling together various types of debt instruments (assets), such as mortgages and other consumer loans and selling them as bonds to investors. A bond compiled in this way is generally called an asset-backed security (ABS) or collateralized debt obligation (CDO).

S*ecuritization* treats low-liquidity debt instruments or accounts receivables as assets and pools them together to convert them into higher-liquidity security instruments, which can be traded in markets and over-the-counter platforms. Although also called asset back securities (ABS), they essentially remain as liabilities on the books.

Thus, securitization is the process by which assets with generally predictable cash flows and similar features are packaged into interest-bearing securities with marketable investment characteristics. Securities backed by mortgage receivables are called mortgage-backed securities (MBS), while those backed by other types of receivables are asset-backed securities (ABS). ABS transforms an illiquid asset into a tradable security, such as bonds or notes, and, therefore, more liquid than the underlying loan or receivables. Investors are repaid from the principal and interest cash flows collected from the underlying debt and redistributed through the capital structure of the new financing. Securitization of assets can lower risk, add liquidity, and improve economic efficiency.

Built around securitization, the European Commission adopted the Capital Markets Union (CMU), an economic policy initiative in 2012 (Engelen & Glasmacher, 2018). Such changes presented important opportunities for the EU to innovate and shape forward-looking, inclusive societies and economies impacting the livelihoods and well-being of its citizens. However, demographic changes, digitalization, automation, environmental degradation, the transition to a low-carbon economy, and globalization all pose multidimensional, interconnected, and complex social and economic challenges. The COVID-19 pandemic magnified the pervasive inequalities across societies. At the same time, the autocratic invasion of Ukraine in early 2022 and the flood of millions of refugees across Europe demonstrated the need for stable democracies.

Although the lack of strict democratic governance made it prone to centralization, financialization/securitization did indeed transform our neoclassical economy from one of **"scarce resources**" to one of "**abundance,**" tripling the world GDP from $50 trillion in 2000 to $150 in 2030 and quadrupling to over $200 trillion in 2050 (**Figure 5**). The defective democratic governance resulted in financial concentration in a handful of entities driven by the dictates of shareholder value maximization, leading to the centralization of finance. This centralization of finance eventually led to the erosion of democratic norms, declining

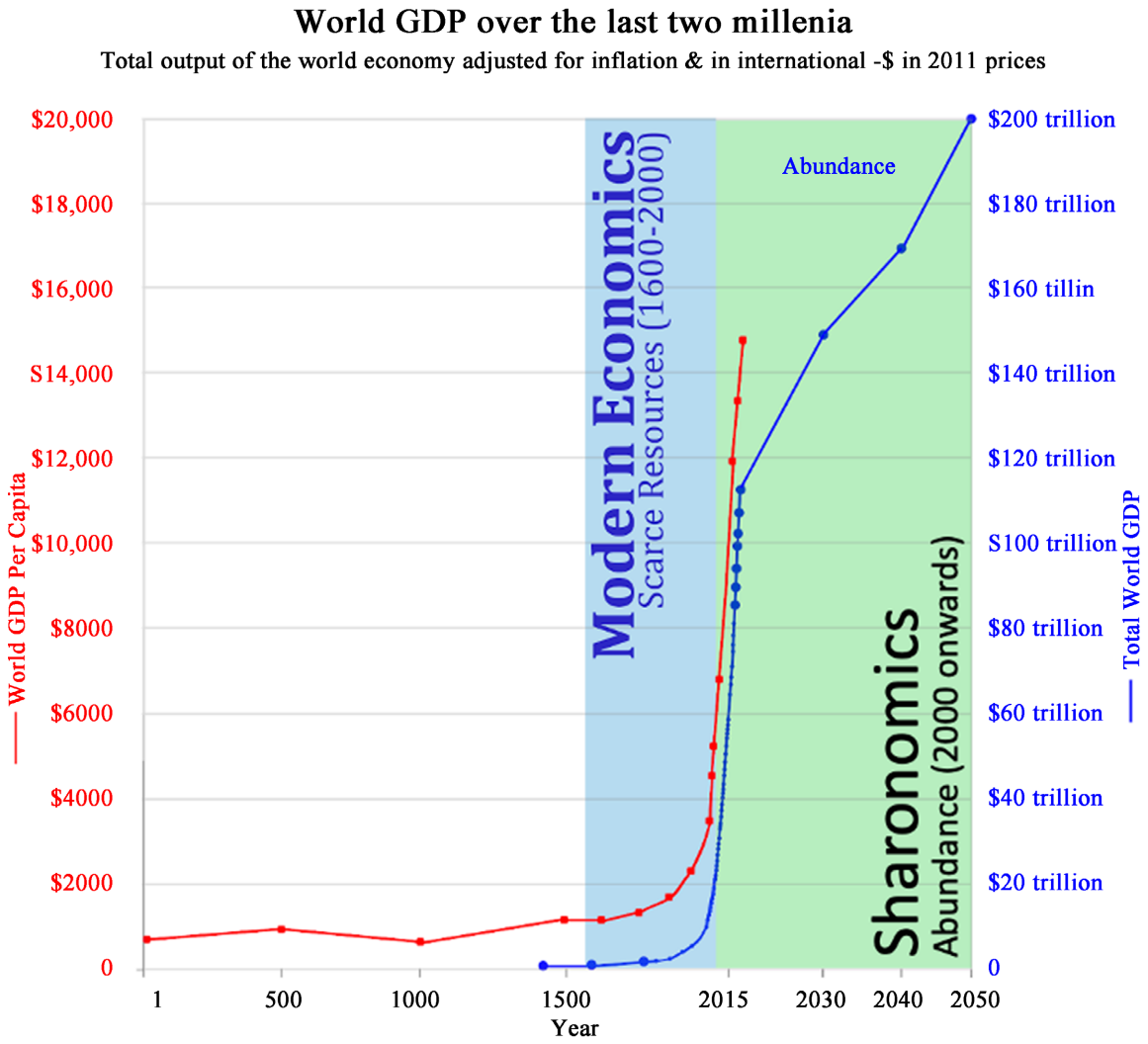

Figure 5. World GDP as a measure of abundance rapidly rising with the advent of the 21st century. Data Source: http://www.ourworldindata.org/ & http://www.worldmeers.info/world-popluation/.

social inclusion, increasing inequalities, and eventually challenging the sustainability of our financial and ecological systems. Excessive financialization, either in the form of the Dutch disease (Brahmbhatt et al., 2010) or through growth retardation, is one of the major reasons for the severe financial crisis of 2007-2008. This excessive financialization rendered the economy prone to the risk of debt deflation and prolonged recession (Moosa, 2018).

An economy of abundance should be able to organize people and resources so that all inhabitants of planet Earth can thrive, not only in the present but in the future. However, despite transitioning from scarcity to abundance, economic equality and democratic governance kept deteriorating (Lindberg, 2019), jeopardizing the goals of achieving inclusivity and sustainability. We believe the problem is one of distribution, or rather redistribution. It is about incentivized and equitable sharing of resources to balance "**haves**" with "**needs**." While Kate Raworth's Doughnut Economics focuses on the economy needing to be designed

for redistribution (Raworth, 2017), the problem seems to be one of the inability to connect "**needs**" with "**haves**," one of the missed opportunities. This is because the 21st-century economy of abundance is still being governed by the old-school economic principles of scarcity that have failed to reverse socio-economic and cultural inequalities or promote inclusivity and gender equality, defeating the realization of the global 2030 Agenda on the Sustainable Development Goals. Achieving sustainability has become a colossal challenge.

Excessive financialization is often blamed for socioeconomic disparities (Battiston et al., 2018). Financialization also took the blame for the 2008 depression. However, it is fair to say that financialization/securitization alone may not be the sole culprit. It was the centralization of the economy and the lack of democratic governance that was responsible for the economic mess. With the availability of digital ledger technologies (DLT) or blockchain, the decentralized governance of financialization has become possible. Inspired by the algorithmic decentralization capabilities of blockchain, we recently introduced Sharonomics (Raheman, 2022), the blockchain-powered decentralized economic ecosystem that exploits the influence of abundance, breaks the institutional silos of capitalism (Francesca & Giguère, 2010), and redistributes the wealth equitably and indiscriminately across various sectors without any socioeconomic, gender, or cultural biases. Technology is the key driver of countries' economic growth, allowing for more efficient production of goods and services. Sharonomics is exclusively a technology-enabled ecosystem that exploits the power of economic abundance to create a new asset class—Influence Capital, that can be seamlessly shared by those who **have,** with those who **need,** without risking anything of monetary value. Sharonomics kindles some hope. The key prevailing circumstances that drive our radical approach to rebooting the legacy economic theories are:

1) The colossal global debt that is impossible to service if the status quo is maintained.

2) Deteriorating environmental sustainability (Nathaniel et al., 2021).

3) Wealth and income Inequality remains rampant (Ohanian, 2023).

4) Impossibility of funding or achieving SDGs by 2030 (Leal Filho et al., 2023).

How do we reboot the legacy economic systems?

1) Exploiting the 21st-century abundance and harvesting its influence for the benefit of humanity.

2) Redistributing the wealth via seamless, incentivized, and equitable sharing between those who "have" and those who "need."

3) Building new mechanisms to financialize planetary assets.

4) Achieving democratic governance, inclusivity, accountability, and transparency with decentralization.

While financialization introduced during the 3rd Industrial Revolution gradually transformed our scarcity-focused economic system into an economy of abundance, the growth of the Internet added another dimension to the global

economy—social sharing, which brought citizens closer to a new socializing paradigm—the social media. However, extreme poverty still exists despite scarcity not being the cornerstone of the present economic system any more. People still die of hunger, and inequality still exists.

2.4. Understanding the Legacy Monetary System and Where It Is Heading

No economy can operate without an efficient monetary system in place. In a monetary system, cash is money in the physical form of currency, such as banknotes and coins. Money essentially fulfills three essential functions: a medium of exchange, a unit of account, and a store of value. Economists identify the four most relevant types of monetary systems as commodity, fiat, fiduciary, and commercial bank money. Modern economies use fiat money to build their monetary systems. Fiat money is neither a commodity nor represented or "backed" by a commodity. Regardless of its form, all currencies aim to enable economic activity by increasing the market for various goods. It enables consumers to store wealth and, therefore, address long-term needs.

The money supply is one of economics' most visible, tangible, and comprehendible subjects. It's a count of every bit of cash floating around the entire economy, the total of all the currency and other liquid assets in an economy on a measured date. The money supply includes all cash in circulation and all bank deposits that the account holder can easily convert to cash. Two distinct categories of money supply are labeled M1 and M2. Each category includes or excludes specific kinds of money. M1, also called narrow money, is often synonymous with "money supply" reported in the financial media. This is a count of all of the notes and coins in circulation, whether in someone's wallet or in a bank teller's drawer, plus other money equivalents that can be converted easily to cash. M2 includes M1 plus short-term time deposits in banks and money market funds. The world's total M2 money (broad money) is $82.6 trillion, including coins, banknotes, money market accounts, savings, checking, and time deposit accounts (Desjardins, 2022).

Eventually, all money will become virtual in the near future (Sauer, 2016). Some experts believe it already is (Flint, 2014). If we look at the trends in recent decades across the world. Money is destined to become digital (Miller et al., 2002). Corepay.com identified at least 8 countries rapidly moving towards becoming cashless (**Figure 6**). However, the question remains whether the cashless virtual currency will continue to replicate the centralized monetary system of today and maintain the status quo on growing inequalities or transition to a decentralized, securitization-inspired, algorithm-governed, democratic monetary regime that eradicates all types of inequalities. Our proposal supports a transition to decentralized governance that liberates our current inequalities-prone centralized economy to a social and gender-agnostic algorithmically governed economic regime.

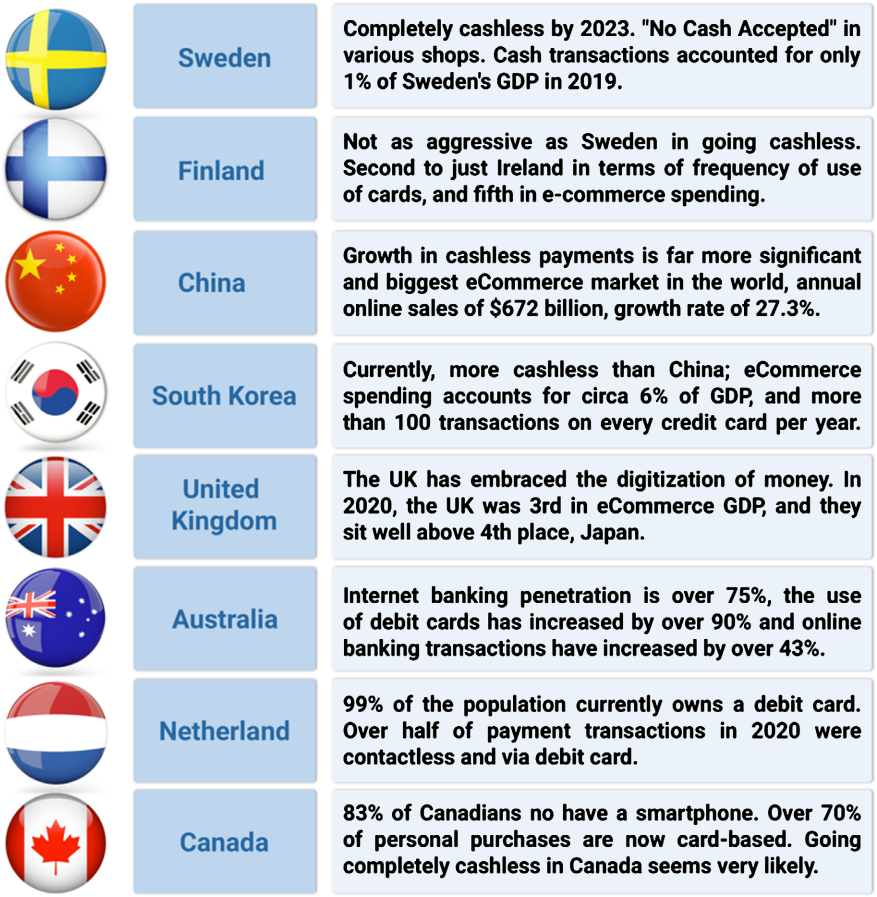

Figure 6. Future cashless countries. Data Source: Corepay.net.

In the aftermath of World War II, Einstein proposed a supernational military force to avoid future nuclear war and maintain peace and financial stability (Isaacson, 2007). The origins of the International Monetary Fund (IMF), the World Bank, the North Atlantic Treaty Organization (NATO), the United Nations (UN), and the European Union (EU) can be loosely traced back to that idea. Recently, Taskinsoy proposed an extension of that philosophy to recommend a "supranational currency" as the only path to global "peace and financial stability (Taskinsoy, 2023)." Believing that the existing monetary system is responsible for the unstoppable impending financial catastrophe and the controllers of the existing monetary policies are not interested in sound money, Taslomsoy's idea of supranational currency is not the same as the IMF's SDR super-currency. SDR, or special drawing rights, is not a currency per se but a basket of five major world currencies.[1]

The rise of the DeFi/cryptocurrencies industry has created new challenges for governments and central banks. In a few years, cryptocurrencies have grown

[1]SDR (special drawing rights) was introduced by the International Monetary Fund (IMF) in 1969, it is an international asset but not a currency. SDR is a unit of account for the IMF, which is pegged with U.S. dollar, euro, Chinese yuan, Japanese yen, and pound sterling. For more information on SDR, access https://www.imf.org/en/Topics/special-drawing-right.

from digital innovations to trillion-dollar technologies with the potential to disrupt the global financial system. The increasing popularity of Bitcoin and hundreds of other cryptocurrencies have transformed them into investment vehicles and currencies to buy various goods and services, such as software, real estate, illegal drugs, etc. The proponents of DeFi/blockchain believe that cryptocurrencies are a democratizing force, wresting the power of money creation and control from the governments and central banks to the masses. Critics, however, say that their drastic market volatility is a showstopper for their role as currencies, and a lack of regulation for cryptocurrencies empowers criminal groups, terrorist organizations, and rogue states. However, the latest Chainalysis data estimate that transactions involving illicit addresses comprised only 0.12% of the total cryptocurrency transaction volume in 2021 and 0.24 percent in 2022 (Schulp et al., 2023).

Although countries have started regulating cryptocurrencies, regulations vary considerably worldwide, with some governments embracing cryptocurrencies and others banning or limiting their use. As of February 2023, 114 countries, including the United States, are considering introducing their own central bank digital currencies (CBDCs) to compete with the cryptocurrency boom (Pahud de Mortanges, 2023). At least two countries, the Central African Republic and Al Salvador, have made Bitcoin a legal tender (Browne, 2023). Panama, Paraguay, and Guatemala are next in line (Mason, 2022). Only time will tell if future money will take the cryptocurrency route or maintain the status quo with the centralized fiat currency. While governments are likely to remain reluctant to relinquish their control over money, the massive debt crisis that the world is facing might not leave any option other than the asset-backed decentralized money.

2.5. Disparity in Wealth Distribution: A 21st Century Apartheid

Another scourge our existing monetary system suffers from is the grossly unequal distribution of wealth (**Figure 7**). The wealth inequality continues to grow (Dedrick & Collins, 2017). If the trend continues, median Black & Latino household wealth in the United States is heading towards "Zero Wealth," and the United Nations goal to "end poverty" by 2030 is already a far cry. The economic disparity is so severe that some economists call it an economic apartheid (Collins & Felice, 2011). Can we do anything to stop the growth of this 21st Century Apartheid? (Kelly, 2017)

Legacy monetary systems cannot be inclusive. Inclusivity is always multi-dimensional**.** It encompasses social, political, cultural, and economic dimensions and operates at various socioeconomic levels. Exclusion inadvertently occurs because the sociopolitical system we live in allows certain groups to be systematically discriminated against based on their identity. Such discrimination can be based on ethnicity, race, religion, sexual orientation, caste, descent, gender, age, disability, HIV status, migrant status, or even geographical location where they live. The principal reason for all kinds of inequalities to persist is that

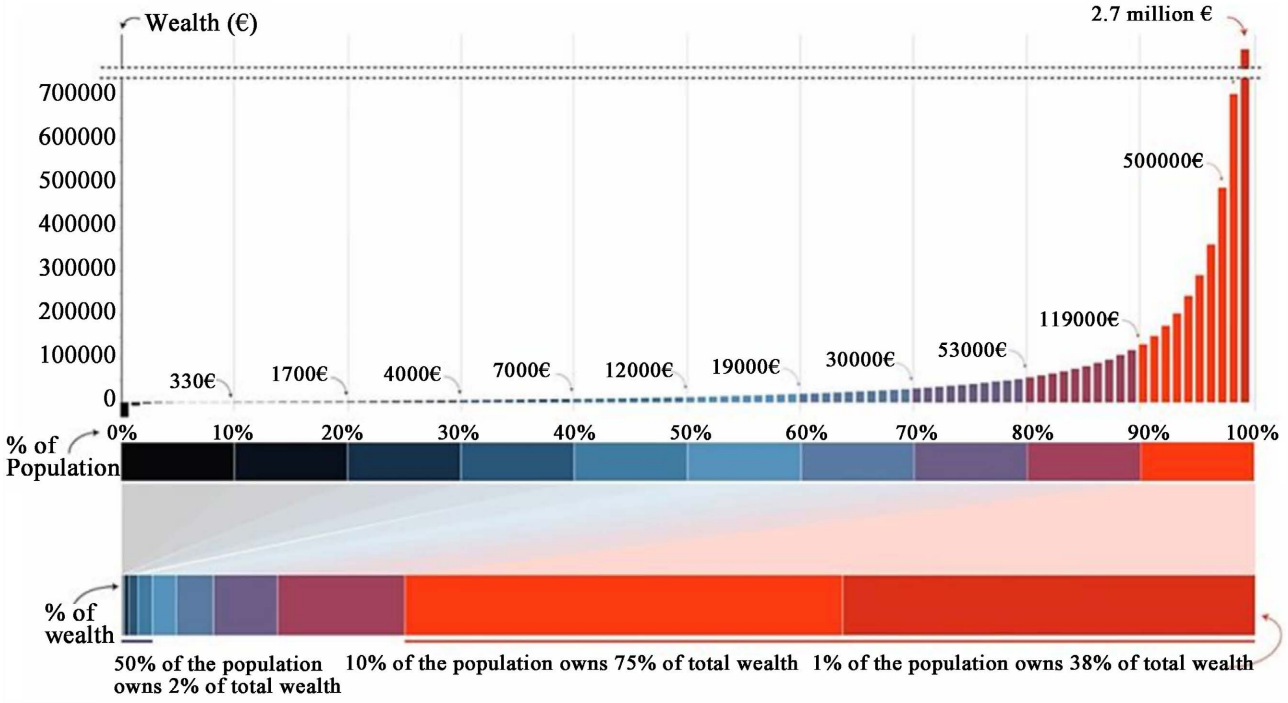

Figure 7. Wealth distribution disparity. Source: World Inequality Report, 2022. https://wir2022.wid.world/.

legacy systems are not strictly democratic and subjectively judge an individual's identity linked to existing socioeconomic, cultural, and political preferences. Any principle or rule left to be interpreted or implemented by humans will always be tainted with human prejudices, preferences, or conveniences (Raheman, 2022). Inclusivity is also dynamic and a product of unequal power distribution in social interactions, impacting people in various ways and to differing levels over time. It critically depends on and influences people's ability, opportunity, and dignity, which are unequally distributed among social groups. One of the credible paths to reducing the wealth gap seems to be decentralizing the money system and distributing control across the masses. The solution, therefore, lies in letting autonomous algorithms govern economics. That's precisely what the digital ledger technology/blockchain promises to deliver in enabling the proposed economic model of Sharonomics.

3. Research Methodology

The research methodology this paper follows is a narrative and integrative literature review approach (Torraco, 2005) to build the study hypothesis. An integrative literature review is suitable where the subject matter is brand new, massively disruptive, and needs further exploration. The exponential growth in global debt and the impending sovereign debt defaults (Cevik & Jalles, 2022), render the potentially apocalyptic situation worth investigating to find appropriate solutions that help prevent global economic chaos and achieve sustainability, inclusivity, and economic stability. To accomplish this, we need to draw

linkages between different bodies of literature as diverse as modern economics, modern monetary theory (MMT), future currency systems, and the enablers of the next technology-driven industrial revolution, viz, cybersecurity, artificial intelligence, blockchain and Sharonomics (Raheman, 2022). This is achievable through an integrative study (MacInnis, 2011; Torraco, 2005). Through this review, the study aims to generate new perspectives on the implication of integrating recent technological advances into the legacy economic and monetary ecosystems to mitigate the existential threat presented by the current global debt crisis. Additionally, there is an increased need and interest to balance any new approach with sustainability and social responsibility imperatives embodied in the sustainable development goals (SDGs) of the United Nations, currently facing an unassailable funding gap that has now risen to $4.2 trillion annually (UNDESA, 2020).

This research draws upon the combined literature of the modern sharing economy (Sharonomics) blockchain technology, artificial intelligence, financialization, sustainability, inclusivity, algorithmic governance, and social responsibility to seize the influence of their interplay for building a decentralized economic regime and a digital monetary system that is backed by tangible assets independent of government guarantees. Google Scholar was used as the principal search engine. Sustainability, financialization, securitization, inclusivity, governance, and social responsibility are well-established topics, but blockchain, cryptocurrency, tokenization, AI, Sharonomics, Influence Capital, planetary asset valuation, and the concept of ideal money are relatively new, and their implementation in different sectors is still gathering momentum. The empirical data used to build the theory was from peer-reviewed or professional reports.

4. The State of Democracy Worldwide and the Need for Digital Democracy

"Government of the people, by the people, for the people, shall not perish from the Earth," as Abraham Lincoln acclaimed that democracy should not perish from the earth, Karl Marx wished for its extermination because of his belief that *"the oppressed are allowed once every few years to decide which particular representatives of the oppressing class are to represent and repress them." In* 1947*,* Winston Churchill proclaimed, *"No one pretends that democracy is perfect or all-wise,*" implying that there was nothing better than that mankind knows of anyway (Morris, 2015).

Since its birth in the 5th century BCE, democracy has evolved into many different forms of governance. Democracy is a governance system in which sovereign power rests with the people. Ancient Greece pioneered democracy 1.0, of the people, by the people for the people, wherein people periodically came together to exercise this power directly or indirectly through a practice of representation by free elections to directly decide on the laws that would govern their lives. It was the first fair system of governance but with limitations. As the pop-

ulation grew, making the congregation of people in a single place difficult, the representative form of democracy arose. This was the democracy was 2.0, a full-scale implementation realized through representatives elected by the people. In this system, people go to designated places called pooling booths once every few years and cast their votes to elect their representatives. These representatives make decisions on behalf of the people. But such an election system is too susceptible to human frailties with the risks of being gamed and abused by some ambitious citizens. One form conceived in 2013-14 with the post-2008 recession as a network that evolved into a decentralized P2P credit system of blockchain technology is the Democracy 3.0 called CROWDOCRACY (Crowdocracy, 2019). In this next generation of democracy 3.0, none are enslaved or excluded, bullied or coerced, and every citizen participates, which we believe is the technological answer to all types of governance problems in the real world. In simple terms, crowdocracy or digital democracy is '*the practice of democracy using digital tools and technologies.*'

In 2007, about 80 percent of respondents worldwide believed democracy was the best way to run a society, regardless of country, continent, age, gender, or religion (Morris, 2015). However, according to the latest Democracy Index Report from EIU (Economist Intelligence Unit), only 8% of the world's population actually lives in a full, functioning democracy, most of which are in Western Europe (EIU, 2022). 37% of people live in some type of "flawed democracy," while 55% of the world does not live in a democracy at all (**Figure 8**). Events such as the war in Ukraine and restrictive, long-lasting COVID-19 measures have caused numerous declines in the country's democracy scores in recent years. Since EIU first published the democratic index report in 2006, the global average has fallen from 5.52 to 5.29 (Koop & Ma, 2023). The exponential growth in the integration of information and communication technology (ICT) in our daily lives has brought drastic changes in every aspect of human life in the 21st century, comprehensively affecting the people in the state, social, cultural, economic, political, and religious environments (Blühdorn & Butzlaff, 2020).

The rapid deployment of ICT has made communication between communities easy and seamless. In the old era, people found communicating or expressing opinions challenging, and gaining access to government and state issues information was complex and cumbersome. This often led to minimal public participation in activating democracy in most democratic countries (Dunan, 2020). Democracy in the digital era can provide easy access for citizens to obtain, exchange, and express information and opinions (Hardiman, 2018). However, using digital platforms to exercise your democratic rights comes with risks. The freedom of expression on digital platforms is often stretched beyond ethical limits. The spread of hate speech, defamation, disinformation, and hoaxes is not uncommon (Masduki, 2021). With freedom comes responsibility, a responsibility to respect the rights of others within the digital space, a responsibility to be considerate to your peers, and a responsibility to follow the rules of

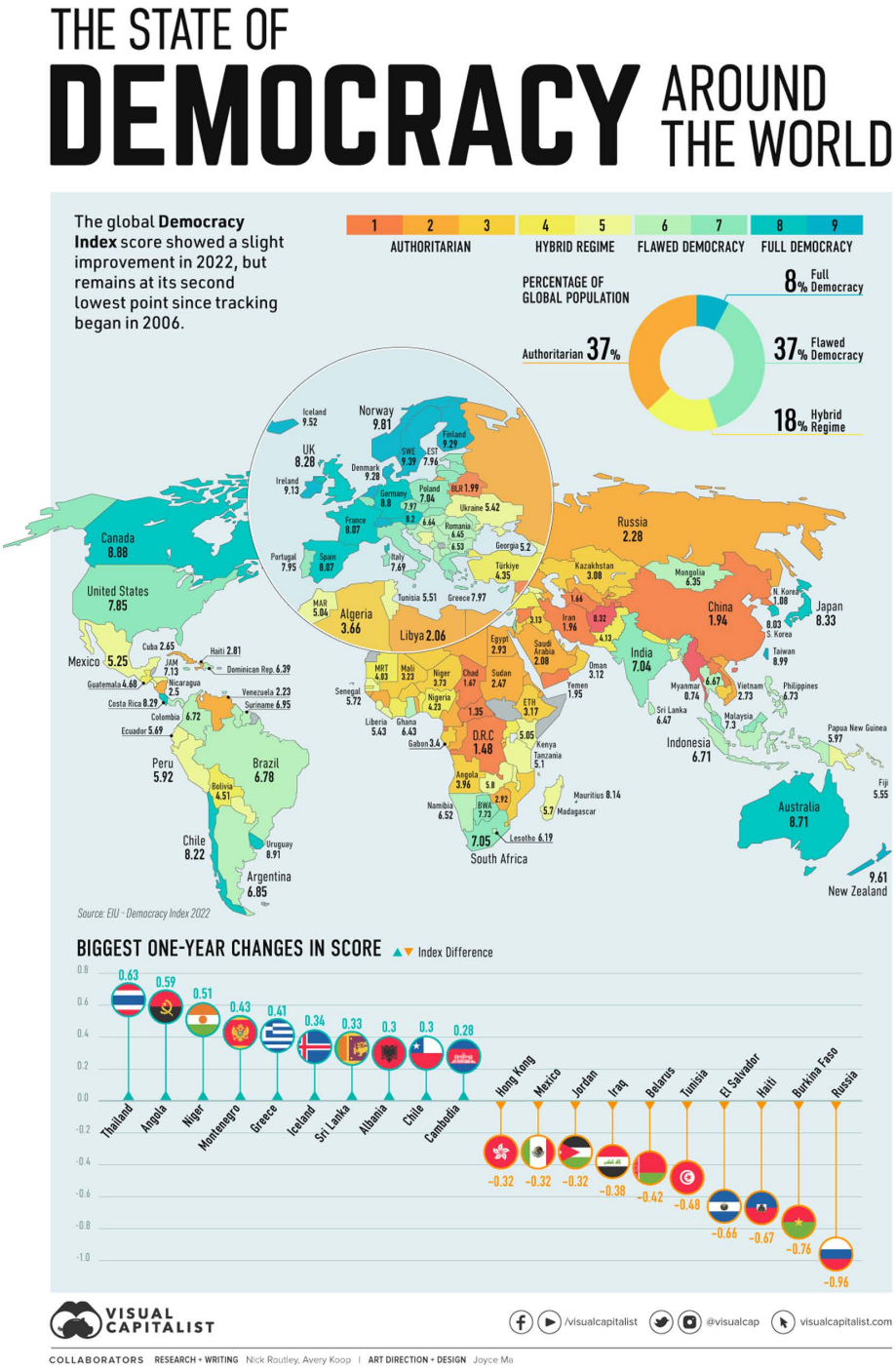

Figure 8. State of democracy worldwide. Source: Koop & Ma (Koop & Ma, 2023).

law (Mahliana, 2019). This is one of the problems and challenges for democracy in today's digital era.

Recently, Congge et al. reviewed peer research in digital democracy and found that the digital era positively and negatively impacts democracy. The Internet can be used as a forum for community participation to promote democratic values actively, resulting in a boost to democracy (Congge et al., 2023). However,

people's knowledge of democracy and freedom of expression is not considered entirely unfettered when expressing opinions in digital spaces. They also found that public knowledge in a digital democracy is essential and that digital democracy is still controlled by the elite class, wherein capitalism controls democracy, which may negatively impact democratic values (Congge et al., 2023).

4.1. The Inequality, State of Democracy, and the Advent of a Decentralized Blockchain Economy

Since Abraham Lincoln's famous Gettysburg speech in 1863, "Of the people, by the people, for the people," democracy has become such a virtuous concept that even the harshest dictators call themselves democratic. There's a consensus among all the democracy advocates on what "of the people" and "by the people" mean. The argument is only on interpreting "for the people." Does 'all the people' indeed mean to include everyone as the socialists and communists would want to see it, or is it 'the chosen few' as some anti-communists would want it? That dilemma makes democracy vulnerable to the convenience of any government "of the people" elected "by the people," resulting in increased wealth inequality across all democracies. Hailed as the greatest advancement since the invention of the internet, blockchain is a liberating force of the digital age (Scientist, 2017). Blockchain's decentralization of democracy takes that "for the people" dilemma out of human judgment. It makes democracy unexploitable to the convenience of a few by letting the algorithm make those decisions.

Spreading wealth is still tantamount to socialism, communism, or its variants. This is because no other conceivable political system advocates spreading wealth. When President Obama spoke about spreading wealth, he was aggressively trolled on social media as a socialist and compared with the top communists of the world (Kurtz, 2012). Although democratizing the process of generating and spreading wealth may seem as impossible a goal as the communist ideology was, the digitalization of democracy does hold the promise of a more inclusive world in the future.

"It isn't difficult to imagine a future where all types of assets are issued natively on a blockchain and represented in a tokenized format so that all of the trillions that humanity can claim as assets eventually move over to the blockchain." (DrFazal, 2019). Tokenization is a natural step in the evolution of securitization in the blockchain economy or Sharonomics. It provides liquidity to asset classes that were previously untradeable. Tokenization turns all illiquid real-world tangible or intangible assets into high-liquidity digital tokens that can be traded in crypto markets. As a result, tokenization can significantly improve participation and information efficiency/symmetry in financial markets. It may be argued that tokenization is poised to transform the securitization landscape and can significantly democratize market participation while ensuring asset fairness and security.

Three things are different in introducing liquidity via tokenization versus se-

curitization:

Firstly, legacy securitization systems financialized the debt while the tokenization in question will be of real assets.

Secondly, securitization lacks democratic governance and is prone to human manipulation, while tokenization is algorithmically governed (Hanisch et al., 2023), limiting its vulnerability to human greed.

Thirdly, tokenization introduces fungibility, giving currency characteristics to the resulting tokens generated. This means tokens can operate as currency or real money backed by the underlying assets.

For all the above reasons, tokenization is the next quantum leap in asset-based financialization.

The primary difference is that tokenization algorithmically turns all real-world assets into high-liquidity digital tokens, but securitization converts low-liquidity assets via human intervention into higher-liquidity security instruments traded in markets and over-the-counter platforms. Tokenization is algorithmically governed democracy, while traditional securitization is "human maneuvered democracy," as such, tokenization is blind to human discrimination that securitization is vulnerable to in contemporary capitalism.

Blockchain is a decentralized ledger technology that immutably links a growing list of publicly accessible records called blocks in a chain**,** using cryptographic hashes that require the consensus of the majority of record-validating peer nodes in a peer-to-peer public network incentivized with tokenized rewards for contributing their resources for validating the blocks (AlgoShare, 2019a). The definition essentially incorporates the following five essential elements:

1) Decentralized ledger

2) Immutable chain of publicly accessible records

3) Cryptographic hashing

4) Consensus of peers for validating records

5) Tokenized rewards to peers for their participation.

Paper and complex legal agreements are cumbersome, difficult to transfer, and hard to track. Blockchain can transform such complex contracts into digitized smart contracts and link them to assets as tokens representing real-world assets, creating an opportunity to democratize ownership of new asset classes such as the influence capital (Raheman, 2022).

The adoption of blockchain technology has revolutionized how assets are owned and transferred, with asset tokenization emerging as an effective method of representing ownership. Its potential impacts and forecasts its role in the future of digital economies (Shi, 2023). Asset tokenization is already gaining traction in Europe (Zheng & Sandner, 2022) and globally (Sazandrishvili, 2020). Many tangible assets have been tokenized for value capturing and creating liquidity in assets such as real estate, mining operations, renewables projects, beverage distilleries, sports royalties, infrastructure, expensive objects of art, etc. (Bauer & Schwabe, 2023). To tokenize a real-world asset, it is necessary to create

a digital representation of the asset as a token on a blockchain. In other words, tokenized assets are blockchain-based digital tokens representing physical and traditional financial assets. Asset tokenization presents an immense opportunity for existing financial institutions and the early-stage DeFi ecosystem to create a more transparent and efficient global financial system. Tokenization helps convert the ownership rights of an asset—such as fine art or a share in a company—into a digital token that is stored on a blockchain. This token represents the underlying asset and can be used to track and transfer ownership.

Asset tokenization offers many key benefits, such as (Barbereau, et al., 2022):

- Increased efficiency: since a blockchain is a trustless ledger, complex rules can be directly coded into tokens.
- Reduced costs: peer-to-peer transactions decrease reliance on intermediaries.
- Enhanced transparency: the blockchain ledgers are auditable.
- Improved liquidity: on-chain markets can be easily created for historically illiquid assets.

Tokenization also opens up the creation of entirely new financial markets and instruments since assets that have historically been siloed across disconnected environments can exist within a single settlement layer. In his annual letter to investors, Larry Fink—the CEO of BlackRock, the world's largest investment firm with $8+ Trillion in assets under management—outlined the opportunity that asset tokenization represents (Fink, 2023):

> "the tokenization of asset classes offers the prospect of driving efficiencies in capital markets, shortening value chains, and improving cost and access for investors."

The token economy is poised to take off with the evolution of Web 3.0 (Voshmgir, 2020), transforming along with it the very fabric of our economic system from an existing centralized regime to a decentralized ecosystem equitably shared by all the stakeholders (Raheman, 2022). Better illustrated as Sharonomics, this new blockchain-powered economic framework is driven by the gradual transition from our traditional scarcity-based economic systems to the abundance that technological advances of recent decades brought in. Algorithmizing the entire process with blockchain does make the generation and spreading of wealth a near-term reality for bridging the wealth gap without having anything to do with socialism or, communism or capitalism, for that matter (Raheman, 2022).

Securitization creates debt capital, which adds to the liabilities, while tokenization creates asset-backed equity capital that remains a liquidable asset.

4.2. Planetary Assets and the Possibility of Its Blockchain-Based Financialization

How much is the planet worth? In peer-reviewed literature, there aren't many attempts at estimating the worth of our planet Earth. In 2009, Greg Laughlin, an

astrophysicist at the University of California-Santa Cruz, published the following formula for the valuation of "extrasolar planets" (**Figure 9**):

> where $\tau_{\star}$ is the age of the planet-bearing star, and V is the apparent visual magnitude (Laughlin, 2009).

Applying the formula to Earth (using the Sun's apparent visual magnitude) Laughlin arrived at a figure close to $5 quadrillion, which is roughly the economic value of Earth (~500 times the Earth's current yearly GDP) (MacGarvey, 2023). Applying Laughlin's formula to today's dollar value, the valuation hits $7.15 Quadrillion.[2] However, ecologists believe the value should be higher as Laughlin's formula does not consider ecological and cultural assets.

In financial accounting, an asset is any resource owned by an entity. Anything tangible or intangible that can be owned or controlled to produce value and that is held by an entity to produce positive economic value is an asset. The value *of an asset is a subjective notion, as it varies both on a personal and global level.* Hence, an asset is a resource with economic value that an individual, corporation, or country owns or controls with the expectation that it will provide a future benefit. A recent report presented empirical data to suggest human influence as an asset in our modern sharing economy or Sharonomics (Raheman, 2022). Such influence capital is a monetizable asset and can be financialized (Raheman, 2022). *An asset carries value as long as there is a market for the asset. The more liquidable an asset, the less inflationary it is and the more marketable it is.* Liquidable assets mean cash or assets readily convertible to cash, such as checking and savings accounts, certificates of deposit, stocks, securities, or investments or cryptocurrency tokens in the new economy. Transforming illiquid assets into liquid assets that can be readily sold on a market thereby increases liquidity. For example, a bank can use securitization to convert a portfolio of mortgages (which individually are illiquid assets) into cash (a very liquid asset). High liquidity means an organization can easily meet its short-term debts, while low liquidity implies the opposite, and an entity could imminently face bankruptcy.

Recently Costanza et al. used a pluralistic discounting method for an 80-year time horizon to calculate the net present value (NPV) of planet Earth (Costanza et al., 2021). Their study estimated the mean NPV of Earth's ecosystem at $14.7 quadrillion in 2023 dollars (**Figure 10**). The authors advised caution in interpreting these results as they are based on severe simplifying assumptions that they can't claim any degree of precision for these estimates, nor could they claim

$$\mathcal{V} = 6\times10^{6}\frac{\tau_{\star}}{0.5\,\mathrm{Gyr}}\left(\frac{M_{\odot}}{M_{\star}}\right)^{1/3}\exp-\left(\frac{\log(\frac{M}{M_{\odot}})}{0.2}\right)^{2}\exp-\left(\frac{T_{\mathrm{eff}}-273}{30}\right)^{2}\exp-\left(\frac{T_{\mathrm{yr}}-\mathrm{now}}{4}\right)\left[2.5^{(12-V)}\right]^{1/2}$$

Figure 9. Greg Laughlin's where $\tau_{\star}$ is the age of the planet-bearing star, and V is the apparent visual magnitude.

[2]Estimated using Inflation Calculator: https://www.officialdata.org/us/inflation/2008?amount=5

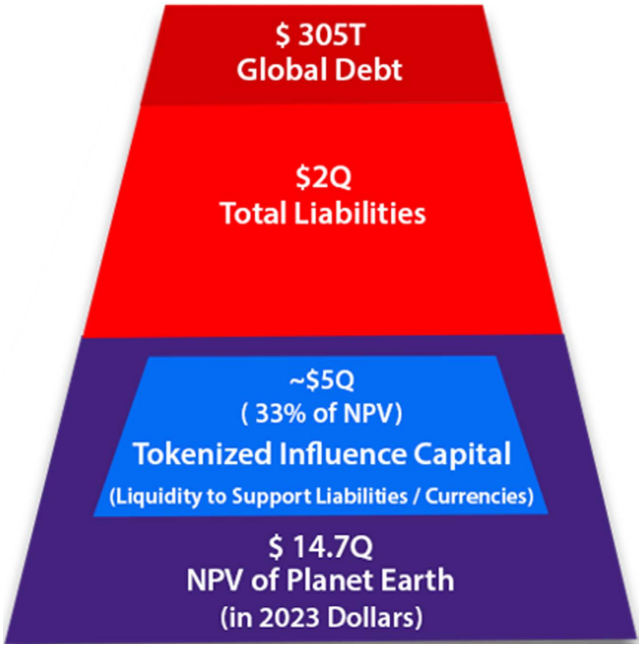

Figure 10. Financializing planetary assets to mitigate global debt.

any actual practical use for such estimates. NPV calculates the current value of a future stream of payments from a company, project, or investment. To calculate NPV, one needs to estimate the timing and amount of future cash flows and pick a discount rate equal to the minimum acceptable rate of return. A higher NPV is always considered when making investment decisions because it shows that an investment would be profitable. In simple terms, NPV is how much an investment is worth throughout its lifetime, discounted to today's value. With a higher NPV, an investment would have a future cash stream higher than the money invested in the project.

It is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. In summary, NPV is a financial calculation used to analyze the profitability of an investment or project. At the same time, NAV (Net Asset Value) is a per-share value used to determine the price at which investors can buy or sell shares in a mutual fund.

Hypothetically, suppose just 1/3rd of the total NPV of planet Earth is tokenized. In that case, it will generate liquidity equivalent to ~$5 Quadrillion (**Figure 10**). However, easier said than done, it is a monumental goal that is too utopian even to dream of. But then, no less utopian were the countless moonshots that mankind achieved in the past, from walking on the moon to keeping over a million of us airborne at any given moment (Morris, 2017). All that is needed is a credible path to the final goal, which this paper provides.

Interestingly, using the DCF methodology, Jiang et al. concluded that the NPV of the US government's primary surpluses—government revenues minus government spending—is negative, to the tune of $21.6 trillion (Jiang et al., 2022). The US needs to raise a lot of money to cover the deficits until 2051. If the

US government were a normal company, it would have declared bankruptcy long ago (Jiang et al., 2022). According to a US Congressional Budget Office report, the US is predicted to add more than $19 trillion in gross national debt over the next decade (Liu, 2023) to an already bloated $33 trillion debt (Rennison, 2023). This level of debt is simply neither sustainable nor containable.

5. Creation of a Digital Economy with Algorithmic Monetary System

A digital economy changes the socioeconomic behavior of communities and polities that reach beyond computerization. It also changes the rules of economics. Ignoring the law of supply and demand, the digital economy exhibits some aspects of Say's Law of "supply creates its own demand", "If you build it, they will come" (Pinto & Srinivasan, 2022) is the mantra that has created new markets that never existed before, like Apple building the first iPhone or Tesla building the first electric car. Classical scarcity-driven economics gradually transformed into the financialization-driven economics of abundance in the late 20th century and early 21st century. The no-cost social media-driven content sharing with likes and upvotes has become a benign and benevolent part of our daily lives, giving us a sense of social belonging. Such goodwill sharing without any cost burden is something citizens are willing to do in this transformed economy or Sharonomics (Raheman, 2022). It is revolutionizing 21st-century economics by creating a technological means to disseminate abundance amongst the masses to mitigate inequality and promote inclusivity.

Lewis (Lewis, 2023) identifies at least four characteristics of the digital economy that define the future of our monetary system:

- Infinite shelf space: The ability to make infinite copies of a digital asset.
- Zero marginal cost: Lower cost of production as more copies are made at costs approaching zero.
- Increasing returns: The abundance of a product increases its retail value.
- Friction-free transactions: The preceding features make transactions easy to execute with just a click.

Georgyi Gause, a Russian scientist, conducted experiments to establish his competitive exclusion principle of the "winner take all (Pocheville, 2015)." His theory proposes the principle, *"Complete competitors cannot coexist,"* for example, Google in search engine space. According to the Gause principle, one of the many cryptocurrencies in existence today will dominate the digital economy by gaining a dominant market share. Others, including fiat currencies backed by governments, will decline or vanish as cryptocurrencies take over. Although there's no clear winner yet, time will tell if Gause's competitive exclusion principle of the "winner take all" will impact the future of money (Lewis, 2023).

5.1. Tokenomics and Creation of Money

A token is a digital unit of a cryptocurrency used as a specific asset or to

represent a particular use on the blockchain. Tokens have multiple use cases, but security, utility, and governance tokens are the most common. Cryptocurrencies and tokens built on blockchain have pre-set, algorithmically created issuance schedules. This means we can predict with quite some accuracy how many coins will have been created by a certain date. Though it is possible for most crypto assets to have this issuance schedule altered, it will generally require the agreement of a majority of peer participants and is very difficult to implement. This provides some comfort and security for token owners because they know the tokenomics, and to what degree their asset will be created in a way that is much more predictable than governments creating fiat money almost arbitrarily. Smart contracts are agreements on blockchains that run without outside approval or human input when conditions are met. They are "self-executing" contracts. Once written and agreed to, they are immutable—the terms cannot be changed or the agreement canceled. Any payment stipulated in the contract is locked into the contract at its creation, so there is no going back. This removes the need for a trusted intermediary to ensure that the terms of an agreement are enforced. Staking is when users invest their tokens into the network under a smart contract and get rewarded for doing it. Essentially, you mine or multiply your assets by storing your tokens in the network to earn passive income on your crypto holdings.

5.2. Securitization of CeFi vs Tokenization of DeFi

Securitization is the financialization of the economy without democratic governance in a conventional centralized financial system, while blockchain-driven tokenization is financialization with decentralized algorithm-controlled democratic governance. Tokenizing the abundance and redistributing it across the gender, socioeconomic, or cultural barriers by deploying algorithms rather than human judgment is decentralizing finance (DeFI). DeFi is an emerging financial technology at the core of the blockchain/crypto revolution. The system removes the control that banks and institutions have over money, financial products, and financial services. As a result, the consumers avail following unprecedented advantages:

1) Assets are held as tokens in a secure digital wallet under user control instead of being kept in a third-party bank.

2) Eliminating of the fees banks/financial intermediaries charge for using their services to execute transactions creates surplus value.

3) The surplus value created yields returns under a smart contract while the assets remain in an owner-controlled wallet.

4) Anyone with an Internet connection can enforce a smart contract without needing any 3rd party approval.

5) Funds can be transferred in seconds and minutes.

Smart contracts and tokens are the building blocks of DeFi. DeFi has the following advantages over conventional centralized finance (CeFi):

1) Transparency: DeFi transactions are public records on the blockchain, and

the terms of Smart Contracts are immutable, while CeFi lacks transparency and immutability.

2) Control: DeFi allows the user to remain the custodian of its assets as there's no third-party intermediary such as a bank, and the yield from assets staked is guaranteed and automatic as against through CeFi's third-party custodian.

3) Accessibility: Anyone with a modest computing device, internet connection, and a little know-how can create and deploy DeFi applications, while CeFi is resource-intensive.

4) Staking: Staking is when one invests asset tokens into the network under a smart contract and gets rewarded for doing it, essentially mining or multiplying assets by pledging tokens to earn passive income without losing control over assets. CeFi investments have to surrender control over assets.

5) Higher Yield: The financial gain in DeFi also presents a significant contrast to CeFi. In the years 2020 and 2021, DeFi offered higher annual percentage yields (APY) than CeFi: the typical yield of USD in a CeFi bank was about 0.46% as of October 16, 2023 (Perez, 2023), while DeFi offered consistent rates beyond 8% (Qin et al., 2021).

6) Zero-Sum Game: The economy's growth in the neoclassical CeFi system is a zero-sum game and not cornucopian or limitless (Hornborg, 2003) as DeFi's staking offers.

7) Influence Capital: The DeFi features of transparency, control, accessibility, staking, and high yield without surrendering the possession of assets is a cornucopian non-zero-sum game, meaning just the influence of staked assets works as a profit-generating capital (Raheman, 2022). This opens the possibility of harvesting, tokenizing, and sharing the influence of the planetary assets worth quadrillions to service the massive global debt, challenging the zero-sum theorists (Rubin, 2003; Hornborg 2009).

5.3. Ideal Money: What is It? And is It Attainable in the Real World?

John Nash, the Nobel laureate and game theorist, compared the technological antiquity of money with the invention of the wheel (Nash Jr., 2002). Ideal Money is a theoretical notion he suggested for stabilizing international currencies. It was a hypothetical solution to the Triffin dilemma—the conflict of economic interests between the short-term domestic and long-term international objectives when a currency used in a country also serves as a world reserve currency. Although it could never be translated into practice, this is how Nash defined Ideal Money in his own words:

> "The ultimately launched concept of "Ideal Money" became possible when I conceived of a practical basis for standardization of the comparison of the value of the currency with an appropriate standard or ideal. And the key to that was the idea of an ICPI or (international) "Industrial Consumption Price Index."

The "Ideal Money" question that Conant (Conant, 1903) asked first remains as futile as searching for the philosopher's stone or looking for a fixed point in the solar system (Conant, 1903). Conant argued: "To the *undiscerning* minds of the mass of men, a pound sterling of gold, a silver five-franc piece, or a paper dollar, always represents a definite unit." Conant's *discerning* mind speculated that the belief was a mere myth, for purchasing power fluctuated endlessly. Comparing the value of a currency with any kind of consumer price index, as Nash Jr. (Nash Jr., 2015) suggested, does not ensure that the currency on its own, independent of its issuer, retains any tangible value that does not get extinguished if the issuer goes defunct. Moreover, all money will eventually become digital, and paper money will become defunct (Reiss, 2018). It is time we consider money beyond its classical definition as a medium of exchange, a unit of accounting, or a store of value because none of those attributes create any intrinsic value in money beyond the credibility of the currency-issuing authority. Edstrom identified 14 characteristics of good money (Edstrom, 2019). AlgoShare listed five key elements of ideal money (AlgoShare, 2019b). Based on those key elements following definition of ideal money is proposed:

> "Ideal money should be sustainable with portability, homogeneity, durability, consistency, convertibility, parity, and liquidity that is a universally cognizable, trustless guarantee of value, neither created out of debt nor via selling highly speculative assets, nor directly collateralized, pegged to another global currency, but carry sustainable intrinsic equity algorithmically stabilized against a reference global currency supporting its long term self-sustenance independent of its issuer or creator rendered asymptotically stable by bearing neither zero volatility nor infinite volatility, decentralized with autonomous and intelligent algorithmic creation, supply utility and circulation so that it is more than just a medium of exchange, unit of accounting or a store of value."

A radically new approach to the algorithmic democratization of capitalism for allocating resources equitably free from human manipulation that creates Influence capital via tokenized storage of value that introduces liquidity in tangible or intangible assets (Raheman, 2022), holds out the potential to generate ideal money. The Sharonomics ecosystem essentially renders any tangible or intangible asset liquidable by fractionating it into tokens. Such tokens not only operate as democratically created storage of value, medium of exchange, and unit of value but bear all the aforementioned qualities of ideal money.

6. Harvesting, Sharing, Redistributing Abundance: A Utopian Dream or Renaissance 2.0?

Legacy economic systems are too outdated to adapt to the new reality. If we don't harvest the planetary abundance accumulated over centuries via algorithmic financialization (Raheman, 2022), and remain complacent to the status quo,

we are heading toward perishment. The influence of the abundance of planetary wealth can be tokenized using blockchain algorithms. Such tokenized influence can be incentivized and democratically and equitably shared amongst peers by staking them without the intervention of human prejudices. Using tokens or crypto assets to generate passive income encompasses many practices, including staking. Staking cryptocurrencies is a process that involves committing your crypto assets to support a blockchain network and confirm transactions. The tokens remain in the owner's possession while they are staked, essentially putting those staked tokens to work without any risk and earning passive income (Lehmann et al., 2023). These assets remain free to be unstacked whenever the owner wants to trade them. The unstaking process may not be immediate, requiring a minimum amount of time. This is how the DeFi economy delivers yield on tokenized assets without putting the assets at risk. The total market cap of the staking industry is currently $169 billion, and the benchmark yearly reward rate is 5.72%.[3]

Utopian thinking is a valid method for building the future through new creative forms of knowledge (Levitas, 2013). Many of today's technological wonders are rooted in science fiction (Weber, 2016). If imagination can discover technology (Alkon, 2013), there's no reason why technology cannot help build a utopia. Throughout history, mankind has seen countless utopian dreams realized. The idea of a perfect society can be traced back to Plato's Republic, the book of Acts in the New Testament, and Sir Thomas More's fictional Utopia. Finding another way of living where all humans have an equitable and active stake in the community requires radically reimagining society. For instance, the Seasteading Institute is pursuing a utopian ambition to realize its floating sovereignty vision. Seasteading means building communities or politically independent nations that float on the ocean with full political autonomy in sync with an environmentally restorative lifestyle that mitigates some of the effects of climate change (Simpson, 2022). Seasteading Institute claims to be associated with at least 10 such seasteading projects[4] claiming super-ambitious micronation-style sovereignty in international waters (Arnold, 2023) that was considered techno-politically impossible not long ago.

In 2001, Ray Kurzweil, the futurist of Singularity fame, proposed his law of accelerating returns, predicting that the technological changes aren't linear but exponential (Kurzweil, 2001) (**Figure 11**). He predicted 20,000 years of technological progress would be made in the 21st century (Cordeiro & Wood, 2023). The pace at which AI and Quantum computers are being developed in the preceding decade proves his point.

"No matter what problem you encounter, whether it's a grand challenge for humanity or a personal problem of your own, there's an idea out there that can overcome it." And you can find that idea (**Figure 12**). Harvesting the planetary

[3]https://www.stakingrewards.com/.
[4]https://www.seasteading.org/active-projects/.

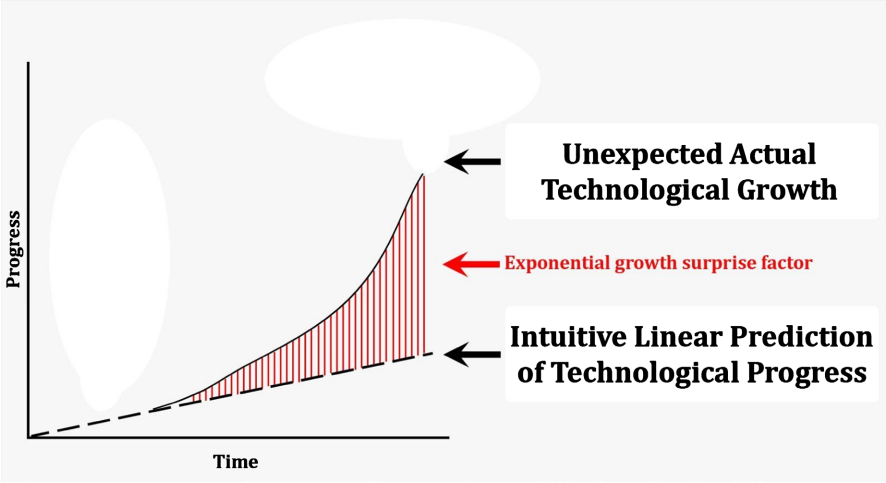

Figure 11. Kurzweil's law of accelerating returns for technological change.

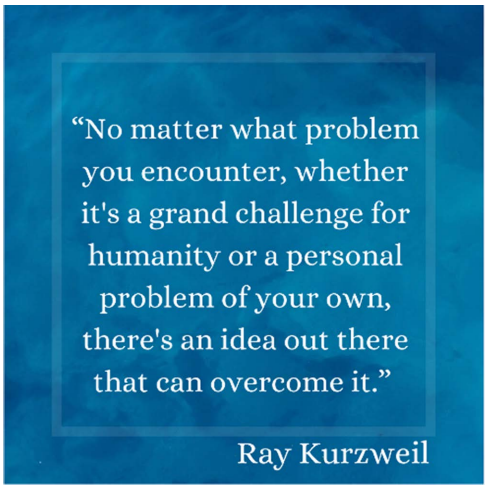

Figure 12. Popular quote from famous futurist ray Kurzweil.

abundance and sharing and redistributing it (Raheman, 2022) to mitigate global debt is that idea. It may be a utopian dream, but so are the countless impossible dreams mankind has accomplished through the ages of civilization, from the golden era of the Renaissance to the present-day dream of colonizing our planetary neighbor, Mars (Soureshjani et al., 2023) or seasteading new floating nations in International waters.

Oxford professor Ian Goldin defines the present era as a New Renaissance - a rare moment of flourishing genius and risk that promises to reshape all our lives (Goldin, 2017). Goldin argues that our present has more parallels with the Renaissance than the Industrial Revolution (OECD, 2018), undoubtedly, technology will be at the heart of this second coming of the Renaissance. The central themes of Renaissance 1.0 included rebirth and rediscovery, humanism, rationalism, individualism, reformation, and secularism, allowing art and science to flourish as never before. The Renaissance 2.0 revolution will be more global, sustainable, inclusive, resilient, and human-centric. Renaissance 1.0 was the sto-

ry of Europe's breaking from the dark Middle Ages to become, in a sense, reborn. Renaissance 2.0 will be the story of Computopia. The next industrial revolution will indeed be the second Renaissance no less realistically utopian than the Computopia of Yoneji Masuda's vision (Duff & Yoichi, 2020). Duff and Yoichi try to rescue Masuda's vision of Computopia by demonstrating that it, too, can be embraced as realistic utopianism (Duff & Yoichi, 2020). The present initiative is a step towards ascertaining the conditions of that realistic Computopia. While it is hard to precisely predict how technology shapes the future, a prudent and judicious analysis of the preceding 4th industrial revolution tells us that sustainability should be the epicenter of the next industrial revolution, not only because of its altruistic urgency but because of its technological and economic feasibility that recent technological advancements in cybersecurity, blockchain, AI and economics/Sharonomics brought to enable the realistic Computopia of Masuda's vision.

If a new kind of living in colonizing Mars or seasteading new floating sovereign polities can be imagined as peacetime super ambitions, EDAN (Equitable Decentralized Autonomous Nation) is not beyond the realms of possibilities (Raheman, 2022). Tokenizing the planetary assets to save the world from the impending devastation of the cataclysmic global debt is indeed not beyond human imagination, given the empirical evidence presented in the preceding sections and summarized herein. The tokenization of planetary assets to offset global liabilities supports the hypothesis investigated in this paper by reversing the inverse pyramid of global debt (**Figure 13**) and revolutionizing the global monetary system by creating asset-backed money to replace the fiat currency system. As illustrated in **Figure 13**, tokenizing just 1/3rd of the total planetary assets brings down the debt/asset ratio to an acceptable level of ~40% (Hwang et al., 2013) from the

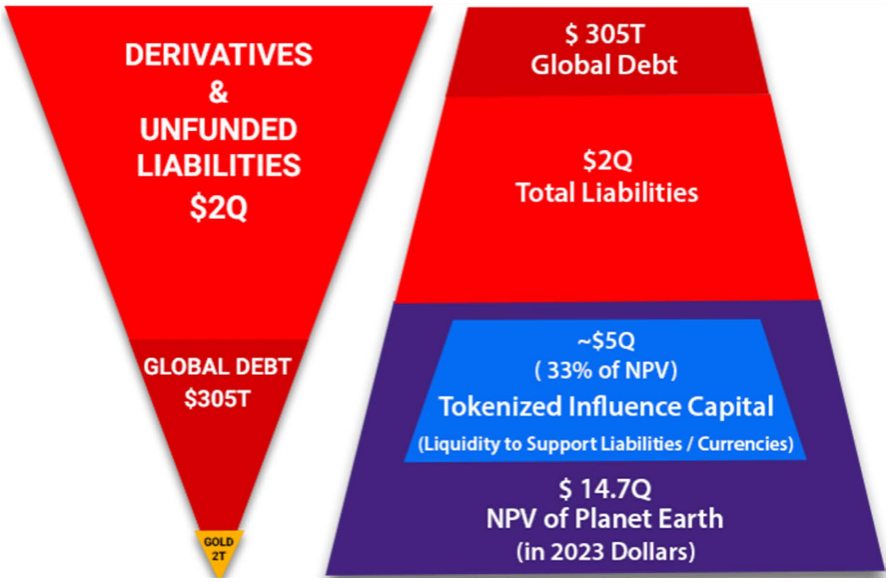

Figure 13. Reversing the inverse pyramid of global debt with tokenization of planetary assets.

mindboggling 1300% (Figure 2).

7. Research Findings

The key finding of this research is that the decentralized tokenization of planetary assets can hypothetically create liquid or liquidable assets that will be several times higher than the total global debt and well under the conventional debt ratio of around 40% (Hwang et al., 2013). Such assets have the potential to reverse the inverse global debt pyramid and create the possibility of generating ideal money. Although a utopian mission, this research provides a credible path to the apparently impossible final goal of mitigating the colossal global debt waiting to implode, posing an existential threat to humanity. With no other solution to the impending debt catastrophe in sight, mankind is left with little choice but to pursue this utopian dream. Necessity is not only the mother of invention; it also mothers change. If our necessity is to save ourselves from extinction and change is the only choice left for humanity to survive, change will be inevitable. Time will tell if that change comes. It will take another industrial revolution no less than the second coming of the Renaissance epoch. The recent technological advances in cybersecurity, blockchain, AI, and Sharonomics create the potential to build a Computopia that eventually makes our world a better place.

8. Conclusions

"Cybersecurity is the mother of all problems. If you don't solve it, all the other technology stuff just doesn't happen," said Microsoft's head of cybersecurity (Marshall, 2022). Economics is no less crucial in technological innovations happening around the world. The ecosystem will collapse if we don't address the enormous global debt problem.

The global monetary policy is facing a dead end with nothing to defend against the mega financial crisis that the world is facing today. The proposed economic and monetary regime theoretically aligns with the predicted technological progress and perfectly syncs with the sustainability principles but warrants enormous governmental and private sector engagement and collaboration for implementation. Although it adapts to the economic and technological realities of the 21st century, it may still appear to be no less than a utopian dream. Tokenizing the planetary assets may sound too radical, but so were man's moonwalk dream of the previous century and the Mars colonization dream of the 21st century. Mankind already achieved the moonwalk and is now heading to conquer Mars. The circumstances compelling the Moon or Mars missions were not as severe or catastrophe-driven as today's global debt crisis is. As much as those moonshots can be classified as peacetime missions, addressing the colossal debt crisis is a question of saving humanity from the impending existential threat resulting from the inevitable earth-shattering financial crisis. Neither conquering the moon nor colonizing Mars were existential needs for the human quest, yet they became hot pursuits. The present humongous financial calamity at hand

bears catastrophic consequences if left unaddressed. Given the pace at which the potential Utopia, or rather Computopia building technologies, are evolving, the possibilities of fixing or reconfiguring the monetary systems are not as far-fetched as conceiving the moonwalk in the early 60s.

This research builds a theoretical possibility of a path to the fiscal dream that warrants extensive research to explore its possible implementation in real-world settings. Traversing that path will be a challenge that all stakeholders must collectively overcome. The recent technological advancements indicate that the next industrial revolution is imminent and has already been predicted by several researchers. The emerging economy is becoming so technology-dependent that it transforms economics into a nerve center of all technological advances. If we don't address its problems, all the other technology stuff will be adversely impacted. This paper hopes to inspire the researchers to critically reflect on what is observed in this paper, facilitate the interdisciplinary communication that such an endeavor needs, and try to find answers to the unanswered questions.

Acknowledgements

The author is grateful to Tejas Bhagat and Sadiya Khan, Blockchain 5.0 Ltd, Estonia, for their assistance in preparation of the manuscript.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

AlgoShare (2019a). *Defining Blockchain*. Medium. https://medium.com/@AlgoShare/defining-blockchain-6648074ef91c

AlgoShare (2019b). *Ideal Money: The Curtain Raiser*. Medium. https://medium.com/@AlgoShare/ideal-money-the-curtain-raiser-c9bbf8d9a60f

Alkon, P. K. (2013). *Science Fiction before 1900: Imagination Discovers Technology*. Routledge. https://doi.org/10.4324/9780203760871

Arnold, B. B. (2023). Pseudo-States and Sovereign Citizens. In K. W. Gray (Ed.), *Global Encyclopedia of Territorial Rights* (pp. 1-9). Springer International Publishing. https://doi.org/10.1007/978-3-319-68846-6_735-1

Ausman, J. I. (2018). The Coming Economic World Crisis. *Surgical Neurology International, 9,* 89. https://doi.org/10.4103/sni.sni_461_17

Barbereau, T., Sedlmeir, J., Smethurst, R., Fridgen, G., & Rieger, A. (2022). Tokenization and Regulatory Compliance for Art and Collectibles Markets: From Regulators' Demands for Transparency to Investors' Demands for Privacy. In M. C. Lacity, & H. Treiblmaier (Eds.), *Blockchains and the Token Economy: Theory and Practice* (pp. 213-236). Springer International Publishing. https://doi.org/10.1007/978-3-030-95108-5_8

Battiston, S., Guerini, M., Napoletano, M., & Stolbova, V. (2018). Financialization in the EU and Its Consequences. *European Policy Brief, 2,* 1-13.

Bauer, I., & Schwabe, G. (2023). Value Capturing from Tokenized Asset Histories. *Die Unternehmung, 77,* 4-23. https://doi.org/10.5771/0042-059X-2023-1-4

Blühdorn, I., & Butzlaff, F. (2020). Democratization beyond the Post-Democratic Turn: Towards a Research Agenda on New Conceptions of Citizen Participation. *Democratization, 27,* 369-388. https://doi.org/10.1080/13510347.2019.1707808

Bonnie, G. B. (2017). The Way We Live Now: Financialization and Securitization. *Research in International Business and Finance, 39,* 663-677. https://doi.org/10.1016/j.ribaf.2015.11.019

Brahmbhatt, M., Otaviano, C., & Vostroknutova, E. (2010). Dealing with Dutch Disease. In *Economic Premise, No. 16.* World Bank. https://documents1.worldbank.org/curated/en/794871468161957086/pdf/548670BRI0EP160Box349431B01PUBLIC1.pdf

Browne, R. (2023). *Central African Republic Becomes Second Country to Adopt Bitcoin as Legal Tender*. CNBC. https://www.cnbc.com/2022/04/28/central-african-republic-adopts-bitcoin-as-legal-tender.html

Buchanan, B. G. (2017) The Way We Live Now: Financialization and Securitization. *Research in International Business and Finance, 39,* 663-677. https://doi.org/10.1016/j.ribaf.2015.11.019

Campos, R. (2022). *China, U.S. Lead Rise in Global Debt to Record High $305 Trillion—IIF*. Reuters. https://www.reuters.com/markets/europe/china-us-lead-rise-global-debt-record-high-305-trillion-iif-2022-05-18/

Cevik, S., & Jalles, J. T. (2022). An Apocalypse Foretold: Climate Shocks and Sovereign Defaults. *Open Economies Review, 33,* 89-108. https://doi.org/10.1007/s11079-021-09624-8

Collins, C., & Felice Y. (2011). *Economic Apartheid in America: A Primer on Economic Inequality & Insecurity*. The New Press.

Conant, C. A. (1903). Is an Ideal Money Attainable? *Journal of Political Economy, 11,* 399-415. https://doi.org/10.1086/250969

Congge, U. et al. (2023). Digital Democracy: A Systematic Literature Review. *Frontiers in Political Science, 5,* Article 972802. https://doi.org/10.3389/fpos.2023.972802

Cordeiro, J., & Wood, D. (2023). From the Linear to the Exponential World. In *The Death of Death* (pp. 65-96). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-28927-9_4

Cornand, C., & Céline, G. (2012). The 2007-2008 Financial Crisis: Is There Evidence of Disaster Myopia? *Emerging Markets Review, 13,* 301-315. https://doi.org/10.1016/j.ememar.2012.02.001

Costanza, R. et al. (2021). Pluralistic Discounting Recognizing Different Capital Contributions: An Example Estimating the Net Present Value of Global Ecosystem Services. *Ecological Economics, 183,* Article 106961. https://doi.org/10.1016/j.ecolecon.2021.106961

Crowdocracy (2019). *Democratizing the Democracy for 21st Century*. Medium. https://medium.com/@CROWDOCRACY/democratizing-the-democracy-for-21st-century-3f937b8fb83e

Dedrick, A.-M., & Collins, C. (2017). *Inequality Crises: Blacks and Latinos on the road to Zero Wealth*. USA Today. https://www.usatoday.com/story/opinion/2017/09/13/inequality-crisis-blacks-and-latin

os-on-road-zero-wealth-asante-muhammad-collins-column/659766001/

Desjardins, J. (2022). *All of the World's Money and Markets in One Visualization (2022)*. Visual Capitalist. https://www.visualcapitalist.com/all-of-the-worlds-money-and-markets-in-one-visualization-2022/

DrFazal (2019). *From Securitization to Tokenization*. Medium. https://drfazal.medium.com/from-securitization-to-tokenization-817d4b6ef759

Duff, A. S., & Yoichi I. (2020). Computopia Revisited: Yoneji Masuda's Realistic Utopianism. *Keio Communication Review, 42,* 53-74.

Dunan, A. (2020). Government Communications in Digital Era: Public Relation and Democracy. *Jurnal Pekommas, 5,* 73-82. https://doi.org/10.30818/jpkm.2020.2050108

Edstrom, A. (2019). *The 14 Characteristics of Money*. Medium. https://medium.com/@edstromandrew/the-14-characteristics-of-good-money-e4d2062a51d1

EIU (2022). *Democracy Index Report 2022*. The Economist Intelligence Unit. https://www.eiu.com/n/campaigns/democracy-index-2022/

Engelen, E., & Glasmacher, A. (2018). The Waiting Game: How Securitization Became the Solution for the Growth Problem of the Eurozone. *Competition & Change, 22,* 165-183. https://doi.org/10.1177/1024529418758579

Fink, L. (2023). *Larry Fink's Annual Chairman's Letter to Investors*. https://www.blackrock.com/corporate/investor-relations/larry-fink-annual-chairmans-letter

Flint, D. (2014). Computers and Internet: Are All Modern Currencies Not Virtual? The Bitcoin Phenomenon. *Business Law Review, 35,* 60-62. https://doi.org/10.54648/BULA2014010

Francesca, F., & Giguère S. (2010). *Local Economic and Employment Development (LEED) Breaking Out of Policy Silos Doing More with Less: Doing More with Less*. OECD Publishing.

Goldin, I. (2017). The Second Renaissance. *Nature, 550,* 327-329. https://doi.org/10.1038/550327a

Hanisch, M., Goldsby, C. M., Fabian, N. E., & Oehmichen, J. (2023). Digital Governance: A Conceptual Framework and Research Agenda. *Journal of Business Research, 162,* Article 113777. https://doi.org/10.1016/j.jbusres.2023.113777

Hardiman, F. B. (2018). Manusia dalam prahara revolusi digital. *Diskursus, 17,* 177-192. https://doi.org/10.36383/diskursus.v17i2.252

Herman, J. (2023). *Egon von Greyerz: $2 Quadrillion in Global Debt Looms over the Markets, Paper Assets Could Implode*. Market Sanity. https://marketsanity.com/egon-von-greyerz-the-next-few-years-will-be-tough-understanding-the-critical-role-of-gold/

Hornborg, A. (2003). Cornucopia or Zero-Sum Game? The Epistemology of Sustainability. *Journal of World-Systems Research, 9,* 205-216. https://doi.org/10.5195/jwsr.2003.245

Hornborg, A. (2009). Zero-Sum World: Challenges in Conceptualizing Environmental Load Displacement and Ecologically Unequal Exchange in the World-System. *International Journal of Comparative Sociology, 50,* 237-262. https://doi.org/10.1177/0020715209105141

Hwang, S., Park, M., & Lee, H. S. (2013). Dynamic Analysis of the Effects of Mort-

gage-Lending Policies in a Real Estate Market. *Mathematical and Computer Modelling, 57,* 2106-2120. https://doi.org/10.1016/j.mcm.2011.06.023

Isaacson, W. (2007). *Einstein: His Life and Universe* (Ch. 22, pp. 487-500). Simon and Schuster.

Jiang, Z., Lustig, H., Van Nieuwerburgh, S., & Xiaolan, M. Z. (2022). *Measuring U.S. Fiscal Capacity Using Discounted Cash Flow Analysis*. Working Paper 29902. https://doi.org/10.3386/w29902

Kakulia, N., & Chikobava, M. (2023). Monetary Policy Challenges of the Post-Pandemic Period. *Journal of Economics and Business Issues, 3,* 40-48.

Kelly, D. (2017). Civic-Political Development in the Context of Economic Apartheid in Distressed Communities: A Theoretical Model. *Advances in Applied Sociology, 7,* 378-390. https://doi.org/10.4236/aasoci.2017.712025

Koop, A., & Ma, J. (2023). *Mapped: The State of Democracy around the World*. Visual Capitalist. https://www.visualcapitalist.com/state-of-democracy-around-the-world-2023/

Kurtz, S. (2012). *Spreading the Wealth: How Obama Is Robbing the Suburbs to Pay for the Cities*. Penguin.

Kurzweil, R. (2001). The Law of Accelerating Returns. In C. Teuscher (Ed.), *Alan Turing: Life and Legacy of a Great Thinker* (pp. 381-416). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-05642-4_16

Laughlin, G. (2009). *Too Cheap to Meter*. https://oklo.org/2009/03/12/too-cheap-to-meter/

Leal Filho, W., Trevisan, L. V., Rampasso, I. S., Anholon, R., Dinis, M. A. P., Brandli, L. L., & Mazutti, J. (2023). When the Alarm Bells Ring: Why the UN Sustainable Development Goals May Not Be Achieved by 2030. *Journal of Cleaner Production, 407,* Article 137108. https://doi.org/10.1016/j.jclepro.2023.137108

Lehmann, M., Krysa, F., Prévost, E., Schinerl, F., & Vogelauer, R. (2023). Staking Your Crypto: What Are the Stakes? https://doi.org/10.2139/ssrn.4339687

Levitas, R. (2013). *Utopia as Method: The Imaginary Reconstitution of Society*. Springer. https://doi.org/10.1057/9781137314253

Lewis, T. G. (2023). Digital Economy: The Economics of the Digital Economy. *Ubiquity, 2023,* 1-13. https://doi.org/10.1145/3594560

Lindberg, S. (2019). Are Increasing Inequalities Threatening Democracy in Europe? *Carnegie Europe, 4*.

Liu, E. (2023). *The US Debt Will Keep Growing—And Growing*. Barron's. https://www.barrons.com/articles/us-national-debt-graph-ceiling-budget16fcaea0

Luchian, I., & Filip, A. (2022). *The Basic Financial Features of the Current Global Economic Crisis* (p. 160). "Victor Slăvescu" Centre for Financial and Monetary Research. https://www.visualcapitalist.com/state-of-democracy-around-the-world-2023/

MacGarvey, S. (2023). *How Much Does the Earth Cost?* History-Computer. https://history-computer.com/how-much-does-the-earth-cost/

MacInnis, D. J. (2011). A Framework for Conceptual Contributions in Marketing. *Journal of Marketing, 75,* 136-154. https://doi.org/10.1509/jmkg.75.4.136

Mahliana, M. (2019). Komunikasi Politik Dalam Demokrasi Digital. *Jurnal Ilmu Sosial Dan Ilmu Politik, 53,* 1689-1699.

Marshall, R (2022). *Cybersecurity Summit—Utah*. https://www.linkedin.com/posts/romainemarshall_cyber-security-summit-utah-is-pow

ered-by-activity-6922666526919581696-y-Ai/

Masduki (2021). Media Control in the Digital Politics of Indonesia. *Media Commun, 9,* 52-61. https://doi.org/10.17645/mac.v9i4.4225

Mason, L. (2022). *DeVere's Green: Bitcoin to Become Legal Tender in Three More Countries This Year*. Investment Week. https://www.investmentweek.co.uk/news-analysis/4042778/devere-green-bitcoin-legal-tender-countries

Miller, R., Michalski, W., & Stevens, B. (2002). Chap. 1. The Future of Money. In *The Future of Money* (pp. 11-30). OECD.

Mitchell, W. F. (2020). Debt and Deficits—A Modern Monetary Theory Perspective. *Australian Economic Review, 53,* 566-576. https://doi.org/10.1111/1467-8462.12400

Mitchell, W., Wray, L. R., & Watts, M. (2019). *Macroeconomics*. Bloomsbury Publishing.

Moosa, I. A. (2016). Chap. 5. The Efficient Market Hypothesis as a Weapon of Mass Destruction. In *Contemporary Issues in the Post-Crisis Regulatory Landscape* (pp. 107-128). World Scientific Publishing. https://doi.org/10.1142/9789813109520_0005

Moosa, I. A. (2018). Does Financialization Retard Growth? Time Series and Cross-Sectional Evidence. *Applied Economics, 50,* 3405-3415. https://doi.org/10.1080/00036846.2017.1420899

Morris, H. (2017). *How Many Planes Are There in the World Right Now?* The Telegraph. https://www.telegraph.co.uk/travel/travel-truths/how-many-planes-are-there-in-the-world/

Morris, I. (2015). *Democracy: The Least Bad Form of Government*. Stratfor. https://worldview.stratfor.com/article/democracy-least-bad-form-government

Murray, A., & Cabral, S. (2023). *What Americans Can Learn from Denmark on Handling Debt Ceiling Crisis*. BBC. https://www.bbc.co.uk/news/world-us-canada-64878254

Nash Jr., J. F (2002). Ideal Money. *Southern Economic Journal, 69,* 4-11. https://doi.org/10.1002/j.2325-8012.2002.tb00474.x

Nathaniel, S. P., Yalçiner, K., & Bekun, F. V. (2021). Assessing the Environmental Sustainability Corridor: Linking Natural Resources, Renewable Energy, Human Capital, and Ecological Footprint in BRICS. *Resources Policy, 70,* Article 101924. https://doi.org/10.1016/j.resourpol.2020.101924

OECD (2018). *Ian Goldin: "Renaissance 2.0: Globalisation, Disruption and Policy"*.

Ohanian, L. et al. (2023). Revisiting Capital-Skill Complementarity, Inequality, and Labor Share. *Review of Economic Dynamics, 51,* 479-505. https://doi.org/10.1016/j.red.2023.05.002

Osband, K., Filoso, V., & Capasso, S. (2023). The Limits of Limitless Debt. *Journal of Macroeconomics, 79,* Article 103567. https://doi.org/10.1016/j.jmacro.2023.103567

Özsoy, Ö., & Gürler, M. (2023). COVID-19's Effect on Global Trade in the Post-Pandemic Period: Forecast Analysis of Global GDP and Trade a Decade after 2025. In B. Marco-Lajara, A. Coşkun Özer, & J. Martínez Falcó (Eds.), *The Transformation of Global Trade in a New World* (pp. 112-157). IGI Global. https://doi.org/10.4018/978-1-6684-5950-8.ch006

Pahud de Mortanges, C. (2023). *The Future of Cryptocurrencies: A Bearish & Bullish View*. Eprint/Working Paper. https://orbi.uliege.be/bitstream/2268/300255/1/The%20Future%20of%20Cryptocurrencies.pdf

Perez, L. (2023). *What Is the Average Interest Rate of Savings Account*.

https://smartasset.com/checking-account/average-savings-account-interest

Pinto, N. P., & Srinivasan, V. (2022). If You Build It, They Will Come… But Why Do They Come? *Pediatric Critical Care Medicine, 23,* 557-559. https://doi.org/10.1097/PCC.0000000000002983

Pocheville, A. (2015). The Ecological Niche: History and Recent Controversies. In T. Heams, P. Huneman, G. Lecointre, & M. Silberstein (Eds.), *Handbook of Evolutionary Thinking in the Sciences* (pp. 547-586). Springer. https://doi.org/10.1007/978-94-017-9014-7_26

Pressman, S. (2022) The New Keynesian School. *A Brief History of Economic Thought.* Cheltenham, Edward Elgar Publishing, 2022. https://doi.org/10.4337/9781786433848.00023

Qin, K., Zhou, L., Afonin, Y., Lazzaretti, L., & Gervais, A. (2021). CeFi vs. DeFi—Comparing Centralized to Decentralized Finance. arXiv:2106.08157

Raheman, F. (2022). Sharonomics: A Radical Economic Theory for the Next Industrial Revolution and Beyond. *Theoretical Economics Letters, 12,* 1710-1748. https://doi.org/10.4236/tel.2022.126094

Raworth, K. (2017). Why It's Time for Doughnut Economics. *IPPR Progressive Review, 24,* 216-222. https://doi.org/10.1111/newe.12058

Reiss, D. G. (2018). Is Money Going Digital? An Alternative Perspective on the Current Hype. *Financial Innovation, 4,* Article No. 14. https://doi.org/10.1186/s40854-018-0097-x

Rennison, J. (2023). What Would Happen If the U.S. Defaulted on Its Debt. *New York Times*. https://www.nytimes.com/2023/05/18/business/default-debt-what-happens-next.html

Rubin, P. H. (2003). Folk Economics. *Southern Economic Journal, 70,* 157-171. https://doi.org/10.1002/j.2325-8012.2003.tb00561.x

Sauer, B. (2016). Virtual Currencies, the Money Market, and Monetary Policy. *International Advances in Economic Research, 22,* 117-130. https://doi.org/10.1007/s11294-016-9576-x

Sazandrishvili, G. (2020). Asset Tokenization in Plain English. *Journal of Corporate Accounting & Finance, 31,* 68-73. https://doi.org/10.1002/jcaf.22432

Schulp, J., Solowey J., Anthony N., & Thielman, N. (2023). *Overstating Crypto Crime Won't Lead to Sound Policy*. CATO Institute. https://www.cato.org/blog/overstating-crypto-crime-wont-lead-sound-policy

Scientist, N. (2017). *The End of Money: The Story of Bitcoin, Cryptocurrencies and the Blockchain Revolution*. John Murray Press. https://dl.acm.org/doi/abs/10.5555/3158685

Shi, J. (2023). Decoding the Future of Finance: An Examination of Asset Tokenization and Web 3.0. *Eximia, 11,* 257-263. https://doi.org/10.47577/eximia.v11i1.303

Simpson, I. (2022). Encrypted Geographies: Invisible Cryptographic Borders. In A. C. Diener, & J. Hagen (Eds.), *Invisible Borders in a Bordered World* (pp. 219-237). Routledge. https://doi.org/10.4324/9780429352515-14

Smith, E. (2023). *Global Debt Nears Record Highs as Rate Hikes Trigger 'Crisis of Adaptation,' Top Trade Body Says*. CNBC. https://www.cnbc.com/2023/05/18/iif-global-debt-near-record-highs-as-the-new-monetary-era-triggers-crisis-of-adaptation.html

Soureshjani, O. K., Massumi, A., & Nouri, G. (2023). Sustainable Colonization of Mars

Using Shape Optimized Structures and *in Situ* Concrete. *Scientific Reports, 13,* Article No. 15747. https://doi.org/10.1038/s41598-023-42971-9

Taskinsoy, J, (2023). The New Possible Trinity: Supranational Currency, Capital Mobility, and Monetary Independence. https://ssrn.com/abstract=4373812 https://doi.org/10.2139/ssrn.4373812

Torraco, R. J. (2005). Writing Integrative Literature Reviews: Guidelines and Examples. *Human Resource Development Review, 4,* 356-367. https://doi.org/10.1177/1534484305278283

UNDESA (2020). *UNDESA World Social Report 2020*. https://www.un.org/development/desa/dspd/world-social-report/2020-2.html

Von Greyerz, A. V. (2022). *$2 Quadrillion Debt Precariously Resting on $2 Trillion Gold*. GoldBroker. https://goldbroker.com/news/2-quadrillion-debt-precariously-resting-on-2-trillion-gold-2895

Von Greyerz, E. V. (2021). *Global Debt from $300 Trillion to $2 Quadrillion in Next 5 - 10 Years*. GoldBroker. https://goldbroker.com/news/global-debt-from-300-trillion-to-2-quadrillion-next-years-2364

Von Greyerz, E. V. (2023). *A Catastrophic Debt Implosion Can Be Incredibly Quick*. GoldBroker. https://goldbroker.com/news/catastrophic-debt-implosion-incredibly-quick-3150

Voshmgir, S. (2020). *Token Economy: How the Web3 Reinvents the Internet*. BlockchainHub.

Wang, C. (2019). A Literature Review on Corporate Financialization. *American Journal of Industrial and Business Management, 9,* 647-657. https://doi.org/10.4236/ajibm.2019.93044

Weber, R. M. (2016). Where No One Has Gone Before: When Science Fiction Inspires Technology. *Journal of Financial Service Professionals, 70,* 43-46.

Zaman, A. (2012). The Normative Foundations of Scarcity. *Real-World Economics Review, No. 61,* 22-39. https://doi.org/10.2139/ssrn.1554202

Zheng, M., & Sandner, P. (2022). Asset Tokenization of Real Estate in Europe. In M. C. Lacity, & H. Treiblmaier (Eds.), *Blockchains and the Token Economy: Theory and Practice* (pp. 179-211). Springer International Publishing. https://doi.org/10.1007/978-3-030-95108-5_7