

# SMART MONEY FOR THE PEOPLE: USING FINANCIAL INNOVATION AND TECHNOLOGY TO PROMOTE ESG

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## ABSTRACT

*Traditional fiat currencies managed by governments and central banks have had negative impacts on environmental, social, and governance (ESG) goals. Central banks in mature democracies pursue policies that prioritize economic growth and high employment. However, these policies often lead to inflation, eroding the savings and pension funds of average citizens and encouraging risky behavior by banks and entrepreneurs. The pursuit of endless growth is socially and environmentally unsustainable. Leaders in developing countries and dictatorships use expansive monetary policy to maintain their positions, further exacerbating the situation. Convertible fiat currencies moving across borders in untraceable transactions evade regulation and taxation, with trillions hidden in offshore tax havens.*

*Virtual or crypto currencies on a blockchain can address these issues. Transactions on a public blockchain are transparent, traceable, and immutable, and monetary policy is controlled by algorithms, free from political influence. However, existing crypto currencies like Bitcoin and Ethereum have failed to align with ESG goals and have harmed the environment. They favor large capital holders and allow illicit money movements. Blockchain technology can be used differently, however. A virtual currency with strong governance, pegged to a currency basket, could be designed to build trust and appreciate in value, promoting savings, sustainability, and value preservation. Stringent KYC and AML procedures, along with transparent blockchain transactions, would simultaneously reduce illicit financial activities.*

*The article outlines the key features of Smart Money, a new generation virtual currency eliminating all major shortcomings of*

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*traditional fiat currencies and of early generation crypto currencies.*

## INTRODUCTION

From its very inception, the creation and the value of money has been controlled by a very small minority of the people. This tiny minority was either acting on behalf of a powerful ruler or government at something like a central bank controlling the supply of “base money,” or it was acting on behalf of powerful private interests at something like a large financial institution, expanding the supply of “broad money.”<sup>1</sup> In a democracy, these powerful institutions are supposed to work in the interest of the country as a whole. However, they invariably prioritize some goals over others. For example, the goal of preserving monetary stability i.e., low inflation, primarily benefits the owners of capital, while the goal of promoting full employment primarily benefits the owners of labor. If a central bank, like the U.S. Federal Reserve, has to simultaneously “promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates,”<sup>2</sup> it will frequently have to compromise or alternate between measures that prioritize one goal over another.<sup>3</sup> If the country is not a democracy, the institutions controlling the creation and the value of money are, at best, nominally committed to serving the nation while they are almost invariably focused on keeping the

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<sup>1</sup> While “base money” is the supply of currency by the central bank, the commercial banking system expands the overall supply of money by lending and issuing securities that are not fully backed by actual capital reserves. The leverage ratio is usually limited by financial regulators i.e., government authorities, who want to retain some level of control over the total amount, i.e., the supply of “broad money” in the economy. For more detailed analysis *see, e.g.*, STEFAN EICH, *THE CURRENCY OF POLITICS: THE POLITICAL THEORY OF MONEY FROM ARISTOTLE TO KEYNES* (2022); ULRICH BINDSEIL, *MONETARY POLICY OPERATIONS AND THE FINANCIAL SYSTEM* 30–33, 51 (2014).

<sup>2</sup> Federal Reserve Act, § 2A, 12 U.S.C. § 225a.

<sup>3</sup> By contrast to the Fed, the European Central Bank has to pursue the primary goal of price stability. *See* Consolidated Version of the Treaty on the Functioning of the European Union art. 127(1), 2012 O.J. (C 326) 47 [hereinafter TFEU] (“the primary objective of the European System of Central Banks...shall be to maintain price stability”); EUR. CENTRAL BANK, *Monetary Policy: Introduction*, <https://www.ecb.europa.eu/mopo/intro/html/index.en.html> (explaining the ECB’s monetary policy objective and strategy). The intrinsic problems of this single-minded focus were exposed during and after the financial crisis of 2008, when the ECB – at least initially – kept a tight lid on money supply for the benefit of German savers at the expense of Greek, Italian, Spanish, and other workers. The Fed, by contrast, opened the taps more and earlier, and the U.S. weathered the crisis comparatively better.

existing power structures in place.

Democracy or not, few, if any, of these institutions around the world even have a secondary mandate to pursue environmental, social, and governance (ESG) goals with their monetary policy.<sup>4</sup> And they certainly do not perceive the reduction of inequality as any kind of priority.<sup>5</sup>

At the beginning of the second decade of the 21<sup>st</sup> century, we are not only confronted with an ever more entrenched, global, and growing divide “between the Haves, the Have-nots – and the Have-yachts.”<sup>6</sup> We are staring at the rubble of half a century of failed development policies

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<sup>4</sup> The European Central Bank is actually supposed to pursue sustainable development, balanced economic growth, full employment and social progress, and “a high level of protection and improvement of the quality of the environment,” Consolidated Version of the Treaty on European Union art. 3(3), 2012 O.J. (C 326) 13 [hereinafter TEU], as secondary objectives. While any of these shall only be pursued “[w]ithout prejudice to the objective of price stability.” TFEU art. 127(1), it is obvious that the ECB would frequently have to compromise or alternate in the pursuit of economic growth and sustainable development. *See generally* Arinç Onat Kiliç, *Secondary Objectives of the European Central Bank and Economic Growth: A Human Rights Perspective*, 35 LEIDEN J. INT’L L. 569 (2022).

<sup>5</sup> As researchers at the International Monetary Fund (IMF) recently found, “[e]ven though inequality remains outside central banks’ mandates, major central bankers are increasingly *discussing* distributional issues.” Niels-Jakob Hansen et al., *Monetary Policy for All? Inequality and the Conduct of Monetary Policy*, IMF BLOG (Sept. 30, 2020), <https://www.imf.org/en/Blogs/Articles/2020/09/30/monetary-policy-for-all-inequality-and-the-conduct-of-monetary-policy>. Nevertheless, the Federal Reserve in the U.S. has been called an “engine of inequality”; see Karen Petrou, *Engine of Inequality – The Fed and the Future of Wealth in America*, Wiley 2021. On economic policies exacerbating inequality, *see also* THOMAS PIKETTY, *CAPITAL AND IDEOLOGY* (2020), in particular Chapter 15, as well as PETER DIETSCH ET AL., *DO CENTRAL BANKS SERVE THE PEOPLE?* (Polity Press 2018), Chapter 2.

<sup>6</sup> NIALL FERGUSON, *THE ASCENT OF MONEY: A FINANCIAL HISTORY OF THE WORLD* 33 (2008). *See* FRANÇOIS BOURGINON, *THE GLOBALIZATION OF INEQUALITY* (2015); BRANKO MILANOVIC, *GLOBAL INEQUALITY: A NEW APPROACH FOR THE AGE OF GLOBALIZATION* (2016); KEITH PEYNE, *THE BROKEN LADDER: HOW INEQUALITY AFFECTS THE WAY WE THINK, LIVE, AND DIE* (2017); JOSEPH STIGLITZ, *THE PRICE OF INEQUALITY – HOW TODAY’S DIVIDED SOCIETY ENDANGERS OUR FUTURE* (2012) (all explaining the rapidly expanding divide between these three groups of haves, have-nots, and have-yachts). *See also* WORLD INEQUALITY LAB, *World Inequality Report 2022*, <https://wir2022.wid.world/>, as well as World Inequality Database, <http://WID.world> (for empirical data and quantitative analysis graphic depiction of wealth inequality in the world).

for least-developed countries,<sup>7</sup> and we are only beginning to understand what may well be the greatest threat to humankind as a whole: the irreversible damage careless human activity has inflicted on our climate and natural environment.<sup>8</sup> It is high time that we examined more honestly the contribution of current monetary policies to these problems and introduced alternative mechanisms for the creation and control of money.

### I. FIAT IS NOT A FRIEND OF ESG

*With a fiat currency, it's impossible for Uncle Sam to run out of money.*<sup>9</sup>

Fiat is not only an Italian automaker. It is also a collective reference to all traditional currencies issued by governments around the world. Fiat currencies include relatively hard currencies like the U.S. Dollar and the Euro, i.e., currencies that are convertible against most, if not all other currencies, and that generally maintain most of their purchasing power, at least in the short- to medium timeframe. Fiat currencies also include soft currencies, like the Venezuelan Bolivar,<sup>10</sup> that typically experience high rates of inflation because the government simply prints more and more of them to pay its employees and other bills.<sup>11</sup> This also makes these currencies all but worthless outside of the respective countries. Although

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<sup>7</sup> See DARON ACEMOGLU & JAMES ROBINSON, *WHY NATIONS FAIL: THE ORIGINS OF POWER, PROSPERITY, AND POVERTY* (2012) (providing an introduction to the huge topic of failed development policies).

<sup>8</sup> See PETER N. NEMETZ, *UNSUSTAINABLE WORLD: ARE WE LOSING THE BATTLE TO SAVE OUR PLANET?* (2022); DAVID WALLACE-WELLS, *THE UNINHABITABLE EARTH: LIFE AFTER WARMING* (2019).

<sup>9</sup> STEPHANIE KELTON, *THE DEFICIT MYTH: MODERN MONETARY THEORY AND THE BIRTH OF THE PEOPLE'S ECONOMY* 43 (2021). Kelton is an economics professor at the University of Missouri-Kansas City and former chief economist for the Democrats on the US Senate Budget Committee. She represents the view that U.S. deficits have generally been too low, and that the U.S. should open the tabs and run a higher deficit with somewhat higher inflation to get better economic results overall and lower unemployment.

<sup>10</sup> The Venezuelan currency was pegged to the US\$ until 1983 and widely considered the most stable currency in Latin America. Once Venezuela moved to a floating exchange rate, the Bolivar dropped from 135 Bolivar for 100 US\$ in 1983 to 79 million Bolivar for 100 US\$ in 2022. During the same time, the country experienced at least 38 months of hyperinflation, defined as more than 50% per month. Since 2003, the country has also had exchange controls in place to rein in capital flight. See Xiaoqiao Wang, *The Root of Hyperinflation in Venezuela: Statism, Chavismo, and Dictatorship*, 4 HIGHLIGHTS IN BUS., ENCON. AND MGMT. (2022), <https://doi.org/10.54097/hbem.v4i.3530>.

<sup>11</sup> Martin Meredith reminds us that inflation under Robert Mugabe in Zimbabwe at one point reached 500 billion percent per year. This is not a typo. It boils down to more than 100% inflation *per day*. Martin Meredith, *Mugabe's Misrule and How It Will Hold Zimbabwe Back*, 97 FOREIGN AFF. 129, 137 (2018).

countries with hard currencies experience different problems compared to countries with soft currencies, neither of them do particularly well on ESG goals.

#### *A. Developed Nations with Hard Currencies*

Countries with hard currencies, like the U.S., use their monetary policies to manage the economy, usually aiming for growth rates between 2% and 5% per annum. They typically aim for inflation around 2% and interest rates between 2% and 5% to achieve these targets. If growth slows down below the target range, the central bank can increase the money supply (“quantitative easing”) and/or lower the benchmark interest rate in order to encourage borrowing, consumption, and investment. If growth accelerates beyond the target range, the central bank can constrain the money supply by increasing capital reserve requirements for private banks, and by increasing the benchmark interest rate in order to discourage excessive borrowing for investment and consumption. Next to GDP growth and inflation, unemployment may also be taken into consideration.

Although most central banks in highly developed countries with hard currencies are nominally independent of the elected government, they are not insulated from political realities. First, the political powers will have a level of influence via legislative mandates and the appointment of central bank governors. Second, central banks are easily criticized by the public if they pursue tight monetary policies that inflict a measure of pain on economic actors or if they let inflation get out of hand. Furthermore, central banks have to keep an eye on exchange rates against the currencies of major trading partners. For the U.S., a strong Dollar makes imports cheaper while exports become more expensive in foreign markets, which, in turn, has effects on the balance of trade and the employment or unemployment rate in export-oriented and import-competing industries. Conversely, a weak Dollar makes imports more expensive while exports become cheaper in foreign markets, with commensurate effects on trade and employment. To discourage imports and encourage exports, many countries with relatively hard currencies have, at times, pursued policies of competitive devaluation of their currencies in comparison with major trading partners. While these “beggar-thy-neighbor” strategies may induce short-term economic benefits in the respective country, they also create inflation and damage the long-term competitiveness of the economy. Moreover, they obviously come at the immediate expense of the trading partners, who probably have their own economic problems to deal with and don’t need the additional headwind from manipulated exchange rates. Indeed, the trading partners may respond in kind, at which point the trade effects cancel each other out, and both countries are only left with additional inflation.

Governments facing elections in the foreseeable future usually want to stimulate the economy, which is popular because this strategy tends to create jobs and allows for more consumption. The benefits are felt almost immediately. By contrast, investment in ESG goals is a long game that rarely wins elections in the short term. Moreover, the diversion of scarce resources toward long-term ESG goals typically comes at the expense of short-term economic stimulation. Therefore, the pursuit of long-term ESG goals may actually cause short-term election losses.

At least in theory, the government can try to expand spending, rather than diverting spending, in order to pay for long-term ESG goals. However, from the perspective of the government, any kind of (additional) spending has to be funded by one of three sources of revenue:

- income from taxation, customs duties, as well as fees and charges for government services;
- expansion of the base money supply, i.e., the printing of additional fiat money;<sup>12</sup> and/or
- borrowing by selling bonds and other types of securities that have to be repaid with interest.

The problem is that any increase in taxes is felt immediately by the general population and the business community and tends to throttle economic growth and the perspectives of re-election. Expansion of the money supply triggers inflation, which is felt somewhat less immediately. However, once the money supply seriously exceeds productivity growth in the economy, it is not easily reined in. Politicians may purchase a re-election, but the

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<sup>12</sup> Indeed, Modern Monetary Theory—or M.M.T.—suggests that governments can literally print as much money as they need, as long as there are goods and services that can be purchased with that money so that money supply does not outrun the supply of things to buy with it. The most famous proponent of this theory is Stephanie Kelton, *supra* note 9. M.M.T. is actually credited to Warren Mosler who formulated Mosler’s Law according to which “there is no financial crisis so deep that a sufficiently large fiscal adjustment cannot deal with it.” INSTITUTE FOR NEW ECONOMIC THINKING, Warren Mosler, <https://www.inet-economics.org/research/experts/wmosler#:~:text=He%20is%20attributed%20with%20creating,adjustment%20cannot%20deal%20with%20it.%E2%80%9D>. However, promoting generous printing habits was easier after a long stretch of low inflation because it is obvious that significant additional supply of money will tilt the balance between money supply and goods and services supply and invariably drive up prices, otherwise known as inflation. For more differentiated analyses, *inter alia*, see Thomas I. Palley, *Money, Fiscal Policy, and Interest Rates: A Critique of Modern Monetary Theory*, 27 REV. POL. ECON. 1 (2015); EDWARD FULLBROOK & JAMIE MORGAN, MODERN MONETARY THEORY AND ITS CRITICS (2020); N. Gregory Mankiw, *A Skeptic’s Guide to Modern Monetary Theory*, 110 AEA PAPERS AND PROCEEDINGS 141 (2020).

bills invariably come due relatively soon. By contrast, borrowing, unless excessive, can stimulate economic growth, with repayment being deferred by years or even an entire generation.<sup>13</sup> This usually makes borrowing the method of choice for governments to fund spending beyond the level the general population and/or the business community is currently willing to pay for by way of taxes or inflation.<sup>14</sup> As a result, governments in developed countries with hard currencies will try to incur long-term debt to stimulate short-term economic growth. At the same time, these governments are much more likely to postpone any measures for ESG because they do not wish to impose any measurable pain today for benefits that don't accrue until later.

From the perspective of consumers, the entire monetary policy setup discourages private long-term saving since inflation is frequently higher than interest rates, and any nominal gains additionally will be subject to taxation. Value accumulated in pension funds may not be taxed today but will carry less purchasing power later, causing widespread declines in standards of living in retirement.

From the perspective of ESG goals, the monetary policy setup is undesirable on multiple levels because artificially stimulated consumption and growth beyond the growth of productivity burdens the environment and is typically unevenly distributed, increasing inequality.<sup>15</sup> At the same time, the increasing levels of debt narrow the political room for maneuvering in the future, making it ever harder to pursue, let alone achieve ESG goals. Moreover, as I have maintained for some 20 years by now, every penny we do not spend on climate mitigation today is likely to cost us at least a dollar in the future.<sup>16</sup>

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<sup>13</sup> In the long term, however, repayment becomes inevitable. This not only diminishes economic opportunities of future generations. It also means that the taxpayers of today have to pay for the sins of the governments of previous generations. For discussion of the demise of the inter-generational contract see JONATHAN WISTOW, *SOCIAL POLICY, POLITICAL ECONOMY AND THE SOCIAL CONTRACT* (2022), Chapter 7.

<sup>14</sup> To avoid excessive and unfunded spending at the expense of future generations, the Euro Zone of the 19 EU countries that use the Euro has constitutional limits on annual deficits (3%) and overall debt to GDP (60%), see Article 1 of Protocol No. 12 on the Excessive Deficit Procedure. The Protocol is an integral part of the Treaty on European Union by way of Article 51 TEU. Enforcement has been difficult, however, even if the overall money supply is controlled by the European Central Bank (ECB).

<sup>15</sup> Similar arguments are found in *Winners and Losers* in CHRISTOPHER LEONARD, *THE LORDS OF EASY MONEY: HOW THE FEDERAL RESERVE BROKE THE AMERICAN ECONOMY* (2022).

<sup>16</sup> See also Joshua Busby, *Why Climate Change Matters More Than Anything Else*, 97 *FOREIGN AFF.*, 49 (2018).

### *B. Developed and Developing Nations with Soft Currencies*

Countries have soft currencies if they create or tolerate high inflation and are characterized by unstable political and/or economic fundamentals that create significant and frequent swings and a general downward trend in exchange rates. Because of the unstable nature of the overall economy, the currency is in low demand, both domestically and internationally. For example, in Venezuela, because of hyperinflation and irrational economic policies, an ever-larger share of domestic transactions is done on the basis of US Dollars or Colombian Pesos,<sup>17</sup> and even Bitcoin.<sup>18</sup>

The situation in a country like Venezuela is particularly irritating because the country is actually wealthy. From the 1940s to the 1970s, Venezuela was the largest oil exporter in the world. Beyond oil, it has significant deposits of natural gas, iron ore, nickel, bauxite, and coal, and it used to have a strong and diversified manufacturing sector. Favorable conditions can also be found for a range of agricultural products, including sugar, cotton, coffee, cocoa, cattle farming, and fishing.

As a co-founder of the Organization of Petroleum Exporting Countries (OPEC), Venezuela became wealthy after the oil price boom of 1973. However, from that time on, Venezuela has become a textbook case for the so-called “resource curse.”<sup>19</sup> As has been conclusively shown, the

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<sup>17</sup> Samuel W. Malone & Enrique ter Horst, *The Black Market for Dollars in Venezuela*, 46 EMERGING MARKETS FIN. & TRADE 67 (2010); Richard Fast, *Cryptocurrencies in Hyperinflationary Venezuela*, 11 RISK GOVERNANCE AND CONTROL: FINANCIAL MARKETS AND INSTITUTIONS 4, 62–67 (2021).

<sup>18</sup> Jackie Johnson, *Venezuela: Where Bitcoin Trading Reflects Survival Rather than Choice*, SSRN, 5 (2019).

<sup>19</sup> A good overview of the early literature on the subject is provided in Andrew Rosser, *The Political Economy of the Resource Curse: A Literature Survey*, Institute of Development Studies (IDS) Working Paper 268, April 2006, <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/4061>. See also Saqlain Latif Satti et al., *Empirical Evidence on the Resource Curse Hypothesis in Oil Abundant Economy*, 42 ECON. MODELLING 421 (2014); Thorvaldur Gylfason, *Natural Resource Endowment: A Mixed Blessing?*, in BEYOND THE CURSE: POLICIES TO HARNESS THE POWER OF NATURAL RESOURCES (Rabah Zrezki, Thorvaldur Gylfason & Amadou Sy eds., 2012), available at: <https://www.e-library.imf.org/display/book/9781616351458/9781616351458.xml?lang=en&-language=en>; Macartan Humphreys, Jeffrey Sachs & Joseph Stiglitz, *Escaping the Resource Curse*, 30 CANADIAN J. DEV. STUD. 335 (2010). For a more critical perspective, see Jonathan Di John, *Is There Really a Resource Curse? A Critical Survey of Theory and Evidence*, 17 GLOBAL GOVERNANCE 167 (2011). Ultimately, Di John does not dispute the idea of a resource curse. He mainly concludes that there is a “blessing threshold” below which the resource curse is



abundance of oil income in the 1970s has impoverished rather than enriched the country.<sup>20</sup>

Besides politically motivated largesse in the region,<sup>21</sup> as well as public investment in prestige projects to secure re-election, corruption and outright theft,<sup>22</sup> and subsequent capital flight into offshore tax havens and profitable investments in the U.S. and other hard currency countries, have destroyed the economy in Venezuela<sup>23</sup> and many other developing and least-developed countries.<sup>24</sup>

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less of a problem and that it is possible for countries to use their natural resource wealth in a positive way to promote sustained and diversified industrialization.

<sup>20</sup> Carlos Rossi quotes the former Venezuelan president Romulo Betancourt (1945-48 and 1959-64): “*The overwhelming presence of oil did act, indirectly, to deform the economy and national life. Privileged sectors of the population began to acquire the mining mentality of newly rich spendthrifts. The uninterrupted flow of dollars encouraged imports and expanded commerce to such a degree that the nation became primarily a consumer of foreign products. We began to appear too much like that chaotic California – the paradise of adventurers and thieves – during the days of the gold rush.*” *Oil Wealth and the Resource Curse in Venezuela*, 32 INT’L ASS’N FOR ENERGY ECON. 11, 11 (2011). See also Alejandro Márquez-Velázquez, *Developing Countries’ Political Cycles and the Resource Curse: Venezuela’s Case* (2019), [https://refubium.fu-berlin.de/bitstream/handle/fub188/25601/discpaper2019\\_14.pdf?sequence=1&isAllowed=y](https://refubium.fu-berlin.de/bitstream/handle/fub188/25601/discpaper2019_14.pdf?sequence=1&isAllowed=y).

<sup>21</sup> Juan Forero, *Chávez Using Oil Money to Buy Influence Abroad*, N.Y. TIMES (Apr. 4, 2006) <https://www.nytimes.com/2006/04/04/world/americas/04iht-venezuela.html>.

<sup>22</sup> See, e.g., JAMES S. HENRY, *THE BLOOD BANKERS: TALES FROM THE GLOBAL UNDERGROUND ECONOMY* (2003); NICHOLAS SHAXSON, *TREASURE ISLANDS: UNCOVERING THE DAMAGE OF OFFSHORE BANKING AND TAX HAVENS* (2011).

<sup>23</sup> Moisés Naím and Francisco Toro compare two Latin American countries, the first a success story of economic growth, democratic governance, and quality of life, the second a failed state hemorrhaging refugees, marred by widespread poverty, even hunger, and the return of once eradicated diseases. “These two countries are in fact the same country, Venezuela, at two different times: the early 1970s and today. The transformation of Venezuela has undergone is so radical, so complete, and so total that it is hard to believe it took place without a war.” *Venezuela’s Suicide: Lessons from a Failed State*, 97 FOREIGN AFF. 126, 127 (2018). See also HENRY, *supra* note 22, at 95–125.

<sup>24</sup> A focus on Africa is presented in TOM BURGIS, *THE LOOTING MACHINE: WARLORDS, OLIGARCHS, CORPORATIONS, SMUGGLERS, AND THE THEFT OF AFRICA’S WEALTH* (2015). Burgis provides representative examples how the wealth of Nigeria (pp. 61 et seq., and 175 et seq.), Angola (pp. 81 et seq.), Guinea (pp. 103 et seq.), Niger (pp. 131 et seq.), Ghana (pp. 151 et seq.), South Africa (pp. 209 et seq.), and Zimbabwe (pp. 219 et seq.) is being plundered by local politicians, warlords, and businessmen in cahoots with Western “investors” and financial advisors.

Unfortunately, Venezuela is by no means the only country that should be rich but only created a very small number of ultra-rich. For example, the richest woman in Africa is believed to be Isabel dos Santos. Forbes wrote that “[t]he daughter of Angola’s longtime former president grew immensely wealthy in a textbook case of how to loot a country.”<sup>25</sup> Meanwhile, the rest of the population in Angola has one of the lowest life expectancies and one of the highest infant mortality rates in the world. Almost half the population does not have access to clean water. Only 34% of Angolans, 6% in rural areas, have access to electricity. 36% live below the poverty line.<sup>26</sup>

While it will always be hard to prevent unaccountable governments from irresponsible spending on unnecessary prestige projects – white elephants<sup>27</sup> – large-scale looting is usually a much greater problem

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For more specific information on Zimbabwe, *see* Martin Meredith, *Mugabe’s Misrule and How It Will Hold Zimbabwe Back*, 97 FOREIGN AFF. 129, 129–30 (2018). Meredith’s diagnosis after Mugabe’s removal: “Mugabe may have gone, but the Mugabe state lives on. [...] The plight of Zimbabwe [...] remains pitiful, a once prosperous country not only reduced to economic ruin but also trapped in a culture of corruption and violence [...] deeply embedded among the ruling elite.” *Id.*, at 130.

Another sad example is Honduras. *See* SARAH CHAYES, WHEN CORRUPTION IS THE OPERATING SYSTEM: THE CASE OF HONDURAS (2017). Transparency International, on its Corruption Perception Index (CPI), places Honduras in 157<sup>th</sup> place, out of 180 countries, with a CPI score of 23/100 (the CPI score is between 0 (totally corrupt) and 100 (completely clean)). The neighborhood is not doing much better. Nicaragua is in 164<sup>th</sup> place, out of 180 countries, with a CPI score of 20/100. El Salvador finds itself in 115<sup>th</sup> place with a CPI of 34. Mexico is in 124<sup>th</sup> place with a CPI of 31. For comparison, Costa Rica is in 39<sup>th</sup> place with a CPI of 58, and the U.S. is in 27<sup>th</sup> place with a CPI of 67. *See Corruption Perceptions Index*, TRANSPARENCY INT’L, <https://www.transparency.org/en/cpi/2021> (last visited Oct. 20, 2023) The lower the rank and CPI score, the fewer legitimate businesses will invest from abroad or succeed locally.

<sup>25</sup> Kerry A. Dolan, *How Isabel Dos Santos, Once Africa’s Richest Woman, Went Broke*, FORBES (Jan. 22, 2021), <https://www.forbes.com/sites/kerryadolan/2021/01/22/the-unmaking-of-a-billionaire-how-africas-richest-woman-went-broke/?sh=481dfb126240>.

<sup>26</sup> *10 Facts About Living Conditions in Angola*, BORDEN PROJECT, <https://bordenproject.org/living-conditions-in-angola/> (last visited Oct. 20, 2023).

<sup>27</sup> James Robinson and Ragnar Torvik proposed a theory of white elephants in 2005. *See White Elephants*, 89 J. PUB. ECON, 197–210 (2005). The expression stands for large-scale investments that are undertaken for political reasons although they make little or no economic or business sense. Robinson & Torvik call them projects “with a negative social surplus.” *Id.*, at 198. Their analysis of projects in Africa and elsewhere shows that “not only are white elephants built,

and would not be possible without the help of Western and international banks.

### *C. The Shady World of Offshore Banking and Tax Havens*

Corrupt civil servants and politicians are a pitiful bunch, just like organized crime bosses. Although they may amass fortunes way beyond the level they could legitimately earn, they can neither declare the income to the tax authorities nor genuinely enjoy the spoils of their corruption without fear of exposure. This is the main feature distinguishing them from ultra-wealthy corporate managers. The latter could enjoy their wealth without hesitation. However, many of the latter have a genetic deficiency that prevents them from declaring all income and wealth to the tax authorities to pay their fair share. Therefore, all three groups find themselves in the same boat, namely, looking for ways to hide their money.

Fortunately for them, the international banking community is quick to oblige. Naturally, the biggest crooks will not easily entrust their hard-stolen money to just any bank. After all, they know a thing or two about corruption, dishonesty, and graft. They prefer blue-chip addresses with impeccable reputations and infallible internal control mechanisms. It goes without saying that the partners of choice have to guarantee absolute privacy and confidentiality. For decades, Swiss banking secrecy was legendary. In recent years, however, Switzerland has been considerably more cooperative when faced with requests from foreign tax authorities, for example, U.S. authorities<sup>28</sup> under the Foreign Account Tax

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but they are built when they are understood to be white elephants and even worse, they crowd out socially desirable projects. Thus, it is not just that politicians are bad at picking winners, they actually pick known losers.” *Id.*, at 199. They explain that “[t]he journalistic literature treats white elephants as the worst symptoms of the megalomania of rulers. Yet, a more plausible explanation is that they constitute some form of inefficient redistribution. They are basically an instrument used to raise the income of a particular constituency. Yet why raise incomes in such an inefficient way?” *Id.*, at 201. Then they proceed to show that the very inefficiency makes the projects appealing to certain types of ruthless politicians. Anybody can propose an efficient project but only a corrupt and ruthless politician can propose a project that is known to be inefficient. This gives the ruthless politician an edge since he can make more and grander promises. *See id.*, at 202–08.

<sup>28</sup> See *Offshore Tax Evasion: The Effort to Collect Unpaid Taxes on Billions in Hidden Offshore Accounts*, Hearing Before the Permanent Subcommittee on Investigations of the Committee on Homeland Security and Governmental Affairs, United States Senate, 113<sup>th</sup> Congress, 2<sup>nd</sup> Session, Vol. 1, 26 February 2014, at pp. 329 et seq. See also Jean-Baptiste Maillart, *Switzerland*, in BENJAMIN VOGEL & JEAN-BAPTISTE MAILLART (EDS), NATIONAL AND INTERNATIONAL

Compliance Act (FATCA).<sup>29</sup> As a result, many former wallflower tax havens have started to bloom. Even a superficial search of banking options in exotic locations like the British and U.S. Virgin Islands, the Cayman Islands, Cyprus, Guernsey and Jersey, or the Turks and Caicos Islands, quickly reveals many household names: CIBC and Scotiabank of Canada, HSBC, Lloyds and Barclays from the UK, ABN Amro from the Netherlands, UBS, Credit Suisse, and Bank Julius Baer from Switzerland, Citi from the U.S., and many more. Although they are subsidiaries of the onshore mothers, they are incorporated locally and subject only to the respective local laws. And those local laws typically welcome international wealth without asking too many questions.<sup>30</sup>

Even with red carpets rolled out, the biggest crooks do not want to risk public exposure and the potential of criminal charges for their links to offshore accounts. Instead, they work with lawyers and other service providers setting up Matryoshka-style systems of shell companies. For example, an African dictator, an Afghan drug lord, or an American hedge fund manager might have an occasional business relationship with a private limited company based in London, UK. The company is “owned” by nominee shareholders and does no business in the UK. In fact, it does not seem to be doing much or any business at all. Nevertheless, it sends regular bills to the American or other “client” for invisible services like “consulting” or “research” which become tax-deductible expenses for the U.S. Internal Revenue Service (IRS) and lower our friend’s tax exposure. The UK company, in turn, is really owned by a company incorporated in an offshore tax haven like the British Virgin Islands (BVI). And that is where the profits are being sent. Of course, the BVI company is again “owned” by nominee shareholders acting on behalf of our friend. The end

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ANTI-MONEY LAUNDERING LAW – DEVELOPING THE ARCHITECTURE OF CRIMINAL JUSTICE, REGULATION AND DATA PROTECTION, *Intersentia* 2020, pp. 533-640.

<sup>29</sup> FATCA was adopted as part of the Hiring Incentives to Restore Employment (HIRE) Act of 2010, § 501–41, 124 Stat. 71, 98–117.

<sup>30</sup> An excellent introduction to the problem, including some recommendations what could be done about it, is provided in GABRIEL ZUCMAN, *THE HIDDEN WEALTH OF NATIONS: THE SCOURGE OF TAX HAVENS* (2015). For details see Zucman pp. 23-29; J.C. Sharman, *Illicit Global Wealth Chains After the Financial Crisis: Micro-States and an Unusual Suspect*, 24 *REVIEW OF INT’L POLITICAL ECONOMY* 1, 39–41 (2017); NICHOLAS SHAXSON, *TREASURE ISLANDS – UNCOVERING THE DAMAGE OF OFFSHORE BANKING AND TAX HAVENS*, St. Martin’s Griffin (2012), pp. 171-192; and FRANK VOGEL, *THE ENABLERS – HOW THE WEST SUPPORTS KLEPTOCRATS AND CORRUPTION ENDANGERING OUR DEMOCRACY*, Rowman & Littlefield (2022), at pp. 3, 8, 61-62 and 73. *See also* J.C. SHARMAN, *THE DESPOT’S GUIDE TO WEALTH MANAGEMENT: ON THE INTERNATIONAL CAMPAIGN AGAINST GRAND CORRUPTION* (2017).

result is a fat bank account in an offshore tax haven that cannot, or at least not easily, be tied to the dictator, drug lord, or tax dodger.

The reason why multiple shell companies have to be stacked like Russian dolls is twofold. First, the more layers, the harder it generally gets to identify our friend as the “ultimate beneficiary.” Second, sophisticated tax services like the IRS usually do not accept bills for invisible services if they are directly issued by entities located in known offshore tax havens.

Fortunately, jurisdictions like the UK are happy to help out with corporate laws that make it very easy to create and operate companies on behalf of nominee- or foreign shareholders. Conveniently, these companies are largely exempt from domestic taxes and (most) reporting requirements, as long as they don’t do any business onshore/in the UK. Of course, the government charges a variety of filing fees, and the entire system supports an army of financial and legal advisers. This is at least in part the reason for the outsize financial sector in the city of London.<sup>31</sup> Several scandals in recent years have given us an intimate view into the shady dealings of the offshore and tax haven world. In 2016, a lawyer working for the law firm Mossack Fonseca in Panama shared 11.5 million documents – 2.6 terrabyte of data – with the International Consortium of Investigative Journalists (ICIJ). The leak quickly garnered global attention

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<sup>31</sup> See Nicholas Shaxson, *The City of London is Hiding the World’s Stolen Money*, N.Y. TIMES, (Oct. 11, 2021), <https://www.nytimes.com/2021/10/11/opinion/pandora-papers-britain-london.html>. Shaxson quotes a member of the British Conservative Party calling London “the money laundering capital of the world” and estimates that between US \$6 and 36 trillion are held in offshore tax havens. The fact that a majority of the world’s finest tax havens are subjects of the British crown (Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Turks and Caicos Islands) would certainly support his findings. See also OLIVER BULLOUGH, BUTLER TO THE WORLD: HOW BRITAIN HELPS THE WORLD’S WORST PEOPLE LAUNDER MONEY, COMMIT CRIMES, AND GET AWAY WITH ANYTHING (2022).

Measured differently, however, it is actually the United States of America that tops the Financial Secrecy Index (FSI) and has become the most important final destination and safe haven for illegal money from around the world. See *Financial Secrecy Index 2022*, TAX JUST. NETWORK, <https://fsi.tax-justice.net/> (last visited Oct. 20, 2023) These findings are increasingly well documented. They refer partly to the superior investment opportunities in the U.S. but, more importantly, to the opportunities of investing large amounts of money with few questions asked. See, e.g., SARAH CHAYES, ON CORRUPTION IN AMERICA AND WHAT IS AT STAKE, (2020); CASEY MICHAEL, AMERICAN KLEPTOCRACY: HOW THE U.S. CREATED THE WORLD’S GREATEST MONEY LAUNDERING SCHEME IN HISTORY (2021); and Shaxson, *supra* note 22, at 107–28.

under the name “The Panama Papers.”<sup>32</sup> It exposed 214,488 offshore entities – companies – created over decades by the German lawyer Jürgen Mossack and his Panamanian partner Ramón Fonseca and their team. Clients included numerous royals and presidents (Argentina, Qatar, Saudi Arabia, Spain, Sudan), current and former prime ministers or top government officials and/or their family members (Azerbaijan, Britain, China, Georgia, Iceland, Iraq, Jordan, Kazakhstan, Malaysia, Mexico, Moldova, Morocco, Pakistan, South Africa, UAE, Ukraine), altogether at least 12 current or former world leaders, 128 high level public officials and politicians, and celebrities and businessmen and -women from more than 200 countries. More than 14,000 banks, law firms, foundations, and other helpers were implicated in the data breach. Altogether, one single law firm in a tiny central American country managed to help the wealthy of the world to hide more than US\$ 2 trillion, more than twice the total debt of the entire African continent.

As if this had not been enough, another set of 13.4 million confidential documents was leaked to ICIJ in 2017 and became known as “The Paradise Papers.”<sup>33</sup> This time it was the law firm Appleby from Bermuda, with a client list including Queen Elizabeth II and Prince Charles, who recently ascended the throne as Charles III,<sup>34</sup> as well as former U.S. Secretary of Commerce Wilbur Ross, and a veritable Who-Is-Who from Africa, Asia, Europe, the Middle East, and the Americas. Next, in 2021, the ICIJ received “The Pandora Papers,” a leak of 11.9 million documents produced by some 14 offshore service providers<sup>35</sup> and again

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<sup>32</sup> BASTIAN OBERMAYER & FREDERIK OBERMAIER, *THE PANAMA PAPERS: BREAKING THE STORY OF HOW THE RICH & POWERFUL HIDE THEIR MONEY* (2016); JAKE BERNSTEIN, *SECRECY WORLD – INSIDE THE PANAMA PAPERS, ILLICIT MONEY NETWORKS, AND THE GLOBAL ELITE* (2017); James O’Donovan, Hannes F. Wagner & Stefan Zeume, *The Value of Offshore Secrets: Evidence from the Panama Papers*, 32 *REV. FIN. STUD.* 4117, 4123 (2019); Carl Pacini & Nicole Forbes Stowell, *Panama Papers and the Abuse of Shell Entities*, in *CORPORATE FRAUD EXPOSED: A COMPREHENSIVE AND HOLISTIC APPROACH* 361–82 (H. Kent Baker, Lynnette Purda & Samir Saadi ed., 2020).

<sup>33</sup> See, e.g., PAULO MONTALBAN, *PARADISE PAPERS: OFFSHORE INVESTMENT OF THE RICH AND POWERFUL* (2017); Fabian Schmal, Katharina Schulte Sasse & Christoph Watrin, *Trouble in Paradise? Disclosure After Tax Haven Leaks*, *J. ACCT., AUDITING & FIN.* 1, 4 (2021); *Mapping Politically Exposed Person (PEP)-linked Shell Companies in the Panama and Paradise Papers*, GLOBAL INTEGRITY ANTI-CORRUPTION EVIDENCE (GI-ACE) RESEARCH PROGRAMME, <https://ace.globalintegrity.org/shellcompanies/> (last visited Oct. 20, 2023).

<sup>34</sup> Paradise Papers Reporting Team, *Paradise Papers: Tax Haven Secrets of Ultra-Rich Exposed*, BBC (Nov. 6, 2017), <https://www.bbc.com/news/uk-41876942>.

<sup>35</sup> At the center was the Panamanian law firm of Alemán, Cordero, Galindo & Lee, or Alcolgal. Brenda Medina, Jesús Escudero & Emilia Díaz-Struck, *When Latin*

naming hundreds of clients and their various offshore affiliations, including 35 current or former heads of state or government, hundreds of high-level public officials, and over a hundred billionaire businessmen and -women, with almost 30,000 offshore bank accounts.<sup>36</sup> Possibly even more disturbing was the latest leak in this ongoing saga, a whistleblower's disclosure to BuzzFeed of more than 2,000 transactions flagged as suspicious to the U.S. Government and some 17,600 additional documents with audit and other background reports.<sup>37</sup> The Financial Crimes Enforcement Network (FinCEN) of the U.S. Treasury Department is the place where KYC and AML efforts in the U.S. are coordinated and where banks have to file so-called Suspicious Activity Reports (SARs) "when they detect [...] a suspicious transaction related to a money laundering activity...".<sup>38</sup> The leak exposed that national and international banks registered with the U.S. Office of the Comptroller of the Currency (OCC) filed more than 2 million SARs in 2019 alone, covering transactions valued at more than US\$ 2 trillion. Yet, FinCEN basically did nothing, and the banks continued to process the transactions and collect their hefty fees along the way. The two main results of the scandal can be summarized as follows: The U.S. Congress passed the Corporate Transparency Act,<sup>39</sup>

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*America's Elite Wanted to Hide Their Wealth, They Turned to This Panama Firm*, INT'L CONSORTIUM INVESTIGATIVE JOURNALISTS (Oct. 3, 2021), <https://www.icij.org/investigations/pandora-papers/alcogal-panama-latin-america-politicians/>. See also Louis Botha, *The Pandora Papers: Nowhere to Hide?*, 21 WITHOUT PREJUDICE 4, 32-24 (2021).

<sup>36</sup> See *Pandora Papers*, INT'L CONSORTIUM INVESTIGATIVE JOURNALISTS, (Oct. 3 2023), [https://www.icij.org/investigations/pandora-papers/investigators-worldwide-continue-to-open-pandoras-box-to-pursue-criminals-identified-in-pandora-papers-two-years-after-icij-landmark-investigation/?gclid=Cj0KCQiAr8eqBhD3ARIsAJe-buMPyvaZF1vwM2I6BUXkxW\\_AU-CUmNp5r20qUTYADyqY2-mJZ9b8NThsaAjI5EALw\\_wcB](https://www.icij.org/investigations/pandora-papers/investigators-worldwide-continue-to-open-pandoras-box-to-pursue-criminals-identified-in-pandora-papers-two-years-after-icij-landmark-investigation/?gclid=Cj0KCQiAr8eqBhD3ARIsAJe-buMPyvaZF1vwM2I6BUXkxW_AU-CUmNp5r20qUTYADyqY2-mJZ9b8NThsaAjI5EALw_wcB); and BBC Panorama, *Pandora Papers: A Simple Guide to the Pandora Papers Leak*, 5 October 2021 (<https://www.bbc.com/news/world-58780561>). For analysis see also Greg Miller, Debbie Cenziper & Peter Whoriskey, *Billions Hidden Beyond Reach*, THE WASHINGTON POST (Oct. 2021), <https://www.washingtonpost.com/business/interactive/2021/pandora-papers-offshore-finance/>; Dragoş Mihail Mănescu, *Pandora Papers and the Latest European Efforts to Combat Money Laundering, Tax Evasion and Tax Avoidance*, 27 TECHNIUM SOCIAL SCIENCES JOURNAL 384-90 (2022); Gugu Resha, *Lessons from the Pandora Papers: How the World's Elite Keep Africa Poor Through Tax Avoidance and Aid*, POLICY COMMONS 13 (October 2021) <https://policycommons.net/artifacts/1849477/lessons-from-the-pandora-papers/2595769/>).

<sup>37</sup> Michael Hudson, *FinCEN Investigation Named Pulitzer Prize Finalist*, Int'l Consortium of Investigative Journalists (Jun. 11, 2021), <https://www.icij.org/investigations/fincen-files/fincen-files-investigation-named-pulitzer-prize-finalist/>.

<sup>38</sup> 12 C.F.R. § 21.11(a).

<sup>39</sup> Pub. L. No. 116-283, §§ 6401-6403, 134 Stat. 4604-4625.

requiring U.S. companies to report their real beneficial owners to FinCEN,<sup>40</sup> and the whistleblower was sentenced to 6 months in jail.<sup>41</sup>

Interestingly, by now the public has either become so numb to these recurrent disclosures or the rich and powerful have become much better at managing their public relations and suppressing media coverage. In any case, the public outcry after Paradise, Pandora, and FinCEN was

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<sup>40</sup> I hope that the irony of this is not lost on the reader. The “solution” for FinCEN’s lack of effectiveness is to send *more* reports to FinCEN (and even this required an override by Congress of a veto by the Trump administration). The author of the Act, Congresswoman Carolyn Maloney (D-NY), had worked for twelve years to get this requirement approved as law. She celebrated that this “bill will finally allow law enforcement to follow the money in their investigations, and will prevent terrorists, kleptocrats, and other bad actors from using the U.S. financial system to hide their dirty money.” Andrew E. Talbot & Marcus A. Asner, *Congress Poised to Enact Sweeping Beneficial Ownership Disclosure Requirement for US Companies*, ARNOLD & PORTER (Dec. 3, 2020), <https://www.arnoldporter.com/en/perspectives/blogs/enforcement-edge/2020/12-/congress-poised-to-enact-sweeping>. While the Act, as Federal law, does override the lack of any beneficial ownership requirements in states like Delaware, we can only hope that Congresswoman Maloney won’t be too disappointed if the bad actors continue to use companies in the UK and other countries not subject to the Act, or continue to use nominee shareholders and take their chances with follow-up by FinCEN – or the lack thereof.

For concise analysis of the new Act see, for example, France Beard Johnson et al., *What Emerging Growth Companies and Investors Need to Know About the Corporate Transparency Act*, 12 NAT’L LAW REV. 269, (2022).

<sup>41</sup> David Mack, *A Former Treasury Official Was Sentenced To 6 Months In Prison For Giving Documents To BuzzFeed News*, BUZZFEED NEWS (June 3, 2021), <https://www.buzzfeednews.com/article/davidmack/fincen-natalie-mayflower-sours-edwards-sentencing>. We may find this ironic because the same Act that created the Corporate Transparency Act also created the Anti-Money Laundering Act of 2020, with a new whistleblower program providing financial rewards for those who “bring forward information about violations of the Bank Secrecy Act (BSA), the primary AML enforcement law.” Anti-Money Laundering and Sanctions Whistleblower Program, CONSTANTINE CANNON (last visited Oct. 20, 2023), <https://constantinecannon.com/practice/whistleblower/whistleblower-types/whistleblower-reward-laws/anti-money-laundering-bank-secrecy-act/>. And the 2022 Kleptocracy Asset Recovery Rewards Program of the Treasury Department goes even further, with rewards of up to US\$ 5 million. Kleptocracy Asset Recovery Rewards Program, U.S. DEP’T OF THE TREASURY (last visited Oct. 20, 2023), <https://home.treasury.gov/about/offices/terrorism-and-financial-intelligence/terrorist-financing-and-financial-crimes/kleptocracy-asset-recovery-rewards-program>. Unfortunately, the irony will be lost on Natalie Mayflower Sours Edwards while she is serving her sentence plus three years of supervised release to make sure that potential other whistleblowers will think carefully before coming forward.



decidedly more muted. Perhaps emboldened by the lack of public attention, many of the “clients” have by now launched lawsuits against ICIJ and media outlets like the BBC and the Guardian “for breach of confidence,”<sup>42</sup> and similar attempts at putting the genie back into the bottle and saving an extremely lucrative business model.<sup>43</sup> The arguments by Appleby and others are quite intriguing. Essentially, they are saying, it is not illegal to have interests in shell companies and neither they, nor their clients, did anything wrong. Indeed, it may be difficult to untangle the shady world of offshore shell companies and tax havens to prove individual culpability of the ultimate beneficiaries. The lawyers and other service providers make sure of that.<sup>44</sup> However, we must make no mistake, the services of these lawyers and the accountants and other enablers working with them, are far more expensive than your average attorney fees on high street. Nobody in their right mind needs to hire these expensive specialists of obfuscation unless they have something to hide.

While fiat currencies are ideally suited for anonymous and untraceable transactions, virtual currencies on public blockchains are always traceable and, at least technically, suitable to identify the owners of the funds.

Therefore, we have to examine whether a shift to crypto currencies on blockchains could help us reduce the problems of fiat currencies, namely the erosion or even destruction of value at the hand of politicians buying themselves popularity and re-election, and the ruthless exploitation of the 99% by the 1%, in particular, but not only, in the developing world.

## II. BITCOIN IS NOT THE ANSWER

While fiat is traditional money, crypto- or digital currencies are the new kinds of privately created money that started with the “invention”

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<sup>42</sup> *BBC and Guardian Sued Over Paradise Papers Leaks*, BBC (Jan. 18, 2017), <https://www.bbc.com/news/uk-42403700>.

<sup>43</sup> In Turkey, the journalist Pelin Ünker was sentenced to over a year in prison for her contribution to the Paradise Papers investigation and exposure of offshore accounts of former Turkish Prime Minister Binali Yildirim and his sons. Julian Borger, *Journalist Pelin Ünker Sentenced to Jail in Turkey Over Paradise Papers investigation*, THE GUARDIAN (Jan. 9, 2019) <https://www.theguardian.com/news/2019/jan/09/journalist-pelin-unker-sentenced-to-jail-in-turkey-over-paradise-papers-investigation>.

<sup>44</sup> See, e.g. Alex Simpson, *The Pandora Papers Show the Line Between Tax Avoidance and Tax Evasion Has Become So Blurred We Need to Act Against Both*, THE CONVERSATION (OCT. 11, 2021) <https://theconversation.com/the-pandora-papers-show-the-line-between-tax-avoidance-and-tax-evasion-has-become-so-blurred-we-need-to-act-against-both-169353>.

of Bitcoin in the infamous whitepaper by Satoshi Nakamoto in 2009.<sup>45</sup> As I have written earlier,<sup>46</sup>

[At the time,] the world was trying to climb out of the 2007/08 Financial Crisis<sup>47</sup> and the U.S. Federal Government had just bailed out the financial sector with over US\$ 1 trillion in funds that were essentially newly printed money, diluting the existing money supply and, therefore, the value of assets and savings in the hands of corporations and private citizens.<sup>48</sup> The lobbying power of the financial sector not only secured this largest ever bailout, it also made sure that the funds were transferred literally without any strings attached. As a consequence, the Wall Street institutions used much of the bailout money to bolster their balance sheets – and pay significant bonuses to their executives – rather than keeping main street businesses going and preventing struggling home owners and families from becoming homeless.<sup>49</sup>

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<sup>45</sup> Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008), <https://bitcoin.org/bitcoin.pdf>.

<sup>46</sup> Frank Emmert, *The Regulation of Cryptocurrencies in the United States of America*, RESEARCHGATE 4–5 (Feb 2022), [https://www.researchgate.net/publication/358906189\\_The\\_Regulation\\_of\\_Cryptocurrencies\\_in\\_the\\_United\\_States\\_of\\_America](https://www.researchgate.net/publication/358906189_The_Regulation_of_Cryptocurrencies_in_the_United_States_of_America).

<sup>47</sup> A detailed historic analysis of the causes of the crisis is provided by BARRIE WIGMORE, *THE FINANCIAL CRISIS OF 2008 – A HISTORY OF US FINANCIAL MARKETS 2000-2012* (CAMBRIDGE UNIV. PRESS 2021). *See also* TIMOTHY GEITHNER, *STRESS TEST – REFLECTIONS ON FINANCIAL CRISES* (Broadway Books 2014).

<sup>48</sup> Much of the funds were used to purchase troubled assets. Since at least some of those were later recovered or sold, the total cost of the bailout to the taxpayer has been estimated at around US\$ 498 Billion or 3.5% of U.S. GDP. Most of that money went to “large, unsecured creditors of large financial institutions [... in particular] banks, pension and mutual funds, insurance companies”. *See* Deborah Lucas, *Here’s How Much the 2008 Bailouts Really Cost*, MIT SLOAN SCHOOL OF MGMT. <https://mitsloan.mit.edu/ideas-made-to-matter/heres-how-much-2008-bailouts-really-cost>. In the EU, similar amounts of money were committed, although recovery was more successful in some countries than in others. *See* Catarina Fernandes, Jorge Farinha, Francisco Vitorino Martins, Cesario Mateus, *Determinants of European Banks’ Bailouts Following the 2007–2008 Financial Crisis*, 19 J. OF INT’L ECON. L., 3, 707–42 (2016) <https://doi.org/10.540-97/hbem.v4i.3530>.

<sup>49</sup> *See generally* GEORGE GILDER, *THE SCANDAL OF MONEY - WHY WALL STREET RECOVERS BUT THE ECONOMY NEVER DOES* (Regnery Gateway 2022); PAUL KRUGMAN, *THE RETURN OF DEPRESSION ECONOMICS AND THE CRISIS OF 2008* (Norton & Co. 2009); ROBERT REICH, *THE SYSTEM - WHO RIGGED IT, HOW WE FIX IT* (Alfred Knopf 2020); ANDREW ROSS SORKIN, *TOO BIG TO FAIL – THE INSIDE STORY OF HOW WALL STREET AND WASHINGTON FOUGHT TO SAVE THE*

Nakamoto's Bitcoin seemed a great alternative to central banks printing large amounts of money and giving much of it to financial institutions who had been recklessly expanding in the financial markets, creating ever more risky derivatives "secured" by bundles of subprime mortgages, but were considered "too big to fail."<sup>50</sup> Of course, 2008 was not the first bailout of the financial sector, and it was not even the biggest. Leonard shows how the U.S. Federal Reserve "created" US\$ 3 trillion in just 90 days in 2020 in response to the Covid19 pandemic, which was "as much money as the Fed would have printed in roughly three hundred years at its normal pace, before the 2008 financial crisis"<sup>51</sup> and represented "the largest expenditure of American public resources since World War II."<sup>52</sup> Since most of that, once again, went to the financial sector, it is fair to say that the big banks and investment funds in the U.S. – in particular – have perfected the art of privatizing profits and socializing losses.<sup>53</sup>

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FINANCIAL SYSTEM AND THEMSELVES (Penguin 2009); JOSEPH STIGLITZ, FREE-FALL – AMERICA, FREE MARKETS, AND THE SINKING OF THE WORLD ECONOMY (Norton & Co. 2010); JOSEPH STIGLITZ, REWRITING THE RULES OF THE AMERICAN ECONOMY: AN AGENDA FOR GROWTH AND SHARED PROSPERITY (Norton & Co. 2015); MARTIN WOLF, THE SHIFTS AND THE SHOCKS: WHAT WE'VE LEARNED – AND HAVE STILL TO LEARN – FROM THE FINANCIAL CRISIS (Penguin 2014).

<sup>50</sup>The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, adopted in response to the subprime mortgage crisis, states in its very preamble the goal "[t]o promote the financial stability of the United States by improving accountability and transparency in the financial system, to end 'too big to fail', to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices. . . ." (Pub. L. No. 111-203, 124 Stat. 1376). A decade later, it remains a matter of controversy whether the Act has made a real difference to the moral hazard problem of "too big to fail"; see, e.g. Troy Brown, *Legal Political Moral Hazard: Does the Dodd-Frank Act End Too Big to Fail?*, ALA. C.R. & C.L. LAW REV., 1–85 (2012); Martin Neil Bailly, Aaron Klein & Justin Schardin, *The Impact of the Dodd-Frank Act on Financial Stability and Economic Growth*, 3 THE RUSSELL SAGE FOUNDATION J. OF THE SOC. SCIENCES 20, 20–47 (Jan. 2017); Yu Gao, Scott Liao & Xue Wang, *Capital Markets' Assessment of the Economic Impact of the Dodd-Frank Act on Systemically Important Financial Firms*, 86 J. OF BANKING & FIN. 204, 204– 223 (Apr. 7, 2016); Fernán Restrepo, *The Economic Consequences of Hedge Fund Regulation: An Analysis of the Effect of the Dodd-Frank Act*, <https://ssrn.com/abstract=3541916> or <http://dx.doi.org/10.2139/ssrn.3541916> (June 15, 2022).

<sup>51</sup> Leonard, *supra* note 15, at 280.

<sup>52</sup> *Id.* at 292.

<sup>53</sup> Early bank bailouts seem insignificant in retrospect. In 1974, Franklin National Bank was bailed out to the tune of US\$ 1.75 billion, or 7.8 billion when adjusted to 2008 Dollars. Jesse Nankin, Eric Umansky, Krista Kjellman Schmidt & Scott Klein, *History of U.S. Gov't Bailouts*, PROPUBLICA (Sept. 18, 2008) <https://www.propublica.org/article/government-bailouts>. Continental Illinois National Bank and Trust was next in 1984 with a bailout of US\$ 9.5 billion in

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2008 Dollars. *Id.* Banks learned the lesson that if you owe a few million, you have a problem, whereas if you owe a few billion, the government has the problem. Things definitely got more expensive when entire branches of the financial industry got themselves into trouble. The bailout of the savings & loan institutions in 1989 already cost taxpayers US\$ 293 billion in 2008 Dollars. *Id.* Bear Sterns received a bailout to the tune US\$ 30 billion in 2008, the year the U.S. government also bailed out Fannie Mae and Freddie Mac to the tune of US\$ 400 billion. *Id.* That was not the end of it, however. Still in 2008, the government had to bail out American International Group with US\$ 180 billion and launch the Troubled Asset Relief Program (TARP) with initial funding of US\$ 700 billion. *Id.* Although Citigroup already received US\$ 45 billion under TARP, it needed another US\$ 280 billion in 2008 to be saved from collapse. *Id.* Similarly, Bank of America had received US\$ 45 billion under TARP, yet needed another US\$ 142 billion in 2009. *Id.* As a consequence of the Covid-19 pandemic, in addition to stimulus payments for families and small businesses, the U.S. Federal Reserve also injected some US\$ 3 trillion into financial markets to keep the economy safe. This shows that bailouts have not only become more expensive but also more frequent.

Although it was obvious that several of the crises were caused by ludicrous risk taking by the financial institutions, and in multiple cases quite probably actual violations of securities and other laws, not a single banker has ever been held personally accountable\* for the damage inflicted on the country, nor have there been any serious efforts at clawing back bonuses paid during the high-risk business expansions that led to the crises, let alone any tax increases on the financial industry as a whole to somehow pay back the bailout funds. The Dodd-Frank Act made at least a token effort at providing for claw back of executive compensation. *Supra*, note 50. However, research suggests that even if properly implemented, “the amount potentially recoverable under the Dodd-Frank Clawback provision is less than one percent of the aggregate total gains” acquired due to earnings manipulations. James Ang, Yingmei Cheng & Sarah Fulmer, *Clawing Back Executive Compensation: Will Dodd-Frank Matter?*, <https://ssrn.com/abstract=2023691> (Feb. 20, 2012).

\*In Italy, by contrast, after the crash of Monte dei Paschi di Siena, the oldest bank in the world, thirteen bankers were criminally charged and convicted, “including Giuseppe Mussari, Monte dei Paschi’s former chairman, who received a seven-and-a-half-year sentence.” *See* FRANK VOGL, *THE ENABLERS – HOW THE WEST SUPPORTS KLEPTOCRATS AND CORRUPTION, ENDANGERING OUR DEMOCRACY* 29 (Rowman & Littlefield 2022). Miraculously, the Milan Court of Appeals overturned the sentences and acquitted all defendants in May 2022. *Honi soit qui mal y pense*, as already says the British Royal Coat of Arms

Overall, the Financial Times found 47 bankers “sentenced to jail time for their role in the financial crisis [of 2007/2008].” Laura Noonan, Cale Tilford, Richard Milne, Ian Mount & Peter Wise, *Who Went to Jail for Their Role in the Financial Crisis?*, *FIN. TIMES* (Sept. 20, 2018), <https://ig.ft.com/jailed-bankers/>. 25 in Iceland, 11 in Spain, 7 in Ireland, 1 in Cyprus, 1 in Germany, 1 in Italy, and 1 in the U.S. *Id.* The unfortunate soul who had to pay for all the sins committed in the U.S. was Kareem Serageldin, a trader at Credit Suisse. *Id.*

Bitcoin (BTC) was conceived as a global peer-to-peer financial asset controlled entirely by mathematical algorithms and disconnected completely from government oversight and central bank control. The algorithms limit the supply of Bitcoin, making it impossible for anyone – whether government or central bank or private banking industry – to expand the supply for political or other reasons and devalue the currency overall.

The algorithms also validate any transactions where value, in the form of Bitcoin, is transferred directly from one individual to another at the current market price, without the intermediation of banks or other third parties. By storing every single transaction, from the first “mining” of a Bitcoin to the most recent transfer, in a series of data-packages or “blocks,” all of which are inseparably linked in a chain – hence “blockchain” – the algorithms provide an immutable record. This record or blockchain is stored simultaneously on a large number of decentralized servers, which creates redundancy. Although entirely virtual, the currency cannot be hacked or falsified or even stolen because this would require that all of these servers – or at least a large majority of them – would have to be hacked. Whenever we hear about a hack in the blockchain universe, it is not the blockchain itself that was simultaneously altered in every location where it is stored. Rather, the passwords for individual user wallets<sup>54</sup> or multitudes of user wallets stored on an exchange<sup>55</sup> were

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<sup>54</sup> Wallets are essentially accounts created by users to hold cryptocurrency in the form of transaction records. A user “owns” a particular amount of digital money if she controls the record of the last time the crypto was transferred. Control is exercised via digital keys, essentially passwords. To obtain crypto from another person, one has to provide a “public key,” comparable to an account number. To transfer crypto, one has to control both the public key and a “private key” for the respective wallet.

Detailed technical explanations are provided, for example, by IMRAN BASHIR, *MASTERING BLOCKCHAIN – A DEEP DIVE INTO DISTRIBUTED LEDGERS, CONSENSUS PROTOCOLS, SMART CONTRACTS, DAPPS, CRYPTOCURRENCIES, EHTEREUM, AND MORE* (Birmingham/Mumbai 2020).

<sup>55</sup> Exchanges are online marketplaces where buyers and sellers of cryptocurrency meet and implement their transactions. Many exchanges enable or even require users to create online accounts/wallets for these transactions. These “hot wallets” are convenient for short-term storage. However, the exchanges have to store the private keys of users in encrypted format, just like our bank has to store our passwords for online banking, to verify whether a log-in attempt is by the authorized user. If hackers manage to crack the encrypted information, they can empty the accounts/wallets concerned.

Alternatively, a user can transfer the crypto from the online or hot wallet to a “cold storage wallet” in the form of a USB or hard drive that gets disconnected from the internet. While “cold wallets” cannot be hacked as long as they remain disconnected, they could be lost or stolen or damaged by fire or water at the

hacked on the computers of the users or the company running the exchange, enabling thieves to create transactions on the blockchain that redirect funds to wallets they control. These transactions are traceable, like any transactions on a blockchain, but recovery of the funds can be hard. Since transactions on the blockchain can never be erased or undone,<sup>56</sup> the only way to get crypto back is to create a new transaction that is essentially the reversal of the earlier transaction. For example, if A transfers 10 BTC to B, the way for A to get her money back is for B to make a transfer of 10 BTC to A. Thus, if crypto is stolen via a hack of access keys, recovery would normally require cooperation by the thieves. The problem is exacerbated by the fact that wallets are easy to create in most jurisdictions and not all countries require or enforce know-your-customer (KYC) and anti-money-laundering (AML) requirements, potentially making it impossible for the original owner and the police to know who controls the wallet(s) where stolen crypto is parked. In such cases, it may be possible to wait until the thief B spends the crypto, i.e., makes another transfer but this time to a known person C, where the funds can be intercepted.<sup>57</sup> The only other option is to break the blockchain and force a re-write in the form of a hard fork, which is a major disruption and only of interest after a major hack.

At least in theory, Bitcoin could resolve many of the problems we have with fiat currencies, as outlined above. Consumers would not be discouraged from long-term saving strategies because there would be no

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physical storage place. Moreover, to transfer funds from a cold wallet to a third party, the owner may first have to move the funds to her hot wallet, an additional transaction that costs some time and money.

For more detailed technical explanations *see id.*

<sup>56</sup> See *id.* Any public blockchain can only be added to. There is no going back in time to edit or change earlier blocks. This can be different for private blockchains because they are controlled by single entities and not publicly accessible or stored in a decentralized format on many unconnected servers. Because of these features, private blockchains are only used in environments where all participants trust each other and do not need independent confirmation of transactions and redundancy in the storage of information/value.

<sup>57</sup> A good example is the 2016 hack of Bitfinex. The hackers stole what was US\$ 71 Million worth of Bitcoin at the time. However, the BTC were traceable and sitting in a wallet under observation by the U.S. authorities. Since 2016, the value of the loot had increased to almost US\$ 4 Billion, while “the loot sat in plain sight online . . . as if a robber’s getaway car was permanently parked outside the bank, locked tight, money still inside.” (Ali Watkins & Benjamin Weiser, *Inside the Bitcoin Laundering Case That Confounded the Internet*, N.Y. TIMES 13 (Feb. 13 2022), <https://www.nytimes.com/2022/02/13/nyregion/bitcoin-bitfinex-hack-heather-morgan-ilya-lichtenstein.html>. When the hackers finally tried to remove the loot, they were identified, arrested, and are now facing up to 25 years in prison. *Id.*

chance for quantitative easing and other expansions of supply diminishing the value of the currency.<sup>58</sup> Peer-to-peer transfers could also reduce significant transaction fees currently charged by banks and other financial institutions, in particular in international transactions.<sup>59</sup> And, by contrast to banks and financial service providers like PayPal or Venmo which are usually well-regulated in developed countries but far less well regulated and supervised in developing nations, users would not have to trust their funds into the hands of more or less trustworthy intermediaries who remain subject to regulatory interventions like freezing and seizing of assets for political reasons,<sup>60</sup> and potentially large scale theft and embezzlement.<sup>61</sup>

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<sup>58</sup> For this reason, Bitcoin has often been “referred to as new gold, digital gold or gold 2.0” (Dirk Baur & Lai Hoang, *The Bitcoin Gold Correlation Puzzle*, 32 J. OF BEHAV. AND EXPERIMENTAL FIN., <https://doi.org/10.1016/j.jbef.2021.100561> (Dec. 2021). It has also been called the 21<sup>st</sup> century “preeminent store of value.” Aakanksha Chaturvedi, *Is Bitcoin Replacing Gold, Oil to Become 'Store of Value' of the Digital Age?* BUSINESS TODAY (Mar. 3, 2022), <https://www.business-today.in/crypto/story/is-bitcoin-replacing-gold-oil-to-become-store-of-value-of-the-digital-age-324657-2022-03-03>).

<sup>59</sup> The fees of WesternUnion, in particular, can be significant, as much as US\$ 100 for a single transaction. See Lindsey Selbach & Jeferson Lana, *The Western Union Case and the Social Function of the International Money Transfer*, INT’L BUS. RESEARCH 2015, Vol. 8, No. 5, pp. 101-110, at 104-106. WesternUnion itself quotes outgoing fees of \$35-50 plus incoming fees of \$0-16 for international wire transfers, see <https://www.westernunion.com/blog/en/us/how-much-are-money-transfer-fees/>. While this may not sound excessive, remittances by migrant workers are typically done every month and in amounts of just a few hundred dollars. In effect, WesternUnion is “taxing” these transfers at rates of up to 15% and more. The IMF found transfer fees of 1-25% on a trial transfer of \$200 out of a total annual volume of \$559 billion in remittances in 2019, see Thorsten Beck, Mathilde Janfils and Kangni Kpodar, *What Explains Remittance Fees? Panel Evidence*, IMF WORKING PAPER 22/63 (2022), at p. 5 (with many further references). See also Daivi Rodima-Taylor, *The Uneven Path Toward Cheaper Digital Remittances*, MIGRATION POLICY INSTITUTE, 22 June 2023, <https://www.migrationpolicy.org/article/cheaper-digital-remittances>.

<sup>60</sup> As of the end of June 2022, within four months of the Russian invasion of Eastern Ukraine, Western countries had frozen US\$ 30 billion in Western and international bank accounts owned by Russian oligarchs and officials, and another US\$ 300 billion owned by the Russian central bank. See *Allies freeze \$330 bn of Russian assets since Ukraine invasion: task force*, FRANCE 24 (June 29, 2022), <https://www.france24.com/en/live-news/20220629-allies-freeze-330-bn-of-russian-assets-since-ukraine-invasion-task-force>.

<sup>61</sup> See TIMOUR AZHARI & CHRISTINA AMANN, *Lebanon’s Central Bank Chief is Suspect in 120 MLN Euro Asset Freeze Case -German Prosecutor*, REUTERS (Mar. 28, 2022, 11:48 AM), <https://www.reuters.com/world/middle-east/eu-criminal-justice-agency-says-120-million-euros-lebanese-assets-frozen-2022-03-28/> (reporting the Lebanese central bank governor Riad Salameh and four others

At least in theory, Bitcoin and the traceability of blockchain transactions could also deliver more transparency to the world of offshore finance and provide better tools to fight corruption among political elites. However, this would take two pre-conditions that are currently not in place. First, the Bitcoin community would have to want to deny access to funds with questionable provenance and users with known links to corrupt governments or criminal organizations. Second, a system would have to be in place to conduct comprehensive KYC and AML procedures for all users and to clearly identify beneficial owners of legal entities. The very origins of Bitcoin, however, point to a contrarian and anti-authoritarian approach. Since the blockchain is controlled by algorithms and the user community, it is more than unlikely that Bitcoin will become a tool in the fight against corruption and tax evasion.

Furthermore, like most of the other digital currencies created since, Bitcoin has two major flaws. First, since the supply is immutably determined by the underlying algorithm, the price of Bitcoin is determined entirely by demand in the marketplace. This invites speculation and manipulation. A good illustration of manipulation efforts are the celebrities and “social influencers” with large following on Twitter and other social media that have acquired Bitcoin for themselves and then talked up the value by urging their followers to buy in. The U.S. Securities and Exchange Commission (SEC) has investigated several such cases and issued subpoenas, cease-and-desist orders, and/or civil monetary fines.<sup>62</sup> Even without direct manipulation, the price of Bitcoin has been extremely volatile thanks to speculation. Just during the two years, specifically from September 2021 to September 2022, Bitcoin has experienced a highest valuation of US\$ 68,007 (November 2021) and a lowest valuation of US\$ 18,573 (June 2022).

In 2021, an estimated 106 million individuals and corporations were holding Bitcoin in an estimated 200 million wallets, and some 300-

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are suspected to have embezzled some US\$ 330 million and € 5 million between 2002 and 2021). Combined with large-scale borrowing by corrupt politicians, this led to a crash of the Lebanese currency and the indefinite freezing of all foreign currency accounts held by individuals in Lebanese banks.

<sup>62</sup> See generally *Crypto Assets and Cyber Enforcement Actions*, U.S. SECURITIES AND EXCH. COMM’N, <https://www.sec.gov/spotlight/cybersecurity-enforcement-actions> (last modified Nov. 4, 2022). See also *Complaint, S.E.C. v. McAfee*, No. 20 Civ. 8281 (S.D.N.Y. Oct. 5, 2020); *In re Seagal*, Securities Act Release No. 10,760 (Feb. 27, 2020); *In re Mayweather*, Securities Act Release No. 10,578 (Nov. 29, 2018); *In re Khaled*, Securities Act Release No. 10,579 (Nov. 29, 2018); *In re Kardashian*, Securities Act Release No. 11,116 (Oct. 3, 2022).



400 million transactions were conducted every day.<sup>63</sup> The explosion of the price of Bitcoin up until November 2021 can be explained, at least in part, by the growth of the global user base by some 200% between 2018 and 2021.<sup>64</sup> This massive increase in the number of people seeking to purchase Bitcoin and participate in the rapidly increasing valuation<sup>65</sup> was a classic bubble like many before it, from tulips to stocks.<sup>66</sup> At its peak, the entire market for cryptocurrencies was valued at some US\$ 3 trillion, with Bitcoin's share around US\$ 1.3 trillion. For comparison, the size of the entire U.S. economy in 2021 was about US\$ 23 trillion.<sup>67</sup> The bust came soon enough. From its peak on 9 November 2021, the coin had already lost half its value by 24 January 2022, as panic set in<sup>68</sup> and many former "investors" could not offload their Bitcoin fast enough. In general, a fairly steady upward trend until the fall of 2021 has now been replaced by almost daily swings of 5 to 10% up and down. Instead of the 21st-century store of value, Bitcoin has become just another casino chip.

The second weakness of Bitcoin – and many other cryptocurrencies – is the method of validation of transactions commonly referred to as "proof-of-work." Since blockchains, unless they are private, operate in a trustless environment, they need a system of verification before a new

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<sup>63</sup> *How Many People Own & Hold Bitcoin?*, BUY BITCOIN WORLDWIDE, <https://buybitcoinworldwide.com/how-many-bitcoin-users/> (last visited Feb. 24, 2023).

<sup>64</sup> RAYNOR DE BEST, *Number of Bitcoin block explorer Blockchain.com wallet users worldwide from November 2011 to November 17, 2022*, STATISTA (Nov. 18, 2022) <https://www.statista.com/statistics/647374/worldwide-blockchain-wallet-users/>.

<sup>65</sup> Bitcoin was launched in January 2009 and started trading in July 2010 at US\$ 0.0008. In November 2021, it traded at more than US\$ 68,000, at least for a while. See <https://coinstats.app/coins/bitcoin/>. An investor who put US\$ 1,000 into Bitcoin at the start and cashed out at the peak would have turned US\$ 1,000 into a fortune of US\$ 8.5 Billion.

<sup>66</sup> See WILLIAM QUINN & JOHN TURNER, *BOOM AND BUST – A GLOBAL HISTORY OF FINANCIAL BUBBLES* (2020).

<sup>67</sup> See U.S. Bureau of Economic Analysis, [https://www.bea.gov/news/2022/gross-domestic-product-fourth-quarter-and-year-2021-second-estimate#:~:text=Current%20dollar%20GDP%20increased%2010.1,\(tables%201%20and%203\)](https://www.bea.gov/news/2022/gross-domestic-product-fourth-quarter-and-year-2021-second-estimate#:~:text=Current%20dollar%20GDP%20increased%2010.1,(tables%201%20and%203)).

<sup>68</sup> An initial slow decline on account of overall recessionary trends accelerated after bankruptcy filings of several crypto companies, the crash of TerraUSD (UST) Stablecoin and LUNA Token in May 2022 (280,000 investors lost a total of US\$ 60 billion, see Antonio Briola et al., *Anatomy of a Stablecoin's Failure: The Terra-Luna Case*, FINANCE RESEARCH LETTERS Vol. 1, January 2023, <https://doi.org/10.1016/j.frl.2022.103358>), and the collapse of Celsius Network in June 2022 (58,000 investors lost about US\$ 5 billion, see Yiorgos Allayannis & Also Sesia, *Crypto Winter Buries Celsius Network and Batters Defi*, Darden Case No. UVA-F-2027, <https://ssrn.com/abstract=4362413>).

block can be added to the chain and remain there in perpetuity. Technically speaking, one person acts as a prover of the new block, and other individuals verify the proof until a sufficient number, or even a majority, of participants have verified and accepted the new block as true. The system proposed by Satoshi Nakamoto relies on complex math problems as “proof-of-work” and rewards the first person to solve a particular problem and add a new block to the chain with a certain number of Bitcoin. The rewards can be substantial,<sup>69</sup> which induces many operators of computers and entire server farms to compete for the verification of the next block. Indeed, a “miner” nowadays needs to run a large number of application-specific integrated circuits (ASICs), i.e., specialized computer servers that don’t really do anything else other than Bitcoin mining, in order to have a chance, every now and then, to be the first to solve a computational puzzle, verify a new block, and earn the reward for that block. Unfortunately, this parallel operation of thousands of computer servers around the world uses a huge amount of electricity. The electricity consumption of all Bitcoin mining activity around the globe has been estimated to exceed the electricity consumption of an entire country like Argentina, which has a population of 45 million.<sup>70</sup> Obviously, this is hugely wasteful and contributes massively to the human carbon footprint, implicating climate change concerns.

When Twitter user Jameson Lopp (@lopp) challenged the community in 2019 to “[e]xplain Bitcoin as completely as possible in a single tweet,” i.e., in no more than 280 characters, one of the best explanations, at least for Bitcoin mining, was provided by Twitter user @VessOnSecurity on 2 June 2019: “It’s like if idling your car 24/7 occasionally produced solved Sudoku puzzles that you could then exchange for heroin.” Multiple commentators added that it was not just idling “but pushing the

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<sup>69</sup> Nakamoto expected the value of each Bitcoin to increase. Therefore, the reward for miners was set to decrease. At the outset, in 2009, successful miners received 50 BTC for a new block. The reward is cut in half every 210,000 blocks, approximately every 4 years. It went down to 25 BTC in 2012, 12.5 BTC in 2016, and has been standing at 6.25 BTC since 2020. At current prices (around US\$ 20,000 for one BTC), the successful miner receives about US\$ 125,000 for a new block, plus some transaction fees. In November 2021, before the crash, the reward would have been  $6.25 \times 60,000 = \text{US\$ } 375,000$ . For an explanation of the Bitcoin mining reward system see IMRAN BASHIR, *MASTERING BLOCKCHAIN*, Packt 3<sup>rd</sup> ed. 2020, at p. 221. For more comprehensive analysis see Miles Carlsten et al., *On the Instability of Bitcoin Without the Block Reward*, CCS '16: Proceedings of the 2016 ACM SIGSAC Conference on Computer and Communications Security, October 2016, pp. 154–167, <https://doi.org/10.1145/2976749.2978408>

<sup>70</sup> Jeremy Hinsdale, *Cryptocurrency’s Dirty Secret: Energy Consumption*, COLUMBIA CLIMATE SCHOOL STATE OF THE PLANET (May 4, 2022), <https://news.climate.columbia.edu/2022/05/04/cryptocurrency-energy/>.

throttle while in neutral” (e.g., @gallOws, 2 June 2019).

In addition to the insane electricity consumption, the proof-of-work system also limits the overall capacity and drives up transaction fees. A new block on the Bitcoin chain is only confirmed about once every 10 minutes. Since a single block is limited to 1 MB of data, it can store about 2,000 transactions. Therefore, the system can process only about 12,000 transactions globally per hour. If more transactions have to be processed, delays are inevitable and processing fees, commonly called “gas fees,” shoot up. High gas fees discourage people from doing smaller or less important transactions, thus decongesting the system. Once again, the mechanism favors big and wealthy institutions and individuals over small and medium-sized enterprises (SMEs) and the 99%.

The main rival to Bitcoin is Ethereum. The Ethereum blockchain is more sophisticated than the Bitcoin blockchain and contains the Ethereum Virtual Machine (EVM), essentially a fully functional computer running on a blockchain.<sup>71</sup> This makes it possible, or at least easier than it is on the Bitcoin chain, to run complex programs on the Ethereum chain, so-called “smart contracts.” On the one hand, this functionality opens up an entire universe of use cases for blockchain technology,<sup>72</sup> far beyond the mere storage and transfer of value. On the other hand, smart contracts require more data and storage capacity. While Ethereum blocks are generated faster, they are also smaller – only about 80 kB. Consequently, the success of the chain has caused massive capacity problems. At the peak of the market in November 2021, it often took half an hour or longer to confirm a single transaction, as well as gas fees of US\$ 20 to 100 and beyond. Although it would be quite easy to create an app to pay in stores with Ether (ETH) rather than fiat or credit card, the idea of standing in the checkout line at the supermarket for half an hour until the transaction is confirmed and paying US\$ 50 in transaction fees is obviously a non-starter.

To solve the capacity- and energy consumption problems, Ethereum recently moved from proof-of-work to a proof-of-stake validation system. After “the merge” was completed in mid-September 2022,<sup>73</sup> Ethereum is supposedly able to handle a much larger volume of transactions

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<sup>71</sup> Bashir, *supra* note 69, at 333-340.

<sup>72</sup> See, e.g., *The Growing List of Applications and Use Cases of Blockchain Technology in Business and Life*, INSIDER INTELLIGENCE, <https://www.insider-intelligence.com/insights/blockchain-technology-applications-use-cases/> (last visited Oct. 20, 2023).

<sup>73</sup> See *The Ethereum Merge Explained*, COINMARKETCAP, <https://coin-marketcap.com/events/eth-merge/> (last visited Nov. 17, 2022); see also *The Merge*, ETHEREUM.ORG, <https://ethereum.org/en/upgrades/merge> (last visited Nov. 17, 2022).

at a much lower cost. Most importantly, the electricity consumption for Ether “mining” has been slashed by 99.99%.<sup>74</sup> This would solve two of the main points of criticism – the energy consumption and the processing capacity<sup>75</sup> – but still leave us with the volatility problem and the general suspicion of a global currency operated without a clear set of values – other than maintaining the functionality of the system itself – and no sufficient governance structure to enforce those values.

### III. SMART MONEY FOR THE PEOPLE

This article has pointed out the shortcomings of fiat money and the first generation of cryptocurrencies, in particular from environmental, social, and governance perspectives. Fiat money has always been controlled and managed in the best interest of the government and business elite. Far too often, the levers of control have been moved to socially regressive effect. Even if a country occasionally does the right thing, it does so invariably from a narrow national perspective, although our globalized markets are connected in myriads of ways. Unfortunately, what is good for the goose is rarely good for the gander.<sup>76</sup> Furthermore, our

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<sup>74</sup> See CRYPTO CARBON RATINGS INST., *The Merge Implications on the Electricity Consumption and Carbon Footprint of the Ethereum Network* (Sept. 2022), <https://carbon-ratings.com/dl/eth-report-2022> (noting that prior to the merge, Ethereum’s electricity consumption was around 23 million megawatt-hours per year, about the same as the entire country of Ireland, with more than 5 million inhabitants; after the merge, the consumption dropped to some 2,600 megawatt-hours per year, comparable to about 500 households in the U.S. As a result, CO2 emissions have been reduced from 11 million tons per year to under 870 tons per year). See also AOYON ASHRAF, *Vitalik Buterin Says Ethereum Merge Cut Global Energy Usage by 0.2%, One of Biggest Decarbonization Events Ever*, COINDESK (Nov. 7, 2022, 1:34 PM), <https://www.coindesk.com/business/2022/09/15/vitalik-buterin-says-ethereum-merge-cut-global-energy-usage-by-02-one-of-biggest-decarbonization-events-ever/>.

<sup>75</sup> See CORWIN SMITH, *Gas and Fees*, ETHEREUM.ORG, <https://ethereum.org/en/developers/docs/gas/> (last edited Feb. 16, 2023) (noting Gas fees are not dropping all that much, because in order to prevent hackers from overloading or spamming the system with fictional or malicious transactions, the Ethereum foundation has implemented minimum fees for every transaction; consumers seeking to execute a transaction essentially have to participate in an auction where they put up the fee charged by the Foundation, plus the amount they are willing to pay to the validator; depending on offer and demand in the market, and the complexity of the transaction to be validated, a simple transfer of value “costs” 21,000 gwei to the Foundation but a complex smart contract costs more. Thus, the total cost, in the form of gas fees, will vary).

<sup>76</sup> This is currently being demonstrated by the Federal Reserve’s rapid increase of interest rates in the U.S., which, in turn drives up the value of the U.S. dollar and puts enormous pressure on currencies and central banks around the world. See,

inability to make transactions more transparent has put fiat money at the center of a vast underground financial system looting billions of dollars every year from the poorest countries in the world and enabling the richest of the world to avoid their fair share of taxation.

Existing cryptocurrencies like Bitcoin and Ether, and most of the so-called Altcoins, address the monopolization issue and entrust decision-making to agnostic algorithms and uncontrolled market forces. While not per se socially regressive, they miss the opportunity of being socially progressive. Furthermore, they are plagued by rampant speculation, eroding trust and value and, at least so far, cause massive damage to the natural environment.

In the final parts of the article, I will propose the structures of a digital currency that avoids the pitfalls of those already in existence and provides at least a viable alternative to fiat currencies. Once implemented successfully, it will also eliminate the case for current stable coins, whether issued by commercial operators, non-profit foundations, or central banks.

#### *A. Goals of Smart Money*

Smart Money for the People – distributed in digital format as Smarts – would be bound by a public document – the Smart Constitution – to promote the creation and secure the preservation and even increase of value for everyone, not just big finance, wealthy investors, and politicians seeking re-election. Of course, all required registrations and filings with supervisory authorities would be done before any business activities would begin.<sup>77</sup>

Monetary policy would be conducted by a non-profit Smart Foundation to benefit humankind as a whole, rather than the interests of one country or group of countries, let alone a particular social group in those countries.

Furthermore, the entire surplus created by the dissemination of

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*e.g.*, DAVID GURA, *The Dollar Is Surging. This Is Who Gets Helped — and Hurt — by its Newfound Strength*, NPR (Sept. 27, 2022), <https://www.npr.org/2022/09/27/1124284032/strong-dollar-euro-pound-foreign-exchange-fx-inflation>; PATRICIA COHEN, *The Dollar Is Strong. That Is Good for the U.S. but Bad for the World*, NEW YORK TIMES (Sept. 26, 2022), <https://www.nytimes.com/2022/09/26/business/economy/us-dollar-global-impact.html>.

<sup>77</sup> Emmert, *supra* note 46 (noting that in the U.S., registrations and filings include, inter alia, a money services business license from the Financial Crimes Enforcement Network (FinCEN) at the Treasury Department, registration with the Commodities Futures Trading Commission (CFTC), as well as registration with the Securities and Exchange Commission (SEC)).

Smarts would be invested in ESG projects.

### *B. Governance of Smart Money*

The Smart Constitution would provide for decision-making pursuing responsible monetary policy and investment strategies modeled on the principles guiding the Norwegian Sovereign Wealth Fund (NSWF).<sup>78</sup> The NSWF is charged with the investment of Norway's surplus oil revenue and has become the largest sovereign wealth fund in the world. As of 2022, it has about US\$ 1.4 trillion under management, equivalent to about US\$ 260,000 for each one of the 5.4 million citizens of Norway. The NSWF is managed by the Norwegian Central Bank (Norges Bank) and required "to ensure responsible and long-term management of revenue from Norway's oil and gas resources, so that this wealth benefits both current and future generations."<sup>79</sup> While most of the money comes from the exploitation of carbon-based resources, the NSWF is pursuing clear and uncompromising environmental and social goals. It is working with an external and independent Council of Ethics to establish which sectors, countries, and companies the NSWF can invest in and to produce and administer strict "Guidelines for Observation and Exclusion of Companies from the Government Pension Fund Global."<sup>80</sup> The Council

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<sup>78</sup> Norway maintains the Government Pension Fund Norway since 1967. This fund is relatively smaller and limited to investments in domestic and Scandinavian enterprises. The reference to the NSWF is to the larger Government Pension Fund Global, created in 1990, with authority to invest globally. Locally the NSWF is usually simply called "the Oil Fund." See Thore Johnsen & Ole Gjølborg, *Management of the Norwegian Oil Fund: The Challenges and Costs of Being Ethical*, 23 BETA 1 (2009).

<sup>79</sup> *The Fund*, NORGES BANK INVESTMENT MANAGEMENT, <https://www.nbim.no/en/> (last visited Oct. 20, 2023).

<sup>80</sup> *Compare Guidelines for Observation and Exclusion of Companies from the Government Pension Fund Global (GPFG)*, COUNCIL ON ETHICS OF GOVERNMENT PENSION FUND GLOBAL (Sept. 5, 2022), [https://www.regjerin-gen.no/contentassets/9d68c55c272c41e99f0bf45d24397d8c/2022.09.05\\_gpfg\\_guidelines\\_observation\\_exclusion.pdf](https://www.regjerin-gen.no/contentassets/9d68c55c272c41e99f0bf45d24397d8c/2022.09.05_gpfg_guidelines_observation_exclusion.pdf) (noting criteria for observation and exclusion can be product-based or conduct-based: the former include "biological weapons, chemical weapons, nuclear weapons, non-detectable fragments, incendiary weapons, blinding laser weapons, antipersonnel mines and cluster munitions, [...] tobacco or tobacco-products, [...] cannabis for recreational use," as well as large volumes of thermal coal; the latter include "a) serious or systematic human rights violations b) serious violations of the rights of individuals in situations of war or conflict c) the sale of weapons to states engaged in armed conflict [...] d) the sale of weapons or military materiel to states that are subject to investment restrictions [...] e) severe environmental damage f) acts or omissions that on an aggregate company level lead to unacceptable greenhouse gas emissions g) gross corruption or other serious financial crime h) other particularly serious violations of

of Ethics conducts regular assessments of the companies the NSWF is invested. If a company is placed under observation, the Council and the Fund offer advice on how the company can ensure meeting the ethical requirements. If the process is unsuccessful, the Fund divests its holdings and excludes the company from further investments.<sup>81</sup> The NSWF has a disproportionate impact in global markets because it is not only the largest sovereign wealth fund in the world but also being tracked by many smaller funds that do not themselves have the resources to conduct independent ethics monitoring and advising.<sup>82</sup>

The Board and main decision-making authority of the Smart Foundation would be organized along similar lines as the Norwegian Council of Ethics, however with independent experts from around the world, ensuring a more diverse and global representation of humanity. Day-to-day operational decisions would be taken by the Board with a qualified majority (e.g. 6 out of 9), while amendments to the Constitution would require unanimity.

Disputes between members of the Board, staff and other organs of the Foundation, as well as third parties and the Foundation, would be subject to arbitration in front of Fellows of the Chartered Institute of Arbitrators.<sup>83</sup>

### *C. Implementation of Smart Money*

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fundamental ethical norms”), with U.N. HUM. RTS. OFFICE OF THE HIGH COMM’R, *Guiding Principles for Business and Human Rights* (Apr. 2011) [https://www.ohchr.org/sites/default/files/documents/publications/guiding-principlesbusiness\\_hr\\_en.pdf](https://www.ohchr.org/sites/default/files/documents/publications/guiding-principlesbusiness_hr_en.pdf) (also named Ruggie Principles), and UNEP FINANCE INITIATIVE, *Human Rights Guidance Tool for the Financial Sector*, <https://www.unepfi.org/humanrightstoolkit/framework.php> (last visited Nov. 17, 2022).

<sup>81</sup> See Larry Catá Backer, *Sovereign Investing and Markets-Based Transnational Rule of Law Building: The Norwegian Sovereign Wealth Fund in Global Markets*, 29 AM. U. INT’L L.REV 1, 24–30 (2013).

<sup>82</sup> See Khalil Al Ayoubi & Geoffroy Enjolras, *How Norway’s Sovereign Wealth Fund Negative Screening Affects Firms’ Value and Behavior*, 30 BUS. ETHICS, ENV’T & RESP. 19 (2021) (showing that the NSWF excluded 149 firms from its portfolio between 2006 and 2018, which caused an immediate and permanent decrease in most of those firm’s the stock valuation; concluding that the NSWF “has a strong signaling effect on financial markets”).

<sup>83</sup> The Chartered Institute of Arbitrators (CI Arb) in London is a standard-setting institution that does not itself provide arbitration services. In addition to highly respected and globally applied procedural rules and guidelines on ethics, the CI Arb is the world’s leading training and qualifications body for arbitrators and mediators. See *About Us*, CIARB, <https://www.ciarb.org/> (last visited Oct. 20, 2023).

Smart Money issued by the Smart Foundation would be a fully tradeable and fully convertible digital currency partly controlled by immutable algorithms and partly actively managed by the Board pursuant to requirements laid down in the Smart Constitution. Rather than a fixed total supply (Bitcoin) or a fixed issuance schedule (Ethereum issues 2 new ETH per new block added to the chain with no overall limit but recently also started burning part of the gas fees, i.e., removing ETH from the overall supply to keep value up), Smarts would be issued or repurchased to meet steady valuation goals. The Smart Constitution would require, and the defining algorithms would provide a peg between Smarts and a basket of the five most important and fully convertible fiat currencies (US Dollar, Euro, Japanese Yen, British Pound, South Korean Won), with weightings adjusted annually according to size of the respective economies. Rather than a fixed peg, Smarts would be algorithmically managed to *increase* in value by 12% per year or 1% per month against the currency basket. This rate of increase would normally be above the inflation rates in the respective economies and secure actual value gains to all owners of Smarts.

The increasing valuation would be achieved via stimulation of demand. The Foundation, as the only issuer of Smarts, would begin selling at parity with USD/EUR, i.e., 100 Smarts for about 100 US\$ or Euro. The price for sales directly from the Foundation would be increased by 1% per month and the Foundation would put 90% of all sales revenue immediately in reserves. Initially, all reserves would be held in cash, preferably at a public institution like the U.S. Federal Reserve.<sup>84</sup> The value proposition of Smart Money would be supported by a full and unlimited buy-back guarantee at 90% of the average valuation during the preceding month, and the managed slow but steady increase in valuation. Exchange rate fluctuations would be minimized within the monthly 1% band. In times of increased demand, additional Smarts would be made available in unlimited quantities at the managed rate from the Foundation. In times of

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<sup>84</sup> The Fed does not hold accounts for individuals. However, it does hold the required reserves of member banks. The Foundation might have to acquire a bank charter or work with a chartered bank to become eligible. See *Structure of the Federal Reserve System*, FED. RSRV., <https://www.federalreserve.gov/about-thefed/structure-federal-reserve-system.htm> (last visited Oct. 20, 2023). Avanti/Custodia Bank and Kraken Bank are two crypto banks that have obtained bank charters in Wyoming and have applied for master accounts at the Federal Reserve. Press Release, Custodia Bank, Avanti Statement on its Application to Become a Federal Reserve Member Bank (Aug. 28, 2021); Kraken Bank, *RE: Proposed Guidelines for Evaluating Account and Services Requests (Docket No. OP-1747)* (July 12, 2021), in FED. RSRV., PROPOSALS FOR COMMENT, PROPOSED GUIDELINES FOR EVALUATING ACCOUNT AND SERVICES REQUESTS [OP-1747], [https://www.federalreserve.gov/SECRS/2021/October/20211005/OP-1747/OP-1747\\_071221\\_138726\\_427179837337\\_1.pdf](https://www.federalreserve.gov/SECRS/2021/October/20211005/OP-1747/OP-1747_071221_138726_427179837337_1.pdf).



oversupply and downward pressure on prices, the Foundation would buy back Smarts in unlimited quantities at the 90% mark. While this could lead to a temporary split of prices in markets (90%) versus sales from the Foundation (100%), it should be short-lived because trust should be quickly re-established once users see that the Foundation is able to maintain the peg and the buy-back promise programmed into the blockchain. This would encourage strategic long-term investors to purchase and hold Smarts in ever-larger amounts and would position Smarts to become the global reserve currency.

With Smarts algorithmically pegged to the currency basket and gradually increasing in value and purchasing power, we would solve the problem of dilution of the money supply for political ends and inflationary erosion of savings.

Furthermore, the Smart blockchain would make all transactions traceable and the Smart Constitution would require that every user of the currency has to be clearly identified via KYC and AML procedures. Since many users will act on behalf of corporate entities, the beneficial owners would need to be systematically established.<sup>85</sup> Politically exposed persons (PEPs)<sup>86</sup> and their family members would have to account for the origin of funds that would seem to exceed the level of income or wealth lawfully achievable in their public position.<sup>87</sup> Suspicious money movements would

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<sup>85</sup> See Jenik Radon & Mahima Achutan, *Beneficial Ownership Disclosure: The Cure for the Panama Papers Ills*, 70 J. OF INT'L AFFS. 85, 94–95 (2017).

<sup>86</sup> For the U.S., the Federal Financial Institutions Examinations Council (FFIEC), an interagency body bringing together the Board of Governors of the Federal Reserve System (FRB), the Federal Deposit Insurance Corporation (FDIC), the National Credit Union Administration (NCUA), the Office of the Comptroller of the Currency (OCC), and the Consumer Financial Protection Bureau (CFPB), provides guidance to financial institutions about identification and authentication of PEPs. Press Release, FFIEC, FFIEC Issues Guidance on Authentication and Access to Financial Institution Services and Systems (Aug. 11, 2021), <https://www.ffiec.gov/press/pr081121.htm>. See also THEODORE S. GREENBERG ET AL., *POLITICALLY EXPOSED PERSONS: PREVENTIVE MEASURES FOR THE BANKING SECTOR* (Int'l Bank for Reconstruction and Dev. & World Bank, 2010); JOHN HATCHARD, *COMBATING MONEY LAUNDERING IN AFRICA: DEALING WITH THE PROBLEM OF PEPS* (Edward Elgar, 2022).

<sup>87</sup> The problem is sufficiently well recognized that a company like BAE Systems has developed a screening solution, NetReveal® Sanctions and PEP Screening. Their website provides the following rationale: “Financial institutions must screen customers and involved parties against multiple internal, external, domestic and international Sanctions Screening lists and Politically Exposed Persons (PEP) lists for negative news, matching persons, legal entities, countries or PEPs and their associates to ensure they are compliant and aware of the watchlist status of their customers and associated parties.” See *Name Screening*, NETREVEAL, <https://www.netreveal.ai/solutions/name-screening/> (last visited Oct. 20, 2023).

be notified to Interpol and, in countries where the rule of law is at least nominally observed, the jurisdiction(s) where the respective individuals are domiciled. Efforts of home countries trying to claw back fortunes stolen by corrupt politicians would be systematically supported and encouraged. To that end, a government, prosecutor, or tax authority could address a request to the Foundation and present evidence of financial malfeasance. If the evidence is persuasive, the Foundation would flag or even freeze the assets on the blockchain and invite the purported owner to explain their provenance to obtain release.<sup>88</sup>

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<sup>88</sup> The technical feasibility of this is being developed, although challenges remain. The U.S. Department of Defense contracted in the fall of 2022 with Inca Digital for the development of tools to track crypto movements in and out of blockchains. Derek Andersen, *Pentagon contracts with Inca Digital for a security-focused digital asset mapping tool*, COINTELEGRAPH (Sept. 23, 2022), <https://cointelegraph.com/news/pentagon-contracts-with-inca-digital-for-security-focused-digital-asset-mapping-tool>. Since existing tools like Etherscan already provide information about the wallets used in many crypto transactions, the contract with Inca Digital only makes sense if it adds at least some information about the owners of those wallets.

After the U.S. government blacklisted Tornado Cash (a “mixing service” operated by Federal Security Service (FSB, the successor to the KGB) operatives in Russia that specifically obscures the sender and recipient of crypto), transactions on the Ethereum chain coming from Tornado Cash were blocked by Flashbots, a group of white hat hackers and developers who support the Ethereum community and seek to promote an open and transparent environment on chain. In September 2022, Flashbots claimed to have prevented access for Tornado Cash in at least 23% of all new Ethereum blocks. Toni Wahrstätter (@nero\_eth), TWITTER (Sept. 27, 2022, 12:59 PM), [https://twitter.com/Nero\\_ETH/status/1574805871544213504](https://twitter.com/Nero_ETH/status/1574805871544213504). By mid-October 2022, the number had gone up to 51% and is growing. See MEV WATCH, <https://www.mevwatch.info/> (last visited Mar. 5, 2023).

Comprehensive identification of beneficial owners of crypto wallets and corporate entities holding bank accounts or crypto wallets will remain difficult. However, there is always an alternative to comprehensive policing, namely a drastic increase in the penalties for non-compliance. Individuals identified in data breaches like the Panama, Paradise, or FinCEN files should have to explain in detail the origin of their wealth and testify under oath to the truthfulness and completeness of their disclosures. If an examination of bank and computer records—or disclosures in the whistleblower files—point to perjury, comprehensive confiscation of any unexplained wealth and a minimum jail sentence of one year should be able to jog the memory of the suspects, in particular after a few precedents where the sanctions system was actually applied. The problem is that changes in the law to make this happen would have to be initiated and approved by many of exactly those people who have been using offshore accounts and tax havens.

#### *D. Promotion of ESG with Smart Money*

The Smart Foundation would initially retain 10% of sales revenue to cover operating expenses, in particular for the development of computing infrastructure, as well as payment- and smart contract apps for various user devices, KYC and AML procedures, and overheads. Once the overall volume of sales exceeds certain thresholds, 90% of revenue would still go into reserves, but the operating expenses would no longer require the full remaining 10%. Therefore, an increasing share of the revenue<sup>89</sup> would become available for direct investment for the benefit of ESG causes, for example in organizations like the International Consortium of Investigative Journalists (ICIJ), Oxfam, Amnesty International, Transparency International, Global Witness, as well as causes like the promotion of renewable energy in various countries.<sup>90</sup>

Furthermore, once the currency is sufficiently established and trusted, and the highly liquid cash reserves have reached a significant level, the Board could decide to diversify the reserves and invest a small but growing share of the revenue strategically into companies that demonstrably meet high standards of ESG in their products and conduct. Rather than following the guidelines established by the Norwegian Council of Ethics, the Smart Foundation and its Board would aim higher and also exclude – and expose – banks and other financial service providers that have significant “private banking” divisions or subsidiaries in offshore tax havens, or don’t take their KYC and AML obligations very seriously, to give but one example.

#### *E. Anticipated Points of Criticism*

##### 1. The Ponzi Scheme Critique

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Experts would be consulted to decide whether Smart Money should operate on a public or a permissioned blockchain. The latter should make it much more feasible to control access and enforce KYC and AML requirements.

89 The formula could look something like this:

Revenue per month	To reserves	For operating expenses	For ESG
Below 50 mio. US\$	90%	10%	0%
50 to 100 mio. US\$	90%	9%	1%
100 to 250 mio. US\$	90%	7.5%	2.5%
Over 250 mio. US\$	90%	5%	5%

<sup>90</sup> To give but one example: a majority of states in the U.S. still do not have net metering laws on their books that guarantee to investors in solar energy generation that they can sell their surplus to the grid. *See State Net Metering Policies*, NAT’L CONF. STATE LEGIS. (Nov. 20, 2017), <https://www.ncsl.org/energy/state-net-metering-policies>. This could presumably be changed with a relatively modest but targeted lobbying effort.

Smart Money claims to be able to provide guaranteed increases in purchasing power, i.e., real value, not only nominal value, as compared to other financial assets. This would require two things. First, the Smart Foundation would continuously have to find enough buyers willing to pay the ever-increasing price of Smarts to be able to pay the expenses associated with the continued operation of the system. The operation of the blockchain, the validation or mining system, the ethics council, etc. would invariably cost a certain amount of money, and that would have to come from the 10% of new sales reserved for operating expenses, since 90% of the new sales revenue would always have to be put immediately in reserves. Critics will say this makes Smart Money just another Ponzi scheme.

As is well known, a Ponzi scheme is defined as “a fraudulent investing scam which generates returns for earlier investors with money taken from later investors.”<sup>91</sup> This definition, however, is not particularly useful. Strictly applied, this definition would qualify most of our pension funds and even social security systems to be Ponzi schemes.<sup>92</sup> Moreover, one could argue that economic stimulus programs by central banks, i.e. quantitative easing, are also Ponzi schemes because they rely on the willingness of more and more consumers to accept more and more of the underlying financial assets by taking out loans and mortgages that have to be repaid with interest. Present commitments are satisfied with future money...

Readers may argue that money from the central bank is fundamentally different from a Ponzi scheme because there is an underlying asset, the economy of the country in question, and the promise of the government to always accept “their money” as legal tender.

However, that is no different in the case of Smart Money, as outlined here. On the one hand, there will be an underlying asset securing the credibility of the system in the form of 90% of the money held in near money reserves. On the other hand, the Foundation provides an unconditional and unlimited guarantee to buy back all Smarts, i.e., to always accept “their money” as legal tender.

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<sup>91</sup> James Chen, *Ponzi Schemes: Definition, Examples, and Origins*, INVESTOPEDIA, <https://www.investopedia.com/terms/p/ponzischeme.asp> (Aug. 27, 2022). See, e.g., Sandra Benson, *Recognizing the Red Flags of a Ponzi Scheme*, 79 CPA J. 18 (2009); TAMAR FRANKEL, *THE PONZI SCHEME PUZZLE: A HISTORY AND ANALYSIS OF CON ARTISTS AND VICTIMS* (Oxford Univ. Press, 1st ed. 2012).

<sup>92</sup> See DON SMITH, *SOCIAL SECURITY: THE GREAT PONZI SCHEME* (ISBN Services, 2020) (arguing that a strict interpretation of “Ponzi scheme” applies to the social security system).

In fact, this makes Smart Money more secure than any current bank deposits by an order of several magnitudes. Our fiat banking system is highly leveraged and invariably gets shut down immediately if demand for cash gets out of hand in a run on the banks. Our banks only have to hold quite minimal reserves – typically only 10% of transaction accounts – and would immediately crash if more than 10% of the deposits were recalled at any one time. The answer of the regulators is twofold. On the one hand, private bank deposits in fully licensed or chartered banks are frequently insured by the government. In the United States, the Federal Deposit Insurance Corporation (FDIC) was created “to maintain stability and public confidence in the nation’s financial system.”<sup>93</sup> It provides deposit insurance for up to US\$ 250,000 per depositor (not, however, per account!) with funds in one of the 4,771 currently insured banks across the nation. This, however, leaves several questions unanswered: What happens when too many depositors present claims at the same time? The Deposit Insurance Fund (DIF) of the FDIC stood at “only” US\$ 128 billion at the end of 2022.<sup>94</sup> In case just one major bank should fail in the U.S., these reserves would instantly be wiped out. For example, JPMorgan Chase alone holds about US\$ 2.4 trillion in client money.<sup>95</sup> Beyond the DIF, creditors will have to satisfy themselves with the fact that “FDIC insurance is backed by the full faith and credit of the United States government.”<sup>96</sup> In essence, this means that the U.S. government would pay for current obligations with money to be taken in the form of taxes or loans from future “investors,” aka citizens... another Ponzi scheme?<sup>97</sup>

The 124 billion reserve also compares unfavorably with US\$ 2.1 trillion in cash in circulation. It means that for every dollar in cash in circulation, there are only 16.9 cents held in reserves. This brings us to the

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<sup>93</sup> FDIC, <https://www.fdic.gov/> (last visited Dec. 2, 2023).

<sup>94</sup> As a consequence, the crash of Silicon Valley Bank, one of the minor players in the U.S. financial system, already got the FDIC in trouble, see Evie Liu, *The FDIC May Need to Do Some Juggling to Pay Off Depositors*, BARRON’S, March 15, 2023, <https://www.barrons.com/articles/fdic-bank-insurance-depositors-f7261227>.

<sup>95</sup> *2021 Annual Report*, JPMORGAN CHASE & CO (Apr. 2022) at 1, <https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/investor-relations/documents/annualreport-2021.pdf>.

<sup>96</sup> *Resources*, FDIC, <https://www.fdic.gov/resources/> (last visited Oct. 20, 2023).

<sup>97</sup> See generally Utpal Bhattacharya, *The Optimal Design of Ponzi Schemes in Finite Economies*, 12 J. OF FIN. INTERMEDIATION 2, 2 (2003) (supporting the notion that the proposed economic model appears to mirror Ponzi schemes in form).

second answer of the regulators, namely the instant shutdown of the system in case of a run on the banks.<sup>98</sup>

In reality, a Ponzi scheme is a system where *an overwhelming majority* of obligations to current investors have to be satisfied with money taken from later investors because there are no underlying assets and there is *no workable business model*. Bernie Madoff was a case in point. Contrary to Madoff's claims, there was little or no actual activity on his trading floor and certainly not to an extent that would suffice to satisfy the purported profit margins, even in the best of times.<sup>99</sup>

Smart Money would not only maintain near money reserves far exceeding any existing bank or FDIC reserves. It also has a workable business model because it sells Smarts at 100 and buys them back at 90.

## 2. The Value Critique

Another critique could focus on the fact that Smart Money would be pegged to a basket of fiat currencies. As a result, its iron-clad value guarantee, namely that it will increase in purchasing power rather than decrease with inflation, ultimately depends on the purchasing power of the basket currencies. If the basket currencies get devalued because of extensive and extended quantitative easing or other policy decisions by their respective central banks, Smart Money will be affected as well.

However, the purchasing power of Smart Money will still increase every year in real terms unless the average inflation rate of all five basket currencies should exceed 12% in every year under consideration. That is more than unlikely. Official data of the Organization for Economic Cooperation and Development (OECD) shows inflation trends for the basket currencies as follows:<sup>100</sup>

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<sup>98</sup> There are several classic studies on bank runs. *See, e.g.*, John Bryant, *A Model of Reserves, Bank Runs, and Deposit Insurance*, 4 J. BANKING AND FIN. 335 (1980); Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983).

<sup>99</sup> *See, e.g.*, DIANA HENRIQUES, *THE WIZARD OF LIES: BERNIE MADOFF AND THE DEATH OF TRUST* (St. Martins Griffin, 2017); ANDREW KIRTZMAN, *BETRAYAL: THE LIFE AND LIES OF BERNIE MADOFF* (Harper Perennial, 2010).

<sup>100</sup> *See Main Economic Indicators*, OECD iLIBRARY (2022), [https://www.oecd-ilibrary.org/economics/main-economic-indicators\\_22195009](https://www.oecd-ilibrary.org/economics/main-economic-indicators_22195009). The numbers for the Consumer Price Index (CPI) in the U.S. published by the Bureau of Labor Statistics (BLS) are slightly different. However, the BLS uses a slightly different method with a focus on urban consumers. *See generally* Matthew D. Shapiro & David W. Wilcox, *Mismeasurement in the Consumer Price Index: An Evaluation*, 11 NBER MACROECONOMICS ANN. 93, 94–95 (1996) (examining the complex and imperfect nature of the BLS CPI and how it is derived).

Currency	2001	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021	2022	2023 <sup>1</sup>
USD	1.6%	1.9%	3.4%	2.9%	-0.4%	3.2%	1.2%	-0.7%	1.7%	1.3%	4.7%	7.0%	3.4%
EUR	1.1%	2.1%	2.5%	2.1%	0.3%	2.7%	1.3%	0.0%	1.5%	1.2%	2.6%	7.0%	6.2%
GBP	0.7%	2.8%	2.2%	2.3%	2.2%	4.5%	2.6%	0.0%	2.7%	1.8%	2.5%	8.8%	5.9%
JPY	-1.2%	-0.4%	-0.1%	0.1%	-1.4%	-0.3%	0.4%	0.8%	0.5%	0.5%	-0.2%	1.9%	2.0%
KRW	3.2%	3.4%	2.6%	2.5%	2.8%	4.0%	1.3%	0.7%	1.9%	0.4%	2.5%	4.8%	3.9%

Given that none of the basket currencies even came close to 12% inflation at any time during the last 20 years, including a major recession in 2008/09 and a post-pandemic crisis in 2022, it is highly unlikely that the entire basket will exceed 12% inflation in the foreseeable future. Even if that should happen, Smart Money will outperform the basket by a full 12%. In other words, if the citizens of the largest market economies of the world should lose more than 12% purchasing power – on average – in a given year, they could still almost maintain all of their purchasing power to the extent they are invested in Smart Money.

Last but not least, Smart Money will be even more appealing to consumers and investors located outside of the largest market economies with the five basket currencies. For example, Argentina is projected to have 83.0% inflation in 2023, and even Turkey is projected at 40.8%.<sup>101</sup> The numbers in countries with even softer currencies tend to be even worse. Nobody in their right mind would continue to keep these currencies as part of a savings or investment portfolio, if they could rely on Smart Money instead.

### 3. Central Bank Stablecoins As Even Better Solutions?

Most cryptocurrencies fluctuate in value depending on trading activity and offer and demand on various exchanges. Indeed, the issuers and early buyers of almost all coins and tokens were hoping for steady increases in value, following the example of Bitcoin, which increased in value from about US\$ 0.0008 per BTC when trading first began in July 2010 to US\$ 68,000 per BTC at the peak in November 2021.<sup>102</sup> The days of fairly linear and steady increases in the value of at least the most popular crypto currencies are long gone, however, and the markets have been characterized by rather pronounced volatility since Bitcoin crashed back

<sup>101</sup> *Id.*

<sup>102</sup> As outlined elsewhere, an early investor who put down US\$ 1,000 to purchase BTC at the start of trading would have turned those US\$ 1,000 into a fortune of US\$ 8.5 billion by November 2021. See Emmert, *supra* note 46, at 3 n. 6. Obviously, these kinds of rags-to-riches stories have inspired many issuers of and investors in other digital currencies trying to replicate the success of Bitcoin.

to valuations around US\$ 20,000 per BTC. Even for the largest coins, fluctuations of +/- 5% per day are not uncommon these days.

By contrast to cryptocurrencies that fluctuate in value, stablecoins are pegged to an external reference value, most commonly the U.S. dollar.<sup>103</sup> They fulfill several important functions in the digital money economy. First, stablecoins eliminate the currency exchange risk for parties using smart contracts for commercial transactions. This can be illustrated as follows: If a seller and a buyer agree on a contract for the customization and delivery of a machine, the price is agreed upon at the time when the contract is signed, but the payment may not be due for weeks or months, until the machine is built and delivered. If seller and buyer are in different countries and using fiat money, they will usually fix the contract price either in the seller's or in the buyer's currency. If the seller is in the United States and the price is fixed at US\$ 1 million, the seller knows exactly how much money he will get at the time of delivery and payment. The seller may lose a small amount of purchasing power due to inflation but need not worry about fluctuations in exchange rates. By contrast, the Brazilian buyer does not know how much the machine will cost her in Brazilian Real when payment is due, and she has to buy US\$ 1 million from her bank. In this example, the buyer carries the currency exchange risk. Depending on leverage of the parties, they may agree on some kind of adjustment clause in the contract, or they may agree to rely on a third country currency like the Euro or a basket currency like the International Monetary Fund (IMF) Special Drawing Rights (SDRs), but this just redistributes to the currency exchange risk and does not eliminate it because ultimately the seller has to pay his suppliers and workers and other expenses in U.S. Dollars and the buyer has to make her money by selling goods made with the new machine for Brazilian Real.

If the parties to our transaction use a smart contract, they may be able to reduce various cost factors, in particular, the cost of the contracting and payment procedures (lawyers, banks, etc.).<sup>104</sup> By contrast to traditional paper contracts, smart contracts already hold the payment, and automatically release it to the seller once he has delivered the machine or otherwise performed.<sup>105</sup> However, if the parties agree on a sales price in

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<sup>103</sup> Tether, the largest private provider of stablecoins, also offers coins with pegs to the Euro, British Pound, Mexican Peso, Chinese Yuan, and gold ounces. *See* TETHER, <https://tether.to/en/> (last visited Oct. 20, 2023).

<sup>104</sup> *See, e.g., The New Paradigm of International Business*, PREPAYWAY, <https://prepayway.com/> (last visited Oct. 20, 2023).

<sup>105</sup> The ecosystem of decentralized finance of DeFi is not only providing this smart contract functionality without the need for an intermediary to facilitate the transfer and custody of the funds but increasingly adding other financial services, including many of the traditional banking services like lending. *See generally,*



Bitcoin or Ether or some other digital currency and lock up those funds at the time of conclusion of the smart contract, the value of the digital currency can fluctuate very substantially until the time when the funds are released to the seller. In our example, the Brazilian buyer would know exactly how much she has to pay for the machine when she buys BTC or ETH at the time of the conclusion of the contract, but the American seller has no way of knowing how much those coins or tokens will be worth in U.S. Dollars at maturity when the digital money is released to him. This problem can be eliminated if the parties lock stablecoin like Tether, USD Coin, or Binance USD into the smart contract. All of these are pegged to the U.S. Dollar, and the value won't change between conclusion and completion of the contract.

The second important function of stablecoins is the parking function. It allows users of cryptocurrencies to park their funds temporarily without risking a loss of value beyond the usual inflation of the external reference value. This function can be illustrated as follows: If an investor has purchased crypto assets and those assets have experienced a nice appreciation in value, a point in time may come where the investor does not believe in significant further value appreciation and wants to take her money elsewhere. If she converts her crypto back to fiat, she will have to declare the gains and pay income tax. By contrast, if she directly buys another digital currency, the gains are deferred and – in most cases – not (yet) subject to taxation. For speculators who are betting on different digital assets, the option of temporarily parking their funds in stablecoins is very important at times of general weakness in the markets, or if they quickly want to get out of one digital asset and have yet to decide which other digital assets to invest in next.

The market cap of just the five biggest stablecoins has at times exceeded US\$ 250 billion and is still around US\$ 120 billion right now, in November 2023. Daily trading volumes frequently exceed US\$ 25 billion. This demonstrates the importance of stablecoins in spite of the fact that they are, after all, not useful for speculative purposes.

To understand where and how Smart Money can add value in markets already served by stablecoins, three types of stablecoins need to be distinguished. Most privately issued stablecoins claim that they are able to defend their respective pegs with substantial cash or near money reserves. Tether, the largest of the main private stablecoins, publishes reports alleging that its coins are 100% backed by reserves. However, these reports are not independently audited and only show a very superficial picture of “Cash & Cash Equivalent & Other Short-Term Deposits

& Commercial Paper” as well as “Secured Loans... Corporate Bonds, Funds & Precious Metals [...and...] Other Investments”.<sup>106</sup> More importantly, the owners of Tether are able to change the mix of reserves at any time and even withdraw substantial amounts at their discretion. This happened, for example, in 2019, when some US\$ 850 million were transferred by Bitfinex – which has the same owners as Tether – to Crypto Capital Corp., where the funds were temporarily arrested because of regulatory issues. Tether was suddenly massively underfunded and fined US\$ 42 million by the CFTC for making misleading statements about its reserves.<sup>107</sup>

While fully collateralized stablecoins like Tether can work if the owners can be trusted, algorithmic stablecoins do not hold significant cash or near money reserves. Instead, these stablecoins are programmed to trade with other cryptocurrencies like ETH and BTC to maintain their peg against the US\$. In this way, they manage the supply and demand for themselves, i.e. by selling terraUSD (UST), magic internet money (MIM), frax (FRAX) or neutrino usd (USDN) against BTC or ETH, they lower their valuation against the dollar and, conversely, by buying back the stablecoin, they increase their valuation against the dollar. The idea seemed intriguing until terraUSD, which was paired with LUNA, another proprietary coin issued by their common owner Terraform, crashed spectacularly in early May 2022 and wiped out some US\$ 60 billion in investor money.<sup>108</sup> As a consequence, Do Kwon, the founder of Terraform, was criminally charged and became a fugitive. This made it painfully obvious that algorithmic stablecoins are vulnerable to large scale attacks by short sellers and other speculators and added fuel to demands that stablecoins in general, and algorithmic stablecoins in particular, have to be

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<sup>106</sup> Tether is a Cayman Island corporation and has been using MHA Cayman for audits until 2022. Since August 2022, Tether has received monthly audit reports from BDO Italia. See Elizabeth Howcroft, *Stablecoin Tether Hires BDO Italia for Monthly Proof-of-Reserve Reports*, REUTERS (Aug. 18, 2022) <https://www.reuters.com/technology/stablecoin-tether-hires-bdo-italia-monthly-proof-of-reserve-reports-2022-08-18/>. This adds a level of independence and quality assurance to the reports. However, the superficiality remains, and it is not at all clear how easily and how fast Tether could turn some of the reserves into cash.

<sup>107</sup> *CFTC Orders Tether and Bitfinex to Pay Fines Totaling \$42.5 Million*, CFTC (Oct. 17, 2021) <https://www.cftc.gov/PressRoom/PressReleases/8450-21>.

<sup>108</sup> See Q.ai, *What Really Happened To LUNA Crypto?*, FORBES (Sept. 20, 2022) <https://www.forbes.com/sites/qai/2022/09/20/what-really-happened-to-luna-crypto/?sh=682c6e374ff1>. See also Austin Adams & Markus Ibert, *Runs on Algorithmic Stablecoins: Evidence from Iron, Titan, and Steel*, FED. RSRV. (June 2, 2022), <https://www.federalreserve.gov/econres/notes/feds-notes/runs-on-algorithmic-stablecoins-evidence-from-iron-titan-and-steel-20220602.html>.

much more carefully regulated.<sup>109</sup>

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<sup>109</sup> See, e.g., Governor Christopher J. Waller, *Reflections on Stablecoins and Payments Innovations*, FED. RSRV (Nov. 17, 2021) <https://www.federalreserve.gov/newsevents/speech/waller20211117a.htm>. Waller said, inter alia, that “[s]trong oversight, combined with deposit insurance and other public support that comes with it, is what makes bank deposits an acceptable and accepted form of money. Today stablecoins lack that oversight, and its absence does create risks. [...]”

The first is the risk of a destabilizing run. The United States has a rich history of privately created money, stretching back to promissory notes that merchants and lawyers issued on the early frontier. Some of these instruments worked well for long periods; others came from unregulated or unscrupulous issuers, who promised safety and stability at a more attractive rate of return. When these instruments went bad, the consequences could extend well beyond the depositors, investors, or even institutions who put their principal at risk. [...]

The second risk is the risk of a payment system failure. Stablecoins share many of the functions of a traditional payment system. If stablecoins' role in payments activity grows—which, again, could be a good development—their exposure to clearing, settlement, and other payment system risks would grow, too. Stablecoins also present some unique versions of these risks because responsibility for different payment functions is scattered across the network. The United States does not have a national payments regulator, but it does have strong standards for addressing payment system risk, especially where those payment systems are systemically important. Regulators should draw on those standards with care and take a fresh look at what should or should not apply in the stablecoin context.

The third risk is the risk of scale. Stablecoins, like any payment mechanism, can exhibit strong network effects; the more people use a payment instrument, the more useful it is, and the greater the value it delivers to each participant. For this same reason, network effects can be (and usually are) highly beneficial. As a result, rapid and broad scaling of a payment instrument is socially desirable. In fact, in a perfect world, there would be one payment system and one payment instrument that everyone uses. The problem with this is that, in our imperfect world, this would confer monopoly power over the payment system. Any entity that has control over a large and widely used payment system has substantial market power and thus the ability to extract rents in exchange for access—which, again, hurts competition and decreases the network benefits to consumers. Thus, there is a tradeoff between the efficiency of having one large network and the cost of monopoly control of that network. [...] In my view, having stablecoins scale rapidly

The problem of insufficient or insufficiently liquid reserves and/or intransparent and potentially flawed algorithmic pegs can be overcome quite easily if a stablecoin is issued by a well-respected central bank. If the U.S. Federal Reserve should issue a central bank digital currency (CBDC) in the form of a digital Dollar, a peg to the fiat U.S. Dollar would be easy for it to maintain, since it would control the money supply on both sides of the peg. At the same time, the official digital Dollar would fulfil the core functions of stablecoins. It could be locked into smart contracts and serve as a parking lot to maintain value in digital format between other cryptocurrency transactions. In this way, the entire universe of DeFi applications would have a fallback option with an ironclad value guarantee and the U.S. could attract considerable additional funds from around the world. Unsurprisingly, a majority of central banks are actively exploring the pros and cons of issuing a CBDC.<sup>110</sup>

Not all is well in the universe of CBDCs, however. First, the credibility and stability of a CBDC would be directly correlated to the reputation of the issuing central bank. Thus, a digital Euro issued by the European Central Bank (ECB) or a digital Dollar issued by the U.S. Federal Reserve would be quite different from the eNaira launched by the central bank of Nigeria in November 2021.<sup>111</sup> Second, nothing would stop a central bank – and indeed, the digital format would just make it even easier – from “printing” more and more of the fiat/crypto pair in order to

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is not a concern as long as there is sufficient competition within the stablecoin industry and from the existing banking system. In this world, some form of interoperability is critical to ensure that competition allows consumers to easily move across stablecoin networks, just as they can move between different commercial bank monies or sovereign currencies.” *Id.*

*See also* David S. Evans, *The Case for Stringent Regulations of Stablecoins*, CPI (Aug. 31 2022), <https://www.competitionpolicyinternational.com/what-stablecoin-regulators-can-learn-from-mobile-money/>; Barry Eichengreen & Ganesh Viswanath-Natraj, *Stablecoins and Central Bank Digital Currencies: Policy and Regulatory Challenges*, MIT PRESS DIRECT (Feb. 20, 2022), <https://direct.mit.edu/asep/article/21/1/29/109037/Stablecoins-and-Central-Bank-Digital-Currencies>.

<sup>110</sup> *Central Bank Digital Currency Tracker*, ATLANTIC COUNCIL, <https://www.atlanticcouncil.org/cbdctracker/> (last visited Oct. 20, 2023) (“105 countries, representing over 95 percent of global GDP, are exploring a CBDC [... and...] 10 countries have fully launched a digital currency...”) For additional analysis see Mihnea Constantinescu, *CBDCs: It's About More Than Payments*, forthcoming in *European Journal of Law Reform* 2023.

<sup>111</sup> *See generally* Jack Ree, *Five Observations on Nigeria's Central Bank Digital Currency*, INTERNATIONAL MONETARY FUND (Nov. 16, 2021), <https://www.imf.org/en/News/Articles/2021/11/15/na111621-five-observations-on-nigerias-central-bank-digital-currency>.

fund political and economic goals of the central bank and the government behind it. Third, digital money could be abused by an authoritarian regime to exercise ever more control over its population and, for example, monitor or even block everyday transactions of individuals perceived as critical of or opposed to the regime. It is not hard to imagine that opposition forces or investigative journalists could be very effectively subdued if they could be excluded from making payments for rent or groceries. I have no doubt that this is at least part of the reason why the Chinese regime under Xi Jinping has been aggressively pushing its e-CNY into the marketplace.<sup>112</sup>

In the end, even a safe and benevolent CBDC issued by the U.S. Federal Reserve, or the European Central Bank, would suffer from the same inflationary and other shortcomings outlined above about fiat currencies. In contrast, Smart Money – properly implemented and overseen – could deliver all the benefits of a stablecoin without any of the shortcomings of fiat money. Indeed, the increasing value of Smart Money and the ensuing benefits for ESG goals, would be entirely beyond reach for a CBDC.

#### IV. CONCLUSIONS

Smart Money for the People would be the first social currency in the history of humankind, and it would be implemented on a global scale.<sup>113</sup> It would challenge not only the power of governments and central

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<sup>112</sup> Jamie Crawley, *China to Extend CBDC Trial to Most Populous Province, Guangdong, Three Others: Report*, COINDESK (Sept. 20, 2022), <https://www.coindesk.com/policy/2022/09/20/china-to-extend-cbdc-trial-to-most-populous-province-guangdong-three-others-report/>.

<sup>113</sup> To be fair, there have been similar movements or efforts, for example, the suggestions in CECIL JOHN, *THE SOCIAL CURRENCY - WHY WE OUGHT TO RETHINK MONEY* (2020).

However, none of them have actually presented a comprehensive and feasible concept for a new type of social currency, let alone one on a global scale. By advocating “Bitcoin” as a digital stable coin to be issued by the Bank of England, *Positive Money* does not actually solve any of the current problems of fiat money—see the discussion of central bank stable coins above—and does not even attempt to pursue socially progressive goals. See *Reimagining Money, Banks, and Our Economy for the Wellbeing of People, Communities, and Our Planet*, POSITIVE MONEY, <https://positivemoney.org/> (last visited Oct. 20, 2023).

Another distinction should be made for *social currency theory*. While well-established in business and marketing discourse, this concept has nothing to do with fiat or digital money and, instead, refers to value creation through use of corporate social responsibility (CSR) declarations and activities in the marketing of brands. See, e.g., Lara Lobschat, Markus A. Zinnbauer, Florian Pallas & Erich Joachimsthaler, *Why Social Currency Becomes a Key Driver of a Firm’s Brand Equity – Insights from the Automotive Industry*, 46 LONG RANGE PLANNING 125 (2013); Sabrina Trudeau & Saeed Shobeiri, *Does Social Currency Matter in*

banks to choose when and how to stimulate or dampen economic activity for parochial political ends. The fact that the currency would be designed to appreciate in value, rather than depreciate on account of inflation, would turn conventional monetary policy on its head. Rather than encouraging ever more consumption and growth<sup>114</sup> at the expense of our limited natural resources and future generations who not only have to deal with the environmental degradation but also the immense debt load, Smart Money would encourage saving over consumption, and degrowth in the economy.<sup>115</sup>

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*Creation of Enhanced Brand Experience?*, 25 J. OF PROD. & BRAND MGMT. 98 (2016).

<sup>114</sup> The different paradigms and theories of growth theory are summarized nicely in PHILIPPE AGHION & PETER HOWITT, *THE ECONOMICS OF GROWTH* (2009).

<sup>115</sup> A shift away from the incessant pursuit of ever more growth, primarily in quantitative rather than qualitative terms, is a relatively new trend in economics and social science. *See, e.g.*, Valérie Fournier, *Escaping From the Economy: The Politics of Degrowth*, 28 INT'L JOURNAL OF SOCIOLOGY AND SOCIAL POLICY 528, 528-545 (2008); Giorgos Kallis, Christian Kerschner & Joan Martínez-Alier, *The Economics of Degrowth*, 84 ECOLOGICAL ECONOMICS 172 (2012); Federico Demaria et al., *What Is Degrowth? From an Activist Slogan to a Social Movement*, 22 ENVIRONMENTAL VALUES 191 (2013); Viviana Asara et al., *Degrowth, Democracy and Autonomy*, 22 ENVIRONMENTAL VALUES 2017 (2013); Panos Petridis et al., *Degrowth: Between a Scientific Concept and a Slogan for a Social Movement* in HANDBOOK OF ECOLOGICAL ECONOMICS 176-200 (Edward Elgar ed., 2015); Matthias Schmelzer & Dennis Eversberg, *Beyond Growth, Capitalism, and Industrialism? Consensus, Divisions and Currents Within the Emerging Movement for Sustainable Degrowth*, 9 INTERFACE 327 (2017); Prapimphan Chiengkul, *The Degrowth Movement: Alternative Economic Practices and Relevance to Developing Countries*, 43 ALTERNATIVES 81 (2018); Bengi Akbulut, Federico Demaria, Julien-François Gerber & Joan Martínez-Alier, *Who Promotes Sustainability? Five Theses on the Relationships Between the Degrowth and the Environmental Justice Movements*, 165 ECOLOGICAL ECON. (2019); Neera Singh, *Environmental Justice, Degrowth and Post-Capitalist Futures*, 163 ECOLOGICAL ECON. 138 (2019); GIORGOS KALLIS ET AL., *THE CASE FOR DEGROWTH* (2020); MATTHIAS SCHMELZER, ANDREA VETTER & AARON VANSINTJAN, *THE FUTURE IS DEGROWTH: A GUIDE TO A WORLD BEYOND CAPITALISM* (2022).

Even before “degrowth” became a thing, there was widespread criticism of Gross Domestic Product (GDP) as the measure of success of a society. *See, e.g.*, JOSEPH STIGLITZ, AMARTYA SEN & JEAN-PAUL FITOUSSI, *MIS-MEASURING OUR LIVES – WHY GDP DOESN'T ADD UP*, REPORT BY THE COMMISSION ON THE MEASUREMENT OF ECONOMIC PERFORMANCE AND SOCIAL PROGRESS (2010); DAVID PILLING, *THE GROWTH DELUSION – WEALTH, POVERTY AND THE WELL-BEING OF NATIONS* (2018); David Barnes & Fran Boait, *The Tragedy of Growth – To Protect Wellbeing and Avoid Ecological Disaster We Must Abandon GDP Growth and Transform Our Economic System*, POSITIVE MONEY (2020), <https://positivemoney.org/publications/tragedy-of-growth/>. Importantly, as beha-

Furthermore, Smart Money would be operated on a public or permissioned blockchain permitting tracing of all transactions. The Foundation would retain detailed information on the parties to transactions, including the beneficial ownership of corporations, to reduce the opportunities for corruption, money laundering, and tax evasion.

By directly supporting organizations working *for* ESG, and by blocking access by organizations directly working *against* ESG, Smart Money could further support these essential goals.

The biggest challenge would be not so much the practical implementation of the concept. I am convinced that a small and sufficiently funded team could produce the constitutional framework, register with FinCEN, SEC, CFTC, etc., create the digital currency, and apply for a banking license, in a timeframe of 3 to 4 years. However, to be effective, Smart Money not only needs to be programmed, it also needs to be more and more widely used. With well-funded information campaigns, it should not be difficult to attract retail and strategic investors who want to beat inflation and avoid high fees and unsure outcomes when entrusting their money to traditional fund managers.

Furthermore, Smart Money should seed the development of an entirely new lending industry. When money is increasing in value, there is no need for interest payment on loans. Lenders could charge modest fees to cover their costs and beat out any competitors who are still relying on traditional currencies for their lending practice. This would also appeal to financial institutions in countries or legal systems where charging of

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vioral scientists like Kahneman and Tversky have shown, “more” does not make humans happier. See DANIEL COHEN, *THE INFINITE DESIRE FOR GROWTH* 132 (2018).

For a powerful critique of our current system and a clarion call to address the three most urgent problems of our times – environmental degradation, economic inequality, and institutional failure – with radical solutions. See also REBECCA HENDERSON, *REIMAGINING CAPITALISM IN A WORLD ON FIRE* (2020). See also PAUL COLLIER, *THE PLUNDERED PLANET – WHY WE MUST – AND HOW WE CAN – MANAGE NATURE FOR GLOBAL PROSPERITY* (2010).

Finally, Mander makes a persuasive argument that the incessant quest for endless growth on a finite planet has *an inherent propensity toward war* because preparations for war are not subject to the rules of the marketplace, one can always argue that more is better (that’s why the U.S. spends about six times more on “defense” than its nearest competitor, China and about 100 times more than its worst enemies, Iran and North Korea), and the U.S. clearly has a comparative advantage in military production. JERRY MANDER, *THE CAPITALISM PAPERS – FATAL FLAWS OF AN OBSOLETE SYSTEM*, 150–77 (2012). Arguably, any use of all the beautiful weapons short of global nuclear holocaust also cleans the air and makes room for another cycle of profitable growth.

interest is generally frowned upon.<sup>116</sup>

Naturally, whenever a technology or reform is proposed that threatens to disrupt and entire industry, let alone an entire system of monetary governance, several forms of pushback can be safely expected:

*A. Pushback by Establish Private Institutions*

The financial institutions that have profited the most from the current system – investment- and other banks, fund managers like BlackRock or Fidelity, and the global cottage industry of financial advisors, lawyers, accountants, and other service providers – will not give up a significant piece of their pie without a fight. Even though internet banks like TransferWise or Revolut have long acquired banking licenses in various jurisdictions, clients of traditional banks like Chase or Citi can still not connect and make transfers without major difficulties. More importantly, the established financial institutions have significant influence over political decision-making and many ways of throwing regulatory wrenches into the works of up-and-coming internet and blockchain service providers.<sup>117</sup>

*B. Pushback by Government Authorities Fearing Loss of Control*

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<sup>116</sup> Islamic banks, as one example, typically do not charge interest and only charge fees. *See generally* FRANK VOGEL & SAMUEL HAYES, ISLAMIC LAW AND FINANCE – RELIGION, RISK, AND RETURN 71 (1998).

<sup>117</sup> A good example is the New York BitLicense. A BitLicense is required for anyone engaging in virtual currency business activity “involving New York or a New York Resident,” i.e., not just for businesses based in New York. Virtual currency business activity includes:

- (1) receiving or transmitting virtual currency,
- (2) storing, holding, or maintaining custody or control of virtual currency on behalf of others;
- (3) buying and selling virtual currency as a customer business;
- (4) performing exchange services as a customer business; or
- (5) controlling, administering, or issuing a virtual currency.

The requirements imposed on applicants for a BitLicense are extremely onerous and the procedure is expensive and time consuming. Even if issued, a BitLicense can be suspended or revoked at any time. In any case, it is only valid for the State of New York; a nationwide operator in the U.S. would conceivably need 50 of those since the constitutional full-faith-and-credit clause is not being applied, i.e., an operator licensed in Wyoming would still need a license in New York, Texas, California, etc. and vice-versa. Multiple commentators have suggested that the primary purpose of the BitLicense, as structured today, is to respond to lobbying by the established financial industry in New York – otherwise known as Wall Street – intended to keep the disruptors at bay. *See* Emmert, *supra* note 46, at 53–8.



Governments of developed and middle-income countries will not appreciate the idea of sharing control over monetary policy, in particular if the new kid on the block could grow quickly and trigger a commensurate decline in relevance of traditional monetary policy. For example, if a government decides to inject additional money into the economy via quantitative easing or new borrowing, it would directly create inflation. In the past, citizens had to just accept the devaluation of their savings and the increase of prices in the market. In the future, the government would push at least some savers and other users into the Smart Money universe. Much of the Smart Money, in turn, would end up in savings accounts and not be used for additional consumption or investment. If the Smart Money ecosystem becomes big enough, a government may even have problems finding lenders and vendors willing to transact in its national currency.<sup>118</sup>

Most governments have been reluctant to allow widespread introduction of crypto currencies, although none of the existing currencies is actually proposing what Smart Money would do to the economy. Many countries have onerous approval and registration requirements with slow and expensive procedures,<sup>119</sup> essentially limiting access to a small number of well-funded startups, often with significant equity interests of established banking institutions. Other governments have outlawed many digital currencies outright and are trying to develop their own central bank digital currencies to retain or even expand their control over the financial

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<sup>118</sup> Of course, this is de facto already the case in countries with hyperinflation.

<sup>119</sup> For example, Kraken Bank and Custodia Bank are two crypto banks that received banking charters in the U.S. State of Wyoming more than two years ago. Both have applied for a Federal Reserve Master Account to access global payments systems on par with traditional banks. Although the procedure normally takes just a few weeks, the two banks have been waiting for over two years. In June 2022, Custodia Bank sued the Federal Reserve Bank of Kansas City and the Board of the Federal Reserve. *Crypto Bank Custodia Sues Federal Reserve Over 'Black-Box' Master Account Decision*, PYMNTS, (June 8, 2022) <https://www.pymnts.com/legal/2022/crypto-bank-custodia-sues-federal-reserve-over-black-box-master-account-decision/>.

The Fed responded that it needs more time to analyze the crypto currency model and design policies to ensure proper interaction with national and international payment systems. On Aug. 15, 2022, the Fed has at least approved a new set of Guidelines for Evaluating Account and Services Requests. *Federal Reserve's New Master Account Guidelines Provide Transparent Path For Crypto Industry*, KATTEN, (Aug. 18, 2022) <https://katten.com/federal-reserves-new-master-account-guidelines-provide-transparent-path-for-crypto-industry>.

However, in January 2023, the Kansas City Fed rejected Custodia's master account application, see <https://www.americanbanker.com/news/kansas-city-fed-rejects-custodias-master-account-application#:~:text=The%20Federal%20Reserve%20Bank%20of,a%20U.S.%20district%20court%20filing>, a well as <https://www.federalreserve.gov/newsevents/pressreleases/orders20230127a.htm>.

markets.<sup>120</sup> Another example is the case of Libra/Diem, the digital currency proposed by Mark Zuckerberg, the founder of Facebook/Meta. With the user base of Facebook as a starting point and institutional investors like Uber and Lyft, Coinbase, Andreessen Horowitz, Bookings, eBay, Mastercard, PayPal, Stripe, and Visa joining the Libra Association, various governments started fearing the sheer power of the project and started pushing back until the majority of partners withdrew and Facebook abandoned its plans.<sup>121</sup>

To some extent, Smart Money would have to cater to these concerns and overcome the hurdles, whether justified or not, by complying with all required licensing and registration requirements. To some extent, once widely available, market forces should do the rest.

### *C. Pushback by Government Authorities Fearing Increasing Control*

While well-organized governments will be concerned about a decline in their control over financial markets, corrupt politicians in developing countries will be concerned about an increase in transparency in financial markets and potential control of their illicit financial transactions. They may resort to similar tactics of putting hurdles in the way of the introduction and dissemination of Smart Money as the regulators and central banks in developed countries, but for the opposite reasons.

In the end, success or failure of Smart Money, would be determined by the market. If Smart Money can deliver on its promise of slow but steady increase in value and an iron-clad buy-back guarantee that eliminates the price fluctuations plaguing existing digital currencies, and if Smart Money can deliver on its ESG potential, becoming the first genuine and global social currency, there will be little that traditional authorities can do to suppress it. The next question is whether we can find donors to fund three to four years of development of a complex structure that is explicitly designed *not* to return profits to any investors.

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<sup>120</sup> China has been particularly aggressive in developing a central bank digital currency. See Heng Wang, *China's Approach to Central Bank Digital Currency*, 18 PA. ASIAN L. REV. (2022). In light of China's ever-more repressive approach toward critics of the regime, there is a very real concern that a centralized and fully government-controlled digital currency could be used to exclude opposition figures from financial and payment transactions.

<sup>121</sup> See [https://en.wikipedia.org/wiki/Diem\\_\(digital\\_currency\)](https://en.wikipedia.org/wiki/Diem_(digital_currency)).