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**THE POLITICAL ECONOMY OF GLOBAL PRIVATE CURRENCIES**

by

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## **ABSTRACT**

### **THE POLITICAL ECONOMY OF GLOBAL PRIVATE CURRENCIES**

Girish Sreevatsan Nandakumar  
Old Dominion University, 2022  
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This dissertation examines regulatory responses to global private currencies (GPCs). Through detailed analyses of the history and evolution of private digital currencies, and through case studies of the United States, the European Union, and China, this dissertation identifies five factors that condition regulatory responses: (1) compliance with anti-money laundering (AML) laws, (2) compliance with systems built for fiat currencies, (3) degree of transparency in operations, (4) culture of sovereignty within the nation, and (5) great power competition with other nations. Throughout the dissertation, various political, economic, social, technological, legal, and environmental (PESTLE) characteristics of GPCs are highlighted. This dissertation also proposes a ‘game transformation framework’ (GTF) by combining these PESTLE factors with concepts from game theory. A 2x2 game structure is used to analyze strategic interactions between governments in the three case studies and GPCs on a spectrum between cooperation and conflict.

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## CHAPTER 1

### INTRODUCTION

Money makes the world go around. Before cryptocurrencies were born, this common saying referred exclusively to money in the form of government-issued fiat currencies, which can be created out of thin air. In response to the COVID19 pandemic, most governments exercised this power through their central banks. Meanwhile, Bitcoin, the decentralized, denationalized cryptocurrency that operates without any borders went through the exact opposite, a cut in supply through a process called ‘halvening.’ Bitcoin was born in 2009, immediately after the previous economic crisis, as a response to the heavily centralized financial and monetary systems across the world that are substantially influenced by political whims of those who hold power at the time.

The way Bitcoin and other private currencies work may seem complicated. J.K. Rowling, the author of the Harry Potter series, once tweeted, “I don’t understand bitcoin. Please explain it to me.” After Bitcoin advocates and other fans tried to explain the basics to her, she tweeted - “People are now explaining Bitcoin to me, and honestly, it’s blah blah blah collectibles (My Little Pony?) blah blah blah computers (got one of those) blah blah blah crypto (sounds creepy) blah blah understand the risk (I don’t, though.)”. In response, Elon Musk, the multi-billionaire serial entrepreneur, tweeted, “Pretty much, although massive currency issuance by govt central banks is making Bitcoin Internet [ghost] money look solid by comparison.” This online dialogue is an example of how people see cryptocurrencies: a not-so-well-understood phenomenon that gets directly compared to traditional, government-issued fiat currencies. As one comedian once

summed it up for his audience, cryptocurrencies involve ‘everything you don’t know about money combined with everything you don’t know about computers.’<sup>1</sup>

Bitcoin and other cryptocurrencies have been dismissed as volatile, speculative assets by the media and many prominent individuals for many years. Warren Buffet, the legendary investor, has referred to it as ‘rat poison.’ However, there are some prominent individuals and institutions with strong positive viewpoints. Paul Todor, the billionaire hedge fund manager who predicted the 1987 crash, has praised Bitcoin as a good alternative to the ‘great monetary inflation’ risks posed by the trillions of dollars pumped into the economy by governments. Bitcoin has been compared to gold by many investors and even carries the nickname ‘digital gold’ by those who see it as a good store of value, although it does not perform well as a good medium of transaction. Even the US government treats Bitcoin and other similar cryptocurrencies as commodities or securities and not as currencies. Yet, there are many users of cryptocurrencies across the world who use them as both stores of value and as mediums of transaction, two of the three main functions of money. The third function, being a unit of account, has also been carried out by cryptocurrencies, but only in a few niche circles.

Major corporations have been inspired by this new cryptocurrency phenomenon and have been drawing up plans to launch their own. Facebook’s Diem (formerly known as Libra) was the most popular one among them. Diem, which was announced in the Summer of 2019 and was effectively shut down in January 2022,<sup>2</sup> drew the attention of every major government on the planet. At the time, Diem appeared to have an opportunity to become a worldwide dominant

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<sup>1</sup> John Oliver, “Cryptocurrencies,” Last Week Tonight With John Oliver, March 11, 2018, 25:20, <https://www.youtube.com/watch?v=g6iDZspbRMg&feature=youtu.be>

<sup>2</sup> Andrew Morse, “End of the Day for Meta's Diem Cryptocurrency: What You Need to Know.” CNET, February 2, 2022, <https://www.cnet.com/personal-finance/crypto/end-of-the-day-for-metas-diem-cryptocurrency-what-you-need-to-know/>.

currency in a very short period of time. The potential effect of the new, global, private digital currency could have been an unprecedented impact on national currencies across the world. Inspired by these private sector initiatives, governments, through their central banks, have started exploring the idea of issuing ‘central bank digital currencies’ that have some of the same features as cryptocurrencies. This dissertation is a study on globally operating digital currencies such as Bitcoin and the now-extinct Libra, which are not backed by governments. The focus is on how governments have responded to this new phenomenon. Specifically, this study explores the question: What are the factors that condition regulatory responses to global private currencies (henceforth ‘GPCs’). Throughout this dissertation, the terms GPCs and cryptocurrencies are used interchangeably.

A cryptocurrency is a digital or virtual currency that relies on electronic cryptography for security, making them difficult to counterfeit.<sup>3</sup> One of the defining features of a cryptocurrency is that it is a peer-to-peer system. This means that they cut out the entities in the middle, such as banks, which are usually seen as being necessary for such transactions. Such “decentralization” is made possible through blockchain technology, a distributed system of secure and immutable online ledgers.<sup>4</sup> Most private cryptocurrencies are not issued by any central authority and are therefore theoretically shielded from governments.<sup>5</sup> Given the highly technical nature of the topic, it is necessary to understand the basic mechanisms and technologies that make cryptocurrencies work. The blockchain technology was initially proposed as a research project in 1991. The idea later formed the basis of Bitcoin, which was launched in 2009 through an open white paper.<sup>6</sup> Since

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<sup>3</sup> Jake Frankenfield, “Cryptocurrency,” Investopedia, last modified January 11, 2022, <https://www.investopedia.com/terms/c/cryptocurrency.asp>.

<sup>4</sup> Sloane Brakeville and Bhargav Perepa, “Blockchain Basics: Introduction to Distributed Ledgers,” IBM Developer, last modified May 31, 2019, <https://developer.ibm.com/tutorials/cl-blockchain-basics-intro-bluemix-trs/>

<sup>5</sup> Frankenfield, “Cryptocurrency,” 2022.

<sup>6</sup> Satoshi Nakamoto, “Bitcoin whitepaper,” URL: <https://Bitcoin.org/Bitcoin.pdf> (: 17.07. 2019) (2008).



2009, the use of blockchains has grown exponentially through several cryptocurrencies and related applications such as decentralized finance (DeFi) applications, non-fungible tokens (NFTs), and smartcontracts.

The National Institute of Standards and Technology (NIST) defines a blockchain as “tamper-evident and tamper-resistant digital ledgers implemented in a distributed fashion . . . and usually without a central authority.”<sup>7</sup> Blockchain technology is the backbone of modern cryptocurrencies. The most important feature of a blockchain is that it allows digital information to be recorded and distributed without allowing any changes. This makes blockchain an ideal technology for creating immutable ledgers, which can power financial systems. On a blockchain, records of transactions cannot be altered, deleted, or destroyed. Blockchains rely on every node and are therefore ‘distributed’ in nature. Therefore, the technology is often referred to as also a distributed ledger technology (DLT). With the power of a blockchain-powered network, two strangers can safely and directly engage in business transactions without the need for any intermediaries, thereby making lawyers, bankers, brokers, and governments potentially irrelevant. To achieve this, blockchains rely on cryptographic puzzles that unlock ‘blocks’ while keeping the network secure through a process known as ‘mining.’ Bitcoin and other cryptocurrencies have been heavily criticized for the vast amounts of energy they consume in order to ‘mine’ the blocks that enable their blockchains. Blockchain is a system that enables trust which is achieved through its distributed design. The blockchain confirms the identity of participants, validates transactions, and ensures that every participant is playing by the rules. Blockchains have enabled not just cryptocurrencies but also other similar applications that involve currencies. The best example is a smartcontract, a programmable contract that carries out the terms of the agreement established

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<sup>7</sup> Dylan Yaga et al., “Blockchain Technology Overview,” National Institutes of Standard and Technology, October 2018, <https://nvlpubs.nist.gov/nistpubs/ir/2018/nist.ir.8202.pdf>.

between buyer and seller as lines of code on a blockchain network. NIST defines smart contracts as “software deployed on the blockchain and executed by computers running that blockchain.”

Blockchain has become a buzzword in several sectors—from governance to recycling.<sup>8</sup> There has also been an overwhelming amount of research and funding for applications of this technology.<sup>9</sup> However, the finance and banking sector could potentially be directly affected in the event that blockchain technology improves and grows to offer a viable alternative to centralized institutions. Cryptocurrencies have been used as speculative investments,<sup>10</sup> instruments for money laundering, and as a payment system to send and receive money in developing countries.<sup>11</sup> The technology is being adopted by major corporations<sup>12</sup> and governmental institutions<sup>13</sup> and is also predicted to have a major impact on global trade<sup>14</sup> if it gets adopted by businesses and financial institutions on a global scale. Cryptocurrencies such as Bitcoin have already impacted the international monetary system. Cryptocurrencies, just like fiat currencies, are not just monetary instruments, they are also a tool of power. Cryptocurrencies have the ability to potentially change global power dynamics by weakening the US dollar. For instance, El Salvador, which adopted the

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<sup>8</sup> Candice Teo, “From Diamonds to Recycling: How Blockchain Can Drive Responsible and Ethical Businesses,” World Economic Forum, June 22, 2018, <https://www.weforum.org/agenda/2018/06/diamonds-recycling-blockchain-technology-responsible-ethical-businesses/>.

<sup>9</sup> “Blockchain Trends In Review,” CB Insights, July 17, 2019, <https://www.cbinsights.com/research/report/blockchain-trends-opportunities/>.

<sup>10</sup> Jay Adkisson, “The Cryptocurrency Paradox And Why Crypto Is Failing,” Forbes, November 28, 2018, <https://www.forbes.com/sites/jayadkisson/2018/11/28/the-cryptocurrency-paradox-and-why-crypto-is-failing/?sh=458c2afa7c9d>.

<sup>11</sup> Emilio Rivero Coello, “Are Cryptocurrencies Useful for Remittances?,” Coin Center, January 6, 2020, <https://www.coincenter.org/are-cryptocurrencies-useful-for-remittances/>.

<sup>12</sup> Michael Del Castillo, “Blockchain 50: Billion Dollar Babies,” Forbes, April 16, 2019, <https://www.forbes.com/sites/michaeldelcastillo/2019/04/16/blockchain-50-billion-dollar-babies/?sh=26b488f857cc#1d4d32957ccb>.

<sup>13</sup> Cathy Mulligan, “Blockchain and Sustainable Growth,” United Nations, December 2018, <https://www.un.org/en/un-chronicle/blockchain-and-sustainable-growth>.

<sup>14</sup> Rachel F. Fefer, “Blockchain and International Trade,” Congressional Research Service, last modified June 25, 2019, <https://sgp.fas.org/crs/row/IF10810.pdf>.

US dollar as its legal tender in 2001, recently passed a bill to adopt Bitcoin as legal tender, highlighting how significant the GPC has become in just a decade.

Although the primary purpose of a monetary system is to facilitate transactions in the ‘real’ economy, money has been used as a political tool in almost as many instances as it has been used as an economic tool. Centralized control of the monetary system has been instrumental in creating and maintaining power and hegemony. During the Renaissance, the Medici family controlled the banking industry and the government for almost 400 years. This was not because the Medici’s were excellent innovators, but because they effectively applied newly developed techniques, such as double-entry bookkeeping, to their advantage. They were highly skilled at strategizing the usage of these innovations. The best example is the central holding company they used to consolidate their operations. They also found innovative ways to work around the rules of the Catholic Church, the most powerful entity at that time. They used their bank branches to circumvent the Church’s ban on the charging of interest. The Medici bank lent foreign currency, or accepted a bill of exchange, in one currency and collected debt in another, adding a hidden rate of interest into the exchange rate. Today, global private currencies powered by blockchain technology, an innovation that’s comparable to the double-entry bookkeeping, have started shaking up the established order that was created by government-issued fiat currencies. Therefore, the political economy of cryptocurrencies is a highly significant topic that warrants more attention.

In the future, decentralized systems powered by blockchains could play a major role in our everyday lives. This could stem from the erosion of trust in governments and other centralized systems. Blockchain networks that power GPCs such as Ethereum can also power other applications, such as smartcontracts that can offer better alternatives to other areas of governance. Smartcontracts often have the advantage of being a part of the same network and system that

executes payments through cryptocurrencies. In a world where denationalized blockchain-based financial systems are ubiquitous, smartcontracts are likely to be widely adopted. Smartcontracts might be able to provide insurance and other legal services, making these networks highly valuable.<sup>15</sup> Clearly, this topic has important economic and sociological ramifications.

GPCs have risen to prominence at a time when nations across the world are attempting to reduce their use of cash in order to have more efficient monetary systems. Such “cashless societies”<sup>16</sup> of the future could potentially be powered by private entities, marking a major shift in power dynamics. The future of the global monetary system is likely to involve new digital cryptocurrencies, some of which will not be issued by nation-states or regulated the same way central banks and governments control monetary systems today. If large decentralized financial systems get widely adopted, the international monetary system, which has thus far been dominated by national currencies such as the US dollar, will be entirely disrupted. This could also remove the US dollar as the de facto reserve currency of the world. Great power competition between nations today is primarily based on economics and are fought through currencies. Therefore, cryptocurrencies are more than just an economic phenomenon. This makes the topic significant for governments across the world.

As reflected in the regulatory actions discussed in this dissertation, governments are slowly but surely becoming aware of the potential opportunities and threats posed by decentralized financial systems that can change global power dynamics. This has led to some initiatives by nations that aim to harness the power of blockchain for currencies and other applications while

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<sup>15</sup> Stuart D Levi and Alex B Lipton, Skadden, Arps, Slate, Meagher & Flom LLP, “An Introduction to Smart Contracts and Their Potential and Inherent Limitations,” Harvard Law School Forum On Corporate Governance, May 26, 2018, <https://corpgov.law.harvard.edu/2018/05/26/an-introduction-to-smart-contracts-and-their-potential-and-inherent-limitations/>.

<sup>16</sup> Vishal Marria, “What A Cashless Society Could Mean For The Future,” Forbes, December 21, 2018, <https://www.forbes.com/sites/vishalmarria/2018/12/21/what-a-cashless-society-could-mean-for-the-future/?sh=13c608943263>.

retaining centralized control. This has been the case with authoritarian governments such as the one in China, making this a significant topic in the field of international studies. The digital Yuan, the latest form of China's national currency, is the first of its kind to have completed successful trials and is being scaled-up and improved.<sup>17</sup> Some reports suggest that China has also tested the application of Artificial Intelligence (AI)<sup>18</sup> and blockchain<sup>19</sup> in their internet courts. In combination with China's social credit system, such applications of blockchain might further strengthen Beijing's authoritarian model. This makes the topic significant for the field of political science. Other authoritarian countries and client states that rely on China will also be able to buy blockchain-based financial and legal services. This would lead to China gaining unparalleled access to political, economic, social, and other types of data from these countries, leading to increased influence over them, changing the current balance of power.

Money, as a topic of research, has been of great interest to scholars, as evident from the number of scholarly articles one can find on the topic. GPCs are a new form of money with some similarities to the previous system but there are also enough differences, which warrant a more detailed understanding of what the phenomenon is and how states are responding to it. It is obvious that regulations will follow but the key question is: What are the factors that condition these regulatory responses? This dissertation's purpose is to explore this significant question by analyzing scholarly literature and other relevant sources of information. The dissertation identifies and explains the five key factors that condition regulatory responses to globally operational digital

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<sup>17</sup> Arjun Kharpal, "China Is Pushing for Broader Use of Its Digital Currency," CNBC, January 10, 2022, <https://www.cnbc.com/2022/01/11/china-digital-Yuan-pboc-to-expand-e-cny-use-but-challenges-remain.html>.

<sup>18</sup> Ana Alexandre, "Chinese Internet Court Employs AI and Blockchain to Render Judgement," Coin Telegraph, April 25, 2019, <https://cointelegraph.com/news/chinese-internet-court-employs-ai-and-blockchain-to-render-judgement>.

<sup>19</sup> Adrian Zmudzinski, "Chinese Internet Court Uses Blockchain to Protect Online Writer's Intellectual Property," Coin Telegraph, December 8, 2018, <https://cointelegraph.com/news/chinese-internet-court-uses-blockchain-to-protect-online-writers-intellectual-property>.

currencies that are not backed by governments. These five factors are (1) compliance with Anti-Money Laundering (AML) laws, (2) compliance with systems built for fiat currencies, (3) degree of transparency in operations, (4) culture of sovereignty within the nation, and (5) great power competition with other nations. These factors also show how varied the impacts of GPCs are. In combination, GPCs present political, economic, social, technological, legal, and environmental (PESTLE) impacts and risks.

Compliance with Anti-Money Laundering (AML) laws is the primary factor that concerns regulators across the world. There are two main reasons: (1) GPCs, because of the decentralized and semi-transparent nature of their operation, can enable money laundering and tax evasion, which lead to loss of revenue for governments, and (2) GPCs can enable crime and terrorism because they can be used to finance bad actors through money-laundering. The second most important factor is compliance with systems that exist to support nation-backed fiat currencies. This is because GPCs are seen by governments as direct competitors to fiat currencies, which have a monopoly. Some cryptocurrencies, known as stablecoins, tether their value to a nation-backed fiat currency. Stablecoins are seen more favorably by regulators because they do not affect monetary policy the way other cryptocurrencies do. However, most GPCs are not stablecoins and therefore do not easily comply with existing systems. Thirdly, the degree of transparency is a key technical factor related to the first two factors. Most blockchains are pseudonymous while some are more anonymous. The degree of transparency varies for each cryptocurrency. The ones that are easier to analyze and trace are seen more favorably by regulators. The fourth factor, the culture of sovereignty within a nation refers to how a nation's population and leadership sees the national currency vis-a-vis private currencies. In some nations, there is a strong sense of pride and patriotism that can make governments and populations blind to the relative advantages of GPCs.

In some domains, efficiency and other performance-based metrics are superior to traditions. GPCs thrive in such environments due to widespread market adoption and cooperative regulations. In most cases, a middle ground between these two extremes exists. The final factor involves great power competition between superpowers, which affects majority of nations due to the need for good relations with superpowers. Although this is an indirect factor, it is relevant in the play for power in the world's economic landscape. The three major powers that currently dominate the global monetary system are the US, EU, and China.

These factors reflect risks posed by GPCs. In the context of this dissertation, the term 'risk' refers to threats posed towards a government's ability to influence or control political, economic, social, technological, legal, and environmental (PESTLE) aspects. The PESTLE framework,<sup>20</sup> can be used in analysis and scenario planning in the context of GPCs. From a government's perspective, regulations are intended to prevent or mitigate such risks. The ultimate goal is to retain power. Ensuring compliance with AML laws allow governments to reduce risks related to terrorism, crime, and tax evasion. Ensuring compliance with existing systems built for fiat currencies help governments mitigate risks related to loss of control over the economy, especially through monetary policies. Ensuring transparency in operations help governments minimize uncertainty by ensuring compliance while enhancing its ability to prevent external entities from meddling in the economy. Asserting sovereignty helps governments maintain legitimacy. Protecting spheres of influence across the world allow governments to maintain their respective nations' standing in the world, whether they're engaged in great power competition or not.

The academic field of political economy refers to interdisciplinary studies drawing upon economics, sociology, and political science in explaining how political institutions, the political

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<sup>20</sup> Donald C Hambrick, "Environmental scanning and organizational strategy," *Strategic management journal* 3, no. 2 (1982): 159-174.

environment, and the economic system influence each other. In the case of cryptocurrencies, which is slowly but surely becoming an integral part of the economic system, the political environment and the way political institutions have reacted to the new phenomenon have taken different forms across the world. For example, while El Salvador passed a law that recognized Bitcoin, the premier cryptocurrency, as legal tender, on the other side of the planet, China virtually prohibited cryptocurrencies by banning financial institutions and payment companies from providing services involving cryptocurrencies.

This dissertation analyzes three cases with the goal of understanding the factors that condition such regulatory moves. ‘The political economy of money’ is an important topic that’s taught as a course in some universities and has been the subject of several books by prominent academics. This dissertation contributes to this direction of inquiry, with a focus on the newest form of money i.e., digital currencies that operate beyond national borders and are not controlled or operated by the State.

Chapter 2 reviews existing literature related to the topic of this dissertation with the goal of understanding gaps and identifying relevant determinants. This includes reviews of academic works on governmental monopoly on money, private money, substitutes to fiat currencies, and monetary policy as well as other monetary regulations. The chapter concludes with an overview of several gaps and a list of factors that are likely to be relevant in the case of GPCs. The third and fourth chapters detail the history and evolution of the concepts of money and GPCs respectively while identifying factors and patterns.

Chapter 3 chronicles the birth and growth of the concept of money. The chapter aims to highlight how money evolved from being a simple economic tool meant to facilitate transactions, to becoming a political tool that could let small groups of people determine future trajectories of



large societies through legal systems. The role of technology is also discussed in the context of the evolution of money from stones to metal, and later paper. The chapter also highlights how money is multidimensional in nature i.e., it is affected by and also affects political, economic, social, technological, legal, and environmental attributes.

Chapter 4 explains the birth and growth of global private currencies with a focus on Bitcoin, the first cryptocurrency, and Libra, the cryptocurrency that was feared the most by governments across the world. Libra's journey is explained in detail because it is the only major cryptocurrency concept that garnered significant attention from both the press and lawmakers since its inception. The chapter also discusses the birth and growth of Coinbase, the cryptocurrency exchange that, unlike Libra, survived regulatory scrutiny.

Chapter 5 explains how game theoretical concepts can be applied in the context of GPCs. The chapter presents three sets of frameworks. The first set of frameworks establishes the basic structure of the game and demonstrates how strategic interactions between regulatory authorities and global private currencies can be analyzed with the help of game theory. The second set of frameworks build on the first set and presents a more elaborate approach by connecting political, economic, social, technological, legal, and environmental (PESTLE) aspects to payoffs. The third set of frameworks demonstrate how game-theoretical frameworks can be useful in analyzing taxation-related issues in the context of GPCs.

The game setup and narrative discussed in chapter 5 is used to explain the regulatory game between the regulators and GPCs in the contexts of United States, European Union, and China. A 2x2 game structure is used to analyze strategic interactions between governments in the three case studies and GPCs on a spectrum between cooperation and conflict. These analyses are presented in chapters 6, 7, and 8.

Chapter 6 presents detailed analyses of regulatory responses to GPCs in the United States of America. This includes both federal and state levels. There is a lack of unified regulatory response at the federal level. However, the overall response has been favorable to GPCs and exchanges. The case of the USA v. GPCs is a cooperation game. All five factors are seen to be relevant, but the most important factors are compliance with AML laws, and compliance with systems built for fiat currencies, and transparency in operations.

Chapter 7 details regulatory responses by the European Union and its constituent nations. In contrast to the US, there is unified response at the highest level. The case of the EU v. Cryptocurrencies is a cooperation game, although some EU member nations are involved in a game of conflict. All five factors are seen to be relevant, but the most important factors are transparency in operations, and the culture of sovereignty.

Chapter 8 explains regulatory response to GPCs in China. The case of China v. GPCs is clearly a game of conflict. There is a clear, unified response at the highest levels. China's ban on cryptocurrencies has been driven by its geopolitical ambitions. All five factors are seen to be relevant, but the most important factor is great power competition. The chapter also explains how China's Central Bank Digital Currency (CBDC) is designed to counter GPCs and enable geopolitical dominance.

The final chapter concludes the dissertation by reiterating the central contribution: the five key factors that condition the regulation of GPCs across the world.

## **CHAPTER 2**

### **LITERATURE REVIEW**

This chapter reviews academic literature related to regulation of money and GPCs. Literature from the fields of international political economy, political science, economics, and other relevant sub-fields such as computational social science was reviewed. The following questions were used to review literature and synthesize findings: (1) What are the gaps? and (2) How can this dissertation make a significant contribution? The remainder of this section presents a synthesis of literature on fiat money and private money, and how governments regulated these different types of money in the past i.e., which factors played the most important roles. Academic works on the topics of government's monopoly on money, the dynamics of substitutes to fiat money, monetary policy, and regulation of currencies are discussed. Relevant subtopics such as economic viability of private money, competition and coexistence between fiat and private money are also discussed. Topics that emerge as being relevant to money are money laundering, taxation, roles of partner institutions, legal tender status, economic and political stability, and sovereignty. These topics also highlight how money influences and is influenced by political, economic, social, technological, legal, and environmental (PESTLE) dimensions.

Governments' monopoly over money is the most relevant topic from political economy literature in the context of regulatory responses to GPCs. This is because GPCs are seen as a disruptor in this context given their adoption as alternatives to fiat currencies. One of the most debated questions under this topic has been whether governments have a 'natural' monopoly on money i.e., whether these governments have overwhelming advantages that can make this monopoly last in any situation. This is an important question that sets the stage for discussions on how and why governments regulate private currencies because this monopoly is an integral part of the

concept of sovereignty, just like government's monopolies over violence (through law enforcement units and armed forces) and death, whereas only governments can lawfully carry out death sentences ascribed by the courts. Natural monopolies typically exist if there are high fixed costs, and unique raw materials, technology, or similar factors are to operate. These conditions existed when national currencies arose. Today, especially with technologies like blockchain, it has been argued that there are no longer any such 'natural monopoly' advantages that the state enjoys, other than the ability to coerce.

Scholars are split on the topic of whether the government's monopoly on money is natural or not. Several researchers have explored this topic over time. Vaubel<sup>21</sup> lists seven reasons from literature that favor governments' monopoly over money: (1) Competitive production would make price levels indeterminate, (2) Private supply is inflationary and the equilibrium may be infinite, (3) The banking system is inherently unstable, (4) The private sector's stability hinges on a stable monetary policy by the government, (5) The government needs monopoly over money for revenue flow, (6) Advantages from economies of scale give the government a natural monopoly, and (7) Money may qualify as a public good, given its external effects. While some of these arguments, especially the sixth point, are no longer valid, some still are. The points on external effects, price levels, and confidence are still relevant. Vaubel is right in describing money as being more like a club good. He explores the concept of economies of scale as a reason for 'natural monopoly,' providing empirical evidence to prove that this is not a valid argument.

In order to understand how governmental monopoly over money survived, it is important to understand the dynamics of currencies within the monetary and financial system. Scholars have also looked at factors such as network effects i.e., the growth in value as a network grows. The

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<sup>21</sup> Roland Vaubel, "The government's money monopoly: Externalities or natural monopoly?," *Kyklos* 37, no. 1 (1984): 27-58. <https://doi.org/10.1111/j.1467-6435.1984.tb00739.x>.

best example of network effects can be seen in today's social media companies. David Glasner<sup>22</sup> posits that network effects of currencies can lead to the tendency to converge towards a single standard, which is not the same as monopoly. He tries to differentiate between network externalities and natural monopoly. Glasner does not foresee the monopoly of the government, or the dominance of state-backed money will remain for long. Other scholars such as Dowd<sup>23</sup> have explored the topics of economies of scale and competitive equilibrium, along with other common reasons: hyperinflation, economies of standardization, and public confidence. There is no consensus among scholars on the question of governments' natural monopoly on money.

Private forms of money have existed for a very long time. Any object can become a form of private money or currency within a small group of individuals as long as those individuals agree to treat the object as a form of payment and as a store of value. However, this cannot be scaled easily without repercussions. Therefore, before Bitcoin, the idea that a private currency could function globally for extended periods of time was not accepted within or outside the scholarly community. Numerous scholars from various fields have explored whether private money is a viable idea, but very few saw this coming. King<sup>24</sup> explored the nature of market-generated banking and monetary institutions with the help of historical examples from the period before the National Banking Act of 1863 was passed, with a focus on New York. He concluded that relatively unregulated private systems do not completely fall apart, and that there are no tendencies toward monopoly in such conditions. He explored the case of New York in detail, observing that it was akin to the English joint stock system and the Scottish free banking system, which proved to be untenable. He provides an overview of issues that need to be encountered in the construction of

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<sup>22</sup> David Glasner, "How 'Natural' Is the Government Monopoly Over Money," Available at *SSRN* 2778253 (2000), <http://dx.doi.org/10.2139/ssrn.2778253>

<sup>23</sup> Kevin Dowd, "Is banking a natural monopoly?," *Kyklos* 45, no. 3 (1992): 379-392.

<sup>24</sup> Robert G King, "On the economics of private money," *Journal of Monetary Economics* 12, no. 1 (1983): 127-158.

theoretical models of private monetary economies but does not rule out the idea of private money as a viable idea. Shambaugh<sup>25</sup> also explored the details of the period before the National Banking Act of 1863 was passed (between 1838 and 1860), with a focus on how different states within the United States dealt with the situation, particularly looking at whether states had the ability to undertake state-level monetary policy, and whether they used it. He found that many states did not even consider the monetary impacts of this system.

This is not possible in today's world, but the most advanced economies have governments that favor free market competition, and must therefore, at least in theory, consider the idea of a better monetary system through competition. This can be seen in the case of the United States today, both at the federal level and the state level, in regard to GPCs. Some states even allow the payment of taxes in Bitcoin. Weber,<sup>26</sup> further exploring the details of the banking system that existed prior to 1863 in New York, shows that there are a number of similarities to electronic money in that the old system made transactions easier. However, there were a lot of issues such as counterfeiting, safety, not exchanging at par, and volatility. While some of these issues still exist with cryptocurrencies, today's technologies, and the competitive ecosystem within private industry, have provided solutions that negate or solve these problems. Counterfeiting is a non-issue, thanks to the nature of blockchain technology.

In traditional forms of money, counterfeiting has been a major issue. Counterfeiting has also led to several legal challenges for both governments and citizens. Authenticity of the tender has been the primary issue. If there are concerns about whether a coin really is coin made of pure silver or gold, or whether the coin has the right amount of valuable metal, or whether a bank note

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<sup>25</sup> Jay C. Shambaugh, "An experiment with multiple currencies: The American monetary system from 1838–60" *Explorations in Economic History* 43, no. 4 (2006): 609-645.

<sup>26</sup> Warren E. Weber "The efficiency of private e-money-like systems: the US experience with state bank notes." (2015).

is genuine, the economy is bound to get hurt. Since everyday users are not usually capable of ascertaining these aspects, the political entity has always been in charge of ensuring consumer confidence in money by preventing counterfeiting. Fake currencies affect the value of real currencies by increasing the overall monetary supply. The impacts of fake money on the economy have been highlighted by scholars like Nussbaum<sup>27</sup> and von Reden.<sup>28</sup> Authenticity in paper currency has been communicated in the form of special banknote paper, engraved images, microprinting, signatures, watermarks, security threads, and holograms.<sup>29</sup> The authentication problem gets more pronounced when several currencies and several forms are involved. This also makes cross-border trading more difficult. The primary reason is that, in such cases, there is no single well-established template that can be used to verify the authenticity. This topic has been discussed by scholars like Mihm<sup>30</sup> and Smoak.<sup>31</sup> Now that the majority of money is digital, counterfeiting is no longer a major problem. However, other issues like safety and volatility issues are rampant with GPCs.

According to scholarly literature and the elites of the finance world, on the topic of private currencies and their viability, have more detractors<sup>32</sup> than supporters. Lawrence Summers,<sup>32</sup> who is also a former US Secretary of the Treasury, has expressed skepticism about the stability of private banking and monetary systems. Summers rightly argues that scenarios such as bank-runs need to be taken into account. In addition, he argues that losses from restrictions cannot be large enough

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<sup>27</sup> Arthur Nussbaum, "Basic monetary conceptions in law," *Michigan Law Review* 35, no. 6 (1937): 865-907.

<sup>28</sup> Sitta Von Reden, "Money in Classical Antiquity," *Cambridge University Press*, 2010.

<sup>29</sup> Marcela M. Williams, and Richard G. Anderson, "Handicapping Currency Design: Counterfeit Deterrence and Visual Accessibility in the United States and Abroad," *Federal Reserve Bank of St. Louis Working Paper* 89, no. 5 (2007).

<sup>30</sup> Brid Nicholson, "A Nation of Counterfeiters," *Canadian Journal of History* 44, no. 1 (2009): 142-144.

<sup>31</sup> Katherine Smoak, "The Weight Of Necessity: Counterfeit Coins in the British Atlantic World, circa 1760–1800," *William & Mary Quarterly* 74, no. 3 (2017): 467-502.

<sup>32</sup> Lawrence H. Summers, "On the Economics of Private Money' by Robert G. King, " *Journal of Monetary Economics* 12, no. 1 (1983): 159-162.

to hurt the economy and therefore society, but the cost of not regulating would be enormous. Summers also argues that governments have a natural monopoly due to their existence as on the basis of economies of scale. Scholars like Fischer<sup>33</sup> have referred to claims on the benefits of denationalized currencies as being ‘messianic, not analytical.’ Scholars like Hayek<sup>34</sup> have argued in favor of private currencies on the basis that they can lead to a more efficient system with the least possible inflation. In response, Fischer and other detractors argue that a system with low percentages of inflation is not necessarily the advantageous, and that it is equally important to worry about expensive fluctuations, pointing out examples from the 19th century have proved that free banking and currency systems create nothing but instability. However, Bitcoin, despite its volatility and fluctuations, has survived and grown for more than a decade and is responsible for creating a new field called ‘cryptoeconomics’ which investigates the dynamics of cryptocurrencies and their economic impacts. This dissertation adds to this new field while also contributing to the scholarly discourse on private money.

While the idea of private money as a replacement has been the most prominent topic, there has been some work regarding markets that can sustain a scenario where private and public money can co-exist. Scholars like William Woolsey<sup>35</sup> have argued that private money can be introduced without abolishing monetary policy and lays out a plan for the same. Woolsey highlights differences and assumed inconveniences such as counterfeiting, and some of the benefits of having private money in the system. He highlights the importance of making sure the system cannot cause a reverse gain, a decrease in money supply, or macroeconomic contractions. A few other scholars

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<sup>33</sup> Stanley Fischer, "Friedman versus Hayek on private money: Review essay." *Journal of Monetary Economics* 17, no. 3 (1986): 433-439.

<sup>34</sup> Friedrich August Hayek, "Denationalisation of Money: The Argument Refined," *Ludwig von Mises Institute*, 2009.

<sup>35</sup> William Woolsey, "Full privatization of currency in a nearly conventional money and banking system." *Cato Journal*. 11 (1991): 73.



including Yeager<sup>36</sup> have raised questions on the international implications of privatized money. Yeager discusses the idea of having a nominal anchor within a decentralized system. He discusses two main aspects that need attention (1) control, whether it be explicit or indirect, over the supply of money, and (2) the definition of the dollar based on one or more goods or services. He discusses the components of a stable price level, ways to cope with price stickiness and information delays, and the quantity theory. He also points out that the government has a moral obligation to stabilize the money market, since the market is an inanimate entity devoid of critical thinking.

Scholars have also focused on the aspect of competition from a perspective that would benefit fiat currencies. For instance, Scott Sumner<sup>37</sup> explored historical examples of private money and argued that, unless there are efficient ways to pay interest on currency or provide services to currency holders, a free banking system will result in a wasteful form of non-price competition. He also points to estimates from the Government Accountability Office (GAO) to show that switching the production of one-dollar bills to the private sector would save the government \$318 million a year without affecting the Fed's hold on monetary policy while bolstering efficiency. This approach is moot in today's digital world. However, there seems to be room to create successful public-private partnerships. Although monetary and financial systems have previously been monopolized by governments it has been proven that some GPCs, especially stablecoins, have the potential to thrive in this space. This is a subtopic that warrants more scholarly research.

There is also some scholarly work on the dynamics of private money within small systems such as store value cards (SVCs) and points used exclusively within a company or a retail outlet. This is relevant because such examples give a rare glimpse into how quasi private monetary

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<sup>36</sup> Leland B. Yeager, "Privatizing money," *Cato Journal* 30, no. 3 (2010): 417.

<sup>37</sup> Scott Sumner, "Privatizing the Mint," *Journal of Money, Credit and Banking* 25, no. 1 (1993): 13-29.

systems have worked in the past. Scholars such as DePrince and Ford<sup>38</sup> have made such comparisons between store value cards and private money. DePrince and Ford explored potential impacts of scaled SVCs on monetary policy. They analyzed store value cards (SVCs) and their economic and fiscal effects. By extrapolating results, they argue that (1) transmission mechanisms within an economy will be affected due to the trend movement being altered, and (2) the role of deposit insurance and reserve requirement need to be clarified.

SVCs are just one of several proxies seen in literature as guinea pigs for substitutes to fiat money. In their paper titled ‘Substitutes for Legal Tender: Lessons from History for the Regulation of Virtual Currencies,’<sup>39</sup> Middlebrook and Hughes describe the history of objects that have been used as substitutes for legal tender in the United States. They highlight every significant example from wampum, which had a recognized exchange value as early as 1631, to the more popular state bank notes. They point out that governments tended to view such substitutes with suspicion and often initiated criminal prosecutions to cease their issuance and applications. They also detail how certain substitutes for legal tender gained acceptance from authorities. Middlebrook and Hughes<sup>40</sup> also studied the regulation of virtual currencies in the United States. This included early digital currencies, e-gold, and Bitcoin. Today, GPCs are being used across the world and have impacted trends within national and international monetary systems, although there is a lack of understanding due to the opaque nature of cryptocurrencies. This highlights the need for higher levels of transparency in operations. In turn, this will lead to increased understanding and more data on how regulators can respond to GPCs.

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<sup>38</sup> Albert E. DePrince Jr. and William F. Ford, "The Privatization of Currency and Seigniorage," *Business Economics* 32, no.1 (1997): 25-32.

<sup>39</sup> Stephen T. Middlebrook, and Sarah Jane Hughes, "Substitutes for Legal Tender: Lessons from History for the Regulation of Virtual Currencies," In *Research Handbook on Electronic Commerce Law*, Edward Elgar Publishing, Indiana Legal Studies Research Paper, no. 316 (2016).

<sup>40</sup> Middlebrook and Hughes, "Substitutes for Legal Tender"

While most scholars have expressed either concern or skepticism on allowing private currencies, there are some scholars who have strongly advocated in favor of more competition from private alternatives. For example, Selgin<sup>41</sup> argued that currency privatization is just as good as dollarization at preserving a fixed exchange rate, and that privatization is better than currency boards at disposing of money creation surpluses in a way that benefits the domestic economy. He used the imaginary country Ruritania to make his argument. He argued that dollarization, which refers to adoption of the US dollar as the legal tender by foreign countries, takes away domestic wealth and deprives domestic users of access to savings. Some scholars have used real case studies to gain more reliable insights than those from hypothetical cases. Mandeng<sup>42</sup> gives a detailed picture of 19th century Germany when private currencies existed. Germany embraced innovation at that time. Later, however, just like other parts of the world, Germany also gravitated towards a centralized system. The paper explores the impact of cryptocurrencies on macroeconomic stability with a specific focus on aggregate demand shock and monetary policy efficiency. The paper also discusses “cryptonization” a la dollarization, which was seen in El Salvador. Scholars have also studied of the case of Somalia during the time it was stateless and barraged by counterfeit money. In stateless Somalia, unregulated private supply raised prices, destabilized markets, eroded market value, and reduced the currency to pure commodity money. Some scholars have drawn parallels between the privatization of money and the privatization of the Postal Service. Government monopoly over money is shown to further increase the government’s tendency to intervene in the financial sector and that, according to these scholars, is the most important reason to privatize money.

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<sup>41</sup> George Selgin, "Currency Privatization as a Substitute for Currency Boards and Dollarization," *Cato Journal*. 25, issue 1 (2005): 141.

<sup>42</sup> Ousmène Jacques Mandeng, "Cryptocurrencies, Monetary Stability and Regulation," *Germany's Nineteenth Century Private Banks of Issue* (2018).

Some scholars have used proxy approaches to prove their point of the value of allowing private money to circulate. For example, Cavalcant and Nosal<sup>43</sup> used counterfeit money as a proxy to claim that complete elimination of counterfeiting activity actually leads to inefficiency. Cavalcant and Nosal used modeling and simulation techniques involving an amendment of basic random matching of money. Their model allowed a welfare analysis of currency competition and led them to infer that currency privatization would be beneficial to the system. Although the comparison between a private supply of money and counterfeit money is a stretch, the paper provides some useful insights and highlights the value of using modeling and simulation approaches. While imaginary nations and other simulated approaches can add value by enabling several iterations and scenarios, it's necessary to integrate these approaches to the real world. There is a lack of highly detailed modeling and simulation approaches that allow analysis of accurate data on the impacts of private currencies. Game theoretical approaches could provide some solutions to bridge this gap.

The past few years have seen some research on Bitcoin and other cryptocurrencies from several disciplines such as computer science, economics, law, public policy, finance, and accounting. However, there is no research that explicitly identifies factors that affect cryptocurrencies and other GPCs based on literature review and legislative texts. Existing works touch upon some key points such as the ability of regulatory systems to respond to cryptocurrencies and other cryptoassets. Scholars like Bollen<sup>44</sup> have explored the legal aspects of Bitcoin, promptly noting that most regulatory regimes are not well designed to cater to this type of innovation. Holub

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<sup>43</sup> Ricardo Cavalcanti, and Ed Nosal, "Counterfeiting As Private Money in Mechanism Design," *Journal of Money, Credit and Banking* 43 (2011): 625-636.

<sup>44</sup> Rhys Bollen, "The Legal Status of Online Currencies: Are Bitcoins the Future?." *Journal of Banking and Finance Law and Practice* (2013).

and Jackson<sup>45</sup> carried out a comprehensive search of the literature and arrived at a final sample of 1,206 papers on Bitcoin from across six disciplines. Most of the work has been about the phenomenon itself and not about regulatory responses. Some researchers like Hicham Sadok and Mohammed El Hadi El Maknouzi.<sup>46</sup> have made contributions to the topic of regulatory responses. Naheem<sup>47</sup> has pointed out some of the challenges in applying fiat currency laws to digital technology services. Based on the Bit licensing rules released in New York in December 2015, his paper examined the issue of virtual currency regulation from a banking perspective. Naheem<sup>48</sup> has also highlighted, based on his analysis of a 2014 Financial Action Task Force (FATF) publication and guidelines on virtual currency definitions and the overall impact of blockchain technology on anti-money laundering (AML) compliance and regulation, that virtual currency technology has the potential to support AML frameworks within banking when and if they are better understood. Examples of stand-alone legal cases involving cryptocurrencies that are widely seen in legal literature are not sufficient in understanding regulatory factors. It is also necessary to look at literature from several fields to understand how and why governments have historically responded to currencies, both fiat and private. The rest of this chapter discusses key topics that were identified from literature as key factors that determined monetary policy and other regulatory actions related to money, currencies, and payment systems: money laundering and taxation, legal tender status, transparency of transactions, sovereignty, and great power competition.

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<sup>45</sup> Mark Holub, and Jackie Johnson, "Bitcoin Research Across Disciplines," *The information society* 34, no. 2 (2018): 114-126. <https://doi.org/10.1080/01972243.2017.1414094>.

<sup>46</sup> Hicham Sadok, and Mohammed El Hadi El Maknouzi., "The Regulation of Virtual Currencies in Comparative Perspective: New Private Money Or Niche Technological Innovation?" *Journal of Money Laundering Control* (2020).

<sup>47</sup> Mohammed Ahmad Naheem, "Regulating Virtual Currencies—the Challenges of Applying Fiat Currency Laws to Digital Technology Services," *Journal of Financial Crime* (2018).

<sup>48</sup> Naheem, "Regulating Virtual Currencies"

There are several scholarly works on the topics of money laundering and its impacts on regulations that affect monetary systems. The Internal Revenue Services (IRS) website has a webpage dedicated to famous quotes on taxation, which includes Albert Einstein's quote: "The hardest thing in the world to understand is the income tax." If Einstein were alive today, he'd have stood by that statement given how complicated IRS rules related to cryptocurrencies and crypto assets are. This is due to two reasons: (1) there are still no clear federal laws or inter-agency consensus on how to tax or regulate cryptocurrencies and cryptoassets, and (2) governments tend to choose approaches that maximize tax revenue at the cost of others' clarity and convenience. The power to tax people and property is, after all, "essential to the very existence of government," as the founding father and former American President James Madison once said. The next two paragraphs review literature related to AML and taxation laws in the context of their effects on money and currencies.

The term money laundering, which was coined by the American Mafia's creative use of cash-intensive laundromats, refers to the act of integrating ill-gotten money i.e., money generated through illegal activities into legally allowed circulation.<sup>49</sup> This definition is often expanded by government agencies such as the US Office of the Comptroller of the Currency to imply any financial transaction which generates an asset or a value as the result of an illegal act, which often includes actions such as tax evasion or false accounting. Illegal activities, especially serious crimes such as selling drugs, generate large amounts of cash. These proceeds are usually then transferred to bank accounts, typically to banks located in tax havens and jurisdictions with lenient laws. Such acts, which legally qualify as money laundering, can be performed much more easily with GPCs, especially those designed for privacy.

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<sup>49</sup> Kris Hinterseer, "Criminal Finance: The Political Economy of Money Laundering in a Comparative Legal Context," *Netherlands: Springer Netherlands* (2002): 11.

Money laundering, under most legal systems, is treated as a serious crime primarily because it can enable terrorism. However, when AML laws were first created in the 1980s in the United States, they were designed to help law enforcement deal with the rise of drugs. The Money Laundering Control Act was, in fact, born alongside the Anti-Drug Abuse Act in 1986.<sup>50</sup> After the September 11th attacks, AML laws in the United States were modified to counter terrorism by empowering authorities to access more financial information on both individuals and institutions.<sup>51</sup> There were, however, several implementation issues with these expanded applications of AML laws<sup>52</sup> because the laws were designed to counter drugs, which usually involves transactions after the crime and can be easily tracked. In the case of terrorism, financial transactions tend to occur before an illegal act is committed.<sup>53</sup> Scholars have noted that most of the financial transactions that enable terrorism is transferred through legal methods.<sup>54</sup> Schneider & Windischbauer<sup>55</sup> have noted that most illegal transactions are processed by cash. This is simply because using cash carries minimal risk of tracing. However, even back in 2008, when Bitcoin was just born, Schneider & Windischbauer noted that there was a tendency to “misuse the internet” to perform illicit transactions in the form of “online banking, cyber money and electronic purses.” Money laundering can also be carried out within the formal banking system without raising any red flags if cash is deposited in small amounts, a technique referred to as smurfing.<sup>56</sup> One other common technique used to launder money without raising suspicion is involved transferring

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<sup>50</sup> Bruce Zagaris, "The Merging of The Anti-money Laundering And Counter-terrorism Financial Enforcement Regimes After September 11, 2001," Berkeley J. Int'l L. 22 (2004): 123.

<sup>51</sup> Zagaris, 123

<sup>52</sup> Catherine Martin Christopher, "Whack-A-Mole: Why Prosecuting Digital Currency Exchanges Won't Stop Online Money Laundering," *Lewis & Clark L. Rev.* 18 (2014),

<sup>53</sup> Christopher, "Whack-A-Mole"

<sup>54</sup> Christopher, "Whack-A-Mole"

<sup>55</sup> Friedrich Schneider and Ursula Windischbauer, "Money Laundering: Some Facts," *European Journal of Law and Economics* 26, no. 3 (2008): 387-404.

<sup>56</sup> Friedrich Schneider, "The Financial Proceeds of Transnational Organized Crime All Over the World," *The SAIS Review of International Affairs* 33, no. 1 (2013), 714-727.

money to personal accounts in other jurisdictions through legal mechanisms. This can be performed using digital systems like SWIFT or through simpler methods like undeclared transportation of cash. In some cases, money laundering has also been carried out through creative methods involving insurance policies, securities, and shell corporations.<sup>57</sup> International trade has also been exploited as a method for money laundering<sup>58</sup> in some cases, through creative uses of under-invoicing or over-invoicing practices. GPCs are on regulators' crosshairs across the world because they can enable all these approaches by making them easier or by creating an entirely new way of achieving the same objectives. AML laws are not easy to implement in contexts outside those the laws were originally designed for. This is a key takeaway for scholars interested in understanding how AML laws will affect GPCs. When a new phenomenon like privacy-focused cryptocurrencies is being countered with the same laws that were designed decades ago, governments are not likely to succeed in their objectives. Therefore, old AML laws can be useless when GPCs are used by bad actors, but it is not clear how governments may respond to this. This is an important gap that warrants attention.

It's likely that GPC exchanges will play a crucial role as partners in implementing AML laws and other compliance-related requirements. Governments have always relied on such support from partner institutions in enforcing AML laws. Implementation of AML laws and taxation code always requires compliance from professionals who manage financial institutions<sup>59</sup> because these laws need to be interpreted differently based on context. The role of such partners is likely to become a bigger problem when GPCs are involved because there are very few legal precedents to

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<sup>57</sup> Schneider, 714-727.

<sup>58</sup> John S Zdanowicz, "Trade-based Money Laundering and Terrorist Financing," *Review of Law & Economics* 5, no. 2 (2009): 855-878.

<sup>59</sup> Eleni Tsingou, "New Governors on The Block: The Rise of Anti-money Laundering Professionals," *Crime, Law and Social Change* 69, no. 2 (2018): 191-205.



refer to. This is likely to increase the pressure on regulators to increase clarity. Compliance professionals have a tendency to overreport issues,<sup>60</sup> which leads to information overloads for regulators. This overload usually results in inefficiency because regulatory agencies tend to be understaffed. For such reasons, AML laws tend to be inefficient. Scholars have noted that there is no strong evidence to prove the effectiveness of AML regulations.<sup>61</sup> This creates the need for regulators to create systems that force users of GPCs to self-regulate.

Implementation of AML laws differ across the world. Countries across the world are strongarmed by international organizations such as the Financial Action Task Force (FATF) to adopt strict AML laws.<sup>62</sup> The FATF is an independent inter-governmental body founded in 1989 by the G7, the group of 7 leading economies. FATF develops and promotes policies to protect the global financial system against money laundering, terrorism, and financing the proliferation of weapons of mass destruction. FATF recommendations are generally recognized as the global anti-money laundering (AML) and counter-terrorist financing (CFT) standard. The FATF also publishes best-practices for AML laws and blacklists countries that have not been cooperative in enforcing these laws and practices. AML laws have grown in the past 30 years in two ways: (1) expansion of acts criminalized as money laundering, and (2) diffusion of AML laws to new countries in order to ensure international cooperation given the rise in globalization.<sup>63</sup> By 2008, 170 countries had highly similar AML regulations.<sup>64</sup> These AML regulations generally include three key requirements: (1) know-your-customer (KYC) protocols, (2) record keeping, and (3) suspicious activity reporting. These requirements have been imposed on banks, insurance

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<sup>60</sup> Előd Takáts, "A Theory of 'Crying Wolf: The Economics of Money Laundering Enforcement,'" *The Journal of Law, Economics & Organization* 27, no. 1 (2011): 32-78.

<sup>61</sup> Richard K Gordon, "Rethinking preventive measures for money laundering and terrorism financing," (2010).

<sup>62</sup> Jason C Sharman, "Power And Discourse In Policy Diffusion: Anti-money Laundering In Developing States" *International Studies Quarterly* 52, no. 3 (2008): 635-656.

<sup>63</sup> Peter Alldridge, "Money Laundering and Globalization," *Journal of law and society* 35, no. 4 (2008), 437- 463

<sup>64</sup> Sharman, "Power and Discourse in Policy Diffusion," 635-656.

companies, law firms, exchange bureaus, check-cashing offices, and casinos.<sup>65</sup> This highlights the extent to which regulators go to ensure tax revenues and prevention of crime and terrorism. Today, these AML compliance requirements have been extended to businesses that operate as exchanges for GPCs. However, these old regulations are insufficient at encapsulating the new technology GPCs this extension is not suitable. This highlights the need for regulations to catch up with GPCs such that AML laws and taxation laws are not circumvented.

AML regulations are not well-implemented in developing economies because they're often seen as undue external pressure. The International Monetary Fund (IMF) has assessed that money laundering proceeds amount to somewhere between 2% and 5% of global gross domestic product.<sup>66</sup> A recent paper by Weeks-Brown<sup>67</sup> also suggested that criminal proceeds from laundered amount to between 2 and 5% of global GDP every year. This corresponds to \$1.6 to \$4 trillion a year. The United States has the biggest share of this and has therefore attracted a lot of concern from regulators. Partner institutions are usually in favor of strict AML laws because it enables more legitimate cash flow that enables the formal economy. Ofoeda et al,<sup>68</sup> have suggested, based on data from 2012 to 2018 across 165 economies, that anti-money laundering regulations generally promote financial sector development. While lobbying interests are likely always fight against regulations, such empirical proof validates governmental push for additional AML laws. Governments are excellent at use AML laws to their advantage not only to counter drugs, but also

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<sup>65</sup> Sharman, "Power and Discourse in Policy Diffusion," 635-656.

<sup>66</sup> Sharman, "Power and Discourse in Policy Diffusion," 635-656.

<sup>67</sup>Ronda Weeks-Brown, "Cleaning Up: Countries Are Advancing Efforts to Stop Criminals from Laundering Their Trillions," *Finance & Development* 55, no. 4 (December 2018): 44-45.

<sup>68</sup> Isaac Ofoeda, Elikplimi K. Agbloyor, Joshua Y. Abor, and Kofi A. Osei, "Anti-money laundering regulations and financial sector development," *International Journal of Finance & Economics* (2020).  
<https://doi.org/10.1002/ijfe.2360>

to prevent other crimes. AML laws help governments make a strong case that the attempt to hide the real source of money is tantamount to obstructing justice.<sup>69</sup>

Effective AML help governments deter crime because they create a scenario where the incentives are low for those who commit crimes. Bitcoin and other GPCs have been used online for the purchase of drugs and other illegal products and services. GPCs are a major concern for lawmakers across the world because some of these currencies make it difficult to trace transactions. Regulators are looking for ways to prevent GPCs from becoming a way around AML laws. Therefore, it can be hypothesized that compliance with AML laws is a key factor that affects the regulation of GPCs and their exchanges. AML laws have also helped governments detect and prevent terrorist activities and tax evasion. Casinos, bars and sports books have embraced Bitcoin as it is an easy vehicle for money laundering. Bitcoin and other GPCs have joined casinos, bars, and other traditional techniques<sup>70</sup> as a go-to technique in money laundering. This is because GPCs are seen as a convenient alternative to the more commonly accepted legal tender.

The concept of 'legal tender' has been the focus for some scholars in the context of regulation and policy. The legal tender status confers legitimacy upon a unit of payment by legally recognizing it as being sufficient for payment towards satisfaction of public and private debts.<sup>71</sup> This legal status is also the most crucial link between law and money. GPCs such as Bitcoin have been used for payments in the US and were successful due to the buyer and the seller agreeing on the value of Bitcoin. Even when transactions involve credit, eventually one of the parties is legally obligated to make a cash payment. The legal tender status of the dollar means that someone who is paid \$10 in legal tender to cover a \$10 debt cannot claim that the debtor still owes them money.

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<sup>69</sup> Cavalcanti and Nosal, "Counterfeiting as private money in mechanism design," 625-636

<sup>70</sup> Robert Stokes, "Virtual money laundering: the case of Bitcoin and the Linden dollar," *Information & Communications Technology Law* 21, no. 3 (2012), 221-236.

<sup>71</sup> Kenneth W Dam, "The Legal Tender Cases," *The Supreme Court Review* (1981), 367-412.

Governments have the ability to enforce laws that ensure financial stability by ensuring that debts are collected. This makes populations trust governments with unparalleled power and a monopoly over money and related systems.

Legal tender and sovereignty are deeply intertwined concepts. One of the core elements at the intersection of law and money is the legal tender status, which can be conferred only by sovereign governments.<sup>72</sup> This highlights the power of sovereignty. British imperial authorities banned the creation of currencies in the colonies in order to remain the only sovereign power.<sup>73</sup> Similarly, the US Constitution explicitly granted the power to coin money solely to the federal government, denying it to the states. GPCs are challenging this precedent across the world by offering alternatives to government-backed fiat currencies. In 1785, the Continental Congress adopted the dollar as the unit for the national currency. At that time, a wide variety of private notes were printed and allowed to circulate. In 1790, after the ratification of the Constitution, Congress chartered 'The First Bank of the United States' to operate until 1811 and authorized it to issue paper bank notes to eliminate confusion and facilitate commerce. This highlights how political power is at the heart of a monetary system's validity. The dissolution of sovereign power can also mean the loss of legal tender status. The failure of the Confederate States of America, for example, made Confederate currency worthless after the Civil War. Transitions from an old to a new political power usually shakes up the entire monetary system because of questions concerning reconcile old debts. For example, when Czechoslovakia became independent from the Austro-Hungarian Empire, it introduced its own national currency. This decision led to several problems about outstanding debts that were expressed in Austro-Hungarian crowns.<sup>74</sup> This highlights the

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<sup>72</sup> Proctor 2012, pp. 197, 366

<sup>73</sup> Robert G Natelson, "Paper Money And The Original Understanding of The Coinage Clause," *Harv. JL & Pub. Pol'y* 31 (2008): 1017.

<sup>74</sup> Proctor 2012, p. 160

need for stability, which can be achieved only with powerful political entity that can maintain sovereignty and implement laws to govern systems that enable the fiat currency to be used seamlessly. Legal tender laws protect the unity of money and the sovereign's right to collect seigniorage i.e., profit from creating money. To ensure legal tender status and sovereignty, laws usually penalize the act of refusal to accept payment in legal tender. For example, in medieval England, such refusal could result in imprisonment with the charge of "contempt of the king's majesty."<sup>75</sup>

Legal tender status is also closely connected to financial and social stability: It can be politically challenging to maintain the legal tender status.<sup>76</sup> During emergencies like wars, governments tend to leverage their power to create money, usually in the form of bills of credit or promissory notes.<sup>77</sup> Such policies are often not economically sound. For example, when the Union government issued greenbacks during the US Civil War and made them legal tender, they were not backed by gold.<sup>78</sup> After the war, when these greenbacks were not convertible to valuable forms like gold, they were challenged in court.<sup>79</sup> The Supreme Court ruled that the question was a "political" rather than "juridical" one,<sup>80</sup> highlighting how politics can trump economics. The legal tender also has several limitations due from various social, technological, and environmental conditions. Since human behavior does not always follow rules, the legal tender is not always the only form of money that's used. Small communities can recognize alternatives to the legal tender

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<sup>75</sup> Allen 2012, p. 183

<sup>76</sup> Bruce G Carruthers and Sarah Babb, "The Color Of Money and The Nature of Value: Greenbacks and Gold In Postbellum America," *American Journal of Sociology* 101, no. 6 (1996), 1556-1591.

<sup>77</sup> Natelson, "*Paper money and the original understanding of the coinage clause*," 1017.

<sup>78</sup> William A Bomberger and Gail E. Makinen, "Seigniorage, legal tender, and the demand notes of 1861," *Economic Inquiry* 48, no. 4 (2010), 916-932.

<sup>79</sup> Gerard N Magliocca, "A New Approach to Congressional Power: Revisiting the Legal Tender Cases," *Geo. LJ* 95 (2006): 119.

<sup>80</sup> Magliocca, "A New Approach to Congressional Power," 119.

that can act as de facto money.<sup>81</sup> The rise of GPCs, especially in the early stages, is an example of this. Before the rise of GPCs, such alternatives were used only during extreme conditions. Hyperinflation and political turmoil are the most common conditions that forces such alternatives. For example, in the 1990s, when the Union of Soviet Socialist Republics (USSR) disintegrated, it led to political and economic crises that led to the devaluation of the ruble and the search for substitutes.<sup>82</sup> A currency becomes more valuable for an individual when other people use that same currency. This social aspect of money has allowed for numerous monetary innovations throughout history, challenging the connection between money and the sovereign. GPCs are the latest innovations on this front.

Government's role in enhancing transparency in markets has often been highlighted in literature. Securities markets, for example, are affected by information asymmetries. Currently, the SEC delegates the task of setting financial accounting rules to the Financial Accounting Standards Board (FASB).<sup>83</sup> However, most institutions rely on market prices much more.<sup>84</sup> In some cases, governments intervene to stabilize the economy. For example, the American Bankers Association once appealed to the SEC and FASB to suspend or relax fair-value standards claiming that prices in distressed markets had become misleading indicators of the true underlying value of bank assets,<sup>85</sup> i.e., the market prices were no longer reliable or accurate. This, again, highlights the powerful role of politics in the economy. This power comes from sovereignty. The concept of sovereignty has often been discussed by scholars in relation to money and monetary policy.

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<sup>81</sup> Proctor 2012, p. 31

<sup>82</sup> Neil Robinson, "August 1998 and The Development of Russia's Post-communist Political Economy," *Review of international political economy* 16, no. 3 (2009), 433-455.

<sup>83</sup> Jay A Dubow and Anthony B. Creamer. "Fair Value Accounting: Reinforcing Organizational Transparency and Accountability," *Bus. L. Today* (2013): 1.

<sup>84</sup> Christian Laux and Christian Leuz. "Did Fair-Value Accounting Contribute to the Financial Crisis?," *Journal of Economic Perspectives* 24, no. 1 (2010), 93-118.

<sup>85</sup> Bruce G Carruthers, "The Social Meaning of Credit, Value, And Finance," *Money Talks: Explaining How Money Really Works* (2017): 73-88

Throughout history, money has been a symbol of independent nationhood and sovereign monarchies. The hierarchy of national currencies in the world usually matches the hierarchy of power. The US dollar is currently seen as the global reserve currency and more than one half of currency circulates outside of the United States.<sup>86</sup> When the Fed became the world's banker and the US Dollar became the basis of the world's monetary system, the United States gained the power of seigniorage. At this time, it was assumed that capital movements would be small, and that conflicts could be easily resolved through international deficit financing and other such methods. This survived through the 1960s, when American policies caused discontent amounts its closes allies. The then French President, Charles De Gaulle, was unhappy with the hegemony of the dollar, which he claimed gave 'extravagant privileges' to the US because it could print dollars to fight foreign wars, buy foreign businesses, and go into deep debts without worries about negative consequences. Great power competition between nations is another major factor in the context of monetary policy. Literature has repeatedly highlighted that hegemonic powers play a key role in creating and maintaining stable financial and monetary systems. Another lesson from the history and evolution of the international monetary system is that political differences between states never fade. Therefore, a well-functioning monetary system at the international level demands strong leadership by a nation or a group of nations that have a vested interest in maintaining the system. Leaders must provide a 'lender of last resort' privilege, carry out economic transactions, and provide liquidity.

Money is an important element in the legal framework that governments provide to support economic activity, protect property rights, and enforce contracts. The ability to grant legal tender status is a prerogative of the sovereign government. Throughout history, when governing entities

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<sup>86</sup> Ruth Judson, and Richard Porte, "Estimating the Volume of Counterfeit US Currency in Circulation Worldwide: Data and extrapolation," In *Financial Institutions and Markets* (2010): 241-268

changed from empires and kingdoms to dictatorships and democracies, and even as money evolved from coin to paper and then to bank deposits and electronic currency, politics and law remained the primary forces that shaped the way monetary systems worked.<sup>87</sup> This pattern is not likely to change in the future. Great power competition between nations, especially superpowers, will also remain relevant in context of money and monetary policy. For new forms of money to function, they need to be compatible with political, economic, social, technological, and legal institutions that facilitate the economy. Innovations make regulators uncomfortable because, by design, innovations disrupt the status quo. Regulatory oversight becomes more difficult with innovation that scale fast and across borders. This could make national governments inefficient at managing the effects of GPCs. In theory, an international organization could be a better fit for this role. However, it will be highly difficult for any single institution or company to gain a predominant status because governments can reign in on market monopolies using anti-trust laws. Scholars like Eichengreen<sup>88</sup> have shown that, while the hegemonic stability theory does partly apply to international monetary relations, international cooperation has been equally important to the design and functioning of monetary systems.

Money has become an instrument of economic governance and macroeconomic policy. For a long time, governments have chosen monetary policies and standards based on ground realities on economic activity both within and outside of their jurisdiction.<sup>89</sup> Cryptocurrency is a new phenomenon in some regards, but it is also a new type of money. Therefore, a deep dive into the literature on money and monetary policy was necessary to understand key concepts and gaps. This

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<sup>87</sup> Roy Kreitner, "Legal history of money," *Annual Review of Law and Social Science* 8 (2012): 415-431. <https://doi.org/10.1146/annurev-lawsocsci-102811-173902>

<sup>88</sup> Barry Eichengreen, "Hegemonic Stability Theory and Economic Analysis: Reflections on Financial Instability and the Need for an International Lender of Last Resort," *Center for International and Development Economics Research (CIDER) Working Papers*, no. C96-080, (1996), <https://EconPapers.repec.org/RePEc:ucb:calbcd:c96-080>.

<sup>89</sup> Kris James Mitchener, Masato Shizume, and Marc D. Weidenmier, "Why did countries adopt the gold standard? Lessons from Japan," *The Journal of Economic History* 70, no. 1 (2010): 27-56.



literature review discussed academic works on the topics of government's monopoly on money, the dynamics of substitutes to fiat money, monetary policy, and regulation of currencies. Subtopics such as economic viability of private money, competition and coexistence between fiat and private money were also discussed. Specific subtopics such as money laundering, taxation, roles of partner institutions, legal tender status, economic and political stability, and sovereignty were seen to be relevant factors that concerned governments and regulators. The literature review also showed how money influences and is influenced by political, economic, social, technological, legal, and environmental (PESTLE) dimensions. To understand these factors in more detail and with more context, the following chapter explains how the concept of money was born and how it evolved to set the stage for GPCs.

## **CHAPTER 3**

### **HISTORY OF MONEY**

The word money has its roots in the Anglo-Norman term for a special piece of metal, a coin, or the place where those coins were manufactured i.e., the mint. The terms money and currency are often used interchangeably despite not being identical. Money refers to an intangible and abstract concept used to express prices and value, while currency is the physical manifestation of the same in the form of coins, paper notes, etc. Before the concept of money came about, trade was carried out through the barter system, the exchange of goods. To trade something under the barter system, a double coincidence of wants or needs is a prerequisite which does not occur too often. For example, if a person wants to trade their fish for a pair of shoes, they need to find another person who wants fish and also has shoes to trade. Probabilistically, this gets very difficult. To find parties who want the same thing that the other person is willing to offer is therefore highly inefficient. This prompted innovators to find better ways for societies to trade.

Over time, barter systems used items such as salt, weapons, cattle, and animal skins started being used as a medium of exchange. The primary role of money, from the very beginning, was that of an economic tool. Since these commodities were in high demand throughout the economy and were useful or valued by communities, they effectively played the role of money and were therefore referred to as commodity money. However, most forms of commodity money were not highly scalable because the value of commodities varied across early societies. This shows how critical social factors are in the context of money and currencies.

The earliest references to money were seen in Mesopotamian stone tablets and inscriptions from as early as 3000 BCE. Written records suggest that there was a system of representative money created to enable debts payments to the temples. Farmers who made the payments received

a receipt in the form of a clay token. As populations and trade networks grew over time, there was a pressing need for a form of money that would be valued and accepted as a medium of exchange across different communities while also being easier to transport. Innovators at that time ended up with metals as the preferred mediums of exchange. This was primarily because precious metals had intrinsic value by virtue of their scarcity and their visible appeal. Metals were liked by people across various communities and therefore allowed scalability. Initially, before technology allowed proper coinage, small chunks of metals were used in trading. Technology played a key role as an enabler in this evolution.

Metal coins had several advantages: they could be mass-produced, they were highly durable, and they were easy to carry. They could also be divided into smaller units of value by simply chunking them down. The scarcity of metals, combined by the laborious processes involved in extraction, led to a favorable balance of supply and demand. Carefully designed processes that were hard to imitate created standard sizes and designs that were difficult to counterfeit. Large scale manufacturing of metal coins first began in the kingdom of Lydia during the seventh century BC. This led to highly standardized quantities of payment that facilitated the kingdom's trade, making it one of the richest empires in Asia Minor at that time.

Other kingdoms followed Lydia in creating their own versions, making coins prevalent throughout the Mediterranean. Each kingdom stamped their unique insignia on the coins they minted for two equally important reasons: (1) to facilitate the flow of trade within their jurisdictions and spheres of influence, and (2) to establish the authority of the king or queen. This marked the beginning of the ascent of politics, law, and power as key factors related to money alongside economics, technology, and society. Under the Roman empire, money became an important political tool for unifying and expanding the empire by reducing the costs of trade and

by funding armies that kept emperors in power. Social dynamics such as feudalism further complicated the role of money in society by setting up a hierarchical system based on oaths of loyalty. As seen in the case of the evolution of coins, the pattern of economic and social needs combining with new technological capabilities of the day to create new and better monetary instruments that later become subject to legal and political forces is seen repeatedly throughout history as evident in the evolution of different forms of paper money and digital money.

The earliest form of paper currency was first developed in China during the 7th-century CE under the Tang dynasty. Merchants were allowed to issue receipts of deposits in order to avoid transporting copper coins during transactions, especially large ones. Paper money, in the proper form, started circulating in the 11th century CE, under the Song dynasty. This started when the government started issuing “jiaozi” credit notes that were redeemable for any other object of value within a specified period of time. However, no other conversion was allowed. Therefore, these bills were essentially traded without any commodity backing. It is therefore argued that the first form of paper money was also the first fiat currency, i.e., it was created by government fiat without any intrinsic value (unlike commodity money that was valuable as gold, silver, etc.). These fiat currencies had value because there was a mutual agreement among their users that they had value and because the government, backed by the emperor, threw its weight behind the currency to assure the population of its stability and enforceability. By the end of the eleventh century CE, there was a massive increase in the amount of paper notes that were in circulation. This kept growing, leading to increased demand in printing paper money, which, around 1274 CE, led to the establishment of a nationwide paper currency standard backed by gold and silver. In the 13th century CE, globetrotters such as Marco Polo spread the idea of paper money to Europe.

The groundwork for the emergence of paper money in the western world was created through the invention of the bills of exchange. The bill of exchange was a proxy for a specific quantity of gold that could be exchanged in a different city. This made trading much easier for merchants by helping them avoid risks while traveling with large amounts of highly valuable metals. This came at a time when several trade fairs were organized across Europe to attract merchants and consumers. The bill of exchange enabled commercial activities across borders by encouraging more merchants to travel to these trade hubs. The bill of exchange is an excellent example of a legal innovation that can support the economy. Until the 16th century, silver, and gold, which had intrinsic value, were seen as the only reliable stores of value. The wealth of a country was linked directly to the amount of gold and silver in the sovereignty. When the era of exploration and colonization began, seafaring powers plundered other parts of the world. The large amounts of precious metals that were pillaged from colonies by European kingdoms enriched their economies while also causing inflationary periods and frequent economic turbulence across Europe. These were handled well most of the time, especially when there were no challenges to the sovereignty of the kingdom.

Over time, the nature of money changed drastically due to economic and political reasons, as Gilpin<sup>90</sup> explains in his brilliant sketch of the evolution of the international monetary system. Money was transformed from being a ‘gift of nature’ to a creation of the State. Control over money supply became a key aspect of the State. This change was born two centuries ago but took full effect only during the post-World War II era when Keynesian economic policies dominated. During the 18th and 19th centuries, this change was in the making. Governments started issuing paper money, modern banking took shape, and private credit instruments were created. For the

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<sup>90</sup> Robert Gilpin. "Global political economy." In *Global Political Economy*. Princeton university press, 2011.

first time, governments had a strong hold over the monetary system, albeit more so in theory than in reality. The financial revolution that happened over these two centuries created paper money which created an abundant supply that would not have been possible with previous forms of money. This caused the adverse side effect of inflation which generated instability.

One of the fundamental dilemmas of international monetary relations has been the conflict between maintaining domestic economic autonomy and maintaining international monetary order. The classical gold standard - the system in which the value of a currency was defined in terms of the gold for which the currency could be exchanged - existed between 1870 to 1914. This era reflected liberal, laissez-faire ideals that dominated at that time. The system, however, deprioritized domestic economic activity and pursued the goal of international monetary stability. The banking system weakened the price-specific flow mechanism. Three key points are to be noted: (1) the system did not arise automatically; (2) the system did not work in an impersonal way, it was organized and managed by Great Britain, thanks to their hegemonic power at that time; and (3) the system was not politically symmetrical in its effect on various economies across the world. Broz<sup>91</sup> argues that these policies stemmed from domestic societal foundations. Based on a survey of British, French, and German experiences, he showed that the support of domestic coalitional bases was instrumental in keeping the gold standard functioning. This highlights how the way in which domestic constituency is at the heart of the international monetary system, just like it is with every other political system. In turn, this delineates the importance of the political dilemma between choosing domestic political stability and international financial stability. Such externalities involving heterogeneous national preferences are of great significance. The collapse

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<sup>91</sup> Lawrence Broz. "The Domestic Politics of International Monetary Order: The Gold Standard." (2002).

of the gold standard in the interwar period was partly due to large negative consequences produced by the policy choices, which were made in response to domestic political forces.

The interwar years that lasted between 1914 and 1944 saw a flurry of changes. World War I had a crippling effect on the international monetary system. A return to the gold standard was ruled out because there was high inflation, which affected the purchasing power of gold. The Genoa Conference in 1922 created a gold-exchange standard as a solution. However, it lasted only a few years. The collapse of this system was one of the factors that led to the Great Recession of the 1930s. The following reasons also contributed to the breakdown of the international monetary order: (1) Many governments started using their control over monetary levers to prioritize domestic welfare objectives such as economic stability and full employment, deprioritizing the need to maintain stability in the international monetary order; (2) there were changes in power dynamics, with labor and business gaining significant growth in power in comparison to the governments; (3) the British economic policy set gold values high, which worsened the overall situation. By this time, America was the world's foremost creditor nation. American deflation resulted in a global liquidity crisis that exacerbated the Depression. There were no strong mechanisms to enforce rules and manage the system. This led states to pursue nationalistic 'beggar-my-neighbor' policies, resulting in the economic order breaking down.

The great powers reprioritized their social and national interests and started looking inwards, which contributed to the rise of fascist movements. States turned their backs on international liberalism. In this isolationist culture, cooperation was not easy. Germany, Italy, and Japan ended up with autocratic regimes that would go on to wreak havoc. At the Ottawa Conference in 1932, the 'Sterling bloc,' the 'Dollar bloc,' and the 'Gold bloc' were formed. Economic warfare and competitive devaluations broke out. The United States took responsibility

and tried to restore stability. In 1934, the Reciprocal Trade Act helped reduce tariffs. This basic principle was at the heart of the General Agreement on Trade and Tariffs (GATT), which was created after World War II. The simultaneous achievement of international and domestic balance had been altered. Central banks had taken over the automatic equilibrium that existed, setting the stage for an era of heavy government intervention in the economy.

Most economists since the 18th century are of the opinion that the creation and maintenance of a monetary mechanism and issuing money is one of the cardinal responsibilities of governments. This has led to a deeply ingrained culture of economic sovereignty in several countries. However, as Hayek, the Austrian economist, notes, even Adam Smith did not list this as one of the essential duties of a government.<sup>92</sup> The Bretton Woods System that lasted between 1944 and 1976 had the following main priorities: (1) achieving economic growth and full employment; (2) creation of a stable economic world order that would prevent a return to the destructive economic nationalism of the 1930s. In 1944, the Bretton Woods conference attempted to achieve these priorities. Cooperation between the British and the Americans was instrumental to the success of this bold initiative, highlighting the importance of great power cooperation in the world, especially on monetary issues.

The vision was to create a world where governments would have enough freedom to pursue their national economic objectives while maintaining international monetary order through fixed exchange rates. These basic features conflicted with each other because a nation cannot freely pursue macroeconomic policies and absorb foreign currencies without making corrections on its exchange rates. This ‘embedded liberalism,’ as Ruggie<sup>93</sup> characterized it, attempted to effect Keynesian growth simulation policies at home without disrupting international monetary stability.

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<sup>92</sup> Friedrich August Hayek. *Denationalisation of money: the argument refined*. Ludwig von Mises Institute, 2009.

<sup>93</sup> John Gerard Ruggie. "Globalization and the embedded liberalism compromise: the end of an era?." (1997).



The Fed became the world's banker, and the US Dollar became the basis of the world's monetary system, giving the United States the power of seigniorage. At this time, it was assumed that capital movements would be small, and that conflicts could be easily resolved through international deficit financing and other such methods. This survived till the 1960s, when American policies caused major problems in the system.

The end of the fixed exchange rates came about in the early 1970s. The US Government had to spend heavily on the Vietnam war, and also had to hide its cost from the public. This led to an inflated dollar. Speculative attacks on the overvalued dollar and other such reasons led the Nixon administration to devalue the dollar in August 1971. To achieve this, the US announced that it would no longer redeem the US dollar for gold. Furthermore, to force other countries to appreciate their currencies, the US imposed a 10% surcharge on imports until it achieved its planned levels of devaluation. This led to negotiations in which major industrialized nations decided to institute flexible rates at the Jamaica Conference in 1976. Reckless American policies, along with increasing international mobility of capital were the main catalysts for this adoption. This change led to increased integration of global financial markets. The rule-based international monetary system created at the Bretton Woods Conference was replaced by a shaky political agreement between dominant economic powers. Increased monetary and financial interdependence of national economies followed, forging a great impact on domestic and international economics.

The three key aspects required in a well-functioning monetary system at the global level are: (1) Adjustment - an international monetary regime must possess the methods to restore equilibrium; (2) Liquidity - providing enough liquidity in the system is crucial in order to function smoothly; and (3) Confidence in the system - the intangible force that legitimizes the system is

instrumental for stability. Many arguments have been made in favor of both more stable exchange rates and more flexible exchange rates. The former posit that flexible rates have failed, and that closer cooperation and restraints on the American economy, both of which were hard to achieve, were necessary. The latter posit that fixed exchange rates are expensive in a world where international financial flows are increasing rapidly. A system of flexible exchange rates allows economies to adjust to external shocks. There is merit in the argument that exchange rate fluctuation is a safeguard for the real economy.

No international system can function without cooperation between nations. Currency stability in the international monetary system can exist along with domestic policy flexibility if and only if there is strong cooperation. The main reason nations don't cooperate is they often have to give up some sovereignty. Scholars such as Gilpin<sup>94</sup> disagree with the argument that globalization took away significant economic control from nation-states, saying that nation-states had little control in the first place. This is true at least today, especially in a more interconnected and interdependent world. Other scholars have used other arguments to justify why it's a good idea to not let states have too much control. For instance, Keynes has argued that national economic policy did not always concern itself with the welfare of the lower order of societies, implying that states often use economic control for domestic political gains. Government monopolies over money have caused what every monopoly and the implied lack of competition causes: inefficiency. Private currencies that must compete with other private currencies and/or the government, have been described by some scholars as being capable of bringing increased efficiency to the monetary system. Although an efficient international monetary system would be preferred by every country, deep political and economic differences are likely to prevent major reforms.

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<sup>94</sup> Ibid 96

To understand more about the origins of the intertwined relationship between nation-states and their control of currencies within their sovereign territory, this part of the chapter will trace the history of national and territorial currencies. Eric Helleiner has been the most prominent academic on the topic of national currencies. As Helleiner<sup>95</sup> explains, conventional ideas about money have undergone drastic changes over time. Each country traditionally had its own territorial, exclusive, and homogeneous currency. These nationalized currencies are now being challenged by supranational forms of money like the euro. In some least developed countries (LDCs), foreign currencies such as the US dollar are sometimes adopted as the national currency, a phenomenon referred to as 'dollarization'. Dollarization has been a contentious issue despite its advantages i.e., reduction in transaction costs from using the same currency in international trade. This shows that there's nothing natural about the existence of territorial national currencies, and by extension, government's monopoly on money. However, the extinction of national currencies can undermine the Westphalian world order, for good or bad.

Helleiner<sup>96</sup> explored the origins of territorial currencies in the nineteenth and early twentieth centuries, describing key changes that first produced territorial currencies. He identified two preconditions for the birth of territorial currency, the presence of nation-states and industrial technology. He also identified four main motivations that prompted policymakers to create territorial currencies: (1) the desire to construct national markets, (2) macroeconomic and fiscal goals, (3) strengthening national identities, and (4) competitive nature of territorial currencies. Territorial currencies, he claims, were challenged throughout the nineteenth and twentieth centuries. Helleiner identified several factors that challenged national currencies: the free banking

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<sup>95</sup> Eric Helleiner. "The making of national money." In *The Making of National Money*. Cornell University Press, 2018.

<sup>96</sup> Ibid

movement, supporters of monetary unions, currency substitution, and subnational currencies. This section explores these topics in detail in order to understand the historical origins of national currencies.

Contrary to the common assumption that national currencies have been deeply entrenched and highly competitive, prior to World War I several European countries participated in regional monetary unions that permitted co-circulation of each other's currencies. Helleiner points out that there was substantial political support for a worldwide monetary union in the late 1860s. Supporters of the 'free banking' movement had worldviews that were similar to those who support and operate today's private, decentralized, and denationalized, currencies. Before 1914, free bankers questioned national currencies based on the economic argument that allowing privately issued bank notes would be the 'liberal' thing to do. They lobbied against the dominance of a single homogenous national bank note within their territories. Their allies included private banks and regionalist libertarian groups, like today's scenario.

In the interwar period, political patronage for currency unions and free banking waned. However, two different factors challenged territorial national currencies: currency substitution due to high inflation, and subnational local currencies. The former is commensurate to today's 'dollarization' trend. The driving reason was loss of trust in the national currency. Competition from sub-national local currencies was short-lived but is a phenomenon that has received little attention. These are comparable to store credits and internal transfer units within apps that transfer money. This topic is discussed towards the end of this paper, along with insights from similar theoretical insights, and related cases and simulations. Between the late nineteenth and mid twentieth centuries, Imperial powers tried to replace pre-colonial currencies. The colonial powers profited from these and from the large monetary unions they had formed to consolidate colonies.

However, after World War II, most newly independent countries discarded their colonial monetary structures and ended these monetary unions. These historical details clearly show that territorial and national currencies came about for political reasons and not for economic efficiency. This gives hope for denationalized, decentralized currencies. Their success is not impossible because there is nothing about national or territorial currencies that make them economically superior to a global currency.

The rise of national currencies teaches several important lessons. National currencies have two main roots: political, and technological. Helleiner points out that the emergence of the nation-state in the nineteenth century was a precondition for the creation of territorial currencies, and that most of the processes that led to the existence of these currencies were made possible by the nation-state's ability to dominate the areas it governed. The state's policing powers, its centralized authority, and its ability to establish trust were the sources of its power. In today's globalized world, this power has been declining. The very rise of global cryptocurrencies is seen by many scholars as a testament to this. Territorial currencies could not have come about if not for technological transformation. The emergence of new industrial technologies (such as the mint, and the printing press) that affected the production of coins and notes in the nineteenth century were instrumental in cementing the role of national currencies. These developments led to increased uniformity, standardization, and scaling. Governmental authorities were also able to drastically cut costs. The quality also improved, making counterfeiting much harder and more expensive. Helleiner also highlights that these technological aspects have not received the scholarly attention they deserve.

In sum, the decision to create territorial currencies was influenced more by politics than economics. Helleiner<sup>97</sup> identifies four sets of motivations that appeared in multiple contexts: (1) Fostering the emergence of national markets by altering transaction costs, (2) The desire to control the domestic money supply for macroeconomic purposes, (3) Fiscal needs of the state, and (4) Strengthening national identities. For cryptocurrencies to co-exist, they will need to offer the same benefits or provide better ones. In the next section, we explore how the Euro - the first major supranational currency - came about, to form ideas on how a change towards acceptance of denationalized currencies might happen.

The most notable supranational currency in history is the euro. The adoption of the euro by member states of the European Union was a watershed moment in international monetary history. Wyplosz,<sup>98</sup> in his 1997 paper, details the complex processes that led to the completion of the Economic and Monetary Union (EMU), describing the economic and political reasons that led these countries to adopt a single currency. He points out that the logic behind monetary union is not merely political. The goal of having a single currency has been on the table since the late 1950s but was never achieved because economic conditions were never conducive to the adoption. The Maastricht Treaty, which supersedes national legislations of member countries, is the main pillar on which the euro stands. As Wyplosz<sup>99</sup> notes, the treaty was achieved primarily because the lifting of capital controls had reduced options a 'lesser of two evils' scenario: (1) Allow exchange rates to float freely or, (2) accept Germany's domination over Europe's monetary policy through the Bundesbank. The first option was not compatible with a completely borderless economic area

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<sup>97</sup> Ibid

<sup>98</sup> Charles Wyplosz. "EMU: Why and how it might happen." *Journal of Economic Perspectives* 11, no. 4 (1997): 3-21.

<sup>99</sup> Ibid

because it carried the seeds of protectionist pressure, which would create financial instability and threaten economic integration.

The Bundesbank's domination, despite the positive changes it had catalyzed by eliminating inflation, had baggage: high unemployment, the policy blunders that caused the currency crises of 1992–93, and perennial disagreements over the objectives of the Bundesbank. One main contradiction was that the Bundesbank's constitutional mandate to Germany deviated from the role it had to play in Europe. This was a problem because any resolution would have entailed changing the Bundesbank's constitution. These conditions led to the emergence of the economic and monetary union (EMU) as the best possible economic solution. For there to be enough international support for denationalized, decentralized currencies to be a part of the international monetary system, an agreement like the Maastricht Treaty will be required at the UN level, along with a situation that would lead nations to agree that this new direction deserves exploration.

Wyplosz<sup>100</sup> has claimed that analyzing the costs and benefits of a monetary union quantitatively is exasperating and pointless. As an economist, he admits that economists are unable to accurately compute the costs and benefits. In the case of the euro, in addition to limited understanding of monetary and exchange rate policy, there was also the problem of not having any precedence. The direct benefits of having a common currency are the reduced transaction costs and reduced uncertainty. These factors contribute to transparency in competition, making the economy better. Other direct benefits include lower real interest rates, especially for countries where there is a premium currency risk. Institutional arrangements that come along with the EMU are also attractive to members. The central bank would have greater independence from political

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<sup>100</sup> Ibid

control in an EMU, and this would be beneficial to the economy. This highlights that international competition is achieved not through exchange rate manipulation, but by increased cooperation.

The most dominant theory used by economists to evaluate the viability of currencies is the theory of optimum currency areas. This theory helps in the economic analysis of creating a currency union. This analysis focuses on the costs associated with the loss of macroeconomic flexibility. Foregoing a national or territorial currency will mean the loss of an independent national monetary policy. The theory incorporates factors such as the nature of external shocks, the extent of factor mobility, wage, and price flexibility, as well as the openness, size, and diversification of economies. If these costs are low, the region is declared to be well suited for an ‘optimum currency area’ (OCA) in which the system would be tenable. Helleiner<sup>101</sup> rightly asserts that this theory has several shortcomings, and that it is not helpful in explaining many challenges such as dollarization, the growth of local currencies, or the support for free banking.

Scholarship has repeatedly demonstrated that politics can prevail over economics. Controlling powers play a key role in creating and maintaining stable financial and monetary systems. Another lesson from the history and evolution of the international monetary system is that political differences between nation-states never end. Therefore, a well-functioning monetary system at the international level requires a supervisory body that is invested in protecting the system. As highlighted in the literature review, this leader is responsible for establishing a ‘lender of last resort’ privilege to carry out economic transactions and providing liquidity. Typically, an international organization with the most robust military and economy would fill this role. Initially, Great Britain took this charge followed by the United States. In today’s world the private sector has the potential to take on this responsibility.

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<sup>101</sup> Ibid 101



Eichengreen<sup>102</sup> has shown that, while the hegemonic stability theory does partly apply to international monetary relations, international cooperation has been equally important to the design and functioning of all three monetary systems discussed above. The international monetary system creates a classic prisoner's dilemma where national economies can gain at the cost of others, but all nations would gain if they cooperated. It's very difficult to get states to cooperate, but the private sector is better at maintaining healthy competition and creating and constantly improving efficiency and customer satisfaction. However, this can be achieved only if governments give up their monopoly on money. As Cohen<sup>103</sup> describes, for effective cooperation, participating governments will need to voluntarily pre-commit to some form of external authority over their individual behavior (at least regarding monetary policy). Such a submission would not go well with a domestic audience. This raises the question; What types of domestic audiences lead to a stable international monetary order? Frieden<sup>104</sup> argued that currency policy is more likely to be contentious in economies that are more open and that internationally oriented economic actors tend to prefer a fixed exchange rate more than domestically oriented ones. Such audiences are, by extension, likely to be open to competition in currencies, having seen what competition has done for them in other sectors such as technology and consumer goods. However, nation-states will not allow this to happen because it would be tantamount to giving up part of their sovereignty. Money and sovereignty are deeply intertwined.

Many scholars have theoretically explored the topic of governmental monopoly over money, the possibility of denationalized currencies, and some researchers have studied cases that

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<sup>102</sup> Ibid 94

<sup>103</sup> Benjamin J. Cohen "The triad and the unholy trinity: problems of international monetary cooperation." In *International Political Economy*, pp. 255-266. Routledge, 2002.

<sup>104</sup> Jeffrey A. Frieden "Exchange rate politics: Contemporary lessons from American history." *Review of International Political Economy* 1, no. 1 (1994): 81-103.

relate to this concept. Some of which have used computer simulations to explore outcomes. There has been constant debate on whether having fewer national currencies is better for the international monetary system, than having too many national currencies. Scholars such as Hausmann<sup>105</sup> have argued in favor of fewer national currencies, while others such as Eichengreen have gone further and claimed that the best way to guarantee a stable international monetary system is complete monetary integration, i.e., a single currency managed by one central bank. Gilpin<sup>106</sup> argues that there has been no stable and satisfactory international monetary system since the early 1970s partly because reforming the monetary system involves complex technical issues. Every possible solution to technical matters carries important implications for the distribution of wealth and is therefore laden with political problems.

Today's highly globalized, multipolar world order might be ripe for a more highly decentralized monetary system. Blockchain technology is seen by many scholars, economists, and technologists as being a new technical solution to improve the monetary system, just like paper money and coins did through legal innovations such as bills of exchange and technological innovations like the mint respectively. Blockchain networks, which enable global private currencies, prevent double-spending and counterfeiting, and make it possible for users to exchange the digital assets for other digital assets and fiat currencies. Some aspects such as energy costs, and a few technical delays still prevent GPCs from becoming mainstream, but its proponents claim that it is only a matter of time before these problems are overcome, just like the internet transitioned from slow dial-up speeds to broadband optic-fiber speeds. China has taken the lead in responding to the threats posed by GPCs by mimicking its approach to the internet by taking the best aspects of the technology and combining them with its centralized model to maintain control. China has

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<sup>105</sup> Hausmann, Ricardo. "Should there be five currencies or one hundred and five?." *Foreign Policy* (1999): 65-79.

<sup>106</sup> *Ibid* 96

been the pioneer in applying the blockchain to create a centralized system that enables its fiat currency. Such central bank digital currencies (CBDCs) are seen as governments' response to GPCs and are poised to be the next major step in the history of money.

The key conclusion from the history and evolution of money is that the influence of technology on monetary history should not be overlooked. The materials used for currency, the degree of convenience it provided, and the monopoly that governments have historically had over monetary systems illustrate how money continues to evolve. Technological developments enabled new forms of money in the past and continues to do so. Money was created as an economic enabler that allows individuals and institutions to trade. As money and its forms evolved, they created interconnectedness and interdependencies on a global scale. Today, global private currencies are doing this alongside traditional fiat currencies. The next chapter explains the origins and evolution of GPCs to understand how this happened.

## CHAPTER 4

### HISTORY OF GLOBAL PRIVATE CURRENCIES

In April 2021, the value of the cryptocurrency market crossed the \$2 trillion mark for the first time.<sup>107</sup> In just over two months, this total market capitalization value had doubled because of massive spikes in interest from institutional investors. This unprecedented growth rate and dollar value baffled proponents and detractors alike. It was just about a decade ago that the first cryptocurrency, Bitcoin, which accounted for over 50% of the entire cryptocurrency market capitalization in 2021, was born as an idea. This chapter traces the history of Bitcoin followed by the history of the Diem (formerly known as Libra) and the history of Coinbase. Key points on other important cryptocurrencies such as Ethereum are also mentioned in order to provide a comprehensive account. As of February 2022, Bitcoin is still in operation while Diem, which never took off, was effectively shut down in early 2022 because of intense regulatory pressure.

While Bitcoin, the first cryptocurrency, was born in January 2009, blockchain technology, which enables Bitcoin was decades in the making, just like every scientific invention that builds on research from the past. Bitcoin, and all cryptocurrencies, would not be possible without blockchain technology. Bitcoin was also not the first digital currency. There were several attempts at creating electronic cash systems in the decades that preceded. Bitcoin was the first successful electronic payment system because of its design. In 1995, American cryptographer David Chaum built a type of electronic money called Digicash. It was one of the earliest forms of cryptographic electronic payments. Digicash required a specific software to withdraw money from a bank and then required specific encrypted keys in order to send the withdrawn money to a recipient. This

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<sup>107</sup> Arjun Kharpal, “Cryptocurrency Market Value Tops \$2 Trillion for the First Time as Ethereum Hits Record High,” CNBC, April 6, 2021, <https://www.cnbc.com/2021/04/06/cryptocurrency-market-cap-tops-2-trillion-for-the-first-time.html>.

was followed by BitGold in 1998. Nick Szabo, the designer of BitGold designed a system that required a participant to dedicate computer power to solving cryptographic puzzles in exchange for a reward, similar to Bitcoin's system. The computers that solved the puzzle received a reward. In the case of Bitcoin, the reward was in the form of Bitcoins and Satoshis (fractions). Szabo's system was not successful because it could not solve the problem of double spending without the role of a central authority.

The double spending problem refers to a potential flaw in a digital cash system in which the same single digital token can be spent more than once, leading to an untenable system. Unlike physical forms of money such as metal coins or paper currencies, a digital token is a digital file that can be easily duplicated or falsified. The creator of Bitcoin - an anonymous individual or group of individuals known as Satoshi Nakamoto - solved this problem by creating a system that enables widespread networks of pseudonymous miners to manage transactions within a blockchain. Satoshi Nakamoto's main contribution was the ability to solve the double-spending problem in a decentralized fashion. The blockchain prevents double spending by ensuring that each transaction is logged in an immutable way within every block, and by using complex puzzles to verify whether there is double spending. The distributed nature of the blockchain shields Bitcoin from being influenced or completely shut down by regulators. This is the root cause of most of the regulatory concerns.

On October 31, 2008, Satoshi Nakamoto published the white paper called Bitcoin – A Peer to Peer Electronic Cash System, describing the functionality of the Bitcoin blockchain network. Satoshi began working on Bitcoin on August 18th, 2008. This was the date of purchase for the domain Bitcoin.org. Satoshi Nakamoto mined the first block, a total of 50 Bitcoins, on January 3, 2009. Satoshi embedded the headline of a newspaper on the first block in order to establish the

economic preconditions, i.e., the financial crisis, that led to the creation of Bitcoin. This first block is referred to as the Genesis Block. In the beginning, it was seen as just a collectible. Bitcoin had almost no value for the first few months. In April 2010, a few months after trading started, the value of one Bitcoin was around 14 cents. On May 22, 2010, a computer programmer named Laszlo Hanyecz bought two pizzas by sending 10,000 Bitcoins to another member within the Bitcoin community who then placed the order using a credit card, marking the first Bitcoin-enabled commercial transaction. The value of Bitcoin surged to 36 cents by the end of May 2010 because of the pizza incident. From there, the cryptocurrency began gaining value over the internet as the number of users grew, a phenomenon referred to as 'the network effect'. For the next few years, a market was beginning to form around Bitcoin. In February 2011, the value rose to \$1.06. A few months later, thanks to a Forbes story on the new "cryptocurrency," the prices spiked again. By the end of May 2011, the price was around \$9. When Gawker, the news outlet, published a story about Bitcoin's appeal within the online drug dealing community, the price tripled within a week, reaching close to \$27. This highlights how comfortable Bitcoin's users are with the fact that the cryptocurrency enables drugs. At this point, the total market value of the Bitcoins that were in circulation was close to \$130 million. This initial success led to the creation of other similar products. In October 2011, Litecoin, the second closest competitor was launched. These copycats were collectively referred to as Altcoins.

Despite all the competition, the price of Bitcoin saw a steady increase. In September 2011, the Bitcoin Foundation was founded. A new competitor named Ripple entered the market at this time. Ripple was funded by venture capitalists. Interest in this sector has grown year on year. Today, the venture capital scene is highly bullish on the cryptocurrency market and has invested billions into several startups. In 2013, Bitcoin faced several legal issues such as criminal

investigations and technological issues such as software glitches. Bitcoin prices were highly unstable for a few years. For example, on November 19, its price peaked at \$755 and later crashed to \$378 that very day. By the end of November, the price was at \$1,163. By January 2015, the price was back to \$152.

Between 2014 and 2016, Bitcoin attracted a lot of attention from the mainstream media for being the subject of scams and illegal drug deals. The event that triggered this is referred to as the Mt. Gox incident. Mt. Gox was the name of the world's largest Bitcoin exchange until it collapsed and declared bankruptcy in January 2014 after losing 850,000 Bitcoin. The theft of these Bitcoins remains a mystery. This incident has been a cautionary tale for other exchanges. Yet, there have been several hacks ever since. Most of the hacking activity has been linked to North Korea.<sup>108</sup>

Between 2016 and 2018, Bitcoin became more popular across the world and saw steep increases in its valuations. Bitcoin prices rose from \$434 in January 2016 to \$998 in January 2017. Several software updates were made to the Bitcoin network over the years. In July 2017, a software upgrade was added to support the Lightning Network, which helped in increasing the speed of transactions. Another update was added to improve scalability.

These upgrades made significant changes to the way the network functioned, leading to massive increases in its price. The price rose to around \$2700 within a week. By the end of 2017, Bitcoin prices reached close to \$20,000. Around this time, there was new competition from a blockchain network called Ethereum, which remains the closest competitor to this day. Ethereum brought smart contracts to cryptocurrency, opening a wide array of potential use cases and generating thousands of different projects. Bitcoin, Ethereum, and other cryptocurrencies have been on a roller coaster ride ever since, with several booms and busts. Financial regulations and

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<sup>108</sup> "North Korea Hackers Stole \$400m of Cryptocurrency in 2021." BBC, January 14, 2022, <https://www.bbc.com/news/business-59990477>.

security concerns continue to plague every cryptocurrency while hacks continue to haunt every cryptocurrency exchange. Cryptocurrencies are highly volatile and may not survive the regulatory environment over time. But blockchain technology is seen as being a game changer not just for the finance sector but also for other sectors such as energy, transportation, etc.

The rise and fall of Libra, the cryptocurrency project that could have changed the history of money, highlights several key lessons on regulatory responses to global private currencies. The following paragraphs trace the entire history of Diem, formerly known as Libra, the ambitious stablecoin initiative proposed by Meta, the company formerly known as Facebook. Throughout the dissertation, Meta and Facebook are used interchangeably. Diem is a cautionary tale for every cryptocurrency, especially stablecoins. More importantly, Diem is an ideal case study to understand interactions between regulatory agencies and the cryptocurrency industry. Throughout the dissertation, Diem and Libra are used interchangeably. Libra faced resistance from regulators from the day it was announced. Literally minutes after the announcement was made, the then French Finance Minister, Bruno Le Maire, declared that Libra could not be allowed to become a sovereign currency. This was followed by months of strong resistance from regulators within the United States. The rest of this section details the journey of Diem from its birth as an idea in Silicon Valley to its death at the hands of the regulators in Washington D. C.

In early February 2018, Howard Wu, a Silicon Valley investor with expertise in cryptocurrencies was invited to Facebook headquarters in Menlo Park to discuss the implications, opportunities, and risks of introducing Facebook's massive user base of more than 2 billion online users to the new and exciting blockchain technology.<sup>109</sup> Facebook, like most technology

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<sup>109</sup> Salvador Rodriguez, "Meet Morgan Beller, the 26-Year-Old Woman behind Facebook's Plan to Make Its Own Currency," CNBC, July 20, 2019, <https://www.cnbc.com/2019/07/20/facebook-Libra-partly-created-by-female-engineer-morgan-beller.html>.



companies, requires its employees and consultants to sign strict non-disclosure agreements and therefore not much is known about what exactly was discussed during that meeting. A few media reports later shed some light on Facebook's plans on this front. The Verge, an American technology news website, reported that Morgan Beller, a 26-year-old woman, was one of three the key executives behind Facebook's plan to make its own currency. It was reported that Morgan Beller was listed as a co-creator of the proposed Libra digital currency, alongside Vice Presidents David Marcus and Kevin Weil. Morgan Beller was the head of strategy for CaLibra, the 'wallet' i.e., software application that was being designed to store Libra, the proposed digital currency. It is important to note that Beller was previously a partner at Andreessen Horowitz, Silicon Valley's top venture capital firm and one of the world's most bullish investors in the cryptocurrency world.

Morgan Beller's colleagues, during an interview, highlighted her deep passion for financial inclusion and her belief in the abilities of cryptocurrency technology to have a positive impact in underserved communities around the world. This narrative of Libra being a force for global development by 'banking the unbanked' was pushed strongly by Facebook. However, it was received with skepticism, given the company's track record. Facebook had lost the trust of regulators and users because of their handling of user data. Privacy was promised but never delivered because it must be sacrificed for profits. Libra was therefore seen as another money-making project that will use user data for advertising and profits.

In December 2017, David Marcus, a Vice President at Facebook who was one of three employees who led the Libra project, joined the board of Coinbase, a fast-growing cryptocurrency exchange.<sup>110</sup> Coinbase would then go on to become a multi-billion-dollar public company through

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<sup>110</sup> Brian Armstrong, "David Marcus, Head of Messenger at Facebook, Will Be Joining Coinbase's Board," *The Coinbase Blog*, Coinbase, December 13, 2017, <https://blog.coinbase.com/david-marcus-head-of-messenger-at-facebook-will-be-joining-coinbases-board-2675d5c9c967>.

an Initial Public Offering (IPO), which was a feat in comparison to the death of the Libra project. The reason Coinbase survived was that from day one, it was open to adapting its way based on inputs from regulators. Coinbase also bragged about this strategy to establish themselves as friendly innovators while others in the cryptocurrency space tested the limits of the law and that of the regulators. Until April 2018, David Marcus was primarily in charge of Facebook Messenger, the communication tool that enabled Facebook users to chat with each other. In early May 2018, David Marcus announced that he would be leading a new blockchain unit at Facebook.<sup>111</sup> Media reports referred to a mysterious blockchain division<sup>112</sup> within Facebook, but no other details were available.

A few days later, it was reported that Facebook had plans to launch its own cryptocurrency with the goal of integrating payment systems within its platform<sup>113</sup> through its messenger tool. This was seen as a dramatic move given Facebook's massive user base. With two billion users, it was deemed the largest digital nation on the planet. Facebook also had its own marketplace within the website for buying and selling goods. Having its own currency would have made Facebook a lot more powerful given how valuable financial data is, especially given the millions of daily active users it had. A few months later, in December 2018, Bloomberg reported that Facebook was building a stablecoin for WhatsApp transfers.<sup>114</sup> This was significant because the WhatsApp messenger, which was owned by a subsidiary of Facebook, was used by millions of people across

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<sup>111</sup> Wolfie Zhao, "Facebook's David Marcus to Lead New Blockchain Research Unit." CoinDesk, last modified, September 13, 2018, <https://www.coindesk.com/markets/2018/05/08/facebooks-david-marcus-to-lead-new-blockchain-research-unit/>.

<sup>112</sup> Shannon Liao, "Facebook Is Creating a Mysterious Blockchain Division." The Verge, May 8, 2018, <https://www.theverge.com/2018/5/8/17332894/facebook-blockchain-group-employee-reshuffle-restructure-david-marcus-kevin-weil>.

<sup>113</sup> Chaim Gartenberg, "Facebook Reportedly Plans to Launch Its Own Cryptocurrency," The Verge, May 11, 2018, <https://www.theverge.com/2018/5/11/17344318/facebook-cryptocurrency-token-blockchain-report-david-marcus>.

<sup>114</sup> Sarah Frier and Julie Verhage, "Facebook Is Developing a Cryptocurrency for WhatsApp Transfers, Sources Say," Bloomberg, December 21, 2018, <https://www.bloomberg.com/news/articles/2018-12-21/facebook-is-said-to-develop-stablecoin-for-whatsapp-transfers#xj4y7vzkg>.

the world every day for business and personal communication. In February 2019, Facebook acquired Chainspace,<sup>115</sup> a company that developed smart contracts. The scope of Facebook's digital currency project was growing by the day and now seemed to move beyond just currencies and into smart contracts.

Around this time, The New York Times confirmed that Facebook was building a cryptocurrency that could be used across its different platforms,<sup>116</sup> confirming the size of Libra's ambitions. Later that year, Facebook started hiring more people for the Libra project, including "Blockchain Liaisons."<sup>117</sup> Until this point, there was no clear official name or narrative by Facebook about the project. A few weeks later, the cryptocurrency project was referred to as "Project Libra" publicly for the first time<sup>118</sup> in the context of reported discussions between Facebook, Visa, and Mastercard. The report suggested that the Libra would be a fiat-backed stablecoin and was seeking funding to the tune of \$1 billion.

In May 2019, Christian Catalini, a cryptoeconomist, takes a leave of absence from his position as a professor at Massachusetts Institute of Technology's (MIT) Sloan School of Management to work at Facebook<sup>119</sup> on the Libra project. Facebook also poached experts from

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<sup>115</sup> Alex Heath, "Facebook Makes First Blockchain Acquisition with Chainspace," Cheddar News, February 5, 2019, <https://cheddar.com/media/facebook-blockchain-acquisition-chainspace>.

<sup>116</sup> Nathaniel Popper and Mike Issac, "Facebook and Telegram Are Hoping to Succeed Where Bitcoin Failed," The New York Times, February 28, 2019, <https://www.nytimes.com/2019/02/28/technology/cryptocurrency-facebook-telegram.html>.

<sup>117</sup> Baydakova, Anna. "Facebook Blockchain Job Openings Top 20 Amid Staffing Spree." CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/03/08/facebook-blockchain-job-openings-top-20-amid-staffing-spree/>.

<sup>118</sup> Yogita Khatri, "Facebook in Talks to Build Ecosystem for Planned Stablecoin: WSJ," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/05/03/facebook-in-talks-to-build-ecosystem-for-planned-stablecoin-wsj/>.

<sup>119</sup> Brady Dale, "MIT's Christian Catalini Said to Be Working on Facebook's Cryptocurrency," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/05/03/mits-christian-catalini-said-to-be-working-on-facebooks-cryptocurrency/>.

Coinbase,<sup>120</sup> the leading cryptocurrency exchange. This hiring spree and the resulting media attention made heads turn, leading to a letter from the U.S. Senate Committee on Banking, Housing and Urban Affairs asking Facebook for more details about its cryptocurrency project.<sup>121</sup> At the end of May 2019, Facebook registered “Libra Networks” as a new company in Geneva, Switzerland.<sup>122</sup> Facebook was reported to roll out a stablecoin in several countries within a year i.e., in the first half of 2020. Facebook was also reported to have been in talks with Coinbase and Gemini, the two leading cryptocurrency exchanges in the United States.<sup>123</sup>

In June 2019, due to increasing concerns from regulatory agencies, Facebook held talks with the U.S. Commodity Futures Trading Commission (CFTC) to allay fears about the proposed stablecoin.<sup>124</sup> There were rumors that Facebook could launch Libra to the world in the coming weeks<sup>125</sup> but that never happened due to alarms raised by regulators in other parts of the world, especially Europe. Facebook’s head of financial services for Northern Europe had to confirm that the proposed stablecoin would be pegged to a basket of currencies and not just one currency.<sup>126</sup> While nation-states and regulatory agencies were wary and confused about Libra, private sector

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<sup>120</sup> Marc Hochstein, “Facebook Hires Two of Coinbase’s Former Compliance Managers,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/05/14/facebook-hires-two-of-coinbases-former-compliance-managers/>.

<sup>121</sup> Nikhilesh De, “US Senators Seek Information on Facebook’s ‘Libra’ Crypto Project,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/us-senators-seek-information-on-facebooks-libra-crypto-project>.

<sup>122</sup> John Biggs, “Facebook Registers Secretive ‘Libra’ Cryptocurrency Firm in Switzerland,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/05/17/facebook-registers-secretive-libra-cryptocurrency-firm-in-switzerland/>.

<sup>123</sup> Wolfie Zhao, “Facebook to Roll Out ‘GlobalCoin’ Cryptocurrency in 2020: Report,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/05/24/facebook-to-roll-out-globalcoin-cryptocurrency-in-2020-report/>.

<sup>124</sup> Wolfie Zhao, “Facebook Holds Talks with CFTC Over GlobalCoin Cryptocurrency: Report,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/06/03/facebook-holds-talks-with-cftc-over-globalcoin-cryptocurrency-report/>.

<sup>125</sup> Benedict Alibasa, “Facebook Set to Reveal Own Cryptocurrency in June, Report Says,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/06/06/facebook-set-to-reveal-own-cryptocurrency-in-june-report-says/>.

<sup>126</sup> Daniel Palmer, “Facebook’s ‘GlobalCoin’ Crypto Will Be Tied to Multiple Currencies: Exec,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebooks-globalcoin-crypto-will-be-tied-to-multiple-currencies-exec>.

giants such as Uber, PayPal, Visa, Stripe, MercadoLibre, Bookings.com, and Mastercard were all reported to be backing Facebook in this ambitious project.<sup>127</sup>

However, concerns over Facebook's handling of data were reported to have killed at least three other partnerships.<sup>128</sup> This highlights the importance of transparency in operations, even for the private sector. On June 18, 2019, Facebook formally introduced Libra to the world. The Libra project presented an ambitious vision of a decentralized, autonomous organization that would oversee the entire project and deliver a 'borderless, easy-to-transfer means of exchange'. Facebook claimed that its participation in Libra would be through CaLibra, a new subsidiary which would build a digital wallet for the project, and that Facebook's role would be otherwise limited. The project was designed to be led by the Libra Association, a group of 28 companies, to oversee the development of the cryptocurrency. The Libra Association soon grew and had over a hundred companies,<sup>129</sup> creating a massive coalition of private sector titans that seemed to be ready to take the monetary system away from the clutches of governments across the world. On June 18, 2019, the very same day Facebook formally introduced Libra, U.S. lawmakers called for an immediate halt to Libra's development until they had a better understanding of the project<sup>130</sup>. Representative Maxine Waters, Chair of the House Financial Services Committee was the woman leading this charge.

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<sup>127</sup> Nikhilesh De, "Report: Uber, PayPal, Visa to Back Facebook's GlobalCoin Cryptocurrency," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/report-uber-paypal-visa-to-back-facebooks-globalcoin-cryptocurrency>.

<sup>128</sup> Leigh Cuen, "Concerns Over Facebook Data Use Derailed at Least 3 Crypto Partnerships," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/concerns-over-facebook-data-use-derailed-at-least-3-crypto-partnerships>.

<sup>129</sup> Zack Seward and Nikhilesh De, "Facebook Unveils Libra Cryptocurrency, Targeting 1.7 Billion Unbanked," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-launches-subsiidiary-to-support-new-libra-crypto>.

<sup>130</sup> Nikhilesh De, "Halt Libra? US Lawmakers Call for Hearings on Facebook's Crypto," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/halt-libra-us-lawmakers-call-for-hearings-on-facebooks-crypto>.

Facebook had not even responded to the letter from the U. S. Senate Banking Committee that was sent over a month ago,<sup>131</sup> Now, with Rep. Maxine Waters also on the case, Facebook had to answer to both houses of the Congress. The U.S. Senate Banking Committee announced it will hold a hearing on Libra in July.<sup>132</sup> The U.S. House Financial Services Committee also announced that it would hold a hearing on Libra in July.<sup>133</sup> To make things worse, regulators from across the pond were also signaling their postures. Mark Carney, the Governor of the Bank of England, said that while he was open-minded about Libra, it would have to adhere to strict regulations before it could launch.<sup>134</sup> Facebook was also being ganged up on by G7, the intergovernmental organization made up of the world's largest developed economies: France, Germany, Italy, Japan, United States, United Kingdom, and Canada. The G7 had just announced that it was forming a task force to evaluate Libra.<sup>135</sup> Pressure was building up across the world. The Monetary Authority of Singapore announced that it was looking for more information on Libra, and that it had held talks with Facebook.<sup>136</sup>

In July 2019, even before the scheduled Congressional hearings, there was more pressure from U.S. lawmakers demanding that Facebook cease all development activities related to its Libra

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<sup>131</sup> Nikhilesh De, "Facebook Has Yet to Answer US Lawmakers' Questions About Libra Crypto," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-has-yet-to-answer-us-lawmakers-questions-about-Libra-crypto>.

<sup>132</sup> Nikhilesh De and Stan Higgins, "Senate Banking Committee Schedules July Hearing on Facebook's Libra Crypto," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/senate-banking-committee-schedules-july-hearing-on-facebooks-Libra-crypto>.

<sup>133</sup> Nikhilesh De, "Second US Congressional Hearing Is Scheduled on Facebook's Libra Crypto," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/second-us-congressional-hearing-is-scheduled-on-facebooks-Libra-crypto>.

<sup>134</sup> Wolfie Zhao, "Bank of England Governor Says Facebook's Libra Crypto Will Be Scrutinized," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebooks-Libra-could-meet-highest-standards-in-regulation-boe-governor>.

<sup>135</sup> Daniel Palmer, "G7 Forming Task Force in Response to Facebook's Libra Cryptocurrency," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/g7-forming-task-force-in-response-facebooks-Libra-cryptocurrency>.

<sup>136</sup> Daniel Palmer, "Singapore's Central Bank Wants More Information on Facebook's Libra Crypto," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/06/27/singapores-central-bank-wants-more-information-on-facebooks-Libra-crypto/>

cryptocurrency on grounds that the project could pose systemic risks that endanger U.S. and global financial stability. "It appears that these products may lend themselves to an entirely new global financial system that is based out of Switzerland and intended to rival U.S. monetary policy and the dollar. This raises serious privacy, trading, national security, and monetary policy concerns for not only Facebook's over 2 billion users, but also for investors, consumers, and the broader global economy,"<sup>137</sup> the lawmakers wrote in their letter. The letter referred to the privacy issues involving Facebook, including the Cambridge Analytica scandal, which involved a political consulting firm gaining access to the data of over 50 million Facebook users. This data was successfully used to target swing voters in the Brexit referendum. The letter also surprisingly admitted that, if successful, the Libra project could create "a new Swiss-based financial system that is too big to fail." Public opinion was also not in favor of Facebook or Libra. There were attacks from organizations such as Public Citizen, a North American privacy and consumer watchdog, which demanded that lawmakers halt Libra's development.<sup>138</sup> David Marcus, the head of the Libra project, had to write an open letter to clarify "misunderstandings" about Libra. In this letter, he confirmed that he will testify before both the U.S. Senate Banking and U.S. House Financial Services committees.<sup>139</sup>

Meanwhile, on the other side of the planet, Wang Xin, the head of research at the People's Bank of China (PBOC), said that Libra could force the Chinese central bank to accelerate its

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<sup>137</sup> Nikhilesh De, "4 US Lawmakers Join Call to Freeze Facebook's Libra Project," CoinDesk, September 13, 2021, last modified <https://www.coindesk.com/4-us-lawmakers-join-call-to-freeze-facebooks-libra-project>.

<sup>138</sup> John Biggs, "US Watchdog Groups Call for Congress to Put a Freeze on Facebook's Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/us-watchdog-groups-call-for-congress-to-put-a-freeze-on-facebooks-libra>.

<sup>139</sup> Nikhilesh De, "Facebook's David Marcus: Libra Crypto Users Won't Have to Trust Us," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebooks-david-marcus-libra-crypto-users-wont-have-to-trust-us>.

research into a digital currency.<sup>140</sup> He seemed to be highly wary of the fact that there is a first-mover advantage to be gained in being the first major global digital currency. China was already working on creating a hybrid currency that worked like a cryptocurrency but was controlled and operated by the State. PBOC was the first major central bank to study digital currencies, starting in 2014, a step to counter the challenge from cryptocurrencies including Bitcoin. China had taken similar approaches before as evident in its hybridized model of state-controlled capitalism and competition-controlled internet. Wang Xin admitted that, if Libra becomes widely used for international payments and effectively acts like money, it could accordingly have a large influence on monetary policy, financial stability, and the international monetary system.<sup>141</sup> As discussed in chapter 8, China later created the world's first successful pilot of a Central Bank Digital Currency (CBDC) way ahead of others.

David Marcus, the head of Libra, in his response to the U.S. Senate Banking Committee's questions, declared that Facebook would not link personal information with Libra transactions.<sup>142</sup> However, he does not get any kudos from anyone. He is instead met with more pushback from other parts of the government. This time, it's the Federal Reserve. Jerome Powell, the Fed Chairman, announces that Libra would not be permitted to launch until Facebook has answered questions about its operations. He raised concerns around financial stability and consumer protection,<sup>143</sup> saying such a project is "systemically important" given the size of Facebook's user

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<sup>140</sup> Daniel Palmer, "Facebook Libra Threat Could Spur Work on China's National Digital Currency: PBoC Official," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-libra-threat-could-spur-work-on-chinas-national-digital-currency-pboc-official>.

<sup>141</sup> Frank Tang, "Facebook's Libra Forcing China to Step up Plans for Its Own Cryptocurrency, Says Central Bank Official," South China Morning Post, July 8, 2019, <https://www.scmp.com/economy/china-economy/article/3017716/facebooks-libra-forcing-china-step-plans-its-own>.

<sup>142</sup> Nikhilesh De, "Facebook to Senators: Libra Crypto Will Respect Privacy," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-to-senators-libra-cryptocurrency-will-respect-consumer-privacy>.

<sup>143</sup> Nikhilesh De, "Fed Chair Says Libra 'Cannot Go Forward' Until Facebook Addresses Concerns," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/fed-chair-says-libra-cannot-go-forward-until-facebook-addresses-concerns>.



base.<sup>144</sup> This was followed by U.S. Treasury Secretary Steven Mnuchin's comments that he is not comfortable with Libra because it could be misused by criminal entities.<sup>145</sup> These various comments clearly indicate the most common regulatory concerns: preventing crime and preserving financial stability and state sovereignty. Just before the Senate hearing, U.S. President Donald Trump's tweets saying he is "not a fan" of cryptocurrencies. These were his first public comments on crypto since becoming president. He added that Libra "will have little standing or dependability" and that "If Facebook and other companies want to become a bank, they must seek a new Banking Charter and become subject to all Banking Regulations, just like other Banks, both National [...] and International."<sup>146</sup>

On July 16, 2019, David Marcus testified before the U.S. Senate Banking Committee, positioning the Libra project as a path to financial inclusion for underserved populations. "Our first goal is to create utility and adoption, enabling people around the world – especially the unbanked and underbanked – to take part in the financial ecosystem," he said.<sup>147</sup> He assured lawmakers that the Libra Association would work with the Federal Reserve and other central banks to make sure that the proposed stablecoin does not compete with sovereign currencies or interfere with monetary policy. "Monetary policy is properly the province of central banks," he added. David Marcus's comments and the U.S. Congress's concerns clearly establish that GPCs, including stablecoins, are a threat to the State's ability to carry out monetary policy. Gary Gensler, the former Chairman of

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<sup>144</sup> Daniel Kuhn, "Fed Chairman Jerome Powell Compares Bitcoin to Gold," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/fed-chairman-jerome-powell-compares-bitcoin-to-gold>.

<sup>145</sup> Nikhilesh De, "US Treasury Secretary Mnuchin Is 'Not Comfortable' With Facebook's Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/us-treasury-secretary-mnuchin-is-not-comfortable-with-facebooks-libra/>.

<sup>146</sup> Nikhilesh De, "US President Donald Trump Says He's 'Not a Fan' of Bitcoin," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/07/12/us-president-donald-trump-says-hes-not-a-fan-of-bitcoin/>.

<sup>147</sup> Marc Hochstein, "Bitcoin Noticeably Absent From Senate Hearing on Facebook's Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/07/16/bitcoin-noticeably-absent-from-senate-hearing-on-facebooks-libra/>.

the Commodity Futures Trading Commission (CFTC), in his prepared remarks ahead of testifying before the U.S. House Financial Services Committee that Libra looks like a security and should be regulated as one because its value is pegged to a basket of sovereign currencies and government bonds.<sup>148</sup> He added that some aspects of Libra's structure may also fall under banking regulations. He further explained that the Libra Reserve is effectively proposing "a private form of money" which can be used for payments, storing value and lending "the proceeds to banks (as deposits) and governments (as debt securities)."

Tether, a stablecoin that was launched before, had already set the precedent for a stablecoin issuer operating as a fractional bank. But Tether was not a concern because it did not have access to two billion users. On July 17, 2019, one day after the Senate hearing, David Marcus testified before the U.S. House Financial Services Committee and reiterated that Libra would not launch until regulators' concerns were fully addressed.<sup>149</sup> This was not enough for some lawmakers including Rep. Carolyn Maloney (D-N.Y.), who asked Marcus if he would at least promise to carry out a small pilot test of Libra, involving no more than 1 million users. Such a pilot test had to be overseen by the Federal Reserve and the Securities and Exchange Commission (SEC), before fully launching the currency. David Marcus refused to commit to such a pilot project but reiterated that he would commit to working with regulators. "I don't think you should launch a new currency at all," Rep. Maloney declared during the hearing. Rep. Brad Sherman (D.-Calif.), in a seemingly hyperbolic statement, suggested that Libra was somehow more dangerous to America than 9/11.

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<sup>148</sup> Nikhilesh De, "Facebook's Libra Should Be Regulated Like a Security, Says Former CFTC Chair," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/07/16/facebooks-Libra-should-be-regulated-like-a-security-says-former-cftc-chair/>.

<sup>149</sup> Marc Hochstein, "Lawmakers Amp Up Pressure on Facebook to Halt Libra Cryptocurrency Development," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/lawmakers-amp-up-pressure-on-facebook-to-halt-Libra-cryptocurrency-development>.

Rep. Alexandria Ocasio-Cortez (D-N.Y.) asked David Marcus whether he believed that the currency was a public good. David Marcus responded saying, “It’s not up to me to decide.”

Several of the lawmakers were concerned about Libra's threat to U.S. financial dominance, which confirms that great power competition is a key regulatory factor. David Marcus assured the lawmakers that the Libra reserve would be backed mainly by the U.S. dollar. He then specified that it would be 50 percent dollars and the rest would be a combination of Euros, British pounds and the Japanese yen. It was clear that the Republicans on the panel were less hostile. It was also clear that Congress was able to draw understand the differences between Libra and cryptocurrencies<sup>150</sup> i.e., the fact that Libra is a stablecoin pegged to fiat currencies and that Libra can be transparent, clearly establishing the importance of compliance with fiat currencies, and transparency in operations as key regulatory factors. These hearings signaled that Libra was not going to be approved by lawmakers in its current form.

Just a week after the hearing, there were signs of cracks within the Libra coalition. The first sign was Visa’s CEO Alfred Kelly’s statement that his company was not yet a member of the Libra Association and that the letter of intent to join the association was nonbinding.<sup>151</sup> Public opinion was also not in Libra’s favor. A survey by CivicSense, a consumer polling group, found that, in mid-2019, more adults in the U.S. trusted Bitcoin than Libra.<sup>152</sup> Just 2 percent of those polled felt they would trust Libra while close to 40% preferred Bitcoin. This was not a good sign because Libra was hoping to replace Bitcoin as the most dominant global private currency. In an attempt to signal increased cooperation, Facebook CEO Mark Zuckerberg declared that his

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<sup>150</sup> Nikhilesh De, “Congress Drew a Fine Line Between Libra and Crypto – That’s a First,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/congress-drew-a-fine-line-between-Libra-and-crypto-thats-a-first>.

<sup>151</sup> Daniel Palmer, “Facebook Libra Backers Are Not Official Partners Yet, Says Visa CEO,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-Libra-backers-are-not-official-partners-yet-says-visa-ceo>.

<sup>152</sup> Daniel Palmer, “People in US Trust Bitcoin More Than Facebook's Libra: Report,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/report-people-in-us-trust-Bitcoin-more-than-facebooks-Libra>.

company would take however long it needs to convince lawmakers and launch Libra<sup>153</sup> while the company also conceded, in a disclosure filed with the U.S. Securities and Exchange Commission, that Libra may never launch.<sup>154</sup>

Regulators across the world then started firing warning shots at Libra, hoping to get similar responses. There were several demands from across the world for more information about the privacy implications of Libra. In a joint statement published by the U.K. Information Commissioner's Office (ICO), and data privacy commissioners from Australia, Albania, Burkina Faso, Canada, the EU, U.K., and the U.S., shared concerns that Facebook has failed to specifically address the information handling practices that will be in place to secure and protect personal information.<sup>155</sup> This, again, highlights the role of transparency in operations as a critical regulatory factor for GPCs. In August, 2019, the European Commission launched an antitrust investigation of the Libra Association based on concerns that Facebook's planned digital payment system could unfairly lock out competitors because of the nature and size of the Libra Association's partnership structure.<sup>156</sup> This regulatory backlash sparked concerns among some Libra Association members, some of whom were reported to be considering a pullout.<sup>157</sup> Meanwhile, in the United States, Secretary of State Michael Pompeo suggested that Libra should be regulated similarly to the

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<sup>153</sup> Nikhilesh De, "However Long It Takes': Zuckerberg Vows to Win Over Libra Regulators," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/07/25/however-long-it-takes-zuckerberg-vows-to-win-over-libra-regulators/>.

<sup>154</sup> Daniel Palmer, "Facebook Libra Might Never Launch, Company Concedes in SEC Disclosure," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-libra-might-not-ever-launch-concedes-firm>.

<sup>155</sup> Daniel Palmer, "Global Regulators Warn on Privacy Risks of Facebook's Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/global-regulators-warn-on-privacy-risks-of-facebooks-libra>.

<sup>156</sup> Daniel Palmer, "Facebook Libra Already Facing an EU Antitrust Probe: Report," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-libra-already-facing-an-eu-antitrust-probe-report>.

<sup>157</sup> Daniel Palmer, "Tensions Rising at Facebook Libra as Backers Consider Quitting: Report," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/tensions-rising-at-facebook-libra-as-backers-consider-quitting-report>.

SWIFT network,<sup>158</sup> which processes most of the world's cross-border payments and works closely with American and Western governments. U.S. Rep. Maxine Waters announced that her office and the U.S. House Financial Services Committee will continue to evaluate Libra,<sup>159</sup> and that she was not convinced about the project after meeting with Swiss regulators.<sup>160</sup>

Mark Carney, the Governor of the Bank of England, echoed the same concerns raised by Rep. Maxine Waters, saying Libra has the potential to displace the US dollar as the world's reserve currency.<sup>161</sup> This, again, highlights the role of great power competition as a regulatory factor affecting GPCs. Mark Carney also suggested that the US should create a wholly digital alternative to the U.S. dollar. Comments by Mark Carney and his counterpart at the Chinese central bank clearly suggest that Central Bank Digital Currencies (CBDCs) are the future of the currencies. This would continue to prove the primacy of politics in deciding the dynamics of the financial and monetary system. While Visa, PayPal, Uber and other tech and payment giants within the Libra Association started having second thoughts, other members such as Andreessen Horowitz (a16z) and Union Square Ventures, the two venture capital firms that are bullish on cryptocurrencies, seemed to remain unfazed by regulators.<sup>162</sup>

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<sup>158</sup> Daniel Palmer, "US Secretary of State Says Crypto Should Be Regulated Like SWIFT," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/us-secretary-of-state-says-crypto-should-be-regulated-like-swift-transactions>.

<sup>159</sup> Daniel Kuhn, "Rep. Waters Says Congress Will Continue Review of Facebook's Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/rep-waters-says-congress-will-continue-review-of-facebooks-Libra-crypto>.

<sup>160</sup> Wolfie Zhao, "Switzerland Meetings Didn't Clear US Lawmaker's Doubts on Facebook's Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/switzerland-meetings-didnt-clear-us-lawmakers-doubts-on-facebooks-Libra>.

<sup>161</sup> Nikhilesh De, "UK Central Bank Chief Sees Digital Currency Displacing US Dollar as Global Reserve," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/bank-of-england-governor-calls-for-digital-currency-replacement-to-the-dollar>.

<sup>162</sup> Brady Dale, "Libra Association's Crypto Members Remain Unfazed by Regulatory Backlash," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/08/27/Libra-associations-crypto-members-remain-unfazed-by-regulatory-backlash/>.

In Europe, Libra had more concerns. In September 2019, Yves Mersch, a member of the executive board at the European Central Bank (ECB), warned that Libra could impair the European Union's monetary policy and affect the ECB's control over the euro.<sup>163</sup> He raised concerns about the threat posed by Facebook's Libra to monetary policy and consumers in the EU. His assessment was that Libra had the potential to impair the monetary policy transmission mechanism by affecting the liquidity position of euro area banks and undermine the single currency's international role. These points reinforce the finding that sovereignty and transparency in operations are key regulatory factors in the case of GPCs. Around the same time, the U. S. Under Secretary of the Treasury for Terrorism and Financial Intelligence, Sigal Mandelker, warned that Libra and other cryptocurrencies must comply with existing anti-money laundering (AML) laws and other regulatory requirements to tackle financial crimes.<sup>164</sup> "Whether it's Bitcoin, Ethereum, Libra, our message is the same to all of these companies: anti-money laundering and combating the financing of terrorism has to be built into your design from the get-go," she said, after a meeting in Geneva with representatives from the Swiss government, the Bank for International Settlements and other international financial organizations. This cements the fact that the primary regulatory factor affecting GPCs is compliance with AML laws.

After taking hits from the political, social, and legal domains, Libra was struck by the technological domain when a third-party found vulnerabilities in Move, Libra's scripting language.<sup>165</sup> This again, highlights the importance of transparency in operations as a factor and the

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<sup>163</sup> Daniel Palmer, "ECB's Mersch Warns Over 'Tracherous Promises' of Facebook Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/ecbs-mersch-warns-over-tracherous-promises-of-facebook-libra>.

<sup>164</sup> Daniel Palmer, "Facebook Libra, Other Cryptos Must Comply With US Rules: Treasury Official," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-libra-other-cryptos-must-comply-with-us-rules-treasury-official>.

<sup>165</sup> William Foxley, "Vulnerability Fixed in Facebook Contract Language for Libra Cryptocurrency," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/vulnerability-fixed-in-facebook-contract-language-for-libra-cryptocurrency>.

importance of technology as a dimension for smooth operations of GPCs. Libra had a breakthrough when Mark Branson, the director of the Financial Market Authority (FINMA), the Swiss financial markets watchdog, indicated that Switzerland was willing to work with Libra. Mark Branson added that the country would not bow to foreign pressure to prevent Libra's launch.<sup>166</sup> In a bold statement, Mark Branson stated that, if Switzerland wanted to become a major financial center, it had to live with the potential risks of working with major projects such as Libra. This is an example of how GPCs can manage to survive by gaining political support from one part of the world and use that to survive and operate across the world. He noted that cryptocurrencies come with both risks and potential benefits, and they could in fact help to tackle money laundering if traceability of transactions becomes fully available. Clearly, transparency in operations is a key regulatory factor for GPCs.

However, there was a different type of reaction from one of Switzerland's neighbors. Bruno Le Maire, the French minister for Economy and Finance, declared that Libra would not be allowed to launch in its current form. "I want to be absolutely clear: In these conditions, we cannot authorize the development of Libra on European soil," he said.<sup>167</sup> "It would be a global currency, held by a single player, which has more than two billion users around the world. The monetary sovereignty of states is under threat," he added, highlighting the role of sovereignty as a regulatory factor for GPCs. Le Maire expressed strong concerns about Libra becoming a substitute for a national currency and causing financial disruption. He also brought up the role of cryptocurrencies in money laundering and terrorist activity. In response to all this, the Libra Association released a

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<sup>166</sup> Daniel Palmer, "Facebook Libra Brings 'Risks and Opportunities': Swiss Watchdog Chief," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-Libra-brings-risks-and-opportunities-swiss-watchdog-chief>.

<sup>167</sup> Palmer, Daniel. "France Says It Will Block Facebook Libra in Europe." CoinDesk, last modified September 13, 2021. <https://www.coindesk.com/france-says-it-will-block-facebook-Libra-in-europe-report>.

friendly statement highlighting how the Minister's concerns further underscores the importance of the association's ongoing work with regulatory bodies and leadership around the world, and that the association and its members are committed to working with regulatory authorities to achieve a safe, transparent, and consumer-focused implementation of the Libra project. In response, Bertrand Perez, the Libra association's managing director and Chief Operating Officer (COO), denied that the stablecoin can cause disruption to the monetary policies of central banks with currencies included in the Libra reserve, which was designed to be a basket of fiat currencies and government bonds. "It is their monetary policies that will influence the Libra through the basket and not the other way around," he argued.<sup>168</sup> Bertrand Perez was confident that Libra would launch on schedule, sometime around the end of 2020.

Libra had more international scrutiny waiting. The Bank for International Settlements, an international financial institution owned collectively by central banks with the goal of fostering international monetary and financial cooperation and serving as a bank for central banks, announced in September 2019 that its Committee on Payments and Market Infrastructure, which included at least 26 central banks, would question the Libra Association to get more information on the proposed stablecoin.<sup>169</sup> At this meeting, Libra was expected to answer questions on its planned scope and structure. The central banks' findings were included in a report for the G7 nations in October. David Marcus, in an attempt to convince hawkish regulators such as France's Bruno Le Maire, reiterated that Libra is a threat to monetary sovereignty or economic stability.<sup>170</sup>

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<sup>168</sup> Daniel Palmer, "Facebook's Libra Pushes Back at Claims Project Is Threat to Financial Stability," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-Libra-pushes-back-at-claims-project-is-threat-to-financial-stability>.

<sup>169</sup> Daniel Palmer, "Central Banks to Question Facebook-Led Libra Over Financial Risks," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/global-central-banks-to-question-facebook-led-Libra-over-financial-risks>.

<sup>170</sup> Palmer, Daniel. "Facebook's David Marcus Responds to Critics Over Libra 'Threat'." CoinDesk, last modified September 13, 2021. <https://www.coindesk.com/facebooks-david-marcus-responds-to-critics-over-Libra-threat>.



"We believe strong regulatory oversight preventing the Libra Association from deviating from its full 1:1 backing commitment is desirable," he added.

International pressure on Libra did not subside. There were more concerned parties. Changchuan Mu, who had just been appointed as the director of China's Research Institute on Digital Currency, China's cryptocurrency czar, expressed concerns that although every major global power did not welcome Facebook's Libra, the stablecoin's advance might be too late to stop.<sup>171</sup> "It is very unlikely that one can totally stop people from buying Libra despite rigorous regulations," he added. The only way to stop Libra, he argued, was a legal ban by the United States and that if this doesn't happen, it is highly likely that Libra will become a dominant international currency. He reiterated that Libra would chip away the State's power to execute monetary policy and that this was a fight for monetary sovereignty. Controlling capital flows and preventing money laundering were listed as the key reasons behind the Chinese crackdown on cryptocurrencies. China's national digital currency plan was being implemented at that time. The idea was to create a digital currency that was fully backed by the central government and pegged one-to-one to the Chinese renminbi. The primary goal was to replace cash. Libra was seen as a threat to this digital Yuan although Facebook is banned in China.

While China wanted Libra to be completely shut down, Japan called for international cooperation in regulating Libra.<sup>172</sup> Haruhiko Kuroda, the governor of the Bank of Japan, declared that if launched, Libra would have a huge impact on society. He echoed the findings of a task force that was set up by the G7 to examine issues raised by Libra, saying rules of the highest standards

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<sup>171</sup> David Pan, "China's Crypto Czar: Facebook-Led Libra 'Might Be Unstoppable,'" CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/09/19/chinas-crypto-czar-facebook-led-libra-might-be-unstoppable/>.

<sup>172</sup> Daniel Palmer, "Japan's Central Bank Chief Calls for International Effort on Libra Regulation," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/japans-central-bank-chief-calls-for-international-effort-on-libra-regulation>.

were needed to minimize the use of digital currencies in money laundering and funding terrorism. In Europe, Benoit Coeure, a member of the Executive Board of the European Central Bank (ECB), who led the BIS interview declared that Libra has been a wakeup call for central banks and policymakers.<sup>173</sup> He called for banks to respond while making some rare positive comments on Libra. He claimed that stablecoins such as Facebook's Libra could help connect 1.7 billion people across the world, who are currently unbanked, and make cross-border payments cheaper, faster, and more transparent. Similar comments were echoed by Bertnand Perez, the head of the Libra Association, at the U.N. headquarters in Geneva during a blockchain event. He claimed that Libra could help the U.N. achieve its sustainable development goals., repeating the international development narrative that has accompanied Libra from the beginning.<sup>174</sup>

Meanwhile, The Libra Association was about to fall apart. The Wall Street Journal reported that Mastercard and Visa are reconsidering their role in the Libra Association<sup>175</sup> given the global regulatory pushback faced by the proposed cryptocurrency. This regulatory pressure increased in October 2019 when U.S. Representatives French Hill and Bill Foster warned, in a letter to Federal Reserve Chair Jerome Powell,<sup>176</sup> that Libra could remove some of the U.S. government's authority over financial governance. Adding fuel to this fire, executives from Bank of America, M&T Bank Corp. and KeyCorp also warned that Libra could be a monetary threat. Soon after these cascades,

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<sup>173</sup> Richard Meyer, "Libra Crypto Is 'Undoubtedly' a Wakeup Call for Central Banks, Says ECB Exec," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/Libra-crypto-is-undoubtedly-a-wakeup-call-for-central-banks-says-ecb-exec>.

<sup>174</sup> Daniel Palmer, "Facebook-Led Libra Could Be Boon to UN, Says Crypto Project's Chief," Coindesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-led-Libra-could-be-boon-to-un-says-crypto-projects-chief>.

<sup>175</sup> Danny Nelson, "Institutional Libra Backers Are Getting Cold Feet," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/institutional-Libra-backers-are-getting-cold-feet>.

<sup>176</sup> Nikhilesh De, "US Lawmakers Ask Fed to Consider Developing 'National Digital Currency,'" CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/us-congressmen-ask-fed-to-consider-developing-national-digital-currency>.

PayPal formally withdrew from the Libra Association.<sup>177</sup> Sensing an opportunity to strike, U.S. Senators Sherrod Brown and Brian Schatz warned Visa, Mastercard and Stripe that they may see heightened regulatory scrutiny if they continue working on Libra.<sup>178</sup> In their letters to the CEOs of these companies, the senators highlighted that Facebook, the driving force behind the network, has failed to satisfactorily answer regulatory concerns over terrorism, money laundering, monetary policy, and economic destabilization.

On the other side of the pond, Olaf Scholz, the German Finance Minister who would later succeed Angela Merkel as the Chancellor, declared that he was “very very critical” of Libra and supported the idea of a digital euro.<sup>179</sup> Clearly, governments across the world had seen the opportunity in building their own version of Libra in the form of a Central Bank Digital Currency (CBDC). Around the same time, The Bank of England published a set of principles that Libra would follow in order to launch in the U.K.<sup>180</sup> The Bank of England recognized Libra as a systemically important payment system and demanded access to monitor payment chain information as one of its conditions. This demand highlights the importance of transparency in operations as a critical regulatory factor. In response to all these regulatory pressures, on October 11, 2019, Mastercard, Visa, Mercado Pago, Booking Holdings, eBay, and Stripe announced their withdrawal from the Libra Association.<sup>181</sup> Soon after this, in an attempt to compensate for the loss

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<sup>177</sup> Nikhilesh De, “PayPal Withdraws From Facebook-Led Libra Crypto Project,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/paypal-withdraws-from-facebook-led-libra-crypto-project>.

<sup>178</sup> William Foxley, “US Lawmakers Call on Payment Giants to Exit ‘Chilling’ Libra Project,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/us-lawmakers-call-on-payment-giants-to-exit-chilling-libra-project>.

<sup>179</sup> William Foxley, “German Finance Minister Supports Digital Euro, But ‘Very Critical’ of Libra,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/german-finance-minister-supports-digital-euro-but-very-critical-of-libra>.

<sup>180</sup> William Foxley, “Bank of England Sets Out Rules for Libra Launch in the UK,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/bank-of-england-sets-out-rules-for-libra-launch-in-the-uk>.

<sup>181</sup> Nikhilesh De and Brady Dale, “Visa, Mastercard, EBay, Stripe Follow PayPal in Quitting Facebook’s Libra Project,” CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/10/11/visa-mastercard-ebay-stripe-follow-paypal-in-quitting-facebooks-libra-project/>.

of some of its key members and to show progress, 21 companies signed the Libra Association charter, formally creating the governing council for the stablecoin initiative and electing an executive board.<sup>182</sup>

Sensing that Libra was trying to move forward, regulators from the United States and abroad started attacking Libra again. In the United States, Lael Brainard, Governor of the Federal Reserve, strongly criticized Libra stating that the Facebook-led project would need to resolve several regulatory hurdles before going live. He reiterated that Libra could become a global threat to monetary stability, in part due to Facebook's massive user base, which includes almost one-third of the world's population.<sup>183</sup> "If a large share of domestic households and businesses come to rely on a global stablecoin not only as a means of payment but also as a store of value, it could impact central banks' balance sheets," he said. The head of Sweden's Riksbank declared that Libra is forcing central banks to reconsider their approach to money, and that the stablecoin would be a 'catalytic event' for central banks,<sup>184</sup> France's Bruno Le Maire slammed Libra again, reminding that it could undermine monetary sovereignty.<sup>185</sup>

Libra had a few supporters as well. U.S. Senator Mike Rounds of South Dakota praised Libra in a letter to Anchorage, a member of the Libra Association that was domiciled in his state. He praised Libra as a technological advancement that's necessary to help unbanked and

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<sup>182</sup> Nikhilesh De, "Facebook-Led Libra Forms Governing Council After Big-Name Departures," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebook-led-libra-forms-governing-council-after-big-name-departures>.

<sup>183</sup> Danny Nelson, "Fed Governor Brainard Identifies Libra Threat, Says Regulatory Hurdles Abound," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/fed-governor-brainard-identifies-libra-threat-says-regulatory-hurdles-abound>.

<sup>184</sup> William Foxley, "Libra Is 'Catalytic Event' for Central Banks, Says Head of Sweden's Riksbank," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/libra-is-catalytic-event-for-central-banks-says-head-of-swedens-riksbank>.

<sup>185</sup> William Foxley, "France's Le Maire Attacks Facebook's 'Political' Ambitions With Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/frances-le-maire-attacks-facebooks-political-ambitions-with-libra>.

underbanked consumers. "As it stands, we have no clear legal way to ascertain whether a cryptocurrency is a security. What legal foundation we do have for these types of questions is rooted in the Securities Act of 1933. That law was written more than half a century before computers and the internet were created, more than two decades before Hawaii was admitted to the Union, a decade before the jet engine was developed, and in a period of time in which 90 percent of rural America lacked electricity," the Senator added, putting the technology in perspective.<sup>186</sup> However, there were only a handful of lawmakers who saw any value in allowing Libra to continue. In an attempt to extend an olive branch to lawmakers and regulators, David Marcus, the head of the Libra project at Facebook, hinted that he is open to dropping its basket-backed stablecoin in favor of issuing a series of single-currency stablecoins.<sup>187</sup> This move highlights how compliance with the fiat currencies is a key regulatory factor that would condition regulatory response for GPCs.

David Marcus further added that China stands to win if the United States shuts Libra down as suggested by the head of the Chinese Digital Yuan project.<sup>188</sup> This highlights the role of great power competition as a regulatory factor for GPCs. On October 22, 2019, Mark Zuckerberg appeared in front of lawmakers on Capitol Hill. He presented Libra as a tool for global development by highlighting how Libra can bring financial services to 1.7 billion unbanked individuals.<sup>189</sup> In a clear sign of surrender, on October 23, 2019, Mark Zuckerberg testifying before

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<sup>186</sup> Nikhilesh De, "Facebook's Libra Just Got Its First Major Supporter in Congress," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebooks-Libra-just-got-its-first-major-supporter-in-congress>.

<sup>187</sup> Daniel Palmer, "Libra Could Drop 'Basket' and Issue Individual Fiat Stablecoins," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/Libra-could-drop-basket-and-issue-individual-fiat-stablecoins>.

<sup>188</sup> David Pan, "Facebook's Marcus Says China Wins With Digital Renminbi If US Nixes Libra," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebooks-marcus-says-china-wins-with-digital-renminbi-if-u-s-nixes-Libra>.

<sup>189</sup> Nikhilesh De, "Zuckerberg to Tell Congress: Libra Can Fix 'Failing' Financial System," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/10/22/zuckerberg-to-tell-congress-Libra-can-fix-failing-financial-system/>.

the U.S. House Financial Services Committee, told lawmakers that Facebook would withdraw from the Libra Association if it launched before securing all of the regulatory approvals it needed.<sup>190</sup> Around the same time, The Bank for International Settlements (BIS) announced that it was launching a new fintech research initiative to look into stablecoins and digital currencies, among other issues.<sup>191</sup> -Libra was created based on Bitcoin. Now, several Central Bank Digital Currencies (CBDCs) were being born based on Libra and Bitcoin.

In December 2019, there were signs of compromise when the U.S. Treasury Secretary Steven Mnuchin suggested that he was fine with the launch as long as it was fully compliant with anti-money laundering regulations.<sup>192</sup> But the U.S. Federal Reserve Governor Lael Brainard added that more clarity was needed on how the Libra Association will manage the reserves backing the stablecoin.<sup>193</sup> However, Europe was not ready to give Libra a fighting chance. Christine Lagarde, President of the European Central Bank (ECB), expressed antitrust concerns stemming from unfair advantages Facebook's social media platform may give in stablecoin adoption i.e., it can boost Libra but lock out other issuers.<sup>194</sup> She also highlighted that Facebook could combine users' social media data with their financial data, giving a strong competitive advantage that could undermine contestability. Lagarde had asked the ECB to stay ahead of the curve on central bank digital

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<sup>190</sup>Nikhilesh De and Marc Hochstein, "Zuckerberg: Facebook Would Quit Libra If the Association Launched Prematurely," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/zuckerberg-facebook-would-quit-libra-if-association-launched-prematurely>.

<sup>191</sup> Daniel Palmer, "ECB's Benoit Coeure to Lead Central Banking Digital Currency Initiative," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/ecbs-benoit-coeure-to-lead-central-banking-digital-currency-initiative>.

<sup>192</sup> Daniel Palmer, "Mnuchin 'Fine' With Libra Launch, But Crypto Project Must 'Fully' Comply With AML Rules," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/mnuchin-fine-with-libra-launch-but-crypto-project-must-fully-comply-with-aml-rules>.

<sup>193</sup> Daniel Palmer, "Libra Lacks Clarity on 'Opaque' Currency Basket, Says Fed Reserve Governor," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/libra-lacks-clarity-on-opaque-currency-basket-says-fed-reserve-governor>.

<sup>194</sup> Paddy Baker, "Facebook's Social Media Platforms May Give Libra Unfair Advantage, Says ECB's Lagarde," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/facebooks-social-media-platforms-may-give-libra-unfair-advantage-says-ecbs-lagarde>.

currencies (CBDCs). She was one of the earliest experts to recognize that cryptocurrencies and blockchain technology could disrupt the central bank business model. Central banks are under threat from these new technologies the same way Blockbuster was under threat from Netflix.<sup>195</sup> While most central banks were wary of Libra, the Reserve Bank of Australia (RBA) expressed doubts about its potential adoption. In a document submitted to the Australian government's Select Committee on Financial Technology and Regulatory Technology, RBA officials were skeptical that cryptocurrencies, in their current and future forms, would ever replace government-issued money.<sup>196</sup>

However, in the United States, there were clear signs that there would eventually be a digital dollar. In January 2020, Former Commodity Futures Trading Commission (CFTC) Chairman J. Christopher Giancarlo, former CFTC Director Daniel Gorfine, and investor Charles Giancarlo began working on creating the dollar digital without waiting for the Federal Reserve. The trio announced the formation of the Digital Dollar Foundation in partnership with Accenture to design and push for a potential U.S. central bank digital currency (CBDC). The proposed digital dollar would be a tokenized form of the U.S. currency.<sup>197</sup> The digital dollar was announced at a time when there were indications that Libra was dead. Even the Swiss Finance Minister, Ueli Maurer, who was also the country's president, had made a blunt statement suggesting that regulators would not approve Libra anytime soon.<sup>198</sup> Vodafone, one of the founding members of

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<sup>195</sup> Jalak Jobanputra, "The Central Bank Business Model Is Under Attack," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/the-central-bank-business-model-is-under-attack>.

<sup>196</sup> Paddy Baker, "Australians Won't Use Libra, Believes Central Bank," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/australians-wont-use-Libra-believes-central-bank>.

<sup>197</sup> Nikhilesh De, "Former CFTC Officials Ramp Up Push for Digital Dollar With Accenture Partnership," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/former-cftc-officials-ramp-up-push-for-digital-dollar-with-accenture-partnership>.

<sup>198</sup> Paddy Baker, "Switzerland Softens Tone on Libra After Ex-President Says Project 'Failed,'" CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/switzerland-softens-tone-on-Libra-after-ex-president-says-project-failed>.

the Libra Association, withdrew from the coalition to focus on its own mobile payments platform.<sup>199</sup> In February 2020, Mastercard CEO Ajay Banga outlined a number of concerns he had about Libra, including whether it would become inextricably linked to the proprietary CaLibra wallet, who could use it and whether the Libra Association members would receive returns.<sup>200</sup> As the sun seemed to set on Libra, the official digital dollar was seen rising. As the federal government looked for ways to distribute coronavirus aid, support for a digital dollar started gaining steam in Washington D.C. This centralized version of the sovereign national currency was seen as having the broadest support in D.C.'s establishment circles.<sup>201</sup> However, there were serious concerns related to privacy and governmental overreach.

In April 2020, the Libra Association rewrote its white paper, announcing that rather than a single stablecoin backed by a basket of assets, it will now look to issue a series of stablecoins backed by a single asset each. It still intends to issue a basket-backed coin in some form, but the new look remains a major concession to policy makers concerned by the project.<sup>202</sup> However, these changes failed to satisfy lawmaker's concerns related to Libra's impacts on the global economy.<sup>203</sup> In an attempt to signal compliance, the Libra association named Robert Werner, a former Financial Crimes Enforcement Network (FINCEN) and Office of Foreign Assets Control official, as its

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<sup>199</sup> Nikhilesh De, "Vodafone Is the Latest Big Company to Quit Facebook-Founded Libra Association," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/vodafone-is-the-latest-big-company-to-quit-facebook-founded-libra-association>.

<sup>200</sup> Paddy Baker, "Mastercard Left Libra Association Over Regulatory and Viability Concerns, Says CEO," CoinDesk, last modified September 13, 2021, <https://www.coindesk.com/mastercard-left-libra-association-on-regulatory-and-viability-concerns-says-ceo>.

<sup>201</sup> Daniel Kuhn, "The Overton Window Opens for a Digital Dollar," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/the-overton-window-opens-for-a-digital-dollar>.

<sup>202</sup> Brady Dale, "Libra Scales Back Global Currency Ambitions in Concession to Regulators," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/libra-scales-back-global-currency-ambitions-in-concession-to-regulators>.

<sup>203</sup> Marc Hochstein, "US Lawmaker Calls Libra's Revamp Insufficient," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/us-lawmaker-calls-libras-revamp-insufficient>.



general counsel,<sup>204</sup> and Sterling Daines, Credit Suisse's former head of financial crime compliance, as the chief compliance officer. In November 2020, it was reported that Libra might launch a dollar-pegged stablecoin as soon as January 2021, if it gets regulatory approval from the Swiss Financial Market Supervisory Authority (FINMA).<sup>205</sup> Within a month, the Libra association rebranded the entire project as the "Diem Association" in an attempt to distance itself from the original multi-currency idea. CEO Stuart Levey declared that the group was ready to launch a token and was waiting for approval from FINMA.<sup>206</sup> However, there was no launch. In May 2021, one of the co-creators of Diem admitted that the original plan for a stablecoin was naive<sup>207</sup> and had to make several concessions to appease regulators. Libra was dead. Diem, its successor, was seen as a radically different project that was backed by a single currency (the U.S. dollar) and was to be issued in partnership with a bank.

By this time, the verdict on stablecoins was out. In June 2020, the Financial Action Task Force released a detailed report on stablecoins<sup>208</sup> to the G20 Finance Ministers and Central Bank Governors based on an in-depth analysis of their potential impacts. The report suggested that stablecoins have the potential to spur financial innovation and efficiency, and to improve financial inclusion. While stablecoins have been adopted on a small-scale, new proposals have the potential to be mass-adopted on a global scale, particularly where they are sponsored by large technology, telecommunications, or financial firms. The report highlighted that the propensity for mass-

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<sup>204</sup> Daniel Palmer, "Libra Taps Another Former FinCEN Official as General Counsel," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/Libra-facebook-former-fincen-official-hire-general-counsel>.

<sup>205</sup> Sebastian Sinclair, "Libra Plans Dollar-Pegged Stablecoin Launch in January 2021: Report," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/markets/2020/11/27/Libra-plans-dollar-pegged-stablecoin-launch-in-january-2021-report/>

<sup>206</sup> Nikhilesh De, "Libra Rebrands to 'Diem' in Anticipation of 2021 Launch," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/Libra-diem-rebrand>.

<sup>207</sup> Anna Baydakova, "Diem Co-Creator Says Original Plan for Stablecoin Was 'Naive,'" CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/diem-co-creator-says-original-plan-for-stablecoin-was-naive>.

<sup>208</sup> "FATF Report to G20 on So-Called Stablecoins," The Financial Action Task Force, June 2020, <https://www.fatf-gafi.org/publications/fatfgeneral/documents/report-g20-so-called-stablecoins-june-2020.html>.

adoption makes them more vulnerable to be used by criminals and terrorists to launder money. The Bank for International Settlements (BIS) released a similar report from the G7 Working Group on stablecoins, investigating the impact of global stablecoins. The report concluded that stablecoins, regardless of size, pose legal, regulatory, and oversight challenges and risks related to legal certainty, good governance, money laundering, terrorist financing, other forms of illicit finance, efficiency and integrity of payment systems, cybersecurity and operational resilience, market integrity, data privacy, data protection, consumer and investor protection, and tax compliance. It further added that stablecoins that reach global scale could pose challenges and risks to monetary policy, financial stability, the international monetary system, and fair competition.

On the first day of February 2022, it was announced that Meta's Diem was shut down. Diem's CEO Stuart Levey announced the sale of Diem due to unyielding resistance from federal regulator.”<sup>209</sup> As we undertook this effort, we actively sought feedback from governments and regulators around the world. Despite giving us positive substantive feedback on the design of the network, it nevertheless became clear from our dialogue with [US] federal regulators that the project could not move ahead,” he said. Diem failed because regulators blocked it in a relentless manner.<sup>210</sup> This shows that the State is still a force to reckon with, no matter how big a company is. Diem may have died simply because it was highly centralized. Nation-states and international organizations were able to target and coerce Facebook and others in the Libra/Diem Association. Meanwhile, Bitcoin continues to survive, probably because its users are distributed and there is no

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<sup>209</sup> Antonio Ruiz Camacho, “Meta's Crypto Project Diem to Shut down after Pushback from Regulators,” CNET, February 1, 2022, <https://www.cnet.com/personal-finance/crypto/metas-crypto-project-diem-to-shut-down-after-pushback-from-regulators/>.

<sup>210</sup> Alex Heath, “Zuckerberg’s Dream of Launching a Cryptocurrency Is Officially Over,” The Verge, January 31, 2022, <https://www.theverge.com/2022/1/31/22911426/meta-diem-cryptocurrency-confirms-sale>.

one person or organization that can be targeted and coerced by the state or international organizations. Another major factor that affects the spread of GPCs are cryptocurrency exchanges - institutions that serve as intermediaries in the process of exchanging fiat currencies for cryptocurrencies. Some exchanges also allow users to exchange cryptocurrencies for other cryptocurrencies.

Coinbase, the cryptocurrency exchange giant, despite not being a global private currency per se, is one that warrants detailed analysis for two reasons: (1) it plays a key role in the cryptocurrency ecosystem and an enabler that has increased the number of users, and (2) the way it has successfully navigated regulatory agencies, especially within the United States, becoming a publicly traded company while Libra crashed and burned. Coinbase is essentially a brokerage that offers its users the opportunity to convert fiat money to cryptocurrencies, NFTs, and other crypto assets (and vice versa). Coinbase was founded in 2012 by two strangers, Brian Armstrong and Fred Ehrsam, who met online on the popular website Reddit. At that time, market value of Bitcoin was \$6. Coinbase's *raison d'etre* was to make crypto easy to use<sup>211</sup> and thereby bridge the gap between the crypto enthusiasts and the average person.

Brian Armstrong's interest in Bitcoin and other cryptocurrencies was partly because of his belief that there was a pressing need for an alternative to the global financial system that was dominated by governments and big banks, which, he believed, were controlled by a small group of people within each nation. The decentralized nature of GPCs, therefore, appealed to him. As a student, Brian Armstrong spent a year in Argentina. During this time, he experienced how destructive hyperinflation can be, and understood the link between hyperinflation and heavy

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<sup>211</sup> Taylor Locke, "The Coinbase Co-Founders Met on Reddit and Launched the Company out of a Two-Bedroom Apartment When 'a Bitcoin Was Worth \$6,'" CNBC, April 14, 2021, <https://www.cnbc.com/2021/04/14/coinbase-co-founders-launched-when-a-bitcoin-btc-was-worth-6.html>.

dependence on cash. All this led him to believe that financial freedom and economic optimism are intertwined.<sup>212</sup> He saw cryptocurrencies as an enabler of financial freedom.

Coinbase was born at Y-combinator, a premier Silicon Valley accelerator. Y-combinator is famous for taking in founders with ideas that seem crazy and turning them into successful companies. The most popular success story created by Y-Combinator is Airbnb. When the founders of Airbnb had the idea to convert spare bedrooms into hotels, they were often ridiculed. But after they joined Y-Combinator to refine the idea and scale up, they were a major success. Similarly, Coinbase also went into Y-Combinator with a crazy idea – to become a popular cryptocurrency exchange – and eventually became a major success story. Just like Airbnb, Coinbase is now a publicly traded company worth billions of dollars.

From its onset, Coinbase has been working closely and collaboratively with regulators instead of trying to circumvent them.<sup>213</sup> The company backed demonstrated this through both actions and words, making regulators more comfortable. For example, in early 2013, Coinbase registered as a money services business with the Financial Crimes Enforcement Network (FinCEN) and exposed the company to the same regulations as traditional companies despite the fundamental differences between traditional monetary systems build around fiat currencies and the newly evolving system built around global private currencies.

Such approaches kept the company out of regulators’ crosshairs and served as a selling point that rapidly grew. In less than a year, Coinbase gained more than half a million retail users. In contrast, the Libra initiative lost regulators’ trust by establishing itself in Switzerland, which

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<sup>212</sup> Tom Foster, “5 Strategies for Getting Mark Cuban to Invest in You,” Inc, May 2022, <https://www.inc.com/magazine/202205/tom-foster/mark-cuban-cold-email-mentor-investor.html>.

<sup>213</sup> Chris Matthews, “Coinbase Proposes Crypto-Focused Financial Regulator to Replace SEC for Oversight of Digital Assets,” Market Watch, last modified October 16, 2021, <https://www.marketwatch.com/story/coinbase-proposes-crypto-focused-financial-regulator-to-replace-sec-for-oversight-of-digital-assets-11634235099>.

has a highly favorable political and legal environment for money laundering, tax evasion, and other financial crimes. Such decisions put Libra on a path toward premature death while Coinbase continued growing over the years. In early 2015, Coinbase Exchange, a service that allowed individuals and institutions in 24 US states to trade Bitcoin, was launched.<sup>214</sup> This was a leap forward because it was designed for professional investors. Before the Coinbase Exchange was launched, the company focused on smaller investors who were mostly individuals. Coinbase also grew internationally. In September 2015, Coinbase launched its services in 28 countries including Canada, solidifying its hold on the North American market.<sup>215</sup> Less than a year later, Coinbase was operating in 33 countries across the world.

As the company grew and evolved, it had to adapt to the regulatory environment (or the lack thereof) by working closely with several federal, state, and local governmental agencies. While the company cooperated with regulators most of the time, there were some notable exceptions. For example, in November 2015, the Internal Revenue Service (IRS) demanded Coinbase to release internal records involving every customer who purchased digital currencies through the exchange. This highlights the importance of taxation as a factor in the regulation of GPCs. Coinbase fought this in court. In its initial request, the IRS requested nine specific kinds of user data, including complete user profiles, know-your-customer (KYC) due diligence, documents regarding third-party access, transaction logs, records of payments processed, correspondence between Coinbase and Coinbase users, account or invoice statements, and records of payments.<sup>216</sup>

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<sup>214</sup> Pete Rizzo, "Coinbase's US Bitcoin Exchange Opens Doors to Traders," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/markets/2015/01/26/coinbases-us-Bitcoin-exchange-opens-doors-to-traders/>.

<sup>215</sup> "Coinbase Launches Retail Bitcoin Service in Singapore, Canada," Reuters, September 3, 2015, <https://www.reuters.com/article/usa-Bitcoin-coinbase-idUSL1N1182G420150902>.

<sup>216</sup> Taylor Hatmaker, "Coinbase Ordered to Give the IRS Data on Users Trading More than \$20,000," TechCrunch, November 30, 2017, <https://techcrunch.com/2017/11/29/coinbase-internal-revenue-service-taxation/>.

These detail the importance of AML laws and transparency in operations in the context of regulating GPCs.

Three years later, the company settled the case and provided data on thousands of customers.<sup>217</sup> However, the outcome was not a total victory for the regulators because the court ordered details other than the taxpayer ID, name, date of birth, address, transaction logs and account statements were “not necessary.”<sup>218</sup> This example highlights how existing privacy laws can favor GPCs in some nations. In 2017, Coinbase increased its activities in the State of New York. The company worked with state-level regulators and obtained necessary licenses from the New York Department of Financial Services (NYDFS).

Coinbase has managed to cultivate a favorable image by being transparent about hacking incidents. For example, in 2019, the company reported details on a sophisticated hacker’s attempt to attack its internal network. Coinbase also expanded on the modus operandi by detailing how the hacker used social engineering, spear-phishing, and vulnerabilities within a browser.<sup>219</sup> Such incidents helped the company gain the trust of users and regulators. Later that year, Coinbase, in collaboration with seven other firms, also led the creation of an initiative aimed at helping other cryptocurrencies determine whether they were complying with U.S. federal securities law.<sup>220</sup> This helped the company become a leader within the industry, especially on the topic of compliance. This initiative called the Crypto Rating Council, issued rating on how similar a cryptocurrency or crypto asset was to existing definitions of a security. This highlights the importance of compliance

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<sup>217</sup> Shannon Liao, “Coinbase Tells 13,000 Users Their Data Will Be Sent to the IRS Soon,” *The Verge*, February 26, 2018, <https://www.theverge.com/2018/2/26/17055264/coinbase-cryptocurrency-tax-irs-compliance-court-order>.

<sup>218</sup> *Ibid* 180

<sup>219</sup> Mike Orcutt, “An Attempted Heist at Coinbase Was Scary Good, Even Though It Failed,” *MIT Technology Review*, August 8, 2019, <https://www.technologyreview.com/2019/08/08/133823/an-attempted-heist-at-coinbase-was-scary-good-even-though-it-failed/>.

<sup>220</sup> William Foxley, “Coinbase-Led Group Aims to Help Crypto Firms Avoid Securities Violations,” *CoinDesk*, last modified September 13, 2021, <https://www.coindesk.com/markets/2019/09/30/coinbase-led-group-aims-to-help-crypto-firms-avoid-securities-violations/>.

with existing laws and systems (originally built for traditional currencies) as a key factor in the regulation of cryptocurrencies. Coinbase later took a leap in its role as a compliance-enabler by becoming a software vendor to government agencies.<sup>221</sup> Federal agencies, including the DEA and IRS showed interest in procuring Coinbase Analytics, a platform built to enhance compliance efforts through increased access to necessary information. This highlights how cooperative Coinbase has been with regulators and how important transparency is for cryptocurrencies and cryptocurrency exchanges.

In October, Coinbase announced that it would launch a debit card in collaboration with Visa, the popular payment processor used by major banks across the world. This, again, highlights the importance of compliance with existing systems that were built for fiat currencies. Visa has extensive experience working with regulators across the world and can signal that Coinbase will navigate regulators' waters much more safely. Such collaborations, combined with its cozy relationship with regulators, helped Coinbase achieve a valuation of around \$100 billion in 2021, just before becoming a publicly traded company.<sup>222</sup> The company's efforts to convince the Securities and Exchange Commission (SEC), major financial institutions, and a large number of individual investors through its S-1 Form (a prerequisite for a company to go public) is a clear sign that the company successfully managed to survive regulatory hurdles for about a decade. However, this does not mean the company will be immune to regulatory factors. The company, in the S-1 document, has frankly indicated that U.S. regulators may inhibit the company's ability to compete with rivals. Yet, Coinbase had a successful opening day on April 13, 2021. On the eve of its

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<sup>221</sup> Michael McSweeney, "Coinbase Wants to Sell Blockchain Analysis Software to the IRS and DEA a Year after Its Neutrino Acquisition," *The Block*, January 5, 2020, <https://www.theblockcrypto.com/post/67551/coinbase-irs-dea-analytics-neutrino>.

<sup>222</sup> Dan Primack, "Coinbase Valued above \$100 Billion, Ahead of Direct Listing," *Axios*, February 20, 2021, <https://www.axios.com/2021/02/19/coinbase-valued-100-billion-direct-listing>.

opening, Bitcoin and Ether, the two most popular cryptocurrencies hit new all-time highs, highlighting the close connection between the exchange and the currencies.

Coinbase had to send several costly signals to convince regulators along the way. For example, the company submitted disclosures to the U.S. Treasury Department's Office of Foreign Assets Control (OFAC) admitting its exchange services may have been utilized to circumvent U.S. sanctions.<sup>223</sup> The company has also paid millions of dollars in fines. For example, \$6.5 million had to be paid to the Commodity Futures Trading Commission (CFTC) to settle claims that the company reported misleading information related to trading volumes.<sup>224</sup> To enhance its ability to comply with existing laws and to continue sending strong positive signals, Coinbase hired a key figure from Morgan Stanley's global anti-money laundering department.<sup>225</sup> This, again, highlights the importance of AML laws and the need to comply with existing systems built for fiat currencies. This is something the company has issued an open call against. In October 2021, Coinbase released a regulatory proposal demanding more certainty for everyone. In an official blogpost, the company argued that existing laws are not well-suited for cryptocurrencies and cryptocurrency exchanges because they were drafted at a time when no one could have even imagined the ongoing technological revolution. The blogpost argued that these laws do not have the ability to include the transformational potential that digital assets and crypto innovation make possible. The company has offered an alternative 'four-pillar' approach: (1) regulating digital assets under a separate framework, (2) designating a single regulator for digital asset markets, (3) protecting and

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<sup>223</sup> Mengqi Sun, "Coinbase Transactions Under Review by U.S. Sanctions Enforcer," Wall Street Journal, March 3, 2021, <https://www.wsj.com/articles/coinbase-transactions-under-review-by-u-s-sanctions-enforcer-11614803086>.

<sup>224</sup> Dave Michaels, "Coinbase to Pay \$6.5 Million to Settle CFTC Investigation Over Trading," Wall Street Journal, March 19, 2021, <https://www.wsj.com/articles/coinbase-to-pay-6-5-million-to-settle-cftc-investigation-over-trading-11616192411>.

<sup>225</sup> Sebastian Sinclair, "Coinbase Taps Morgan Stanley Lawyer to Head Enterprise Compliance," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/markets/2021/04/01/coinbase-taps-morgan-stanley-lawyer-to-head-enterprise-compliance/>.



empowering holders of digital assets, and (4) promoting interoperability and fair competition in the sector. Coinbase was ridiculed by its competitors for demanding a separate regulator for the cryptocurrency market. But it is exactly such preemptive approaches that made Coinbase operate successfully while Facebook's Libra failed.

Necessity is the mother of invention. Centuries ago, the need for more practical methods of payments that were easier to transport led to innovations that created paper money. Similarly, after the financial crisis of 2009, the need for better alternatives to government-owned fiat currencies led to the creation of Bitcoin. The history and evolution of GPCs, especially the case of Libra, shows how powerful governments are. Bitcoin was born out of a desire to create private money as an alternative. However, as explained in the following chapters, it ended up strengthening fiat currencies by inspiring nation states to create Central Bank Digital Currencies (CBDCs) that can further strengthen governments and their control over monetary systems. This chapter highlighted specific concerns raised by regulators in the context of GPCs. These concerns give us a clear idea of the factors that are likely to condition regulatory responses. Governments seem to be concerned primarily about loss of tax revenues and threats to stability and sovereignty. Political and economic competition with other nations is also seen as a priority. by governments. Cryptocurrencies started as an idea on a whitepaper just about a decade ago. Cryptocurrency exchanges such as Coinbase have democratized and simplified access to Bitcoin, Ethereum, and thousands of other decentralized, denationalized currencies that operate freely across borders. This was possible only because Coinbase played a game of cooperation with regulators. The following chapter uses game theory to further understand interactions between regulators and GPCs.

## **CHAPTER 5**

### **GAME THEORETICAL FRAMEWORKS**

Game theory involves analyzing strategies in competitive situations where the outcome of a participant's action depends critically on the actions of other participants. Since GPCs threaten governments' monopoly over money, there will be competition and therefore interactions between these two players. This chapter applies game theoretical concepts in the context of GPCs. The chapter presents three sets of frameworks. The first set of frameworks establishes the basic structure of the game and demonstrates how strategic interactions between regulatory authorities and global private currencies can be analyzed with the help of game theoretical concepts. The second set of frameworks build on the first set and presents a more elaborate approach by connecting political, economic, social, technological, legal, and environmental (PESTLE) aspects to payoffs. The third set of frameworks demonstrate how game-theoretical frameworks can be useful in analyzing taxation-related issues.

The competition, or 'game,' in this context is between global private currencies and fiat currencies. However, various versions and abstractions of these entities are used throughout the chapter. For example, in the first framework, GPCs are represented by the 'industry' while in the third framework, GPCs are represented by the users. In the case of the United States, as explained in the next chapter, global private currencies are represented by interest groups, lobbies, and companies. Fiat currencies are backed by governments and are managed through traditional fiscal policy mechanisms and legislative approaches. Therefore, fiat currencies are represented by the 'government' in all frameworks.

Inspired by Decanio and Fremstad's work<sup>226</sup> on game theory and climate diplomacy, all three sets of frameworks represent interactions between the two sides as 2x2 games. The chapter presents these frameworks with detailed examples and explanations. However, while the original work by Decanio and Fremstad uses only ordinal values for payoffs, some of the frameworks and examples presented in this chapter use cardinal values for payoffs. Representing payoffs using ordinal numbers is useful in performing parsimonious analyses. Ordinal rankings also allow us to bypass comparisons of utilities in each game and help us gain perspective on what the priorities are for each side

For example, consider the classic game of Prisoner's Dilemma. There are several versions of this game, but the basic idea involves two criminal associates in solitary confinement who may or may not betray the other. If they betray each other, both end up in prison for a few years. If one betrays but the other does not, the one who betrays will be set free while the other one will end up serving a long prison sentence. If neither of them betrays i.e., remain silent during interrogations, both get a short prison sentence. The game's payoffs are usually expressed in cardinal values i.e., number of years, as shown in Table 5.1 below. The table also shows the two strategies for both players.

In some cases, these cardinal numbers can be replaced by ordinal numbers that rank the outcomes from best to worst. In the example of Prisoner's Dilemma, for each player, the best outcome would be no time in prison while the worst outcome would be the long prison sentence. The former can be represented by 4 and the latter by 1. The second-best outcome can be represented by 3 and the next-to-worst outcome can be represented by 2. Table 5.2 shows a prisoner's dilemma game with ordinal values.

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<sup>226</sup> Stephen J. Decanio and Anders Fremstad. "Game theory and climate diplomacy." *Ecological Economics* 85 (2013): <https://doi.org/10.1016/j.ecolecon.2011.04.016> 177-187.

Table 5.1: A Prisoner's Dilemma Game with Cardinal Values

|            |             |             |        |
|------------|-------------|-------------|--------|
|            |             | Prisoner 2  |        |
| Prisoner 1 |             | Stay Silent | Betray |
|            | Stay Silent | -1,-1       | -10,0  |
|            | Betray      | 0,-10       | -5, -5 |

Table 5.2: A Prisoner's Dilemma Game with Ordinal Values

|            |             |             |        |
|------------|-------------|-------------|--------|
|            |             | Prisoner 2  |        |
| Prisoner 1 |             | Stay Silent | Betray |
|            | Stay Silent | 3,3         | 1,4    |
|            | Betray      | 4,1         | 2, 2   |

Game theory assumes players to be rational actors. Therefore, players are expected to maximize utility. Game theoretical models can help us forecast which strategy is likely to be chosen by each player in a game based on the payoffs. For example, in the Prisoner's Dilemma game presented in Table 5.2, the expected outcome is (Betray, Betray) i.e., both prisoners will betray and end up with sub-optimal outcomes. This outcome represents both the Nash Equilibrium and the Maxi-Min Equilibrium for this game. In Game Theory, a Nash Equilibrium is a collection of strategies (one for each player) where there is no incentive for any player to switch strategies.

The game remains at an equilibrium because every player in the game is satisfied with their game choices at the same time. The Nash Equilibrium is a common way to define the solution of a non-cooperative game involving two or more players. The strategy that is represented in a Maxi-Min equilibrium ensures the highest payoff that a player can guarantee themselves.<sup>227</sup> When a maxi-min strategy is used, the worst possible payoff is at least as good as the worst payoff from any other strategy. The Nash Equilibrium and the Maxi-Min equilibrium are not always the same. Understanding these equilibria for each game can give valuable insights into not just the likely outcome, but also help us simulate potential scenarios that can lead to different outcomes. The first set of frameworks establish a basic game setup and use the examples of Libra and Coinbase to demonstrate two different types of games.

In the competition between GPCs and fiat currencies, the two sides are competing for influence over monetary and financial systems. The first set of frameworks captures this competition in a 2x2 game with ordinal payoffs like the Prisoner's Dilemma game in Table 5.2. In the proposed game setup, represented in Table 5.3 below, GPCs are represented by the industry (I) and fiat currencies are represented by Governments (G). Both sides have two options i.e., strategies, which represent the two extremes each side can take during strategic interactions. Governments have two strategies: Legalize (L) or Ban (B) i.e., they can either allow GPCs to operate within their jurisdictions or pass laws that outlaw GPCs altogether. The GPC Industry (I) has two strategies: Adapt (A) or Disrupt (D) i.e., cryptocurrency companies such as Libra can choose to either adapt to existing financial and legal systems that were set up for fiat currencies by offering complementary services that are tethered to the value of fiat currencies or choose to disrupt the entire landscape by offering unique services that threaten the value and standing of fiat

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<sup>227</sup> David Robinson and David Goforth. *The topology of the 2x2 games: a new periodic table*. Vol. 3. Psychology Press, 2005.

currencies. Table 5.3 shows this game setup. For each player, the values  $\{p, q, r, s\}$  and  $\{e, f, g, h\}$  can take the values  $\{4, 3, 2, 1\}$  with 4 corresponding to the best outcome, 3 the second-best outcome, 2 the next-to-worst outcome, and 1 the worst outcome.

Table 5.3: The Game Setup

|                |              |                  |             |
|----------------|--------------|------------------|-------------|
|                |              | GPC Industry (I) |             |
| Government (G) |              | Adapt (A)        | Disrupt (D) |
|                | Legalize (L) | p,e              | q,f         |
|                | Ban (B)      | r,g              | s,h         |

Both players have unique strengths, weaknesses, and preferences, which determine the ordinal values of  $p, q, r, s, e, f, g,$  and  $h$ . These values then determine the nature of the game and the equilibria. In the context of competition between GPCs and fiat currencies, the game can be classified on a spectrum between conflict and cooperation to characterize the situation. Broadly speaking, the case of Libra is an example of a game of conflict while the case of Coinbase is an example of a game of cooperation. Modeling the dynamics between GPCs and fiat currencies as one-shot games is indeed oversimplified. Yet, the approach can be useful because specific contexts can be modeled within this framework. For example, the interaction between Libra and the US Congress can be represented in a  $2 \times 2$  game as shown in Table 5.4. Similarly, the interaction between Coinbase and IRS can also be represented in a  $2 \times 2$  game as shown in Table 5.5 below.

The game between Libra and the US Congress modeled in Table 5.4, is a game of ‘chicken’ i.e., a game where two sides race head-on towards each other. In this case, it is Libra racing towards

its proposed stablecoin to disrupt the global monetary system assuming there will be a way to legally operate, and the US Congress threatening to ban Libra hoping the social media giant powering the initiative (Facebook) will scale down its ambitions and adapt. The winner of a game of chicken is the player who does not change course. The game represented in table 5.4 has two Nash Equilibria: (Legalize, Disrupt) and (Ban, Adapt). The Maxi-Min strategy is (Legalize, Adapt). In a game of chicken, the risk-averse player will choose the Maxi-Min strategy. In this case, Libra is the more risk-averse player especially since it is vulnerable to market forces that can drive down its shares. Libra did try to convince lawmakers that it would adapt. However, lawmakers were not convinced and leaned towards banning it. The game between Libra and the US Congress was a game of conflict.

Table 5.4: Libra v. US Congress

|                 |              | Libra (L) |             |
|-----------------|--------------|-----------|-------------|
|                 |              | Adapt (A) | Disrupt (D) |
| US Congress (G) | Legalize (L) | 3,3       | 2,4         |
|                 | Ban (B)      | 4,2       | 1,1         |

In contrast, the game between Coinbase and the IRS, represented in Table 5.4 is a game of ‘harmony’ i.e., a game of cooperation. The Nash Equilibrium and the Maxi-Min equilibrium are the same: (Allow, Adapt) i.e., IRS is better off allowing Coinbase to operate because of additional tax revenues and information sharing, while Coinbase is better off cooperating with IRS because it is expected and necessary for survival. As mentioned in the previous chapter, in November 2015,

the Internal Revenue Service (IRS) demanded Coinbase release internal records involving every customer who purchased digital currencies through the exchange. Coinbase resisted at first, but eventually cooperated. Coinbase's overall approach has been highly cooperative i.e., the company has chosen to adapt rather than disrupt. Game theoretical frameworks such as these are helpful in exploring not just the Nash and Maxi-Min strategies but also several other combinations. Furthermore, these frameworks can help understand how a game can be transformed from one type to another.

Table 5.5: Coinbase v. IRS

|         |           |              |             |
|---------|-----------|--------------|-------------|
|         |           | Coinbase (C) |             |
|         |           | Adapt (A)    | Disrupt (D) |
| IRS (G) | Allow (L) | 4,4          | 3,2         |
|         | Ban (B)   | 2,3          | 1,1         |

This section builds on the basic game setup in Table 5. 3 to build a framework that can be used to understand how power-shifts can happen in the context of the ongoing competition between traditional fiat currencies and new global private currencies. This competition fits the pattern of the Thucydides trap – a rising power challenging an established power. Such situations, more often than not, are expected to lead to conflicts.<sup>228</sup> While some conflicts are inevitable, most

<sup>228</sup> Graham Allison, "The Thucydides trap." *Foreign Policy* 9 (June 9, 2017).



conflicts are not. The 'Game Transformation Framework' (GTF)<sup>229</sup> is a tool that was designed to analyze such situations. In this section, I present an adapted version of the Game Transformation Framework that fits the context of GPCs. With this framework, future researchers can analyze not only the regulatory environment, but also market conditions and other contexts in detail while still keeping tabs on the big picture. This framework was used as a mental model in the analysis of the three case studies that follow this chapter.

The game transformation framework is based on a hybrid methodology that combines qualitative and quantitative analytical techniques discussed in the context of global private currencies. Beginning with primary inputs from detailed qualitative analyses of political, economic, social, technological, and legal ground realities, this Game Transformation Framework uses 2x2 games with ordinal rankings to provide a macro-level perspective of the scenario. When used in conjunction with the periodic table of 2x2 games,<sup>230</sup> this approach shows how payoff swaps, which represent shifts in ground realities, can change the nature of the game and therefore the resulting equilibrium. The framework's exploration of various permutations that hypothetically changes in input might lead to can be used by analysts and policymakers to reverse-engineer favorable scenarios. The framework is useful for scenario planning because it allows for both detailed micro-level analyses and strategic macro-level analyses.

GPCs are becoming ubiquitous and are threatening to affect existing financial and political structures. Between ransomware involving critical infrastructures like the Colonial Pipeline to IPOs of major cryptocurrency exchanges like Coinbase, there are clear examples of good and bad.

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<sup>229</sup> Girish Sreevatsan Nandakumar, and Jose Padilla. "A game-transformation-based framework to understand initial conditions and outcomes in the context of cyber-enabled influence operations (CIOs)" In *International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation*, pp. 288-297. Springer, Cham, 2020.

<sup>230</sup> Bryan Randolph Bruns, "Names for games: locating 2× 2 games," *Games* 6, no. 4 (2015): 495-520.

This framework aims to establish an approach that can explore various scenarios with the use of game theory. Such an effort would provide means for assessment and training to arrive at a parameter combination that achieves a particular objective. Inspired, again, by Decanio and Fremstad's paper on 'game theory and climate diplomacy',<sup>231</sup> this framework uses highly simplified representations of strategic interactions between players to deduce useful insights. This section describes the framework in the context of global private currencies (GPCs) along with various types of factors that influence the dynamics of the relationship between the various cryptocurrencies (represented as an aggregate entity) and the regulatory agencies.

Similar frameworks have been used by International Relations scholars on various topics. Game-theoretic models have been widely used to provide formalized representations of strategic interactions that form the basis of political negotiations.<sup>232</sup> Scholars such as Barrett<sup>233</sup> have also shown that the essence of many international relations situations can be captured by the simple 2x2 framework. Game theory is well suited because the two main schools of thought in politics and international relations - realism and liberalism – are already essential components of game theory's development.<sup>234</sup> The use of ranked order preferences in the game transformation framework is in line with agent rationality. The rankings are also transitive, allowing users to make inferences based only on ordinal rankings are more generalizable. The "New Periodic Table" (NPT) of 2x2 order games introduced by Robinson and Goforth<sup>235</sup> has also been used to provide an exhaustive treatment of the possible game-theoretic characterizations of strategic interactions between nation states. Therefore, it can be used in the field of international studies. The NPT also

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<sup>231</sup> Decanio and Fremstad. "Game theory and climate diplomacy, 177-187.

<sup>232</sup> Matthew J. Sklerov. "Solving the dilemma of state responses to cyberattacks: a justification for the use of active defenses against states who neglect their duty to prevent." *Military Law Review* 201 (2009): 1-85

<sup>233</sup> Scott Barrett. *Environment and statecraft: The strategy of environmental treaty-making: The strategy of environmental treaty-making*. OUP Oxford, 2003.

<sup>234</sup> Barrett, *Environment and statecraft*.

<sup>235</sup> Robinson and Goforth, *The topology of the 2x2 games*.

shows the different types of games and how they are positioned relative to each other. This helps in understanding what types of swaps are required to change a game from one type to another.

The game transformation framework includes two levels of analysis. Level one implements four steps and level 2 reverses those steps. Step 1 involves a detailed qualitative analysis of ground realities in the political, economic, social, technological, and regulatory realms. In Step 2, information gathered in Step 1 is synthesized and converted into scenarios identified by ordinal values, which serve as aggregates representing those derived scenarios. Step 3 involves choosing the best strategy given the ground realities on both sides – since each player evaluates both sides before making their choice. By Step 4, the macro-level perspective of the overall game once both players have each made their move becomes evident. A Level 2 process entails a ‘reverse engineering’ approach wherein we can understand how the outcomes would vary if the players’ choices of strategies were different and under what conditions the aggregate value, i.e., the estimated payoff, from choosing a particular strategy would change. A change in the payoff is required to justify a change to the originally chosen strategy. To this end, a more detailed ‘what if’ analysis in Step 1 is necessary. Level 1 and Level 2 analyses help us understand the array of possible scenarios. Level 2 also involves comprehending how the game’s outcome, i.e., the equilibrium, shifts accordingly as the payoffs change. The framework is built on the simplified 2x2 game represented in Table 5.3. The game used in this framework models macro-level scenarios between the two players. The framework’s approach assumes that the players are rational actors. The following sections explain the various steps and levels of the methodology in the context of analyzing GPCs. The following paragraphs discuss the four steps involved in level one.

Step 1 entails detailed evaluation. In this framework, the perceived political, social, technological, legal, and economic conditions within a nation, or whatever the jurisdiction of the

regulatory agency might be, form the basis of cost-benefit analysis for the other side. Each side's decision on their approach towards GPCs - i.e., the choice of strategy - is based on this analysis. These factors indicate how favorable the situation is for GPCs. The political landscape would be assessed based on an analysis of the current government's stance on GPCs. While some governments have aggressive stances such as banning, some do not take any action. For example, El Salvador has passed laws that make Bitcoin legal tender.<sup>236</sup> Meanwhile, China has flip-flopped and has recently taken steps to completely stop Bitcoin mining within China. Social factors include how people feel about these GPCs and how the overall culture either supports or protests the idea of denationalized currencies that have global operations and can potentially threaten that nation's fiat currency. Societies in nations that are highly individualistic have shown more positive interest in GPCs than societies in highly collectivist cultures. Technological factors include both the ability to mine GPCs and the ability to use GPCs within the economy using advanced payment methods. Some nations have the former but not the latter i.e., they may have the power to mine GPCs but not the ability to spend it within the local economy. Legal aspects include regulatory aspects that directly affect GPCs and existing laws that can potentially be used to either legalize or ban GPCs. While political will is necessary to take any strong action against GPCs, legal provisions are necessary in order to allow such political will to be carried out. Environmental factors include laws and conditions that are either conducive or counteractive to GPCs. For example, laws that regulate carbon footprints may work against GPCs given the amount of energy they consume.

Step 2 aggregates inputs collected during the first step. This step involves calculating payoffs for both sides given the conditions analyzed in Step 1. These payoffs also get represented in the game quadrant represented in Step 4. The payoffs (see Fig. 3) to each player are measured

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<sup>236</sup> Matthew Sparkes, "Bitcoin Versus Central Banks," *New Scientist* 251, no. 3352 (September 18, 2021): p. 16, [https://doi.org/https://doi.org/10.1016/S0262-4079\(21\)01635-3](https://doi.org/https://doi.org/10.1016/S0262-4079(21)01635-3).

in ordinal terms, so the terms {p, q, r, s} and {e, f, g, h} can take on values {4, 3, 2, 1}, where 4 represents the most favorable outcome and 1 represents the least favorable outcome. Payoffs will be calculated based on how favorable the political, social, technological, legal, and economic conditions are.

Step 3 involves choice of strategy. Based on ground realities reflected by the aggregated payoffs, each player chooses one of two strategies. The choice of strategy will be based on the players' calculations of payoffs resulting from choosing each strategy.

Step 4 is focused on outcomes. This step involves assessment of dominant strategies. In game theory, a dominant strategy is the course of action that results in the highest payoff for a player regardless of what the other player does. Understanding each player's dominant strategy is the first step towards understanding the Nash Equilibrium. As explained earlier, a Nash Equilibrium is a collection of strategies (one for each player) where there is no incentive for any player to switch strategies. The game remains at an equilibrium because every player in the game is satisfied with their game choices at the same time. The Nash Equilibrium is a way to define the solution of a non-cooperative game involving two or more players. The Game Transformation Framework also looks at the Maxi-min strategy, which ensures the highest payoff that a player can guarantee themselves. When a Maxi-Min strategy is used, the worst possible payoff is at least as good as the worst payoff from any other strategy.

The GTF approach can also be used for a 'Level 2' analysis, which uses the same process but in reverse. For a Level 2 analysis, the first step involves identifying a desired change or swap in payoffs in the game structure. The next step is to move back and reevaluate whether there needs to be a change in strategy choice. Following this, more analyses have to be done at Step 1 and Step 2 to understand what ground realities need to change in order to realize the desired change in the

game structure. The Game Transformation Framework can be a valuable tool for analysts and scenario planners working on the topic of global private currencies. The framework was used to analyze and understand the three case studies presented in chapters 6, 7, and 8. The following paragraphs present the final set of game theoretical frameworks.

Taxation is a key issue in the context of GPCs. The previous chapter highlighted several concerns related to tax evasion. The following chapters will highlight more specific concerns related to this topic. Taxing cryptocurrencies and other cryptoassets has been a major problem for governments. This is partly because cryptocurrencies can be pseudonymous (and sometimes anonymous). If citizens do not report their GPCs and other cryptoassets such as NFTs, which are usually secured within a permissioned blockchain that cannot be accessed by the government, there will be a loss of tax revenue. To further analyze this this problem, this section presents an adapted version of game theory model used to understand the incentives involved in making citizens file taxes and close assets. The framework used in this section is an adaptation of the game setup presented earlier in Table 5.3. In the adapted version, the industry is replaced by the user and the ordinal values are replaced by cardinal values. Table 5.6 shows. One other key difference between this section and the previous ones, is that this section looks only at Nash Equilibrium for each scenario since it is the most relevant, especially the mixed strategy Nash Equilibriums.

Table 5.6: Scenario 1

|            |               |              |          |
|------------|---------------|--------------|----------|
|            |               | GPC User     |          |
| Government |               | Disclose (D) | Hide (H) |
|            | Audit (A)     | 1,0          | 2,-5     |
|            | Not Audit (N) | 2,0          | 0,2      |

Given the unique nature of the situation (involving lack of permissions to access blockchain networks at will), the government needs creative solutions. Scenario 1 (shown in Table 5.6) depicts this situation game with arbitrary numbers. In this setting, the payoffs given are dimensionless figures that indicate utility (the higher the number, the higher the utility). In Scenario 1, there is no pure strategy Nash equilibrium. This translates well to reality because it is neither feasible nor justifiable for governments to audit everyone all the time. Similarly, some parts of the population will always break rules i.e., not disclose GPCs and other cryptoassets. In such cases, the mixed strategy Nash Equilibrium becomes the key component. The key difference between a pure strategy Nash equilibrium and a mixed strategy Nash equilibrium is that the former does not involve players randomizing their strategy while the latter always involves at least one player randomizing their strategy. At the mixed strategy Nash equilibrium, both players are indifferent between their two strategies, and no player can increase their expected payoff by playing an alternate strategy. These characteristics allow us to calculate the expected payoffs for each strategy

and each player. For Scenario 1, the mixed strategy Nash equilibrium,<sup>237</sup> is such that two out of three users will be honest, and the government will audit two out of seven times. In an attempt to increase tax revenues from widespread adoption of GPCs, let us say the government decides to increase the penalty. The next scenario incorporates this change by doubling the penalty from -5 to -10 to test whether this policy change will be effective.

Table 5.7: Scenario 2

|            |               | GPC User     |          |
|------------|---------------|--------------|----------|
|            |               | Disclose (D) | Hide (H) |
| Government | Audit (A)     | 1,0          | 2,-10    |
|            | Not Audit (N) | 2,0          | 0,2      |

In Scenario 2 (depicted in Table 5.7), just as in Scenario 1, there is no pure strategy Nash Equilibrium. The mixed strategy Nash equilibrium<sup>238</sup> is such that only two out of three users disclose their cryptoassets i.e., the same as scenario 1. This is because the incentives for the auditing agencies within the government have not changed. The next scenario changes this incentive to check whether there will be any difference. In order to raise the incentives for those

<sup>237</sup> The probabilities, represented by  $p$  and  $q$ , can be calculated for this game because, at the mixed Nash equilibrium, both players should be indifferent between their two strategies.

$$E(A) = E(N) \Rightarrow 1q + 2(1-q) = 2q \Rightarrow q = 2/3,$$

$$E(D) = E(H) \Rightarrow -5p = 2 \times (1-p) \Rightarrow p = 2/7.$$

This means: Government plays  $(2/7A+5/7N)$  and GPC User plays  $(2/3D+1/3H)$  at mixed strategy Nash equilibrium

<sup>238</sup>  $E(A) = E(N) \Rightarrow 1q + 2(1-q) = 2q \Rightarrow q = 2/3,$



who audit, let us double the payoff to 4 and restore the penalty to -5 as shown in Scenario 3 (Table 5.8) below.

Table 5.8: Scenario 3

|            |               |              |          |
|------------|---------------|--------------|----------|
|            |               | GPC User     |          |
| Government |               | Disclose (D) | Hide (H) |
|            | Audit (A)     | 1,0          | 4,-5     |
|            | Not Audit (N) | 2,0          | 0,2      |

In scenario 3 (Table 5.8), the ratios of users who disclose shoots up to 80% i.e., 4 out of 5 users disclose.<sup>239</sup> The government is able to achieve its goal of increasing tax revenues. However, this comes at a cost for the government because of the high personnel costs involved in auditing more people. This is an example of the kind of specific insights game theoretical models can offer in the context of GPCs. However, the government will still have issues related to network access. Alternative solutions such as additional incentives for users and enhanced cooperation with exchanges (e.g., Coinbase) will be necessary. The set of frameworks used in this section can be used for similar analysis on other similar problems related to taxation and regulation.

This chapter laid out three sets of game theoretical frameworks with different applications. These frameworks can be used for analysis and planning of scenarios involving GPCs. Chapters 6, 7, and 8 present detailed analyses of regulatory responses taken by the United States, the

<sup>239</sup>  $E(A) = E(N) \Rightarrow q + 4(1-q) = 2q \Rightarrow q = 4/5$

European Union, and China against GPCs. These three cases were analyzed to understand which regulatory factors were at play and what the nature of the overall game is. The frameworks discussed in this chapter can also be adapted for other contexts. Game theoretical models are highly versatile. There are also several other game theoretical concepts that can be used for better insights and understanding of GPCs. For instance, take the ‘investment game’ model that is popular in the field of Economics. Players choose between investing \$0 or \$100. Players who do not invest get a payoff of \$0. Players who invest make a net profit of \$50 if more than 90% of the population invest, and otherwise lose \$100. The cryptocurrency industry is in a similar situation. Insights from behavioral dynamics related to the investment game could help forecast the different pathways cryptocurrencies can take. Similarly, the ‘revolution’ game,’ where a revolution can happen if enough people protest but there is no change in the status quo if very few people protest. One of the key insights related to the revolution game has been the central role of communication mechanisms which remove ‘information sets’ enabling better coordination. This applies in the investment game as well. Both sides - the governments and the industry - could use these insights to understand the trajectory of this phenomenon. Other game theoretical concepts like Folk Theorems can be used to analyze long-term outcomes and repeated games with multiple equilibria.

In conclusion, the key takeaway from the game theoretical models explained this chapter is that the diplomatic middle ground between the two sides can be achieved only if the government allows cryptocurrencies to operate. This can be beneficial to governments, because of additional tax revenues. However, this is likely only if GPCs and exchanges accept conditions such as compliance with anti-money laundering laws, transparency in operations, and cooperation with fiat currencies and existing systems by tethering valuations or by integrating with CBDCs.

## **CHAPTER 6**

### **THE UNITED STATES**

This chapter analyzes regulatory responses within the United States, both at the federal level and the state level with the goal of identifying key factors. Text from bills and laws and comments by key figures in government and regulatory agencies were used to deduce the key factors. The United States Federal Government has not been proactive in regulating cryptocurrencies. This gave individual states the opportunity to play a larger role than states usually do in monetary aspects. Almost every state has taken some measures that relate to cryptocurrencies but most of them were minor fixes aimed primarily at ensuring tax revenues from transactions involving these currencies. This clearly highlights regulators' primary interest - taxation. In order to ensure tax revenues from cryptocurrency transactions, good AML laws and high degrees of transparency in operations are necessary.

The political system in the United States is unique in the way it shares powers between the state and the federal levels. The United States, is, after all, primarily a federation of states. Federalism, by definition, is a system that involves shared responsibilities between states and the federal government. While some powers are exclusive, some are concurrent. For example, while the power to create money is exclusive to the federal government, the power to impose taxation is concurrent. Given the significance of taxation as a factor that affects monetary policy, it is important to analyze how each state has responded to the new phenomenon of GPCs. Although the power to make monetary policy rests mostly at the federal level and the dissertation's unit of analysis is the nation state, it is critical to understand the sub-units, which, in the case of the United States, are its constituent states. National politics in the United States is inextricably linked to state and local politics. Given the significant autonomy each state has, combined with how states differ

on political and economic issues, it is important to understand how states have responded to GPCs over the past years. It is also important to understand how federal-level responses and sentiments are influenced by state-level responses and sentiments.

While most states have focused on exploiting the new phenomenon for more tax revenue, some states such as New York, Arizona, Maine, Nevada, and Vermont introduced bills that explored potential applications of the new technology to enhance operations. These states explored bills that involved ideas such as the acceptable use of blockchain ledgers and smart contracts for record keeping. Two states clearly lead the pack as the most active regulators - California and New York. These states house several cryptocurrency and related companies. However, Massachusetts, which is also home to several tech companies that operate in this industry, has not been active in regulating. Some states such as Washington, have been hostile to the crypto industry despite hosting several crypto and related businesses. Some smaller states, such as Wyoming, on the other hand have taken a highly supportive stance on cryptocurrencies and blockchain technology. This chapter first analyzes responses and regulatory activities at the federal level. This includes analyses of announcements by agencies such as the SEC and the IRS. This is followed by a state-by-state analysis of regulatory activities. Key factors are identified during these analyses.

At the federal level, Elizabeth Warren, the U. S. Senator from Massachusetts, has been the loudest voice against cryptocurrencies at the federal level. Sen. Warren has repeatedly warned of risks from cryptocurrencies and has pushed for agencies such as the SEC to exercise oversight authority.<sup>240</sup> Warren has raised concerns claiming that the "highly opaque and volatile" nature of the cryptocurrency market poses threats to consumers and financial markets. She has also

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<sup>240</sup> Andrea Shalal, "Sen. Warren Warns of Cryptocurrency Risks, Presses SEC on Oversight Authority," Reuters, July 9, 2021, <https://www.reuters.com/technology/sen-warren-warns-cryptocurrency-risks-presses-sec-oversight-authority-2021-07-08/>.

repeatedly criticized the lack of regulation. Compared to the European Union and China, the U.S. has been slow and very passive in responding to cryptocurrencies and related aspects. There have been a few other loud voices against GPCs in Congress. However, there have been no concrete outcomes. For example, in 2013, when Bitcoin was becoming popular after 3 years in circulation, the U.S. Senate's Finance Committee requested the Government Accountability Office (GAO) to study the phenomenon. The GAO issued a report in May 2013 with a focus on the taxability of virtual currency transactions. This clearly indicates that the government's concerns are primarily related to taxation. The GAO also requested the Internal Revenue Service (IRS) to issue guidance on this issue. A few months later, in November 2013, the U.S. Senate's Banking, Housing and Urban Affairs Committee held a hearing on 'The Present and Future Impact of Virtual Currency' to further examine risks, benefits and possible industry regulation. There were no major outcomes or concrete decisions from any of these reports or hearings.

The next year, however, was marked by clearer rules and guidelines. On March 25, 2014, the IRS issued a ruling that virtual currencies would be taxed as property. The ruling also established that virtual currencies were subject to capital gains tax. Again, it was clear that the focus was on taxation. Around the same time, another federal agency, the Federal Election Commission (FEC), issued a guideline that seemed to indicate a positive approach. The FEC allowed political campaigns to accept Bitcoin donations valued at \$100 or less. Bitcoins were allowed to be bought and sold as an investment within the United States. The GAO issued another report on cryptocurrencies which led the U.S. Consumer Financial Protection Bureau (CFPB) to divert its attention on virtual currencies. This was the beginning of the piecemeal approach to cryptocurrency regulation at the federal level. It is important to note that these efforts are led by agencies and not by lawmakers although the Congressional Blockchain Caucus and other proactive

Congresspeople and senators did play key roles in sending letters that prompted the attention of the administration and these agencies. Such piecemeal approaches, which intensified over the years, has been the primary regulatory response at the federal level until 2021 although several bills were drafted, and few laws were made.

In May 2021, U.S. regulators raised more concerns and called for increased tax oversight on cryptocurrencies.<sup>241</sup> Jerome Powell, who led the U.S. Federal Reserve at that time, declared that cryptocurrencies pose risks to financial stability. This point has been echoed by several regulators and lawmakers in the U. S., clearly establishing at least the perception that GPCs pose a threat to the State's ability to successfully manage monetary policy. Jerome Powell also hinted that more regulation may be warranted. There were signs that the federal government was getting more organized in reacting to GPCs. Jerome Powell laid out a clear timeline and discussed the possibility of adopting a digital currency of its own. Other parts of the federal government had the same stance. The Treasury Department raised concerns that cryptocurrencies, if left unregulated, could allow wealthy individuals to avoid taxes. Janet Yellen, who was the Treasury Secretary at that time, also warned that cryptocurrencies pose risks to financial stability and encouraged more regulations.

Around the same time, Elizabeth Warren, who then chaired the Senate Banking Committee's Subcommittee on Economic Policy, raised more concerns in a letter to Securities and Exchange Commission (SEC), adding more pressure. In the strongly worded letter, she demanded answers from Gary Gensler, the SEC Chair, by July 28. Warren's question was specifically about whether the SEC had authority to protect consumers investing and trading in cryptocurrencies. The

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<sup>241</sup> David Lawder and Howard Schneider, "U.S. Regulators Signal Stronger Risk, Tax Oversight for Cryptocurrencies," Reuters, May 21, 2021, <https://www.reuters.com/technology/fed-citing-crypto-risk-open-digital-currency-debate-this-summer-2021-05-20/>.

objective was to determine what future congressional action was needed. She acknowledged that the U.S. oversight of the cryptocurrency market was ‘patchy’ while demand for cryptocurrencies and the use of cryptocurrency exchanges skyrocketed. Warren pointed out that ordinary investors were left at the mercy of manipulators and fraudsters because of the lack of regulations.

Gary Gensler, before taking over as the SEC Chief, had suggested the integration of cryptocurrencies into the financial regulatory system but seemed to have mixed opinions on the topic. Warren’s letter to Gensler demanded an explanation on how cryptocurrency exchanges could be undermining the SEC’s mission. Specifically, Warren was interested in whether markets are still operating in a fair, orderly, and efficient manner. This highlights the importance of compliance with the current financial system as a regulatory factor. She also asked whether international regulatory coordination was required. Officials from G20, the Group of 20 major economies, were expected to discuss the issue during an upcoming meeting. While the issue was recognized at the international level, there was little to no coordination or action. The situation within the United States was not that different. Most of the regulatory responses within the US were by agencies such as the CFTC, SEC, IRS, the Secret Service, and the FBI.

Among these federal agencies, the most active ones have been the CFTC, IRS, and SEC. While their actions are usually at the granular level i.e., related to very specific details, they impact the economy and the markets in significant ways. For example, one important move by the Commodity Futures Trading Commission (CFTC)<sup>242</sup> was its announcement that the Commission voted unanimously to approve a guidance that pertains to retail commodity transactions involving digital assets. In this guidance, the CFTC established clarity on what gets treated as an exception to one specific article within the Commodity Exchange Act (CEA). This had significance because

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<sup>242</sup> “Release Number 8139-20,” CFTC, March 24, 2020, <https://www.cftc.gov/PressRoom/PressReleases/8139-20>

the guidance was in specific reference to digital assets that serve as a medium of exchange, which includes cryptocurrencies. Measures taken by the IRS<sup>243</sup> include specifics on how transactions involving virtual currencies are taxable by law just like transactions involving other types of properties. An IRS Notice issued in 2014 (2014-21 -IRB 2014-16)<sup>244</sup> is a good example of a formal guidance given by the agency to individuals and businesses on the tax treatment of transactions that involve virtual currencies.

The IRS defines a virtual currency as ‘a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value’. There are also clear disclaimers in IRS communications that while cryptocurrencies may operate like legal tender, these virtual currencies do not have legal tender status within the U.S. Measures taken by the SEC<sup>245</sup> including the framework used to analyze investment contracts involving digital assets, especially if there is an Initial Coin Offering (ICO), which is similar to an Initial Public Offering (IPO) in some ways. While most warnings by the SEC are generic, there are also several detailed instructions on how to determine whether a digital asset is a security. The SEC uses the U.S. Supreme Court's *Howey* case and subsequent case law as the primary reference on this matter. The focus of the ‘*Howey* analysis’ or ‘*Howey* test’ is not only on the form and terms of the digital asset itself, but also on the circumstances surrounding the digital asset and the manner in which it is offered, sold, or resold. This is a clear example of how regulators expect GPCs and other cryptoassets to comply with laws that apply for traditional money and traditional assets.

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<sup>243</sup> “Frequently Asked Questions on Virtual Currency Transactions,” IRS, 2014, <https://www.irs.gov/individuals/international-taxpayers/frequently-asked-questions-on-virtual-currency-transactions>.

<sup>244</sup> “Internal Revenue Bulletin (No. 2014 -16),” IRS, April 14, 2014, <https://www.irs.gov/pub/irs-irbs/irb14-16.pdf>.

<sup>245</sup> “Framework for ‘Investment Contract’ Analysis of Digital Assets.” SEC, April 13, 2019, <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets>.



Thus, the only actions impacting the cryptocurrency and blockchain industry are from agencies or financial regulators themselves, whether it is the recently released ‘Cryptocurrency Enforcement Framework’ by the Department of Justice, enforcement actions from the Securities Exchange Commission (SEC) or Commodity Futures Trading Commission (CFTC), or most notably the recent guidance in the form of interpretive letters released by the Office of the Comptroller of the Currency (OCC). Meanwhile, within the United States Congress, the topic of regulatory response to the cryptocurrency phenomenon has been discussed through several bills. Within both chambers of Congress, there are both supporters and detractors, ensuring healthy debate. When the congressional subcommittee on oversight and investigations invited expert witnesses to testify on the risks and opportunities of blockchain technology, both sides of the argument were represented. The split was somewhat partisan. While Representative Brad Sherman (D-MN), a ranking member of the committee, was not a fan of cryptocurrencies and was in favor of regulations, Representative Tom Emmer (R-MN), another senior member of the committee, was concerned that regulatory interference was preventing Americans from benefiting through entrepreneurship in the cryptocurrency market. Sherman pointed out that cryptocurrency prices are highly volatile and that it creates way more losers than winners, comparing it to the lottery. Tom Emmer (R-MN), on the other hand, praised cryptocurrency and blockchain innovators while highlighting their concerns about regulations. Several other Republicans have vocally supported the cryptocurrency industry. Cynthia Lummis, a Republican who was the U. S. Senator from Wyoming at that time, expressed a desire to see Bitcoin be accepted as a part of a diversified retirement portfolio to hedge against inflation. The National Republican Congressional Committee, around that time, began accepting crypto donations for campaign funds. It was clear that one party was generally more in favor of the cryptocurrency industry than the other.

In July 2021, the Infrastructure Bill, which was touted as a major reform, put cryptocurrencies on the crosshairs of the lawmakers who were on a quest for funds. In order to pay for the bipartisan infrastructure package, lawmakers started exploring the cryptocurrency industry as a source of tax revenue. Realizing that cryptocurrencies were not easy to trace, there were proposals for closer scrutiny of digital transactions. This highlights the importance of transparency in the way GPCs operate. As a countermeasure, a provision in the Senate legislature was created to give the IRS more power to investigate transactions involving cryptocurrencies and other cryptoassets.<sup>246</sup> The result was a provision that required cryptocurrency brokers and investors to disclose transactions to the Internal Revenue Service in order to bring more transparency. This was justified based on widespread allegations that cryptocurrencies had become a vector for money laundering and tax evasion. This clearly highlights the importance of compliance with AML laws. These regulatory moves indicated that federal lawmakers have started seeing the cryptocurrency industry, which had just crossed the \$2 trillion mark, as a long-term phenomenon. More importantly, it clearly showed that the industry was seen as a new avenue to generate federal tax revenue. The Joint Committee on Taxation estimated that, if tax enforcement on digital assets such as cryptocurrencies were successfully enhanced, the federal government could raise close to \$28 billion over a decade. Taxation was clearly the primary issue related to GPCs in the U.S.

Although 2021 brought the highest levels of attention on GPCs, the U S Congress showed interest on the topic over the previous few years as well. One of the earliest efforts by the United States Congress related to cryptocurrencies was a session by the committee on agriculture on July

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<sup>246</sup> Alan Rappoport, "Infrastructure Deal Puts Cryptocurrencies in Washington's Cross Hairs," The New York Times, last modified August 2, 2021, <https://www.nytimes.com/2021/07/30/us/politics/infrastructure-deal-cryptocurrency.html>.

18, 2018. titled ‘Cryptocurrencies: Oversight of New Assets in The Digital Age,’<sup>247</sup> this hearing ‘aimed at providing a strong, clear, legal and regulatory framework for digital assets. In 2019-2020 alone, Congress introduced around 40 bills related to cryptocurrencies and blockchain.<sup>248</sup> Eleven of these bills passed the House of Representatives and two became law. However, the two laws were part of other larger bills. One of these laws called for a Congressional briefing on how cryptocurrency affects economic sanctions, which is a critical tool in great power competition among nations. The other law called for a briefing on how the Department of Defense (DoD) could potentially use blockchain technology. Therefore, both laws were related to great power competition and to the preservation of the State’s authority. While these two laws, by virtue of having passed every legislative hurdle with enough votes, give a clear idea of the factors that concern lawmakers and regulators the most, a lot of insights can be gained from the other bills as well. While they did not have enough support to become laws, they clearly had enough substance to get the sponsor’s attention and media attention. In 2021, around 19 bills were introduced<sup>249</sup> but no laws were made.

Some of the bills had the same ideas such as ordering the Department of Financial Crimes Enforcement Network (FinCEN) to explore blockchain technology for improving data analysis and distribution of data, especially within the government. The emphasis was on improving law enforcement. In the United States, there has been a heavy focus on understanding how the blockchain technology and its application, especially cryptocurrencies, can enable transnational

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<sup>247</sup> U.S. Congress, House, Committee On Agriculture, *Cryptocurrencies: Oversight Of New Assets In Digital Age: Hearing Before The Committee On Agriculture, 115th Cong., 2nd sess., July 18, 2018*, <https://www.congress.gov/115/chrg/CHRG-115hhrg30893/CHRG-115hhrg30893.pdf>.

<sup>248</sup> Jason Brett, “In 2019-2020, Congress Introduced 40 Crypto And Blockchain Bills,” *Forbes*, October 17, 2020, <https://www.forbes.com/sites/jasonbrett/2020/10/17/in-2019-2020-congress-introduced-40-crypto-and-blockchain-bills/?sh=4b632eec6213>.

<sup>249</sup> Jason Brett, “Congress Has Introduced 18 Bills On Crypto And Blockchain In 2021,” *Forbes*, August 22, 2022, <https://www.forbes.com/sites/jasonbrett/2021/08/22/congress-has-introduced-18-new-bills-on-crypto-and-blockchain-in-2021/?sh=4e0ca099263b>.

crime. A good example is the Fight Illicit Networks and Detect Trafficking Act, more commonly known as the FIND Trafficking Act, which was introduced in both the House of Representatives and the Senate. The House version of the bill, H.R. 502, had a provision that required the Government Accounting Office (GAO) to file a report on the use of virtual currency in sex and drug trafficking. Regulators in the United States have also been keen on exploring how the same blockchain technology can be used in countering transnational crime. The FIND bill, for instance, also included the demand to examine ways in which the disruptive characteristics of the blockchain technology could be deployed in tracking and prosecuting the illicit usages of cryptocurrency. Law enforcement agencies have successfully used the pseudonymous nature of Bitcoin transactions to trace some ransomware attacks and drug deals.

The Blockchain Innovation Act (H.R. 8153), The Advancing Blockchain Act (H.R. 6938), and part of the Digital Taxonomy Act (H.R. 2154) were some of the notable bills that successfully gained enough votes in the House of Representatives, highlighting that there was majority support for legislative action related to the emerging blockchain technology. The American Competitiveness on More Productive Emerging Tech Economy (COMPETE) Act (H.R. 8132), which included blockchain technology, also passed the House of Representatives. A quick look at some simple statistics on the 40 bills that were created between 2019 and 2022 clearly reveal the regulatory factors at play. Almost one-third had mentions of terrorism, money laundering, and sex trafficking, highlighting regulators' concerns on potential social and economic impacts of the new phenomenon. Around 40% of the bills explicitly demanded more regulatory clarity for businesses, highlighting the power of the lobbying sector which was growing at a fast pace. Nonprofits such as Coin Center and business associations such as the Blockchain Association were growing in stature around that time. Close to a quarter of the bills dealt with the use of blockchain technology

in government and business, highlighting that regulatory focus was not exclusively on cryptocurrencies. Close to one-tenth of the bills had mentions of the digital dollar i.e., the idea for a central bank digital currency (CBDC).

Some of the bills had other aspects such as the potential impact of the technology on economic growth within specific communities, highlighting that there was some support in Congress for the narrative that GPCs could be used as a tool for economic development. For example, on January 3, 2019, Congressman Bobby Rush (D-IL), introduced a bill that included a provision to ask the Comptroller General of the Government Accountability Office (GAO) to carry out a study to determine whether blockchain technology could be used to increase investment by lower-income individuals in startups and other crowd-funded companies. This was part of the ‘RESCUE Act for Black and Community Banks,’ which was designed to support minority banks, women’s banks, and low-income credit unions. Similar ideas have been floated by others albeit by other methods. For example, Congressman Darren Soto (D-FL), in a letter to the National Economic Council, requested the White House to hold a forum on blockchain technology to explore how its applications can help society at large. He later sent another request, this time to the U.S. Treasury Secretary, suggesting that the blockchain should be considered as an option to expedite the processing of Covid-19 stimulus checks.

One of the concerns raised by Congress was the potential use of cryptocurrencies in evading sanctions. This was triggered by Venezuela’s attempt to create its own cryptocurrency designed specifically to circumvent sanctions. This problem is similar to money laundering and tax evasion in that the cryptocurrency-specific mechanisms used by bad actors are the same, but the implications are larger because sanctions are a critical foreign policy tool. If Venezuela could do this, so could other nations such as Russia and North Korea. This, again, highlights the role of

great power competition as a regulatory factor. Among the congressional efforts that mentioned blockchain and cryptocurrencies in the geopolitical context is the ‘Defending American Security from Kremlin Aggression Act,’ a bill that was introduced by Senator Lindsey Graham (R-SC). The bill aimed to promote international efforts that protect financial institutions and cryptocurrency exchanges from cyber theft. This was important because several non-State actors, and rogue states such as North Korea were amassing large sums of money by hacking cryptocurrency exchanges. Great power competition was also seen between governments and major corporations such as Facebook (now called Meta). The ‘Keep Big Tech Out of Finance Act’ bill, for example, aimed at prohibiting large technology companies such as social media platforms from offering financial services. The bill did not stop at trying to restrain such companies from becoming financial institutions. It also tried to prohibit any affiliations with financial institutions. The goal was to prevent such giants from establishing, maintaining, or operating any digital currency or payment system. Over the years, especially after Libra/Diem was proposed, the number of members of Congress who have taken up the issue of GPCs has increased.

Representative Kathleen Rice (D-NY) has been one of the most active lawmakers trying to address concerns related to cryptocurrencies, especially the ones related to terrorism. She sponsored the Homeland Security Assessment of Terrorists' Use of Virtual Currencies Act, which passed the House of Representatives on January 29, 2019, with strong support from republicans. The bill was co-sponsored by Congressmen Van Taylor (R-TX) and Peter King (R-NY). Per the bill, the Department of Homeland Security (DHS) was required to conduct an assessment of how terrorists use virtual currencies. Specifically, the Office of Intelligence and Analysis (within DHS) had to develop and submit a threat assessment report on the topic. The bill was proposed because several terrorist organizations were openly using cryptocurrencies to support and finance their

operations. The Islamic State (ISIL), for example, openly advertised its Bitcoin wallet information online with hopes that it could raise funds from sympathizers across the world. This strategy was successful at times, but law enforcement agencies were often able to trace such supporters. For example, in December 2017, a woman in New York was arrested for obtaining \$62,000 in Bitcoin and other cryptocurrencies to send to ISIL. She managed to send the money using shell entities in Pakistan, China, and Turkey.

Lawmakers were able to see how cryptocurrencies offered a safer, faster, low-cost alternative for terrorists to send and receive funds across the world thanks to the anonymous or pseudonymous nature of the system. While the problem was clear, the solution was not. Lawmakers still have not found a viable solution. The bill was proposed in hopes that the findings of the report by intelligence could potentially change federal policies. Lawmakers openly admitted during media interactions that cryptocurrencies have exposed deep vulnerabilities in counterterrorism efforts and that the government did not have a comprehensive strategy or response. All but three libertarian-leaning Republican members of the House voted in favor of the bill. There were reports that these congresspeople did not support the bill because they saw it as a first step towards a possible ban on cryptocurrencies, which, in their perspective, amounted to too much governmental interference in the economy. The confluence of political, economic, social, technological, and legal aspects makes regulatory response to cryptocurrencies highly difficult.

However, some bills give a glimpse of how regulators believe they can best control the new phenomenon of cryptocurrencies. The Crypto-Currency Act of 2020,<sup>250</sup> for example, proposed establishing agency oversight of digital assets and identified specific agencies to carry

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<sup>250</sup> U.S. Congress, House, Committee On Financial Services, Agriculture, *Crypto-Currency Act of 2020*, HR 6154, 116th Cong., 2nd sess., introduced in House March 09, 2020, <https://www.congress.gov/bill/116th-congress/house-bill/6154?r=4&s=1>.

out such oversight. The Commodity Futures Trading Commission (CFTC) was identified as the primary regulator of cryptocommodities while the Financial Crimes Enforcement Network (FINCEN) and the Office of the Comptroller of the Currency (OCC) were identified as the primary regulators of cryptocurrencies. The Securities and Exchange Commission as the primary regulator of crypto-related securities and stablecoins. The bill was designed to require these agencies to publish details on exchanges trading these assets. This bill's approach was similar to the piecemeal approach that existed at the time, (and continues to exist as of February 2022) but with more specificity and clarity. There was wide consensus among regulators and lawmakers that no one agency could solely manage cryptocurrencies and other similar blockchain-based commodities and securities. In April 2021, the House passed a bill<sup>251</sup> to create the first 'Crypto Task Force on Digital Assets'<sup>252</sup>. The bi-partisan bill, called the "Eliminate Barriers to Innovation Act of 2021" (H.R. 1602), proposed the creation of a digital assets working group with members from the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC).

Over the years, there have been several public outcries from popular figures outside the government demanding quick and efficient actions against cryptocurrencies. These have taken the form of op-eds,<sup>253</sup> tweets, etc. Yet, there has not been enough organized effort at the federal level. There are a few exceptions. For example, President Trump banned the use of the Venezuelan virtual currency (Petro) soon after the idea was announced. This helped deter some supporters (located in the United States) from purchasing Petro. The Treasury Department also issued

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<sup>251</sup> U.S. Congress, House, Committee On Financial Services, Agriculture, *Eliminate Barriers to 5 Innovation Act of 2021*, HR 1602, 117th Cong., 1st sess., introduced in House March 08, 2021, <https://www.congress.gov/117/bills/hr1602/BILLS-117hr1602ih.pdf>.

<sup>252</sup> Brett, Jason. "U.S. House Passes Bill To Create First Crypto Task Force On Digital Assets." *Forbes*, April 22, 2021. <https://www.forbes.com/sites/jasonbrett/2021/04/22/us-house-passes-bill-to-create-first-crypto-task-force-on-digital-assets/?sh=11d5a0b26612>.

<sup>253</sup> Elizabeth Rosenberg and Edoardo Saravalle, "Congress Should Kickstart the Response to Virtual Currencies," *The Hill*, April 25, 2018, <https://thehill.com/opinion/finance/384817-congress-should-kickstart-the-response-to-virtual-currencies/>.



guidance on how to treat Petro and other cryptocurrencies. The Treasury Department also planned to work on cryptocurrency-related issues through the Financial Action Task Force (FATF) to achieve global scale. The FATF, being intergovernmental, has helped set global standards on countering money laundering and financing of terrorism.

Some bills, such as the Consumer Safety Technology Act (HR 8128),<sup>254</sup> have highlighted how lawmakers are also focused on consumer protection. The Consumer Safety Technology Act planned to direct the Secretary of Commerce and the Federal Trade Commission to study and report on the use of blockchain technology and digital tokens, respectively. The bill did not get enough votes, suggesting that potential economic advantages do not galvanize as much legislative support as threats from terrorists and loss of tax revenue. The bill also aimed to establish a program to promote leadership in financial innovation and financial intelligence. Other bills such as The Blockchain Innovation Act (HR 8153) and Digital Taxonomy Act of 2019 (HR 2154) also had provisions that tried to protect consumers. The Blockchain Innovation Act planned to direct the Secretary of Commerce, in consultation with the Federal Trade Commission, to study the state of blockchain technology and its use in consumer protection, specifically to address fraud and other unfair or deceptive practices. This bill was introduced on September 1, 2020, but it did not receive a vote. The Digital Taxonomy Act, which also died in Congress, planned to support the Federal Trade Commission (FTC) in preventing unfair and deceptive acts and practices related to digital tokens and transactions.

On July 27, 2021, The U.S. Congress held three simultaneous hearings related to cryptocurrencies. The Senate Judiciary Committee held a hearing on ransomware, while the Senate

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<sup>254</sup> U.S. Congress, House, Committee on Energy and Commerce | Senate - Commerce, Science, and Transportation, *Consumer Safety Technology Act*, HR 8128, 116th Cong., 2nd sess., introduced in House August 28, 2020, <https://www.govtrack.us/congress/bills/116/hr8128>

Banking Committee held a hearing on potential uses of cryptocurrencies. Meanwhile, in the other chamber, the House Financial Services Committee held a hearing on central bank digital currencies (CBDCs). The Senate Judiciary Committee's hearing was titled "America Under Cyber Siege: Preventing and Responding to Ransomware Attacks," while the House Committee on Financial Services' hearing was titled "The Promises and Perils of Central Bank Digital Currencies". The Senate Banking Committee's hearing had the most neutral title: "Cryptocurrencies: What are they good for?". These titles demonstrate two things: (1) how important and unavoidable the topic had become, and (2) how Congress approached the topic i.e., countering negative effects such as ransomware while cautiously exploring and exploiting positive effects such as tax revenue and improvements to the fiat currency.

The Senate hearing on the ransomwares highlighted concerns from multiple agencies. Lawmakers, connecting the spike in cryptocurrency usage and the spike in ransomware attacks on American companies, demanded explanations and solutions. Cryptocurrencies were used in ransomware attacks because they were difficult to trace. Richard Downing, deputy assistant Attorney General of Criminal Division at the U.S. Department of Justice, during the hearing, established that cryptocurrencies were enabling ransomware attacks because of their anonymous and non-reversible nature. Lawmakers were interested in establishing more transparency, but Downing admitted that there were no proposals or solutions to enhance the U.S. Department of Justice's authority to track cryptocurrencies. He added that his department was looking at existing laws such as the Bank Secrecy Act to handle the situation. This highlights the importance of legal factors and existing laws. Cryptocurrencies that operated in a manner that was compliant with the fiat currency's systems would not concern lawmakers.

Jeremy Sheridan, then-assistant director of the Office of Investigations at the U.S. Secret Service, who was also questioned by lawmakers during the hearing, asserted that if cryptocurrencies did not exist, it would be harder to facilitate ransom payments, but that online ransomware attacks would still occur through other payment mechanisms. He added that cryptocurrencies make it easier to follow the digital trail of money after such attacks. This surprised some lawmakers because cryptocurrencies were believed to be difficult to trace, which is true. Sheridan further clarified that, while there are cryptocurrencies that offer privacy and anonymity through techniques such as ‘chain-swapping’ and ‘chain-hopping,’ they only become difficult to trace i.e., not impossible to trace. He also pointed out that cryptocurrencies can be traced even if it takes a while but fiat currency in the form of cash cannot be traced as easily. However, the problem, he admitted, is that there is a demand for the right talent i.e., personnel trained to perform such highly sophisticated technical activities. Sheridan highlighted the important role of cryptocurrency exchanges as allies. He pointed out that some cryptocurrency exchanges had been highly cooperative in tracing cryptocurrencies.

To be useful in the mainstream economy, cryptocurrencies often need to be converted into more commonly used currencies, which happen to be traditional government-backed fiat currencies such as the U.S. dollar. This exchange, which is similar to exchanging foreign currencies at an airport, happens online at these cryptocurrency exchanges. Criminal actors are using techniques like phishing emails to gain access to the data of a business, a nonprofit, or a government. Earlier that year, FBI Director Chris Wray had compared the challenges of fighting ransomware to the challenges faced by the United States after 9/11. He estimated that hundreds of millions of dollars were paid as ransoms in 2020. Ransomware attacks had targeted schools, local governments, and even hospitals and healthcare providers. Massive ransomware attacks have been

carried out on critical utilities as well. The most famous example was the cyberattack on Colonial Pipeline, which involved ransom payments in Bitcoins. These attacks were highly demoralizing because they involved basic essential goods. Ransomware affected small businesses as well.

Traceability of cryptocurrencies, i.e., transparency in the way cryptocurrencies operate, was discussed also during the hearing in the Senate Banking Committee. Since the hearing was held to understand what cryptocurrencies are good for, proponents of cryptocurrencies such as Jerry Brito, the head of the Coin Center were given a chance to voice their views. Jerry Brito claimed that cryptocurrencies were transparent in their operations because of the open and decentralized nature of the ledgers. Lawmakers seemed to be keen on understanding whether cryptocurrencies were truly decentralized in nature i.e., whether there is a need for institutions like banks. While Bitcoin and other truly decentralized cryptocurrencies do not rely on centralized authorities like banks when operated by individuals, all cryptocurrencies become somewhat centralized if they're bought through a cryptocurrency exchange. This presented both opportunities and threats.

While governments could easily work with cryptocurrency exchanges, as proven in the case of Coinbase, there were serious concerns because these exchanges are easy to hack. Mt. Gox and other exchanges were hacked in the past, leading to huge losses. Most lawmakers were not convinced that cryptocurrencies would be good for the financial system.<sup>255</sup> There were, however, a few outliers who expressed optimism and positivity. Senator Cynthia Lummis, the Republican from Wyoming, commented that the transparency and openness of open-source finance can promote financial inclusion, a claim that's often made by the cryptocurrency industry. Senator

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<sup>255</sup> Tanaya Macheel, "Senate Banking Committee Presses Crypto Experts on Systemic Risk at Hearing," CNBC, July 27, 2021, <https://www.cnbc.com/2021/07/27/senate-banking-committee-presses-crypto-experts-on-systemic-risk-at-hearing.html>.

Sherrod Brown, the Democrat from Ohio, took a more cautious approach, highlighting that blockchain technology could have many useful applications that are not in the finance sector.

These comments suggest that there are mixed opinions within Congress on the topic of cryptocurrencies. However, the key factors that most lawmakers are concerned about seem to be the same: transparency in operations, preventing money laundering, ensuring compliance with existing financial systems, preserving the state's sovereignty, and protecting the global standing of the nation as a superpower. The other specific question that interested lawmakers during the senate hearings was whether system failures in the cryptocurrency markets could ripple over to the traditional financial system. Experts who testified at the hearing warned against taking cryptocurrency proponents at their word. It was pointed out that the cryptocurrency world was not that different from the traditional world of finance in the sense that their power was concentrated in the hands of a few people and is therefore vulnerable to the same types of threats as the traditional finance system. The difference was that, in the cryptocurrency world, the powerful people were the core software developers and miners. However, even some government officials had declared that cryptocurrencies were not a systemic concern<sup>256</sup> at least at that point in time, despite being highly volatile.

The House Committee hearing on “The Promises and Perils of Central Bank Digital Currencies” (CBDC), meanwhile, investigated how a CBDC might address concerns related to monetary policy, financial stability, national security, cybersecurity, privacy, and financial crimes. This hearing was held by the Subcommittee on National Security, International Development, and Monetary Policy, which, earlier that year, had held a hearing on how cryptocurrencies might be used in terrorist financing. The most important statement from that hearing was from the head of

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<sup>256</sup> Howard Schneider, “Fed Officials: Crypto Rout Not a Systemic Concern,” Reuters, last modified May 19, 2021, <https://www.reuters.com/technology/bullard-crypto-rout-not-systemic-concern-2021-05-19/>.

the Federal Reserve, Jerome Powell. “You wouldn’t need stablecoins; you wouldn’t need cryptocurrencies; if you had a digital U.S. currency,” he said, making a strong case for a digital dollar.

The push for the digitization of the dollar, in response to the rapid rise of global private digital currencies and the accelerated creation of China's digital Yuan, came from within and outside the United States government. In late 2019, two Congressmen, French Hill (R-Ark.) and Bill Foster (D-Ill.), in a letter<sup>257</sup> to the Federal Reserve Chairman Jerome Powell, urged the central bank to start working on a ‘national digital currency’ in order to prepare the dollar for the future. of the various risks that the U.S. dollar faces. In this context, the risk is related to the American dollar’s hegemonic status as the de facto reserve currency across the world. Other congresspeople who had similar ideas as a solution also prepared bills that tried to kickstart the digital dollar. The first bill that referred to the digital dollar was the ‘Banking for All Act’ by Senator Sherrod Brown (D-OH). This was followed by the ‘Automatic BOOST To Communities Act’ introduced by Representative Rashida Tlaib (D-MI) and Representative Pramila Jayapal (D-WA). Both bills proposed the digital dollar as a tool that would expedite the delivery of economic stimulus benefits in the midst of the COVID-19 pandemic. In March 2021, Representatives French Hill (R-AR) and Bill Foster (D-IL), took legislative efforts of their own by introducing the Central Bank Digital Currency Study Act of 2021 (H.R. 2211), which aimed at sponsoring a comprehensive study on the impacts a CBDC being introduced in the United States. This study was required to include aspects such as anti-money laundering (AML), cross-border remittances, financial inclusion efforts, data privacy, and security issues. These topics show that lawmakers see both sides of the coin on this issue i.e., they recognize the threats from money laundering and terror financing, but

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<sup>257</sup> “Two US Congressmen Ask The Fed To Create A National Digital Currency,” U.S Congressman French Hill, October 4, 2019, <https://hill.house.gov/news/documentsingle.aspx?DocumentID=6136>.

they also see the opportunity in building more inclusive fintech tools and more efficient payment systems. French Hill has been one of the most active members of Congress on cryptocurrencies and related issues. He also introduced another bipartisan bill called the ‘21st Century Dollar Act’ (H.R. 3506), which aimed at funding efforts towards crafting a ‘Dollar Strategy’ that can help the U.S. dollar retain its throne as the global reserve currency. However, despite multiple efforts by lawmakers from both major parties, the idea for a digital dollar has not received widespread support in the House or the Senate.

Most lawmakers seem to be open to considering the idea, but some of them have expressed concerns related to privacy. China’s fast-track efforts on the digital Yuan made more lawmakers pay attention to this idea. In July 2021, the U. S. Senate saw a bill (S. 2543),<sup>258</sup> introduced by Bill Hagerty (R-TN), to study the national security implications of China's efforts to create its own official digital currency. The bill was designed to understand risks from potential surveillance of transactions, illicit usage, economic coercion, and social control. In this context, the risk is related to social aspects such as civil liberties. The idea of a digital dollar is also, understandably, not supported by the cryptocurrency industry in the United States. The industry’s lobbyists, with help from think tanks, have been successful in painting the digital dollar as a threat to privacy that is not worth the cost. Yet, research efforts have been ongoing on multiple fronts. The most notable ones have been the Digital Dollar Initiative, a private non-profit effort by Christopher Giancarlo, the former CFTC Chair, and the research partnership between the Federal Reserve’s Boston unit and MIT’s Digital Currency Initiative to explore a U. S. Central Bank Digital Currency.<sup>259</sup>

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<sup>258</sup> U.S. Congress, Senate, Committee On Foreign Relations, *A bill to require a study on the national security implications of the People's Republic of China's efforts to create an official digital currency*, S 2543, 117th Cong., 1st sess., introduced in Senate July 29, 2021, <https://www.congress.gov/bill/117th-congress/senate-bill/2543/text>

<sup>259</sup> Vipin Bharathan, “Fed Partners With MIT Based Digital Currency Initiative To Explore Central Bank Digital Currency,” *Forbes*, August 30, 2020, <https://www.forbes.com/sites/vipinbharathan/2020/08/30/fed-partners-with-mit-based-digital-currency-initiative-to-explore-central-bank-digital-currency/?sh=1928fa363fa1>.

A quick snapshot of the most common perspective from the US federal level to GPCs can be obtained by reading the prepared statement that was presented by Senator Elizabeth Warren before one of the hearings.<sup>260</sup> In this, she highlighted that, on the topic of regulating cryptocurrencies, there is bipartisan support and genuine interest in evaluating both potential benefits and costs. She also acknowledges that there are serious problems with existing payment systems. To make this point, she pointed out that close to 33 million Americans have been locked out of the traditional banking system, and, as a result, forced to use check-cashers and payday lenders for simple banking services. However, she rejected the idea that cryptocurrencies are the solution to this problem. She instead highlighted how cryptocurrencies had become an enabler for illegal activities such as online theft, drug trafficking, and ransom attacks by offering secrecy. She also included the high environmental costs of mining cryptocurrencies i.e., how much energy is needed. In contrast, she praised the idea for a Central Bank Digital Currency (CBDC), referring to it as ‘legitimate digital public money that could help drive out bogus digital private money’. She also claimed that, if the CBDC is well-designed and well-implemented, CBDCs can help improve financial inclusion, efficiency, and safety within the existing financial system. While lawmakers and regulators at the federal level focused on such big ideas, their counterparts at the state level focused on the finer details and a handful of specific concerns.

Within the US, most states have tried to take regulatory actions regarding cryptocurrency, but only a handful of states have been active. The most common regulatory attempt that has been observed across states is the inclusion of cryptocurrencies into existing laws relating to the transmission of money by redefining the legal term within the state law. States that have done this

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<sup>260</sup> “At Hearing, Warren Delivers Remarks on Digital Currency,” United States Senate Committee On Banking Housing And Urban Affairs, June 9, 2021, <https://www.banking.senate.gov/newsroom/majority/at-hearing-warren-delivers-remarks-on-digital-currency>.



or attempted to do this include Kentucky, Maine, Maryland, Michigan, Minnesota, Nebraska, Nevada, Washington, and Wyoming. This move is primarily aimed at ensuring tax revenue by ensuring compliance with laws that apply to traditional forms of money, which is usually the legal tender. Another related action taken by states is the inclusion of cryptocurrencies within the unclaimed property at each state. This is also aimed at ensuring tax revenues. States that have done or attempted to do this include Idaho, Illinois, Indiana, Kentucky, Minnesota, Nevada, North Dakota, Ohio, South Carolina, Tennessee, Utah, Washington, and Wisconsin. One other effort seen across several states, albeit not too many, is the establishment of a committee or a group to study blockchain and cryptocurrencies with the goal of understanding other potential benefits from the technology. States that have done or attempted to do this include Indiana, Maine, Maryland, New Hampshire, North Dakota, Utah, Vermont, Virginia, and West Virginia. Several states have also tried to include cryptocurrencies as an acceptable method for the payment of taxes. This list includes Illinois, Indiana, New Hampshire, New Jersey, and Oklahoma.

States have also taken some action in a coordinated fashion through mechanisms that do not fall under the control or influence of the federal government. In February 2014, an Emerging Payments Task Force (EPTF) was created by the Conference of State Bank Supervisors (CSBS), a national organization for state banking regulators, to study innovations such as GPCs. This task force issued virtual currency guidelines to help state regulatory agencies. Actions at the state level have sometimes been affected by federal guidelines that supersede them. For example, in April 2014, the Texas Department of Banking issued a supervisory memorandum to clarify the regulatory treatment of virtual currencies under the Texas Money Services Act, but after IRS guidance on the same topic, the department determined that cryptocurrencies do not fit statutory definitions of currency or money. However, it was also ruled that some cryptocurrency transactions

would qualify as money transmissions and would be subject to the statutory provisions under the Texas Money Services Act, highlighting how both federal and state level regulators have influence over GPCs. In this case of Texas, the state's Department of Banking clarified that if a third-party exchange i.e., an intermediary like Mt. Gox or Coinbase would meet the definition of money transmission. The goal in most cases, is to ensure tax revenues from transactions and exchanges involving digital currencies by making them comply with the same rules that apply to traditional processes.

The rest of the chapter discusses state-level patterns across the United States based on legislative actions and attempts between 2014 and 2021. Before 2014, there was very little regulatory response at the state level. Most of the regulatory activity since 2014 has been related to taxation and crime. This is expected, given the role of States within the U.S., whereas their powers are related to economic activity. For example, the state of Arkansas ensured its control of GPCs under the Uniform Commercial Code by amending the Uniform Money Services Act to include virtual currencies. Similarly, the state of Hawaii adopted a resolution requesting the state's department of commerce and consumer affairs to reconsider its 2016 ruling related to asset reserve requirements for virtual currency companies and cryptocurrency companies to conduct business in Hawaii, and to align the state's asset reserve requirements for these companies with the asset reserve requirements in other states. Indiana repealed and replaced its unclaimed property act to include virtual currencies.

Some states have gone beyond just ensuring direct revenues and have attempted to influence the entire cryptocurrency ecosystem. For example, Kentucky created a new section within an existing law to define terms relating to commercial mining of cryptocurrency using blockchain technology. Some states have tried to befriend GPCs and their promoters. For example,

Louisiana adopted an official resolution commending Bitcoin for its success in becoming the first decentralized asset to be worth over a trillion dollars. Some states such as Arizona, Louisiana, and North Dakota, over the years, have indicated their openness towards adopting the new technology by actions such as the creation of blockchain and cryptocurrency study committees to explore how the innovative technology can be exploited. Wyoming even created a cryptocurrency advisory council along with a pool of money to match investment funds in this sector. The following paragraphs describe how each state tried to regulate cryptocurrencies and synthesize the key factors.

In the state of Alabama, bills such as HB 318,<sup>261</sup> HB 372,<sup>262</sup> HB 177,<sup>263</sup> H.B. 215<sup>264</sup> aimed at exempting virtual currencies from ad valorem taxation, and at ensuring proper registration of entities involved in businesses that transact using cryptocurrencies, highlighting how ensuring tax revenue and compliance with the existing system are key priorities for lawmakers. In the case of Alaska, similar factors were at play. Bills such as H.B. 271<sup>265</sup> and S.B. 152,<sup>266</sup> for example, were related to surety bond requirements, record retention, reporting requirements, and enforcement provisions, highlighting the importance of transparency in operations as a regulatory factor. In the case of Arizona, a blockchain and cryptocurrency study committee was established, highlighting an open-minded approach. Some bills even tried to strike archaic language in attempts to support the cryptocurrency sector. Some bills such as SB 1145<sup>267</sup> were aimed at income taxes from virtual

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<sup>261</sup> “HB 318,” Alabama Legislature, 2020, <http://alisondb.legislature.state.al.us/ALISON/SearchableInstruments/2020RS/PrintFiles/HB318-int.pdf>.

<sup>262</sup> “HB 372” Alabama Legislature, 2020, <http://alisondb.legislature.state.al.us/ALISON/SearchableInstruments/2021RS/PrintFiles/HB372-int.pdf>.

<sup>263</sup> “HB 177,” Alabama Legislature, 2020, <http://alisondb.legislature.state.al.us/ALISON/SearchableInstruments/2020RS/PrintFiles/HB177-int.pdf>.

<sup>264</sup> “HB 215,” Alabama Legislature, 2017, <http://alisondb.legislature.state.al.us/ALISON/SearchableInstruments/2017RS/PrintFiles/HB215-enr.pdf>.

<sup>265</sup> “HB 271,” Alaska Legislature, 2016, <http://www.legis.state.ak.us/PDF/29/Bills/HB0271B.PDF>.

<sup>266</sup> “SB 0152,” Alaska Legislature, 2016, <http://www.legis.state.ak.us/PDF/29/Bills/SB0152A.PDF>.

<sup>267</sup> “SB 1145,” Arizona Legislature, 2018, <https://www.azleg.gov/legtext/53leg/2R/bills/SB1145P.pdf>.

currencies. Many other states have taken such balanced approaches that try to promote the growth of cryptocurrency-related businesses while also protecting tax revenues. In the case of Arkansas, bills like HB 1888<sup>268</sup> aimed at protecting the rights of purchasers who gain custody of virtual currencies. Other bills such as SB 150<sup>269</sup> were aimed at updating existing laws such as the Uniform Money Services Act with the new phenomenon to ensure tax revenues and compliance with existing systems.

California, the home of Silicon Valley, where most cryptocurrency startups are located, has seen a lot of regulatory activity. The state's economy, by size, is the fifth largest in the world. Therefore, to no one's surprise, legislative activities and other regulatory responses were related to ensuring tax revenues from all cryptocurrency-related transactions. Bills such as AB 1489,<sup>270</sup> which tried to enact the Uniform Regulation of Virtual Currency Businesses Act, aimed at prohibiting people from engaging in virtual currency business activity unless they were licensed or registered with the Department of Business Oversight. Other bills such as SB 88,<sup>271</sup> which became law, revised the uniform unclaimed property act to include virtual currencies, just as most other states have done. In the case of Connecticut, legislative activities and regulatory responses related to cryptocurrencies involved transactions fees<sup>272</sup> and other restrictions on businesses. Connecticut tried to go beyond cryptocurrencies by studying impacts of the blockchain technology and its wider applications such as smart contracts<sup>273</sup> on the state's laws and businesses. The state

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<sup>268</sup> "HB 1888," Arkansas Legislature, 2021, <https://www.arkleg.state.ar.us/Bills/FTPDocument?path=%2FBills%2F2021R%2FPublic%2FHFB1888.pdf>.

<sup>269</sup> "SB 150," Arkansas Legislature, 2021, <https://www.arkleg.state.ar.us/Acts/FTPDocument?path=%2FACTS%2F2021R%2FPublic%2F&file=532.pdf&ddBienniumSession=2021%2F2021R>.

<sup>270</sup> "AB-1489 Virtual Currency Businesses: Regulation," California Legislative, (n.d.), [http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201920200AB1489](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201920200AB1489).

<sup>271</sup> "SB 19-088," Colorado Legislature, 2019, [http://leg.colorado.gov/sites/default/files/documents/2019A/bills/sl/2019a\\_sl\\_110.pdf](http://leg.colorado.gov/sites/default/files/documents/2019A/bills/sl/2019a_sl_110.pdf).

<sup>272</sup> "HB 5001," Connecticut Assembly, 2018, <https://www.cga.ct.gov/2018/TOB/h/2018HB-05001-R00-HB.htm>.

<sup>273</sup> "SB 0513," Connecticut Assembly, 2018, <https://www.cga.ct.gov/2018/FC/2018SB-00513-R000553-FC.htm>.

also took actions to ensure that cryptocurrencies comply with existing systems through bills such as H.B. 6802,<sup>274</sup> which expanded the Money Transmission Act to include virtual currencies.

Delaware, where a large number of corporations are domiciled, through bills such as SB 103,<sup>275</sup> tried to adopt an express reporting requirement for virtual currencies, highlighting the business-friendly nature of the state's approach. Washington D. C., albeit not a state, attempted to ensure the district's powers related to unclaimed property in the form of cryptocurrencies through the inclusion of virtual currencies into relevant laws such as the Unclaimed Property Act.<sup>276 277</sup> Florida has been seen as one of the friendliest states for cryptocurrencies and related businesses mainly because of cities such as Miami, whose mayor famously took his salary in the form of Bitcoins.<sup>278</sup> However, regulatory attempts at the state level have been mostly neutral. Attempts have been related to amending the term "monetary instruments" (per the state's Department of Legal Affairs) to include cryptocurrencies,<sup>279</sup> and expanding the Florida Money Laundering Act to prohibit the laundering of virtual currency.<sup>280</sup>

In the state of Georgia, there were bold attempts to make the state revenue commissioner accept tax payments and license fees in the form of cryptocurrencies.<sup>281</sup> This attempt also required

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<sup>274</sup> "HB 6802," Connecticut Legislature, 2015, <https://www.cga.ct.gov/2015/TOB/H/2015HB-06802-R00-HB.htm>.

<sup>275</sup> "SB 103" Delaware Legislature, 2021, <https://legis.delaware.gov/json/BillDetail/GenerateHtmlDocument?legislationId=58557&legislationTypeId=1&docTypeId=2&legislationName=SB103>.

<sup>276</sup> "B23-0225," Legislative Information Management System, Council Of District of Columbia, 2019, <http://lims.dccouncil.us/Download/42191/B23-0225-Introduction.pdf>.

<sup>277</sup> "B23-0654," Legislative Information Management System, Council Of District of Columbia, 2018, <http://lims.dccouncil.us/Download/39542/B22-0654-Introduction.pdf>

<sup>278</sup> Romaine Bostick, Taylor Riggs, and Caroline Hyde, "Miami Mayor Seeks Wider Crypto Use After Taking Pay in Bitcoin," Bloomberg, December 4, 2021, <https://www.bloomberg.com/news/articles/2021-12-03/miami-mayor-seeks-wider-crypto-use-after-taking-pay-in-bitcoin#:~:text=Miami%20Mayor%20Francis%20Suarez%2C%20who,of%20cryptocurrency%20across%20the%20city>.

<sup>279</sup> "SB 1626," Florida Senate, 2017, <https://www.flsenate.gov/Session/Bill/2017/1626/BillText/c1/PDF>.

<sup>280</sup> "SB 1379," Florida Senate, 2017, <http://www.flsenate.gov/Session/Bill/2017/1379/BillText/er/PDF>.

<sup>281</sup> "SB 464," Georgia General Assembly, 2018, <http://www.legis.ga.gov/Legislation/en-US/display/20172018/SB/464>

the conversion of cryptocurrency payments into U.S. dollars, highlighting the need seen by regulators for compliance with the fiat currency. In Hawaii, legislative activities<sup>282</sup> have tried to authorize banks to hold digital assets in their custody, and courts to hear claims related to digital assets. One bill<sup>283</sup> tried to establish the Uniform Regulation of Virtual-Currencies Businesses Act, while another bill<sup>284</sup> tried to extend the Money Transmitters Act to expressly apply to individuals who engage in the transmission of virtual currency. The latter required licensees dealing with virtual currency to provide a warning to customers prior to entering into an agreement with the customers, highlighting a cautious approach. A modified form of the Uniform Regulation of Virtual Currency Businesses Act was codified into law.<sup>285</sup> Idaho, like most other states, has included digital currencies into the unclaimed property act.<sup>286</sup> Idaho has also changed its laws to classify digital assets as property, similar to the federal approach.

The state of Illinois amended its unclaimed property act<sup>287</sup> to include cryptocurrencies. Illinois also saw a bill that aimed at creating a Blockchain Business Development Act to provide the Department of Financial and Professional Regulation the authority to adopt rules, opinions, or interpretive letters regarding the custody of digital assets, including digital consumer assets, digital securities, and virtual currency. The state also saw a bill<sup>288</sup> that tried to amend the Department of Revenue's Civil Administrative Code to allow the option of paying taxes in the form of cryptocurrencies, provided that such payments are converted to U.S. dollars within 24 hours of receipt of the payment. Illinois also saw attempts aimed at amending the Transmitters of Money

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<sup>282</sup> "SB 2594," Hawaii State Legislature, 2020, [https://www.capitol.hawaii.gov/session2020/bills/SB2594\\_.htm](https://www.capitol.hawaii.gov/session2020/bills/SB2594_.htm)

<sup>283</sup> "HB 70," Hawaii State Legislature, 2019, [https://www.capitol.hawaii.gov/session2019/bills/HB70\\_.htm](https://www.capitol.hawaii.gov/session2019/bills/HB70_.htm)

<sup>284</sup> "SB 1364," Hawaii State Legislature, 2019, [https://www.capitol.hawaii.gov/session2019/bills/SB1364\\_.htm](https://www.capitol.hawaii.gov/session2019/bills/SB1364_.htm)

<sup>285</sup> "SB 2129," Hawaii State Legislature, 2018, [https://www.capitol.hawaii.gov/session2018/bills/SB2129\\_.htm](https://www.capitol.hawaii.gov/session2018/bills/SB2129_.htm)

<sup>286</sup> "SB 1325," Idaho Legislature, 2018, <https://legislature.idaho.gov/wp-content/uploads/sessioninfo/2018/legislation/S1325.pdf>

<sup>287</sup> "HB 0854," Illinois General Assembly, 2021, <https://www.ilga.gov/legislation/102/HB/PDF/10200HB0854lv.pdf>

<sup>288</sup> "HB 5335," Illinois General Assembly, 2018, <http://www.ilga.gov/legislation/100/HB/PDF/10000HB5335lv.pdf>

Act to include digital currencies in the statutory provisions, and to amend the Code of Criminal Procedure of 1963. Interestingly, the definition of a was “a medium of exchange that operates like currency in some environments but does not have all the attributes of real currency”.<sup>289</sup> The state of Indiana saw attempts towards the creation of a study committee to consider the enactment of the Uniform Regulation of Virtual Currency Businesses Act or other virtual currency regulation<sup>290</sup> within the state. Other bills tried to allow the payment of taxes using an ‘approved’ digital currency.<sup>291</sup>

In the case of Iowa, in contrast, there were attempts<sup>292</sup> to prohibit the state and its political subdivisions from accepting payments in the form of virtual currency by defining “cash” as U.S. currency, and by excluding cryptocurrencies. This bill defined a “virtual currency” as a digital representation of value that functions as a medium of exchange, a unit of account, or a store of value, but is not legal tender in the United States. HF 240<sup>293</sup> provides for exemptions for virtual currency from certain security and money transmission regulations. Iowa state legislature also saw a bill that was specifically aimed at people who use lodging facilities.<sup>294</sup> This bill, which defined a lodging facilitator as a person who directly or indirectly provides a virtual currency that users are allowed or required to use to rent lodging passed in the Senate.<sup>295</sup> This highlights how the new phenomenon is working through specific industries and sectors to influence governments on legalizing new methods of payments.

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<sup>289</sup> “HB 3989” Illinois General Assembly, 2016, <http://www.ilga.gov/legislation/99/HB/PDF/09900HB3989lv.pdf>

<sup>290</sup> “Senate Resolution 9,” Indiana General Assembly, 2019, <http://iga.in.gov/legislative/2019/resolutions/senate/simple/9>.

<sup>291</sup> “HB 1683,” Indiana General Assembly, 2019, <http://iga.in.gov/legislative/2019/bills/house/1683>

<sup>292</sup> “SF 2079,” Iowa State Legislature, (n.d.), <https://www.legis.iowa.gov/docs/publications/LGI/88/SF2079.pdf>.

<sup>293</sup> “HF 240,” Iowa State Legislature, (n.d.), <https://www.legis.iowa.gov/docs/publications/LGI/88/HF240.pdf>.

<sup>294</sup> “HF 2489,” Iowa State Legislature, (n.d.), <https://www.legis.iowa.gov/docs/publications/LGI/87/HF2489.pdf>.

<sup>295</sup> “SF 2383,” Iowa State Legislature, (n.d.), <https://www.legis.iowa.gov/docs/publications/LGR/87/SF2383.pdf>.

Kentucky's state senate passed a bill<sup>296</sup> that defined "medium of exchange" and "virtual currency" and amended the definition of "money transmission" to include cryptocurrencies. Kentucky also included cryptocurrencies in the Unclaimed Property Act.<sup>297</sup> Other legislative efforts taken within the state of Kentucky include the "Kentucky Utility Token Act"<sup>298</sup> that tried to require developers and sellers of certain open blockchain tokens to file a notice of intent with the secretary of state, and pay a filing fee, prior to sale in this state, highlighting those revenues are the top priority. In contrast, in the state of Louisiana, there were efforts to commend Bitcoin when it reached the trillion-dollar mark.<sup>299</sup> This bill also tried to encourage state and local governments to consider ways that could help them benefit from the increased use of this new technology. However, the State's overall approach has been neutral and cautious. For example, in 2020, the governor signed a bill into law<sup>300</sup> requiring licensure of virtual currency businesses. This law also established requirements to apply for licensure and to pay security deposits, among other requirements. Similarly, in Maine, some of the legislative activities and regulatory responses were aimed at improving the efficiency of certain consumer credit protection laws to regulate transmission of cryptocurrencies such as Bitcoin.<sup>301</sup> Other attempts aimed at implementing strategies relating to blockchain, cryptocurrency and other financial technology to promote regulatory efficiency, enable businesses and governments.<sup>302</sup> There was also an attempt to create a study for the potential use of blockchain technology in government record keeping. The state of Maryland also tried to strengthen consumer protections through a bill that passed the State

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<sup>296</sup> "SB 134," Kentucky General Assembly, 2021, <https://apps.legislature.ky.gov/record/21rs/sb134.html>.

<sup>297</sup> "HB 230," Kentucky General Assembly, 2021, <https://apps.legislature.ky.gov/record/21rs/hb230.html>.

<sup>298</sup> "SB 177," Kentucky General Assembly, 2021, <https://apps.legislature.ky.gov/record/21rs/sb177.html>.

<sup>299</sup> "HR 33," Louisiana State Legislature, 2021, <http://www.legis.la.gov/Legis/ViewDocument.aspx?d=1216298>.

<sup>300</sup> "HB 701," Louisiana State Legislature, 2020, <http://www.legis.la.gov/Legis/ViewDocument.aspx?d=1182592>.

<sup>301</sup> "HP 1204," Maine Legislature, 2021,

<http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP1204&item=1&snum=130>.

<sup>302</sup> "SB 754," Maryland General Assembly, 2020, <https://mgaleg.maryland.gov/2020RS/bills/sb/sb0754F.pdf>.



Senate.<sup>303</sup> The governor of Maryland, in 2018, signed a bill<sup>304</sup> that ordered a study on cryptocurrencies, initial coin offerings, cryptocurrency exchanges, and other blockchain technologies.

Michigan's governor, in 2019, signed acts that amended the penal code<sup>305</sup> to include cryptocurrencies and distributed ledger technology within the definition of a "financial transaction device" and "monetary instrument,"<sup>306</sup> highlighting the focus on preventing crime. This was followed by a similar move to include cryptocurrencies in the definition of money and personal property,<sup>307</sup> highlighting the focus on ensuring tax revenues. Other bills that passed the lower level of the state legislature include attempts to add cryptocurrencies to the sections related to embezzlement and money laundering. In the case of Minnesota, legislative activities included attempts to add cryptocurrencies to unclaimed property<sup>308</sup> and the state's legal definition of money. There were also attempts to prohibit the solicitation or acceptance of digital units of exchange for political campaign purposes. The state of Missouri saw attempts<sup>309</sup> at modifying the legal definition of money laundering to include cryptocurrencies, and at classifying digital assets<sup>310</sup> into various types in order to provide clarity. One bill<sup>311</sup> tried at requiring the state and every political

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<sup>303</sup> "HB 1634," Maryland General Assembly, 2018,

[http://mgaleg.maryland.gov/2018RS/chapters\\_noln/Ch\\_731\\_hb1634E.pdf](http://mgaleg.maryland.gov/2018RS/chapters_noln/Ch_731_hb1634E.pdf)

<sup>304</sup> "HB 1634," Maryland General Assembly, 2018,

[http://mgaleg.maryland.gov/2018RS/chapters\\_noln/Ch\\_731\\_hb1634E.pdf](http://mgaleg.maryland.gov/2018RS/chapters_noln/Ch_731_hb1634E.pdf).

<sup>305</sup> "HB 4103," Michigan Legislature, 2019, <http://www.legislature.mi.gov/documents/2019-2020/publicact/pdf/2019-PA-0175.pdf>.

<sup>306</sup> "HB 4107," Michigan Legislature, 2019, <http://www.legislature.mi.gov/documents/2019-2020/publicact/pdf/2019-PA-0171.pdf>

<sup>307</sup> "HB 4105," Michigan Legislature, 2019, <http://www.legislature.mi.gov/documents/2019-2020/publicact/pdf/2019-PA-0173.pdf>

<sup>308</sup> "HF 2538," Minnesota Legislature, 2019,

[https://www.revisor.mn.gov/bills/text.php?number=HF2538&type=bill&version=1&session=ls91&session\\_year=2019&session\\_number=0](https://www.revisor.mn.gov/bills/text.php?number=HF2538&type=bill&version=1&session=ls91&session_year=2019&session_number=0).

<sup>309</sup> "HB 1277," Missouri House Of Representatives, 2021,

<https://www.house.mo.gov/billtracking/bills211/hlrbillspdf/2532H.01I.pdf>.

<sup>310</sup> "HB 1159," Missouri House Of Representatives, 2021,

<https://house.mo.gov/billtracking/bills191/hlrbillspdf/2266H.01I.pdf>.

<sup>311</sup> "HB 1247," Missouri House Of Representatives, 2021,

<https://house.mo.gov/billtracking/bills191/hlrbillspdf/2267H.01I.pdf>

subdivision to accept virtual currency as legal tender and required the state or the political subdivision that is unable to take virtual currency to upgrade or improve its equipment so that it can accept virtual currency, highlighting the level of support for the new technology from some lawmakers.

In Montana, the governor, signed laws that allowed exemptions<sup>312</sup> for cryptocurrencies from certain securities law, highlighting a cooperative stance. However, other attempts<sup>313</sup> that passed the State House included laws related to cryptocurrencies and financial institutions, local revenue, and state revenue, highlighting, again, the importance of tax revenue as a factor. In Nebraska, similar balanced efforts were seen in the form of bills of that tried to adopt the Transactions in Digital Assets Act,<sup>314</sup> the Nebraska Virtual Currency Money Laundering Act,<sup>315</sup> and the Uniform Regulation of Virtual-Currency Businesses Act.<sup>316</sup> In the case of Nevada, legislative attempts include a bill<sup>317</sup> that tried to authorize the state treasurer to enter into a contract to provide for the acceptance of transfers of digital tokens by certain governmental entities. However, the bill defined the term “digital token” as a digital representation of U.S. dollars that are converted to and from U.S. dollars by a digital token payment system, highlighting the importance of compliance with the national fiat currency and the preference for stablecoins. Nevada also included cryptocurrencies in its Unclaimed Property Act.<sup>318</sup> In 2019, Nevada’s governor signed an act that recognizes certain virtual currencies as a form of intangible personal property for purposes of taxation. In New Hampshire, the governor signed a similar bill into law,

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<sup>312</sup> “HB 0584,” Montana State Legislature, 2019, <https://leg.mt.gov/bills/2019/billpdf/HB0584.pdf>

<sup>313</sup> “HB 0630,” Montana State Legislature, 2019, <https://leg.mt.gov/bills/2019/billpdf/HB0630.pdf>

<sup>314</sup> “LB 648,” Nebraska Legislature, 2021, <https://nebraskalegislature.gov/FloorDocs/107/PDF/Intro/LB648.pdf>.

<sup>315</sup> “LB 691,” Nebraska Legislature, 2018, <https://nebraskalegislature.gov/FloorDocs/105/PDF/Intro/LB691.pdf>.

<sup>316</sup> “LB 987,” Nebraska Legislature, 2018, <https://nebraskalegislature.gov/FloorDocs/105/PDF/Intro/LB987.pdf>.

<sup>317</sup> “SB 39,” Nevada Legislature, 2020, <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/7215/Overview>.

<sup>318</sup> “SB 44,” Nevada Legislature, 2019, <https://www.leg.state.nv.us/App/NELIS/REL/80th2019/Bill/5963/Text>.

requiring the state treasurer, in coordination with the commissioner of the Department of Revenue Administration and the Commissioner of the Department of Administrative Services, to craft an implementation plan to accept Bitcoin as payment for taxes and fees,<sup>319</sup> a move that failed to pass the House before<sup>320</sup> New Hampshire's governor signed two cryptocurrency-related bills into law. One of these bills exempted people using virtual currency from being licensed as money transmitters<sup>321</sup> and the other establishes a commission to study the regulation of the cryptocurrency industry.<sup>322</sup>

In the case of New Jersey, there has been more focus on efforts related to consumer protection<sup>323</sup> and new job creation<sup>324</sup> connected to the cryptocurrency industry. Bills have tried to propose acts such as the “Digital Currency Jobs Creation Act,” and the Digital Asset and Blockchain Technology Act.<sup>325</sup> New Jersey also saw efforts to create a viable blockchain based, digital payment platform to provide payment services to legal and licensed businesses in this state that do not have access to traditional financial services,<sup>326</sup> suggesting that some lawmakers saw potential in the technology. The same bill also required digital currency businesses operating in New Jersey to register with the Department of Banking and Insurance and establish certain consumer protections. The definition of a ‘digital currency,’ per this bill, included “any type of digital unit that, regardless of legal tender status, has no administrator and is: (1) used as a currency, medium of exchange or stored value; or (2) used as a substitute for government currency.”<sup>327</sup> The definition, interestingly, specifically mentioned exclusions such as “(1) digital units that have

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<sup>319</sup> [http://gencourt.state.nh.us/bill\\_status/billText.aspx?sy=2016&id=62&txtFormat=html](http://gencourt.state.nh.us/bill_status/billText.aspx?sy=2016&id=62&txtFormat=html)

<sup>320</sup> [http://gencourt.state.nh.us/bill\\_status/billText.aspx?sy=2019&id=796&txtFormat=html](http://gencourt.state.nh.us/bill_status/billText.aspx?sy=2019&id=796&txtFormat=html)

<sup>321</sup> [http://gencourt.state.nh.us/bill\\_status/billText.aspx?sy=2017&id=638&txtFormat=html](http://gencourt.state.nh.us/bill_status/billText.aspx?sy=2017&id=638&txtFormat=html)

<sup>322</sup> [http://gencourt.state.nh.us/bill\\_status/billText.aspx?sy=2016&id=131&txtFormat=html](http://gencourt.state.nh.us/bill_status/billText.aspx?sy=2016&id=131&txtFormat=html)

<sup>323</sup> “A 1392,” New Jersey Legislature, 2020, [https://pub.njleg.gov/bills/2020/A1500/1392\\_I1.HTM](https://pub.njleg.gov/bills/2020/A1500/1392_I1.HTM).

<sup>324</sup> “A 2155,” New Jersey Legislature, 2020, [https://www.njleg.state.nj.us/2020/Bills/A2500/2155\\_I1.HTM](https://www.njleg.state.nj.us/2020/Bills/A2500/2155_I1.HTM)

<sup>325</sup> “A 1392,” New Jersey Legislature, 2020, [https://www.njleg.state.nj.us/2020/Bills/A1500/1392\\_I1.HTM](https://www.njleg.state.nj.us/2020/Bills/A1500/1392_I1.HTM)

<sup>326</sup> “A 4208,” New Jersey Legislature, 2019, [https://www.njleg.state.nj.us/2018/Bills/S4500/4208\\_I1.HTM](https://www.njleg.state.nj.us/2018/Bills/S4500/4208_I1.HTM).

<sup>327</sup> “A 3817,” New Jersey Legislature, 2018, [https://www.njleg.state.nj.us/2018/Bills/A4000/3817\\_I1.HTM](https://www.njleg.state.nj.us/2018/Bills/A4000/3817_I1.HTM)

nominal or no value as a currency or medium of exchange and are not used as a substitute for government currency; (2) digital units that can be used solely with a gift card program; (3) digital units that are used solely within online gaming platforms and have no market or application outside of those gaming platforms, or can be redeemed for real-world goods, services, discounts, or purchases, but cannot be converted into, or redeemed for government currency or digital currency; or (4) digital units that are used solely within an affinity program but do not otherwise meet the definition of digital currency as defined in the bill.”<sup>328</sup> These exceptions highlight how lawmakers are trying to carve out enough room for store value cards, loyalty cards, and other existing substitutes to currency that would otherwise get regulated along with cryptocurrencies.

The state of New York stands out in the way it highlights the environmental factor, i.e., the effect of cryptocurrency mining on the environment, as a regulatory factor within the United States. New York state saw bills that tried to establish a regulatory sandbox program,<sup>329</sup> a task force to study the potential designation of economic empowerment zones for the mining of cryptocurrencies within the state,<sup>330</sup> and a digital currency task force to provide the governor and the legislature with information on ‘the potential effects of the widespread implementation of digital currencies on financial markets in the state’<sup>331</sup>. There were also attempts to create a task force to study the impact of a state-issued cryptocurrency.<sup>332</sup> The state also saw an attempt to require state agencies to accept cryptocurrencies such as Bitcoin, Ethereum, and Litecoin, as cash as payment.<sup>333</sup> To protect the environment from the harmful effects of cryptocurrency mining activities that use a lot of electricity,, one bill aimed at directing the New York State Energy

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<sup>328</sup> Ibid

<sup>329</sup> “A 03336,” New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=A03336&term=2021>.

<sup>330</sup> “A 03747,” New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=a3747>.

<sup>331</sup> “S 05044,” New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=s5044>.

<sup>332</sup> “A 03860,” New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=a3860>.

<sup>333</sup> “A 03906,” New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=a3906>.

Research and Development Authority to conduct a study on powering cryptocurrency mining facilities with renewable energy.<sup>334</sup> Another bill tried to address this issue by proposing the establishment of a moratorium on the operation of cryptocurrency mining centers until they undergo a full generic environmental impact statement review to ensure that the center's operations will not adversely affect the state's greenhouse gas emission targets as set in the state's Climate Leadership and Community Protection Act of 2019.<sup>335</sup>

In North Carolina, a bill tried to include cryptocurrencies in sports wagering,<sup>336</sup> highlighting how keen governments are in leveraging the new phenomenon to increase tax revenues. North Carolina's governor has signed at least two cryptocurrency-related laws. One clarified that if a licensed trader holds virtual currency as permissible investments, the state may at any time request that the license holder verify the aggregate virtual currency transmission obligations outstanding and virtual currency held as permissible investments, including virtual currency stored offline,<sup>337</sup> highlighting the importance of transparency in operations and compliance with fiat currency laws as regulatory factors. The other enacted the North Carolina Money Transmitters Act to include cryptocurrencies.<sup>338</sup> In the case of Oklahoma, legislative efforts relating to cryptocurrencies include bills that tried to exempt such currencies from state security laws under certain conditions,<sup>339</sup> highlighting support from some lawmakers. The bill also tried to

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<sup>334</sup> "S 06584," New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=s6584>.

<sup>335</sup> "A 06486," New York State Assembly, 2021, <https://www.assembly.state.ny.us/leg/?bn=s6486>.

<sup>336</sup> "SB 688," North Carolina Legislature, 2021, <https://www.ncleg.gov/Sessions/2021/Bills/Senate/PDF/S688v1.pdf>.

<sup>337</sup> "HB 86," North Carolina Legislature, 2017, <https://www.ncleg.net/Sessions/2017/Bills/House/PDF/H86v4.pdf>.

<sup>338</sup> "HB 286," North Carolina Legislature, 2015, <http://www.ncga.state.nc.us/Sessions/2015/Bills/House/PDF/H289v3.pdf>.

<sup>339</sup> "SB 1666," Oklahoma Legislature, 2020, [http://webserver1.lsb.state.ok.us/cf\\_pdf/2019-20%20INT/SB/SB1666%20INT.PDF](http://webserver1.lsb.state.ok.us/cf_pdf/2019-20%20INT/SB/SB1666%20INT.PDF).

authorize virtual currency as payment to any state agency and its political subdivisions under specific conditions.<sup>340</sup>

In Pennsylvania, there were legislative efforts to ensure that cryptocurrencies are not used to bribe public servants. This included efforts to tighten financial disclosures by including cryptocurrencies.<sup>341</sup> Pennsylvania's governor, in 2016, signed an amendment to the Money Transmission Business Licensing Law<sup>342</sup> to include cryptocurrencies. In South Carolina, there has been a lot of effort aimed at capitalizing on cryptocurrencies and blockchain technology. The "South Carolina Blockchain Industry Empowerment Act of 2021"<sup>343</sup> was proposed by a bill with the goal of making the state an incubator for tech industries working on applications involving blockchain technology. The state also saw a bill that redefined terms and included a definition of cryptocurrency to the South Carolina Anti-Money Laundering Act.<sup>344</sup> The State House saw a bill that redefined political campaign contributions to include cryptocurrencies.<sup>345</sup>

In Texas, legislative efforts included bills aimed at including cryptocurrencies in sports wagering,<sup>346</sup> highlighting how lawmakers want to maximize tax revenues. Another bill, in a sign of some lawmakers' ideological support to cryptocurrencies, proposed a constitutional amendment that would have created the right to own, hold, and use any mutually agreed upon medium of

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<sup>340</sup> "SB 1667," Oklahoma Legislature, 2020, [http://webserver1.lsb.state.ok.us/cf\\_pdf/2019-20%20INT/SB/SB1667%20INT.PDF](http://webserver1.lsb.state.ok.us/cf_pdf/2019-20%20INT/SB/SB1667%20INT.PDF).

<sup>341</sup> "SB 401," Pennsylvania General Assembly, 2021, <https://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=PDF&sessYr=2021&sessInd=0&billBody=S&billTyp=B&billNbr=0401&pn=0348>.

<sup>342</sup> "Act 129 Money Transmission Business Licensing Law - Omnibus Amendments 2016," Pennsylvania General Assembly, <https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2016&sessInd=0&act=129>.

<sup>343</sup> "H 3495," South Carolina General Assembly, 2021, [https://www.scstatehouse.gov/sess124\\_2021-2022/bills/3495.htm](https://www.scstatehouse.gov/sess124_2021-2022/bills/3495.htm).

<sup>344</sup> "H 4351," South Carolina General Assembly, 2019, [https://www.scstatehouse.gov/sess123\\_2019-2020/bills/4351.htm](https://www.scstatehouse.gov/sess123_2019-2020/bills/4351.htm)

<sup>345</sup> "H 3529," South Carolina General Assembly, 2021, [https://www.scstatehouse.gov/sess124\\_2021-2022/bills/3529.htm](https://www.scstatehouse.gov/sess124_2021-2022/bills/3529.htm).

<sup>346</sup> "SB 736," Texas Legislature Online, 2021, <https://capitol.texas.gov/tlodocs/87R/billtext/pdf/SB00736I.pdf#navpanes=0>.

exchange.<sup>347</sup> The state also saw efforts to include digital currency in money laundering laws.<sup>348</sup> In an attempt to encourage local governments to innovate, one bill aimed to require each state agency and local government to consider blockchain and other next-generation technologies to improve efficiency and effectiveness. In Vermont, the governor signed an act that enabled the use and promotion of blockchain technology and created a study for the potential use of blockchain technology in government records.<sup>349</sup> In the state of Washington, legislative efforts included bills that tried to establish a 1% wealth tax on cryptocurrencies and other intangible financial assets.<sup>350</sup> Washington's governor signed into law a bill that included cryptocurrencies in licensing and enforcement provisions that apply in the transmission of money. One bill aimed at prohibiting marijuana producers, processors, and retail outlets from using cryptocurrencies for the purchase or sale of marijuana or marijuana products,<sup>351</sup> highlighting how the new technology intersects with other new developments in the legal sector, especially ones such as a federally restricted substance that require high levels of financial transparency.

These state-level efforts highlight the roles of three major regulatory factors: ensuring tax revenues from GPCs, ensuring transparency in the way GPCs operate, and ensuring that GPCs play by the same rules that apply to traditional fiat money. It is also clear that GPCs and its regulation needs to be studied from each PESTLE dimension. The interplay between the PESTLE factors is also evident, as seen in cases such as New York's attempt to use legal measures to ensure

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<sup>347</sup> "SJR 55," Texas Legislature Online, 2021, <https://capitol.texas.gov/tlodocs/87R/billtext/pdf/SJ000551.pdf#navpanes=0>

<sup>348</sup> "HB 981," Texas Legislature Online, 2019, <https://capitol.texas.gov/tlodocs/86R/billtext/pdf/HB00981I.pdf#navpanes=0>.

<sup>349</sup> "1913. Blockchain Enabling," Vermont General Assembly, May 3, 2018, <https://legislature.vermont.gov/statutes/section/12/081/01913>.

<sup>350</sup> "SB 5426," Washington State Legislature, 2021, <https://lawfilesexternal.wa.gov/biennium/2021-22/Pdf/Bills/Senate%20Bills/5426.pdf?q=20210322140539>.

<sup>351</sup> "SB 5264," Washington State Legislature, 2017, <http://lawfilesexternal.wa.gov/biennium/2017-18/Pdf/Bills/Senate%20Bills/5264.pdf>.

environmental standards, and in South Carolina's efforts to use legal measures to ensure economic growth through the new phenomenon.

In conclusion, it's clear that regulatory responses to GPCs in the United States is neither in favor of nor against GPCs. The dynamics between regulators and users, especially organized market forces such as companies and lobbies, has been mostly cooperative. This is partly because libertarian principles have deep roots across America. Several politicians, at both the federal and state levels, seem to believe that the new phenomenon has more benefits than threats. Even the recent executive order by President Joseph Biden on regulating cryptocurrencies was officially labeled as being focused on 'ensuring responsible development of digital assets.'<sup>352</sup> This executive order is the first of its sort and is also the first to take a whole-of-government approach. Its stated goals are to protect consumers, financial stability, national security, and to address climate risks. These goals further highlight the importance of political, social, economic, and environmental impacts of GPCs. The order also mentions the need to promote American leadership in technological and economic competitiveness and to promote American leadership in the global financial system, establishing the importance of technological impacts and great power competition. The need to explore a Central Bank Digital Currency (CBDC) that is consistent with America's priorities and democratic values are also mentioned. These points also establish that, in the United States, regulators are open to cooperate with the GPC ecosystem.

However, a CBDC is not likely to wipe out GPCs within America because there seems to be strong grassroot-level support for the new phenomenon, which is likely to lead to political support at the state and federal level. Several local governments at the city-level have also been

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"Fact Sheet: President Biden to Sign Executive Order on Ensuring Responsible Development of Digital Assets," The White House, March 9, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/09/fact-sheet-president-biden-to-sign-executive-order-on-ensuring-responsible-innovation-in-digital-assets/>.



embracing the cryptocurrency phenomenon by trying to become a hotspot. Miami, which holds the Annual Bitcoin Conference is a good example. Francis Suarez, the mayor of Miami, has proposed to build a "crypto coast" to attract businesses and people from across the world.<sup>353</sup> The obvious motive seems to be to benefit from the second- and third-order effects of the economic impacts of having a major global hub.

At the grassroots levels, most of the support for and interest in the new phenomenon seems to be because of philosophical alignment with libertarian views i.e., the ability to counter the power of centralized entities such as banks and governments while basic functions of money, such as the ability to pay for everyday transactions, are also met. Benjamin Franklin once said, "The purpose of money is to purchase one's freedom to pursue that which is useful and interesting". A small but vocal part of the country seems to agree with this founding father's view on money. This chapter highlights five factors that are relevant in the context of regulatory responses to GPCS: compliance with AML laws, compliance with systems built for fiat currency, transparency in operations, culture of sovereignty, and great power competition. However, the most prominent factors in the case of the United States are compliance with AML laws, and compliance with systems built for fiat currencies. The regulatory game between the government and industry is a game of cooperation.

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<sup>353</sup> James Faris, "Miami, Home to the Bitcoin 2022 Conference, Has Quickly Become the Center of the Crypto Universe. Leaders from FTX and BlockTower Capital Share Why They're Flocking to South Florida — and Why Other Crypto Fanatics Should Follow Suit.," Business Insider, April 6, 2022, <https://www.businessinsider.com/miami-crypto-capital-miamico-in-francis-suarez-bitcoin-ftx-blocktower-capital-2022-2?IR=T>.

## **CHAPTER 7**

### **THE EUROPEAN UNION**

Euro, the supranational currency created by the European Union, was officially launched on the first day of January 1999. It became the legally approved currency for more than 300 million people across Europe. However, this was not achieved easily. The euro was under the radar for the first three years i.e., it was used only for accounting purposes in electronic payments and other behind-the-scenes processes. The Euro was not introduced as a retail currency i.e., in ‘cash’ form until the first day of January 2002. It was at this point in time that the Euro actually replaced the banknotes and coins of several national currencies such as Germany’s Deutsche Mark. This conversion was done at fixed rates. This highlights how long and complicated the process of introducing an official currency is in the case of fiat money. In contrast, GPCs are able to launch and become operational overnight and be immediately available across the world. It is also important to note that not all European Union member states use the euro as their currency, highlighting a notable feature in the way the supranational entity approaches currencies. These details matter given the scope of this dissertation.

EU member states work together through common institutions that perform four different functions: executive, legislative, judicial, and financial. The European Commission and the European council perform executive functions. The European council sets the policy agenda for the EU while the European Commission proposes and implements legislation. The European parliament and the Council of European Union (Council of Ministers) perform legislative functions i.e., they approve or reject legislation. Members of the European Parliament are elected directly by EU citizens, highlighting the role of national and local politics within each member state. The Court of Justice of the European Union and the European Court of Auditors perform

judicial functions while the European Central Bank performs financial functions. Judges at The Court of Justice are appointed jointly by national governments. The European Central Bank's President and executive board are appointed by the European Council. However, the European Council is composed of national leaders from each member state. Although member states work together through pooled sovereignty, some areas such as foreign policy and security policy are at the sole discretion of each member state. Furthermore, since EU-level decision making requires unanimous consent of all EU nations. A single nation's veto can derail an EU decision.

The European Union has several major differences when compared to the United States. In the United States, the member states have no choice but to use the US Dollar as the legal tender. However, in the European Union, as of early 2022, 8 of the 27 countries in the European Union were not in the 'eurozone' i.e., they do not use the euro as the official currency. The other 19 member states use euros, in the form of banknotes and coins, as the legal tender. The eurozone is not confined to continental Europe. It also includes a few overseas territories and islands such as the microstates of Andorra, Monaco, San Marino, and Vatican City. These entities use the euro through a formal arrangement with the European Union. There are also a few other nations that are not members of the European Union yet use the Euro without any such formal arrangements. This list includes Montenegro and Kosovo. The euro has become the single currency that unites over 300 million people across Europe and beyond, promoting economic interdependence. The euro has become a tangible symbol of European integration. The euro is a tool designed to intertwine European states economically and socially in order to fulfill the ultimate political goal of preventing major armed conflicts. Euro clearly demonstrates how money is a political, economic, and social tool.

The EU member states that chose to use their own currency instead of the euro did so because they wanted to retain independence in specific aspects such as the ability to set monetary policy, manage national debt, tackle inflation, and devalue the currency when necessary. These are not possible to implement when a common currency such as the euro, which is managed by a supranational entity placed above the national level through pooled sovereignty. A common currency can be highly beneficial in many ways, especially for nations that are not advanced or well-developed. But it's often seen as a disadvantage by nations that are highly developed because it comes at the cost of economic and monetary control. Global Private Currencies are similar to supranational currencies in these aspects. GPCs take away some powers related to monetary policy but can offer a global scale of operations for small nations. However, GPCs are not controlled by one central entity unlike supranational currencies. In the case of the euro, the European Union controls the currency through the European Central Bank (ECB) and applies its monetary policies across the board to all nations that use the euro as legal tender.

There are several specific prerequisites that need to be met before the EU allows a nation to adopt the euro as legal tender. However, nations that become EU members are given the right to postpone efforts meant to meet these prerequisites. This allows nations to buy time to consider several key factors related to the adoption of the euro as the legal tender. The primary factor that concerns policy makers in nations is inflation. The most effective countermeasure to control rising inflation is an increase in interest rates. Countries that have not adopted the euro are able to change interest rates, if needed, through their central banks to manage inflation. Countries in the eurozone do not always have this option because they had to cede this power to the European Central Bank. After the economic crisis in 2008, the European Central Bank raised interest rates in anticipation of high inflation in Germany. This mitigated the economic crisis in Germany but other nations in

the eurozone that had weaker economies bore the brunt and suffered a lot more. GPCs do not allow for such adjustments at all. However, the value of GPCs i.e., their exchange rate will be affected by changes in interest rates and inflation rates that affect other currencies. The other key factor that policy makers are concerned about is currency devaluation. Economic issues that arise from periodic cycles of high inflation, high wages, reduced exports, or reduced industrial production are usually managed at the national level by devaluing the fiat currency to make exports cheaper. Currency devaluation also attracts more foreign investments. Currency devaluation is not an option for nations in the eurozone because it's controlled also by the ECB.

EU nations differ from each other in several ways - land area, climate, economy, population size, languages, religion, etc. Yet, several of them agreed to be a part of the common currency area. A notable exception is Denmark, which opted out. Denmark is legally exempt from adopting the euro. Bulgaria, Croatia, Czech Republic, Denmark, Hungary, Poland, Romania, and Sweden do not use the euro. Another good reason to retain control at the national level is the ability to be the lender of last resort. Nations that do not use the euro as legal tender rely on their own independent central banks and not the European Central Bank to act as the lender of last resort for the national debt. This is highly beneficial in situations that lead to spikes in treasury bond yields. To manage drastic increases in bond yields, central banks buy back the bonds in order to increase liquidity within their markets. Being in the eurozone is economically riskier because the European Central Bank does not buy bonds that are specific to a member nation, thereby leaving each eurozone nation to face different levels of crises. Such adverse situations do not affect nations with strong economies as much as they affect those with weak economies. The United Kingdom, which used to be a member of the European Union but not the eurozone, had a faster recovery from the 2008 financial crisis because it was able to independently slash domestic interest rates and perform

quantitative easing much earlier than the European Central bank did. The Bank of England initiated its quantitative easing program in March of 2009 while the European Central Bank waited till 2015 to start its quantitative easing program. Response to cryptocurrencies has seen a similar pattern i.e., EU nations that are not in the eurozone have more options and can respond faster. Within the eurozone, the euro is the only legal tender i.e., creditors are obliged to accept payment in euros. However, the European Union has also made it clear that parties may also mutually agree to perform transactions with other official foreign currencies such as the US dollar or use privately issued alternatives such as local exchange trading systems, voucher-based payment systems, or virtual currencies such as Bitcoin.<sup>354</sup> The EU has also clarified that all transactions are subject to taxation laws and anti-money laundering laws, highlighting the importance of taxation and money laundering as universally important criteria.

One of the earliest responses to GPCs by the European Union was in December 2013 when the European Banking Authority (EBA) issued an official warning<sup>355</sup> about virtual currencies including Bitcoin. This communique warned users of possible risks while buying, holding or trading virtual currencies. It declared that there was no specific regulatory protection to cover losses in the event that a platform that exchanges or holds virtual currencies fails or goes out of business. The EBA claimed to be assessing all relevant issues linked to virtual currencies but put the onus on the user to scrutinize financial risks. This early warning defined virtual currencies as “a form of unregulated digital money that is not issued or guaranteed by a central bank and that can act as means of payment.”<sup>356</sup> The EBA also acknowledged that, in its view, virtual currencies

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<sup>354</sup> “Official EU Currency,” European Union, n.d. [https://european-union.europa.eu/institutions-law-budget/euro/official-eu-currency\\_en](https://european-union.europa.eu/institutions-law-budget/euro/official-eu-currency_en).

<sup>355</sup> “Warning to Consumers on Virtual Currencies,” European Banking Authority, December 12, 2013, <https://www.eba.europa.eu/sites/default/documents/files/documents/10180/598344/b99b0dd0-f253-47ee-82a5-c547e408948c/EBA%20Warning%20on%20Virtual%20Currencies.pdf?retry=1>.

<sup>356</sup> Ibid

may exist in many forms such as currencies that are used within online gaming environments and social networks. The document also clarified that, while transactions made through such virtual currencies may not include any fee or not involve a bank, they might still be taxable. Furthermore, it clarified that holding virtual currencies may qualify for capital gains tax and advised users to consider whether such tax liabilities apply in their country of residence, highlighting the role of nations even within the European Union.

A few years later, in 2014, the EBA issued a detailed document explaining its opinions on virtual currencies.<sup>357</sup> This document acknowledged that cryptocurrencies, which it refers to as virtual currencies, appeared on the institution's radars only in September 2013. The EBA, based on its analyses of cryptocurrencies, identified several potential benefits such as reduced transaction costs, faster transaction speed and financial inclusion. However, it also opined that these benefits are not highly relevant in the European Union and that the risks associated with the new phenomenon outweigh these benefits. The EBA identified more than 70 specific risks across several categories such as risks to users, risks to non-user market participants, risks to financial integrity, money laundering and other financial crime, risks to existing payment systems, and risks to regulatory authorities. The EBA report recommended national supervisory authorities to discourage credit institutions and payment institutions from buying, holding or selling cryptocurrencies, suggesting that a game of conflict was in the making. Furthermore, the document suggested that EU legislators declare virtual currency exchanges as 'obliged entities' under the EU Anti Money Laundering Directive. This was aimed at making cryptocurrency exchanges subject to strict anti-money laundering and counter terrorist financing requirements. Taxation was a major

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<sup>357</sup> "EBA Opinion on 'Virtual Currencies,'" European Banking Authority, January 4, 2014, <https://www.eba.europa.eu/sites/default/documents/files/documents/10180/657547/81409b94-4222-45d7-ba3b-7deb5863ab57/EBA-Op-2014-08%20Opinion%20on%20Virtual%20Currencies.pdf?retry=1>.

factor in the EU as well. On October 22, 2015, the European Court of Justice (ECJ) declared in one of its decisions that transactions involving an exchange of currencies for Bitcoin or other virtual currencies (and vice versa) will be exempt from value-added tax (VAT). This meant that buying or selling Bitcoin would be exempt from VAT in all EU Member States.

On July 5, 2016, the European Commission presented a legislative proposal to amend the Fourth Anti-Money Laundering Directive (AMLD). This proposal defined virtual currencies as “a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically.”<sup>358</sup> The document acknowledged that gaps existed in the oversight of several financial means used by terrorists. Virtual currencies were listed in this document alongside prepaid cards and cultural artifacts as being a risky financial instrument. The proposal aimed at addressing those gaps but explicitly stated that it did not want to create unnecessary obstacles to the functioning of payments and financial markets for ordinary, law-abiding citizens and businesses, highlighting that the EU's approach is balanced. The document acknowledged the need to increase security but also the need to protect fundamental rights, including data protection, and economic freedoms. The proposal acknowledged that suspicious transactions made through virtual currencies were not sufficiently monitored by the authorities at that time, highlighting security risks associated with the new peer-to-peer system.

In order to improve the ability to detect suspicious cryptocurrency transactions, the proposal posited regulatory options such as bringing virtual currency exchange platforms and custodial wallet providers under the scope of the Anti-Money Laundering Directive (AMLD)

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<sup>358</sup>“Proposal for a Directive of the European Parliament and of the Council Amending Directive (EU) 2015/849 on the Prevention of the Use of the Financial System for the Purposes of Money Laundering or Terrorist Financing and Amending Directive 2009/101/EC,” European Commission, July 5, 2016, <http://perma.cc/D4NP-V5UA>.



while allowing more time to consider options such as voluntary self-identification of virtual currency users. The report clarified that its proposals would not have any negative effects on the benefits or advancement of blockchain technology, highlighting that the EU is trying to strike a balance between encouraging innovation and ensuring security. The report optimistically claimed that anonymity will become more a liability than an asset for virtual currencies because the credibility of virtual currencies will not rise if they are used for criminal purposes. However, legislative actions that followed attempted to actively counter anonymity.

On January 29, 2018, Members of the European Parliament (MEPs) voted to move ahead on a proposal that made an attempt to end the anonymity associated with virtual currencies, virtual currency exchange platforms, and custodian wallet providers by declaring that they have to apply customer due diligence controls such as customer verification requirements that are followed by banks.<sup>359</sup> On February 12, 2018, the European Supervisory Authorities for securities (ESMA), banking (EBA), and insurance and pensions (EIOPA) jointly issued a warning to consumers about virtual currencies such as Bitcoin, which were characterized as being highly risky and unregulated products that were not suitable for investments, savings, or retirement planning products. The warning was similar to earlier statements by ESMA and EBA. In November 2017, the ESMA issued a warning on the risky nature of initial coin offerings (ICOs).

The EBA had issued similar warnings in December 2013, July 2014, and August 2016. In 2018, the then President of the European Central Bank (ECB), Mario Draghi, who went on to become Italy's head of state, also issued a warning that Bitcoin and other digital currencies were

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<sup>359</sup> Press Release, European Parliament, Anti-money Laundering: MEPs Vote to Shed Light on the True Owners of Companies (Apr. 19, 2018), <https://perma.cc/ZZQ4-HQ36>.

very risky assets due to their high volatility and speculative prices.<sup>360</sup> Despite all this, the European Union has consistently shown signs that it desires to take a balanced approach i.e., one that allows innovation while ensuring security. This was evident when the European Commission, on March 8, 2018, presented an action plan to take advantage of opportunities presented by technology-enabled innovation in financial services through blockchain.<sup>361</sup> This ‘FinTech Action Plan’ included plans for an EU Blockchain Observatory and Forum, which was required to report on the challenges and opportunities of crypto assets.

On December 19, 2019, the consultation period for a comprehensive, EU-wide regulatory framework for crypto-assets<sup>362</sup> started. This was followed by another feedback period between October 2, 2020, and January 11, 2021. This framework was the EU’s plan to respond to the emergence of not just cryptocurrencies but also other crypto-assets and other applications of these new technologies. The scope included mitigating the risks such as fraud, cyberattacks, market manipulation. The initiative aimed to assess the extent to which cryptoassets were covered by current EU legislation, and whether new legislation was needed in this field. The initiative had four general objectives: (1) to provide legal clarity and certainty in order to encourage safe applications of crypto-assets and blockchain technology in financial services, (2) to support innovation and fair competition through an enabling framework that allows services related to crypto-assets, (3) to ensure a high level of protection for consumers and investors, and to uphold

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<sup>360</sup> Francesco Canepa, “ECB’s Draghi Says Not His Job to Regulate Bitcoin,” Reuters, last modified February 13, 2018, <https://www.reuters.com/article/us-crypto-currencies-ecb/ecbs-draghi-says-not-his-job-to-regulate-Bitcoin-idUSKCN1FX1PW>.

<sup>361</sup> “Communication From the Commission to the European Parliament, the Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions,” European Commission, March 8, 2018, <http://perma.cc/F7NP-YPCP>.

<sup>362</sup> “Financial Services – EU Regulatory Framework for Crypto-Assets,” European Commission, December 19, 2019, [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12089-Financial-services-EU-regulatory-framework-for-crypto-assets\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12089-Financial-services-EU-regulatory-framework-for-crypto-assets_en).

market integrity, and (4) to address potential financial stability and monetary policy risks from the increased use of crypto-assets and blockchain technology.<sup>363</sup>

The specific objectives of this initiative were (1) to remove regulatory hurdles related to “issuance, trading and post-trading of crypto-assets that qualify as financial instruments, while respecting the principle of technological neutrality,”<sup>364</sup> (2) to increase funding opportunities for companies through increased Initial Coin Offerings (ICOs) and Securities Token Offerings (STOs), (3) to limit the risks of fraud and illicit practices, (4) to allow consumers and investors across the EU to access new cross-border investment opportunities and payment instruments. This comprehensive regulatory framework is the culmination of years of efforts taken in a piecemeal fashion, similar to efforts seen in the United States at the same time. The framework is aimed at creating a bespoke regime for cryptoassets that can ensure high levels of confidence in investors and customers.

In March 2022, in a clear sign that the EU is paying a game of cooperation, the European Parliament voted against a de facto ban on Bitcoin.<sup>365</sup> The Markets in Crypto Assets (MiCA) legislation, a controversial proposal that was designed to counter pollution and other environment-related impacts of energy-inefficient cryptocurrencies, failed to pass the parliament. However, the EU Parliament’s committee on economic and monetary affairs voted to move forward with a legislative framework for regulating digital assets. The committee just chose to drop a proposed rule within the framework that would have resulted in a ban on the use of a method, known as proof-of-work, that is energy-intensive but is essential for Bitcoin and several other

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<sup>363</sup> Ibid

<sup>364</sup> Ibid

<sup>365</sup> Emily Nicolle and Lyubov Pronina, “Crypto: EU Proposal Seen as De Facto Bitcoin Ban Fails in Vote,” Al Jazeera, March 14, 2022, <https://www.aljazeera.com/economy/2022/3/14/crypto-eu-proposal-seen-as-de-facto-bitcoin-ban-fails-in-vote>.

cryptocurrencies to operate. In a tweet, Stefan Berger, a member of the EU Parliament who supports cryptocurrencies, declared that this is a clear sign of future-oriented crypto regulation in the EU. Markus Ferber, another EU lawmaker, claimed that the EU wishes to support the cryptocurrency industry. However, actions at the EU-level are determined by sentiments within its member nations, which are highly diverse. It is therefore important to understand what has been said and done within the EU's constituents. The following paragraphs analyze the most notable GPC-related comments and actions within each EU member nation.

Regulatory responses by EU member nations are varied. Several member nations have given clear warnings about the potential problems related to cryptocurrencies. This list includes Austria, Belgium, Bulgaria, Croatia, Cypress, Denmark, Finland, France, Lithuania, Luxembourg, Netherlands, Poland, Romania, Slovenia, and Spain. Some states have clearly highlighted their goal to tax cryptocurrencies and related crypto assets. This list includes Austria, Bulgaria, Croatia, Finland, Germany, Poland, Romania, Slovakia, Spain, and Sweden. Very few member nations have established or tried to establish special committees or study groups to explore cryptocurrencies and blockchain technology. The two that stand out on this front are Austria and Germany. Some member nations have clearly mentioned or declared that compliance with existing fiat currencies is critical towards allowing cryptocurrencies. Italy is an outlier on this topic because of the way it has clarified this point. Some nations have clearly stated that transparency in operations is critical towards allowing cryptocurrencies to operate. Belgium has stood out in making this point clear. Some member nations have very clear positive lean on this technology and phenomena. Luxembourg and Malta stand out in this regard. Some member states have highlighted the connection to crime and have taken very cautious steps towards this whole phenomenon. Slovakia stands out in this regard. The following paragraphs describe efforts taken

at the national level across the European Union in order to paint a more detailed picture of how this new phenomenon has been received within the European Union.

In Austria, the ministry of finance (Bundesministerium der Finanzen) has clarified that cryptocurrencies do not qualify as legal tender or as financial instruments and has categorized them under other intangible commodities.<sup>366</sup> On the issue of taxation, specifically income tax, the ministry has clarified that cryptocurrencies will be treated similar to other business assets. However, mining of cryptocurrencies, and operating online cryptocurrency trading platforms and cryptocurrency ATMs are categorized as commercial production activity. This highlights how regulators at the national level within the EU are adapting their interpretations to ensure that cryptocurrency-related regulations maximize taxation. However, national regulators do not have too much room because of the superseding nature of the EU in some respects. For example, in the case of Value Added Tax (VAT), Austria, just like other EU members, must follow the ruling of the European Court and exempt cryptocurrencies from VAT. Therefore, within Austria, transactions that involve an exchange of a traditional currency for cryptocurrencies such as Bitcoin (or vice versa) are exempt from VAT. The technological aspect of cryptocurrencies has baffled the legal system in many ways. For example, mining activity is not subject to VAT, because the activity does not have a specific end user or receiver at the end. Existing VAT rules require an identifiable recipient for the value added activity.

The distinction between a currency and a method of payment plays a key role in understanding the way cryptocurrencies are treated in several jurisdictions across the world. Austria treats Bitcoin and other cryptocurrencies similar to other forms of payment that are

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<sup>366</sup>"Steuerliche Behandlung von Kryptowährungen (virtuelle Währungen)/Tax Treatment of Cryptocurrencies (Virtual Currencies)," Bundesministerium Für Finanzen, <http://perma.cc/BU4Z-3BFY>.

accepted but does not recognize them as currency. The Austrian National Bank does not treat cryptocurrencies such as Bitcoin as currencies on grounds that they have a limit on the quantity and do not have a stabilizing central authority<sup>367</sup>. Therefore, in Austria, cryptocurrencies are not covered by the E-Money Act or the Payment Services Act. These details highlight how legal aspects dictate regulatory responses. Austria's treatment of cryptocurrencies may seem mostly cooperative but there have been strong signs of caution and conflict. A former governor of the Austrian National Bank has voiced strong warnings against cryptocurrencies,<sup>368</sup> specifically Bitcoin, referring to them as highly speculative assets that carry high levels of risks, and has welcomed regulatory efforts. In 2018, Austria's then federal minister of finance, Hartwig Löger, has announced that a Fintech Regulation Council will be set up in order to regulate cryptocurrencies. He also lauded the EU's efforts related to the money laundering directive that was explained earlier. The Austrian ministry of finance has also taken efforts to strictly regulate Initial Coin Offerings (ICOs). Hartwig Lögerhe also pushed for more efforts to educate the public on the new phenomenon. The Austrian government has taken several efforts to warn investors and to clarify that cryptocurrencies are not supervised. The key factors at play in Austria seem to be transparency in operations and compliance with the existing legal system that applies to traditional money.

In Belgium, there has been very little action against cryptocurrencies although the overall tone has been balanced and neutral. In July 2013, the then Belgian Finance Minister stated that while cryptocurrencies do pose problems as a money laundering tool that can enable other illegal

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<sup>367</sup> "Sind virtuelle Währungen wie Bitcoin eine Alternative zu klassischen Währungen wie dem Euro?" [Are Virtual Currencies Like Bitcoin an Alternative to Traditional Currencies Like the Euro?], Oesterreichische Nationalbank, <http://perma.cc/AN2L-WHS5>.

<sup>368</sup> Press Release, OeNB begrüßt Regulierungsinitiative von BM Löger zu Kryptowährungen [OeNB Welcomes Regulation Initiative of Federal Minister Löger on Cryptocurrencies], OeNB (Mar. 2, 2018), <https://www.oenb.at/Presse/20180302.html>.

activities, such problems should not be overstated.<sup>369</sup> Based on studies done by the Banque nationale de Belgique (BNB), i.e. the Belgian National Bank, and the European Central Bank (ECB), the minister claimed that cryptocurrencies do not pose any significant risk to the financial system or to its individual users, adding that that there was no need for government intervention. However, in January 2014, the Belgian National Bank, Autorité des services et marchés financiers, the Financial Services and Markets Authority (FSMA), released a joint press release that warned Belgians about cryptocurrencies by highlighting their risks. Through this press release, the government made it clear that cryptocurrencies were not legal tender. It was also clarified that cryptocurrencies are completely unregulated by the government, putting the onus on the consumer to be more careful. In April 2017, Koen Geens, the then Minister of Justice announced that a legal framework for cryptocurrencies would be established.<sup>370</sup> In a sign that compliance with existing systems is a key factor, the Belgian minister added that one of the objectives of the planned framework was to set up a mechanism that could verify the conversion and exchange rates of cryptocurrencies the same way traditional financial systems do. Geens also raised concerns about the anonymous nature of some cryptocurrency transactions and highlighted the need for transparency in the way cryptocurrencies operate. He added that anonymity could be used in laundering money. Geens also expressed interest in being able to monitor efforts that promise unrealistic returns and to properly evaluate cryptocurrencies when they are seized as part of criminal investigations. In December 2017, Jan Smets, the then governor of the BNB, clarified that cryptocurrencies are not actual currencies because they are not guaranteed by a central bank or a

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<sup>369</sup> "Question écrite n° 5-8723 de Martine Taelman du 16 avril 2013 au ministre des Finances [Written Question No. 5-8723 of Martine Taelman of 16 April 2013 to the Minister of Finance], " Sénat de Belgique [Senate of Belgium], July 31, 2013, <https://perma.cc/3YK4-M2WY>.

<sup>370</sup> Comment mieux contrôler le Bitcoin? Koen Geens a un plan [How to Better Control Bitcoin? Koen Geens Has a Plan], RTBF.BE (Apr. 15, 2017), <https://perma.cc/3VNZCA5W>.

government as a means of payment. The case of Belgium is a game of cooperation albeit one that's being played very cautiously by the government.

In Bulgaria, there has been a heavy focus on taxation issues related to cryptocurrencies. In 2014, Bulgarian tax authorities issued rulings that required individuals to pay taxes on capital gains from selling cryptocurrencies by treating it as a transaction similar to the sale of financial assets. In 2015, a Bulgarian court ruled that activities associated with buying, selling, and paying with cryptocurrencies are not subject to licensing requirements, creating an environment that was conducive for the new phenomenon to thrive. However, in 2018, the Bulgarian National Bank, tempered the scene by echoing concerns raised by the European Union about the risks associated with cryptocurrencies, highlighting issues such as the price volatility.<sup>371</sup> In a statement similar to those made by authorities in Austria and Belgium, the Bulgarian National Bank clarified that consumers who buy cryptocurrencies need to be aware of the risks involved, adding that investors might lose some or all the money.<sup>372</sup>

In Croatia, cryptocurrencies are not recognized by the government as legal tender, but they are not banned or deemed illegal either. However, the government has approached the new phenomenon with a lot more caution than its fellow EU members. Croatia regulates some cryptocurrency businesses under its anti-money laundering (AML) regulations. In December 2017, Croatia's Financial Stability Council issued a warning to investors in the cryptocurrency space about associated tax liabilities,<sup>373</sup> highlighting the focus on tax revenues, which usually means

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<sup>371</sup>"Press Release, National Bank of Bulgaria, European Supervisors Warn Consumers About the Risks of Buying Virtual Currencies," Bulgarian National Bank, February 14, 2018, <https://perma.cc/Z3S7-KCMM>.

<sup>372</sup>"Bulgaria Central Bank Warns Consumers of Cryptocurrency Risks," Reuters, February 14, 2018), <https://www.reuters.com/article/crypto-currency-bulgaria/bulgaria-central-bank-warns-consumers-of-cryptocurrency-risks-idUSL8N1Q45KW>.

<sup>373</sup> Press Release, Financial Stability Council, 9th Session of the Financial Stability Council (Dec. 18, 2017), <https://perma.cc/29MV-2XP2>.



heavy focus on AML regulations, transparency, and compliance with traditional systems. However, just like most other EU members, Croatia has also clearly stated that regulators are not responsible for any oversight related to businesses involving cryptocurrencies and has warned its population of the risks associated with the new phenomenon.<sup>374</sup> Cyprus has taken a similar approach. The Central Bank of Cyprus has warned that there are no protective measures to cover losses from investing in cryptocurrencies, adding that the price volatility is too high.<sup>375</sup>

Czech Republic has taken a more liberal approach compared to other EU members. In February 2018, Mojmír Hampl, the then Vice-Governor of the Czech National Bank (CNB) declared that there was no intent to ban cryptocurrencies and that they will continue to be treated as commodities. He also made it clear that the government does not want to hinder the development of the budding industry, hinting that the regulatory game is highly cooperative in nature. However, these statements were accompanied by clarifications that the government does not plan to actively help or promote the cryptocurrency industry. Hampl compared cryptocurrencies to a casino, implying that cryptocurrency investments are like bets that could be lost. On the legislative side, the Czech Republic has seen amendments to anti-money laundering laws that were designed to make individuals involved in businesses that buy, sell, store, manage, or mediate the purchase or sale of cryptocurrencies to be liable,<sup>376</sup> in order to deter users from misusing the new phenomenon for tax evasion, crime, and terrorism.

In Denmark, the government has issued several statements on cryptocurrencies, but the overall approach has been cooperative. In 2013, when Bitcoin was the only major cryptocurrency,

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<sup>374</sup> Press Release, National Bank of Croatia, Possible Risks Associated with Investing in Virtual Currency (Sept. 22, 2017), <https://perma.cc/L2NC-NPZ3>.

<sup>375</sup> Press Release, Central Bank of Cyprus, Attention to the Risks Associated With Virtual Currencies (Feb. 7, 2014), <https://perma.cc/3AP9-9DKC>.

<sup>376</sup> Law No. 368/2016 Coll., Nov. 14, 2016, SBIRKA ZAKONU No. 147/2016, <https://perma.cc/MFX9-42H2>.

Denmark's financial supervisory authority (Finanstilsynet) clarified that Bitcoin was not a currency and that no regulations were being planned. The Finanstilsynet added that, based on its evaluation of the Bitcoin system, it was determined that the new phenomenon did not fall under any existing category such as financial services, electronic money, services, or currency exchange. Based on this assessment, the Finanstilsynet declared that Bitcoin activity was not covered under current financial regulations. This stands in contrast to the most common position seen across the EU i.e., categorization of cryptocurrencies under one or more existing provisions. In 2014, the Danish government issued another statement in which it compared Bitcoin to glass beads, implying that it has no value. In the same year, The Danish Central Bank clarified that cryptocurrencies are not protected by any laws or guarantees and are highly risky, just as most of its EU counterparts did. However, this tone changed a few years later when, in 2017, the Director of the Danish Central Bank warned that cryptocurrencies, especially Bitcoin, could be deadly.<sup>377</sup>

While most of the other central banks were either considering or developing their own digital currencies in the form of Central Bank Digital Currencies (CBDCs), the Danish Central Bank announced that it was not in favor of creating one. Denmark has taken a hands-off approach, compared to other EU members. However, the Danish government has also issued clear rules on several issues involving cryptocurrencies. For example, it has clarified that losses from transactions involving cryptocurrencies cannot be deducted as a cost of doing business and that cryptocurrencies cannot be used in billing. In line with the ruling by the Court of Justice of the European Union, Denmark also clarified that cryptocurrencies are exempt from Value Added

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<sup>377</sup> Stine Jacobsen, Danish Central Bank Head Issues Stark Warning on “Deadly” Bitcoin, Reuters (Dec. 2017), <https://perma.cc/QSM3-QGJZ>.

Taxes (VAT).<sup>378</sup> In 2017, the Danish Financial Supervisory Authority released a report that allowed businesses to launch Initial Coin Offerings (ICOs) but clarified that such activity, unlike cryptocurrency transactions, will be monitored and regulated by the Authority. In 2018, there was a notable change when the Danish Tax Council announced that losses from cryptocurrency investments are tax deductible but that profits from such investments are subject to income tax.<sup>379</sup> Taxation is clearly the most important factor in the case of Denmark.

In Estonia, the focus has been on anti-money laundering efforts. In November 2017, Estonia amended its anti-money laundering legislation to include cryptocurrencies.<sup>380</sup> The legislation defined cryptocurrencies as “value represented in digital form that is digitally transferable, preservable, or tradable and that natural persons or legal persons accept as a payment instrument, but that is not the legal tender of any country or funds.”<sup>381</sup> The anti-money laundering legislation was designed to have widespread impacts. For example, it applies to service providers involved in cryptocurrency exchanges and also requires such exchanges to procure a license in order to operate. The focus on AML laws is aimed at ensuring tax revenues while also trying to prevent misuse of cryptocurrency by criminals and terrorists.

In Finland, there has been a similar focus on ensuring tax revenues and preventing crime. In 2013, The Vero Skatt (Finnish Tax Authority) took efforts to ensure that cryptocurrency transactions are subject to income taxes and capital gains taxes. It further clarified that transactions involving cryptocurrencies will be treated as trades and that the losses from the sale of

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<sup>378</sup> Bitcoin mining og tilrådighedsstillelse af datakapacitet - moms og godtgørelse af elafgifter [Bitcoin Mining and Supply of Data Capacity – VAT and Payment of Electricity Fees], SKAT (June 27, 2017), <https://perma.cc/N772-UTZQ>.

<sup>379</sup> Gevinst og tab ved afståelse af Bitcoins [Profit and Loss of Realized Bitcoins], SKM2018.104.SR, Case No. 17-1369067, SKAT (Feb. 27, 2018), <https://perma.cc/PT9E-BZ3R>

<sup>380</sup> Rahapesu Ja Terrorismi Rahastamise Tõkestamise Seadus [Money Laundering and Terrorist Financing Prevention Act], RIIGI TEATAJA [OFFICIAL GAZETTE] RT I Nov. 17, 2017, § 3, <https://perma.cc/TFF7-Z9FU>.

<sup>381</sup> Ibid

cryptocurrencies are not deductible under the Finish Income Taxation Act. The latter was justified on grounds that such a loss in value did not fit into existing legal definitions, highlighting the power of existing legal systems.

In 2014, the Central Bank of Finland, similar to its counterparts, declared that cryptocurrencies are highly risky and are not regulated.<sup>382</sup> It further clarified that cryptocurrency payments do not fit into the legal definition described in the Payment Services Act. In 2017, the Vero Skatt issued additional clarifications on determining the value of cryptocurrency transactions. The exchange rate was to be determined at the time of realization of the Bitcoin i.e., when it becomes cash. The agency also required that all relevant records be retained for six years. The case of Finland is a good example to highlight how important tax revenues and preventing crime are as factors in regulating cryptocurrencies. Governments have to strike a balance between allowing cryptocurrencies to operate in order to gain tax revenues but ensure that these operations are not enabling terrorism or crime. The Vero Skatt has gained millions in revenue from taxes on cryptocurrencies<sup>383</sup> while also monitoring those who trade and use cryptocurrencies.

In France, the government is moving towards establishing a regulatory regime but has so far taken only very few measures. France's overall response to cryptocurrencies has been standoffish, compared to other EU members. The key factor at play here is the culture of sovereignty. In 2013, Banque de France, the French Central Bank, released a report that criticized cryptocurrencies for being a vehicle for speculation and an instrument for money laundering and other illegal activities.<sup>384</sup> This was followed by a joint statement by the Autorité des Marchés

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<sup>382</sup> Press Release, Finlands Bank, Bitcoin Involves Risk (Jan. 14, 2014), <https://www.suomenpankki.fi/en/mediaand-publications/news/2014/Bitcoin-involves-risks/>, archived at <https://perma.cc/T634-EMZM>.

<sup>383</sup> Patrik Skön, Skatteförvaltningen: Bitcoin ger miljoner i skatteintäkter [Tax Authority: Bitcoin Results in Millions in Tax Revenue], YLE (Sept. 24, 2017), <https://perma.cc/2VSH-ZQ3V>.

<sup>384</sup> Banque de France, Les dangers liés au développement des monnaies virtuelles: l'exemple du Bitcoin [The Dangers of the Development of Virtual Currencies: The Bitcoin Example], FOCUS No. 10 (Dec. 5, 2013), <https://perma.cc/K93L-HLAC>.

Financiers (AMF), the French Financial Market Authority, and Autorité de Contrôle Prudentiel et de Résolution (ACPR), the Prudential Supervisory Authority, which warned investors that cryptocurrencies are unregulated and risky, adding that the French law does not see Bitcoin and other cryptocurrencies as financial instruments. However, the French Financial Market Authority and the Prudential Supervisory Authority also recognized the potential benefits of blockchain technology, highlighting attempts at taking a balanced approach from some parts of the government.

French politicians, however, have been hawkish against cryptocurrencies because they're seen as a threat to the government's monopoly on money. This was seen in the French Finance Minister's comments on Libra. The French legislative and executive branches have investigated various approaches to regulating cryptocurrencies. The French National Assembly, one of the two houses of the French Parliament, initiated two fact-finding missions: one on cryptocurrencies<sup>385</sup> and one on blockchain technology (and other similar technologies). Additionally, the French Minister of the Economy initiated a separate effort specifically aimed at understanding how to best regulate cryptocurrencies in order to "better control their development and to prevent their use for tax evasion, money laundering, or the financing of criminal or terrorist activities,"<sup>386</sup> clearly explaining the regulatory concerns at play. Great power competition is also on the minds of the French politicians as evident by the joint efforts between France and Germany to take joint efforts in order to ensure that the Euro does not slide in importance.<sup>387</sup>

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<sup>385</sup> Mission d'information sur les monnaies virtuelles [Information Mission on Cryptocurrencies], ASSEMBLÉE NATIONALE [NATIONAL ASSEMBLY], <https://perma.cc/JNU5-4MRG>.

<sup>386</sup> Un ancien de la Banque de France chargé d'une mission sur le Bitcoin [Former Banque de France Official Tasked with a Mission on Bitcoin], AFP / LE POINT (Jan. 15, 2018), <https://perma.cc/R6CD-GCV9>.

<sup>387</sup> Berlin et Paris veulent mobiliser le G20 sur les cryptomonnaies [Berlin and Paris Want to Mobilize the G20 on Cryptocurrencies], Reuters (Feb. 9, 2018), <https://perma.cc/RF3M-ZVZM>.

Germany has been more cooperative than most EU member nations, especially in its initial responses. The Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin), the German Federal Financial Supervisory Authority, qualified virtual cryptocurrencies as units of account, thereby recognizing them as financial instruments. The German Federal Ministry of Finance, in its guidance, determined that using cryptocurrencies as a means of payment is not taxable.<sup>388</sup> However, the government has taken a highly cautious approach by requiring authorizations to perform business transactions that involve cryptocurrencies. When Initial Coin Offerings (ICOs) became popular in 2018, the government decided on a case-by-case basis. However, the government's responses have gained nuance over time. For example, while cryptocurrencies are exempt from VAT, in accordance with the ECJ ruling, other digital currencies used within online games are not. The German Bundesbank (the central bank) later declared that Bitcoin does not qualify as a virtual currency nor digital money, because it does not fulfill all functions of a currency and is not a part of a national monetary system, bringing the German stance in line with those of other EU members.<sup>389</sup> Carl-Ludwig Thiele, a then member of the executive board of the German Bundesbank, raised concerns about environmental issues arising from the high energy needed for mining cryptocurrencies, highlighting the role of environmental aspects among some regulators. However, he also acknowledged that blockchain technology might be a useful innovation.<sup>390</sup>

In Ireland, the government has taken a 'wait-and-see approach' and has also let the EU lead efforts. However, the Irish government has taken some of the usual steps, especially in response

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<sup>388</sup> Bundesministerium der Finanzen [BMF] [Federal Ministry of Finance], BMF-Schreiben. Umsatzsteuerliche Behandlung von Bitcoin und anderen sog. virtuellen Währungen; EuGH-Urteil vom 22. Oktober 2015, C-264/14, Hedqvist [BMF-Letter. VAT Treatment of Bitcoin and Other So-Called Virtual Currencies; ECJ Decision of October, 2015, C-264/14, Hedqvist] (BMF Letter), Feb. 27, 2018, at 1 & 2, <http://perma.cc/7Q6Q-MM9V>.

<sup>389</sup> "Bitcoin Is Not a Virtual Currency," GERMAN BUNDESBANK (Feb. 20, 2018), <http://perma.cc/K8EKVZJM>.

<sup>390</sup> Press Release, Joint Deutsche Bundesbank and Deutsche Börse Blockchain Prototype (Nov. 28, 2016), <http://perma.cc/GD77-79FN>

to Initial Coin Offerings (ICOs).<sup>391</sup> In March 2018, the Central Bank of Ireland announced that initial coin offerings (ICOs) would be allowed on a case-to-case basis by determining whether the ICO can be treated as a transferable security that's permitted under existing financial services laws. This is another case that highlights the importance of compliance with laws that apply to the legal tender and existing financial instruments. Ireland has also clarified that capital gains tax laws apply to transactions involving cryptocurrencies.<sup>392</sup> The Central Bank of Ireland has closely followed the European Banking Authority in its warnings,<sup>393</sup> demonstrating the power dynamics between EU and its member nations on issues with cross-jurisdictional nature.

In Italy, the focus has been on taxation. In September 2016, Agenzia delle Entrate, the Italian Revenue Agency, issued a Ministerial Resolution<sup>394</sup> to clarify how cryptocurrencies would be taxed, other than being exempt from Value Added Tax (VAT). The resolution declared that profits and losses on cryptocurrency operations are subject to corporate taxes and the Italian regional production tax. Cryptocurrency-related operations performed by individuals who own them for purposes that are not commercial are exempt from these taxes. Italy also amended its law to subject cryptocurrency exchanges to the same regulations that apply to traditional money exchange operators. The case of Italy highlights how taxation remains the top issue for regulators, and how regulators tend to take the easy path of fitting the new phenomenon into old laws that were built for fiat currencies and centralized systems.

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<sup>391</sup> Alert on Initial Coin Offerings, Information Notice December 2017, CENTRAL BANK OF IRELAND, <https://perma.cc/JR3C-NJX4>.

<sup>392</sup> Capital Gains Tax (CGT) on the Sale, Gift or Exchange of an Asset, IRISH TAX AND CUSTOMS (Nov. 21, 2017), <https://perma.cc/3B4L-LW7N>.

<sup>393</sup> EBA Warning and Opinion on Virtual Currencies, CENTRAL BANK OF IRELAND, <https://perma.cc/2ZCW-8SZ9>.

<sup>394</sup> Risoluzione Ministeriale 72/E del 2 settembre 2016, Interpello ai sensi dell'art. 11, legge 27 luglio 2000, n. 212, Trattamento Fiscale Applicabile alle Società che Svolgono Attività di Servizi Relativi a Monete Virtuali [Ministerial Resolution 72/E of September 2, 2016, Rule Issued According to Art. 11 of Law No. 212 of July 27, 2000, Fiscal Treatment Applicable to Companies that Develop Service Activities Related to Virtual Currencies] (Agenzia Entrate), <https://perma.cc/9EAZ-LS79>.

In Latvia, the focus has been on AML efforts. In November 2017, Latvia amended its anti-money laundering laws to include cryptocurrencies and to include new monitoring requirements for cryptocurrency exchanges. Latvia defines a cryptocurrency as a “digital representation of a value that may be digitally transmitted, stored, or traded, and acts as an exchange instrument without being legal tender,”<sup>395</sup> and has thereby made it clear that cryptocurrencies cannot be treated as official currency. The government has also clarified that cryptocurrencies will not be recognized as currencies because they’re unregulated and not linked to any national currency,<sup>396</sup> highlighting how their decentralized nature, which created a large fanatic user base across the world, is also the reason they’re not accepted or recognized by official entities in several parts of the world. Latvia, despite these clarifications, allows cryptocurrency transactions. The Bank of Latvia and the Latvian State Revenue Service have also clarified that cryptocurrencies are a contractual means of payment that can be used in transactions. In contrast, in neighboring Lithuania, the game has been more of a conflict. In October 2017, the Bank of Lithuania announced that financial services have to be dissociated from activities related to cryptocurrencies. Furthermore, it added that financial market participants cannot provide services associated with cryptocurrencies.<sup>397</sup> However, in the case of Initial Coin Offerings (ICOs), Lithuania has been more flexible. The Bank of Lithuania, like some of its fellow EU members, has chosen to allow ICOs to take a case-by-case basis depending on the details of the offering, based on compliance with established laws on crowdfunding, collective investment, and investment services.<sup>398</sup>

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<sup>395</sup> Amendments to the Law on Prevention of Money Laundering and Terrorist Financing, No. 222 (6049) of Nov. 8, 2017, OFFICIAL GAZETTE No. 2017/222.7, archived at <https://perma.cc/8GEV-DSF2>;

<sup>396</sup> Global Cryptocurrency Boom: Latvian Tax Treatment (1), Price Water House Coopers (Jan. 25, 2018), <https://perma.cc/5JG2-88RF>.

<sup>397</sup> Press Release, Bank of Lithuania, Bank of Lithuania Announces Its Position on Virtual Currencies and ICO (Oct. 11, 2017), <https://perma.cc/B7C8-CPMN>.

<sup>398</sup> Position of the Bank of Lithuania on Virtual Currencies and Initial Coin Offering, Approved by the Board of the Bank of Lithuania on Oct. 10, 2017, <https://perma.cc/V85N-PG47>.



In Luxembourg, the government has prioritized customer protection and has shown a great deal of interest in understanding not just cryptocurrencies but also the underlying blockchain technology and its applications. Although the government has issued several warnings like most of its EU counterparts, it has been relatively more welcoming and cooperative. In June 2017, Pierre Gramegna, the then Minister of Finance, recognized cryptocurrencies as actual currencies during a Parliament session, asserting that cryptocurrencies are accepted as a means of payment for goods and services by a significantly large circle of people.<sup>399</sup> However, he also added that cryptocurrencies will be bound by the same laws that apply to traditional currencies, highlighting the importance of this compliance factor. He also mentioned money laundering and the financing of terrorism as key factors. He has, since then, continued to encourage innovations around cryptocurrencies and crypto assets,<sup>400</sup> and has stated that the blockchain technology is an unavoidable phenomenon that brings added value and efficient services to consumers.<sup>401</sup>

However, the government's overall approach has so far been balanced and cautious. In March 2018, Luxembourg's Commission de Surveillance du Secteur Financier (CSSF), the Financial Sector Monitoring Commission, issued a warning on the risks associated with cryptocurrencies.<sup>402</sup> In this statement, the CSSF clearly laid out its key concerns related to cryptocurrencies: (1) high volatility, (2) lack of consumer protections against theft and hacking, (3) lack of liquidity, (4) high levels of misleading information being circulated in the markets, (5)

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<sup>399</sup> L'État garde un œil sur la monnaie virtuelle [The Government Keeps an Eye on Cryptocurrencies], L'ESSENTIEL (June 26, 2017), <https://perma.cc/U2DS-ZUGJ>.

<sup>400</sup> Pierre Sorlut, Monnaies virtuelles: Pierre Gramegna se félicite de l'arrivée de BitFlyer [Cryptocurrencies: Pierre Gramegna Satisfied by the Arrival of BitFlyer], LUXEMBURGER WORT (Jan. 27, 2018), <https://perma.cc/Q4QS-YWAK>.

<sup>401</sup> Pierre Sorlut, Ce qu'en pense le ministre des Finances: Les monnaies virtuelles, «un phénomène incontournable» [What the Minister of Finances Thinks of It: Cryptocurrencies, an "Unavoidable Phenomenon"], LUXEMBURGERWORT (Jan. 31, 2018), <https://perma.cc/TD7M-EQL4>.

<sup>402</sup> CSSF, Avertissement sur les monnaies virtuelles [Warning About Cryptocurrencies] (Mar. 14, 2018), <https://perma.cc/7B3F-QLKY>.

lack of transparency in the way cryptocurrencies operate, and (6) widespread usage of cryptocurrencies in money laundering and other illegal activities. However, the CSSF too has acknowledged that the blockchain technology has a lot of untapped value that can be used beneficially.

The case of Malta is a special one. The government has explicitly stated that it is working on a legislative framework to provide the necessary legal certainty to allow the cryptocurrency industry to flourish and has released several documents and proposals that are in line with this intent. In October 2017, the government released a consultation document with a proposed regulatory framework for investments in cryptocurrencies.<sup>403</sup> In November 2017, the government published another similar document on Initial Coin Offerings (ICOs), although this one suggested that some cryptocurrencies might be regulated under existing financial services legislation. The document also suggested that some cryptocurrencies may not be regulated because they may not fall under existing laws. The government later issued a statement that it plans to facilitate a regulatory framework for cryptocurrency-related activities and initial coin offerings (ICOs).<sup>404</sup>

Three bills have been proposed in Malta to create such a regulatory framework: The Malta Digital Innovation Authority Bill (MDIA Bill), The TAS Bill, and The Virtual Currency Bill. The MDIA Bill aimed to establish the Malta Digital Innovation Authority (MDIA) in order to create a dedicated entity that can focus on innovative technology arrangements and their uses for public interest. MDIA's objectives are (1) to promote government policies that favor technical innovation related to blockchain technology and its adoption by the government, (2) to maintain Malta's reputation and protect consumers, and (3) to certify technology arrangements and register

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<sup>403</sup> PARLIAMENTARY SECRETARIAT FOR FINANCIAL SERVICES ET AL., MALTA: A LEADER IN DLT REGULATION 9 (2018), <https://perma.cc/29US-4V9D>.

<sup>404</sup> Press Release, Parliamentary Secretariat for Financial Services, Digital Economy and Innovation, PR172729 (Nov. 29, 2017), <https://perma.cc/FW37-K2WX>.

technology services providers. The TAS Bill aimed to establish a regime for the registration of technology service providers. The Virtual Currency Bill aimed to establish a framework for ICOs and a regulatory regime for cryptocurrencies and related businesses. Malta has also explored ways to leverage cryptocurrencies within the gambling sector. The Malta Gaming Authority has stated that it is committed to allowing the use of cryptocurrencies.<sup>405</sup> A new Gaming Bill, which included cryptocurrencies, was also proposed.<sup>406</sup> No other EU member has taken such elaborate steps to leverage opportunities presented by cryptocurrencies and blockchain.

In the Netherlands, the government has focused on finding ways to work with the EU and other international partners in responding to the rise of cryptocurrencies. De Nederlandsche Bank (DNB) - The Central Bank of the Netherlands - has shown interest in studying cryptocurrencies and blockchain technology. However, the DNB has also issued warnings similar to those issued by its counterparts in other EU nations. In February 2018, after a long study, the DNB published a document on cryptocurrencies and ICOs. This document claimed that cryptocurrencies do not have any implications in terms of monetary policy because they are not real currencies.<sup>407</sup> This assessment was made based on the argument that cryptocurrencies were not widely used for payments because they are not universally accepted. The Dutch government has suggested that cryptocurrencies should be regulated on a European or international level<sup>408</sup> while ensuring that the benefits of the blockchain technology are not foregone. The DNB supported the EU decision to extend the scope of the anti-money laundering directive (4AMLD) to include cryptocurrency

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<sup>405</sup> Malta Gaming Authority, A White Paper To Future Proof Malta's Gaming Legal Framework 28 (July 2017), <https://perma.cc/25QQ-8YZV>.

<sup>406</sup> Gaming Bill 2018, cl. 2(1), <https://perma.cc/NV7F-VCD5>.

<sup>407</sup> DNB, Position Paper By De Nederlandsche Bank. Roundtable Cryptocurrencies/Ico's 1 (Jan. 22,2018), <http://perma.cc/6C3N-GF4B>.

<sup>408</sup> Brief van de Minister van Financiën Aan de Voorzitter van de Tweede Kamer der Staten-Generaal [Letter of the Minister of Finance to the Chairman of the House of Representatives], Mar. 8, 2018, <http://perma.cc/2J54-H8QC>

exchanges and issuers of crypto wallets but did not support a ban on cryptocurrencies, highlighting that this is a game of cooperation.

In Poland, the government has taken a relatively more cautious approach, compared to most its EU counterparts, and has focused heavily on taxation. In January 2018, the then Prime Minister Morawiecki announced that Poland would either ban cryptocurrency or create regulations to prevent the new phenomenon from becoming a pyramid scheme.<sup>409</sup> Prior to this, in 2017, the Polish National Bank and the Financial Supervision Commission had jointly issued a warning against investing in virtual currencies. The agencies cited concerns related to fraud and price volatility. The Polish government had clarified that while cryptocurrencies are not considered legal tender within Poland, trading in cryptocurrencies is also not illegal. The Polish Ministry of Finance has taken efforts to ensure tax revenues from trading in cryptocurrencies by subjecting transactions to income tax and by subjecting sales and purchases of cryptocurrencies to the same taxes that apply to the transfer of property rights.<sup>410</sup> Romania has taken a more cautious approach than Poland has. In February 2018, Romania's National Bank discouraged local credit institutions from getting involved in the cryptocurrency sector due to reputational risks,<sup>411</sup> making references to an earlier warning from 2015.<sup>412</sup> This announcement led to the closure of several cryptocurrency exchanges because the local banks shut down those accounts. In contrast, Portugal has not seen any clear regulations related to cryptocurrencies other than the ones that apply through the European Union. The Banco de Portugal - the Federal Reserve Bank of Portugal - has stated that trading and issuing

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<sup>409</sup> Michał Żuławiński, Morawiecki: We Will Ban Cryptocurrencies or Regulate Them. "We Do Not Want Another Amber Gold," BANKIER.PL (Jan. 25, 2018), <https://perma.cc/6UWU-AKBQ>.

<sup>410</sup> Press Release, Ministry of Finances, Tax Consequences of Trading in Cryptocurrencies for Individual Income Tax, Value-Added Tax and Tax on Civil Law Transactions, <https://perma.cc/37N9-TS6C>.

<sup>411</sup> Press Release, National Bank of Romania, The Position of the National Bank of Romania in Relation to the Virtual Currencies (Feb. 6, 2018), <http://www.bnr.ro/page.aspx?prid=14338> (in Romanian), archived at <https://perma.cc/G9T9-CF3K>

<sup>412</sup> Press Release, National Bank of Romania, Commentary on Virtual Currency Schemes (Mar. 11, 2015), <https://perma.cc/S8T2-DGRG>.

cryptocurrencies are activities that are neither regulated nor supervised by any authority.<sup>413</sup> However, with the recent EU framework, there will be more clarity and more regulations across all EU member nations.

In Slovakia, the focus has been on taxation. The government responded with great caution in the beginning. In 2013, the National Bank of Slovakia warned that unauthorized currency production constitutes a criminal offense.<sup>414</sup> However, the stance has softened over time, primarily because of the potential tax revenues. In March 2018, Slovakia's Ministry of Finance, which had previously raised concerns related to the anonymous nature of cryptocurrencies, announced that all revenues stemming from cryptocurrencies will be taxed. The announcement had a sweeping interpretation of what was considered to be a taxable transaction.<sup>415</sup> In neighboring Slovenia, the focus has been on consumer protection. Slovenia's Financial Stability Board has advised investors to stay cautious and to ensure that their cryptocurrency-related investments are in line with their personal preferences and investment goals.<sup>416</sup> After Slovenia's central bank issued a warning to its citizens about the risks related to the lack of regulations and supervision of cryptocurrencies,<sup>417</sup> some of the commercial banks curbed their cryptocurrency sales.

Spain has taken a cautious approach during initial response to cryptocurrencies but has recently tried to explore ways to benefit from the booming industry. Early warnings from Comisión Nacional de Valores - Spain's National Securities Commission- and the Banco de España - the

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<sup>413</sup> Moedas Virtuais, BANCO DE PORTUGAL, <https://perma.cc/YR5Q-9DWV>.

<sup>414</sup> Press Release, National Bank of Slovakia, Národná Banka Slovenska's Warning to the Public on Bitcoin (Nov. 26, 2013), <https://perma.cc/9A5B-3PCR>.

<sup>415</sup> Methodological Guideline of the Ministry of Finance of the Slovak Republic No. MF/10386/2018-721 for the Procedure of Taxing Virtual Currency, <https://perma.cc/C897-ZS9T>.

<sup>416</sup> "Financial Stability Board Warning," Bank of Slovenia, September 10, 2017, <https://perma.cc/GLK6-XB9X>.

<sup>417</sup> "Questions and Answers on Virtual Currencies," Bank of Slovenia, (January 18, 2018, <https://perma.cc/C3XV-HR2A>).

Central Bank of Spain - warned that cryptocurrencies are risky and unregulated.<sup>418</sup> Recent reports suggest that Spain's government is considering a friendly approach towards regulating cryptocurrencies and has also been considering tax breaks to attract blockchain and fintech companies to set shop in Spain.

In conclusion, EU member nations' efforts within their national jurisdictions and the EU's efforts at the supranational level demonstrate how difficult it is to regulate cryptocurrencies within the EU. Blockchain's new technological features and their environmental, political, social, and economic impacts, and legal impacts, combined the cross-jurisdictional nature of this phenomenon within the EU further complicate one's ability to fully comprehend the situation. However, the same five factors - compliance with AML laws, compliance with the fiat currency's systems, transparency in operations, culture of sovereignty, and great power competition are relevant in the case of the European Union as well. The most prominent factors in the case of the EU are transparency in operations and the culture of sovereignty. The case of the EU v. Cryptocurrencies is a cooperation game, although some EU member nations are involved in a game of conflict.

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<sup>418</sup> Comunicado Conjunto de la Comisión Nacional del Mercado de Valores (CNMV) y Banco de España [Joint Press Statement by CNMV and Banco de España on "Cryptocurrencies" and "Initial Coin Offerings" (ICOs)] February 8, 2018, <https://perma.cc/K5J4-WJM4>.

## CHAPTER 8

### CHINA

China's response to the rise of Global Private Currencies is the Digital Yuan, also known as eCNY, the world's first-known functional Central Bank Digital Currency (CBDC). This approach is reminiscent of the way the Chinese government handled the rise of the internet and technology giants such as Facebook. China facilitated the creation of government-backed alternatives to Facebook such as WeChat and TenCent, while blocking Facebook. Similar approaches have been taken to counter Google and Amazon through alternatives such as Baidu and Alibaba respectively. However, the Chinese CBDC is owned and operated by the government with support from private technology giants such as WeChat. The Chinese government has strictly banned all cryptocurrency transactions and is therefore in a game of conflict. However, this absolute ban is very recent. Before the ban, the government was mostly cooperative in its approach to GPCs and China was a hotspot for businesses and people interested in this sector. The first cryptocurrency exchange in China started in 2011 in response to the high levels of interest within the country. Over the next five years, China became a significant force not only in trading of cryptocurrencies but also in the market for equipment used to mine cryptocurrencies. At one point, China even had the largest Bitcoin exchange by volume in the world.

The game changed from cooperation to conflict in 2012, when Xi Jinping took over as the President of China. Xi Jinping's vision of China's global standing and digital economy did not have a place for a new phenomenon that offered an alternative monetary system that was private and decentralized. When Facebook proposed its Libra, the Chinese regime warned governments across the world that such global private currencies would undermine their sovereignty and make central banks powerless. The People's Bank of China (PBoC) has also argued that the ban on

cryptocurrencies is meant to prevent financial crime and ensure economic stability. The government has also claimed that the full ban on cryptocurrencies is in response to the adverse environmental effects of crypto-related mining activities, which tend to be energy. The ban is also seen as the latest step of the government's "common prosperity" campaign, which is meant to ensure equitable growth across China. Several analysts have noted that the cryptocurrency ban was implemented to control capital flight from its markets because GPCs were able to circumvent conventional restrictions on monetary transfers.

China's authoritarian single-party system of governance ensures top-down implementation of policies without debate or dissent. This is remarkably different from the political systems in the United States and the European Union. Although China has the world's largest economy by some measures, it is still not as advanced as those in the United States or most of the EU nations, and therefore has unique problems. For example, the capital flight issue is something that the United States and the European Union do not have to worry about as much as China does. The large amount of power that cryptocurrency mining activities consumed was another concern for China. The low cost of electricity, which was in part because of currency devaluation meant to support exports, attracted more mining activity, which adversely affected the supply conditions for other industries within China. This prompted several provinces to ban cryptocurrency mining activities over the years well before the overall ban in 2021. The rest of this chapter explains in more detail how regulatory responses evolved over the years, followed by how the Chinese Central Bank Digital Currency (CBDC) evolved as the ultimate response.

China's government has been highly effective in taking actions against cryptocurrencies from the very beginning and has implemented several regulatory actions to protect investors and prevent financial risks. These actions include the banning of Initial Coin Offerings (ICOs),



restricting cryptocurrency, and discouraging cryptocurrency mining activities. The government has also used other methods such as internal circulars, which are uniquely influential within the Chinese system. However, no major legislations relating to cryptocurrency regulations were ever passed. In 2009, just when Bitcoin was born, the Chinese government took actions to stop the trading of virtual goods for real currency within online games such as World of Warcraft,<sup>419</sup> specifically actions that were referred to as gold farming. By 2013, there was a lot of interest in Bitcoin within China, which prompted the People's Bank of China (PBoC) to issue a warning similar to the ones issued by its counterparts in other parts of the world. The warning was issued in coordination with several other parts of the government - the Cyberspace Administration of China (CAC), the Ministry of Industry and Information Technology (MIIT), the State Administration for Industry and Commerce (SAIC), the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC), and the China Insurance Regulatory Commission (CIRC) - highlighting the unified way in which China's government operates.

Another notable contrast in the warning was that, alongside declaring that cryptocurrencies such as Bitcoin were not legal tender and clarifying that these cryptocurrencies did not have any legal grounds, the agencies also ordered banks and payment institutions in China to not use Bitcoin. This directive extended to the use of cryptocurrencies in billing products and services related to cryptocurrencies. However, this early ban did not extend to trades between individuals, although warnings about price volatility and potential use in money laundering were issued by the PBoC. The activity of mining cryptocurrencies was also left out of the preview of this initial regulatory analysis. This led to a boom in mining of cryptocurrencies, especially Bitcoin, within some parts

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<sup>419</sup> Bobbie Johnson, "China Cracks down on Virtual Economy," The Guardian, June 30, 2009, <https://www.theguardian.com/technology/blog/2009/jun/30/games-internet>.

of China. This industry expanded because some Chinese provinces had the right settings: comparatively low electricity cost, easy access to necessary technology such as Graphics Processing Units (GPUs) from the local manufacturers, and a tech-savvy population. In 2016, when Initial Coin Offerings became the most prominent fundraising method involving cryptocurrencies, the same group of regulatory agencies issued a new warning aimed at investor protection and financial risk prevention.<sup>420</sup>

ICOs and other cryptocurrency transactions were troublesome because they also facilitated the flow of money out of China while affecting the value of the Yuan in an unfavorable way. The regulatory agencies created new rules that outlawed the creation of new cryptocurrencies through Initial Coin Offerings on grounds that it amounted to public financing without official authorization and therefore ordered that monies raised through ICO be returned to investors. Additionally, it was announced that engaging in ICOs may also be treated as being involved in other financial crimes such as the illegal issuance of tokens or securities, illegal fundraising, financial fraud, or pyramid selling. This highlights how regulators in China also expect cryptocurrencies to comply with laws and systems designed for traditional fiat money. The agencies also clarified that cryptocurrencies involved in ICOs are not issued by China's monetary authority, having no legal status with fiat currencies as legal tender. As a result, it is prohibited to circulate in the market. Financial institutions and non-bank payment companies were also restricted from providing services that supported token-based fundraising activities such as ICOs.

In September 2017, the Chinese government took additional measures to contain the circulation of cryptocurrencies by banning exchanges from trading cryptocurrencies for fiat money, and from purchasing or selling cryptocurrencies. The exchanges were also no longer

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<sup>420</sup> PBOC, CAC, MIIT, SAIC, CBRC, CSRC, and CIRC, Announcement on Preventing Financial Risks from Initial Coin Offerings (Sept. 4, 2017), (in Mandarin), <https://perma.cc/N88N-5CV5>.

allowed to set prices of cryptocurrencies or provide other related services, essentially shutting down the trading operations of every cryptocurrency exchange within China.<sup>421</sup> This regulatory move forced some exchanges to relocate outside China. Some of the exchanges remained active but offered only services that were still legal: converting cryptocurrencies to other cryptocurrencies without involving cash deposits. The government's focus now moved on to the energy-intensive mining industry that was growing rapidly. In 2018, regulations on cryptocurrency mining ramped up in some Chinese provinces. Despite such measures, China was leading the world in mining Bitcoin, the most prominent cryptocurrency.

In April 2019, more efforts were taken against cryptocurrency mining, this time at the national level. China's National Development and Reform Commission (NDRC) declared that Bitcoin mining was an undesirable industry that was causing high levels of environmental pollution. More than half of the Bitcoin network's mining power was located in China at that point in time. The NDRC eventually toned down its concerns and no immediate actions were taken. By 2020, there were more regulatory actions aimed at countering fraud and money laundering activities through cryptocurrencies. For example, the People's Bank of China announced plans to block dozens of foreign websites that still offered cryptocurrency exchange services. This was done in response to increasing capital flight concerns. By June 2021, all mining activities within China were brought to an end. Finally, in November 2021, there was an absolute cryptocurrency ban in China.

The most significant regulatory move against cryptocurrencies within China was by China's State Council, the chief administrative authority within China, against mining and trading activities. The State Council of the People's Republic of China, in the Chinese system of

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<sup>421</sup> Xie Yu, "China to Stamp out Cryptocurrency Trading Completely with Ban on Foreign Platforms," South China Morning Post, last modified February 7, 2018, <https://perma.cc/42H4-F2AW>.

government, is the most influential institution especially in the context of local governments at the provincial level. Among the members of the State Council are the Premier and the heads of each of the cabinet-level executive departments. In 2021, three provinces - Inner Mongolia, Xinjiang, and Sichuan, hosted several cryptocurrency mining operations that were subjected to strict crackdowns forcing cryptocurrency miners to cease their activities. This was followed by a wider ban on cryptocurrency transactions<sup>422</sup> by ordering all banks to stop trading, clearing, and settlement services related to cryptocurrency transactions.<sup>423</sup> The People's Bank of China justified the ban claiming that cryptocurrency transactions have disrupted economic and financial order, causing an increase in "money laundering, illegal fund-raising, fraud, pyramid schemes, and other illegal and criminal activities."<sup>424</sup>

The crackdowns were highly effective.<sup>425</sup> Regulators in China went to great lengths to ensure the prevention of cryptocurrency-related activities after the ban, claiming it was necessary to maintain economic and financial order and social stability. For example, the government ordered the termination of capital accounts connected to cryptocurrency exchanges and other dealers to prevent them from transferring funds. It was widely reported that the Chinese government had discussions with major banks prior to the ban to ensure that banks and other partners such as tech

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<sup>422</sup> Allen K Wan et al., "China Widens Ban on Crypto Transactions; Bitcoin Tumbles," Bloomberg, last modified September 24, 2021, <https://www.bloomberg.com/news/articles/2021-09-24/china-deems-all-crypto-related-transactions-illegal-in-crackdown?sref=ExbtjcSG>

<sup>423</sup> Omkar Godbole, "China Says Banks Must Block Crypto Transactions; Market Falls," CoinDesk, last modified September 14, 2021, <https://www.coindesk.com/policy/2021/06/21/china-says-banks-must-block-crypto-transactions-market-falls/>.

<sup>424</sup> Kim Lyons, "China's Central Bank Bans Cryptocurrency Transactions to Avoid 'Risks,'" The Verge, last modified September 24, 2021, <https://www.theverge.com/2021/9/24/22691472/china-central-bank-cryptocurrency-illegal-bitcoin>.

<sup>425</sup> Alfred Cang et al., "China Intensifies Hunt for Cryptocurrency Miners in Hiding," Bloomberg, September 16, 2021, <https://www.bloomberg.com/news/articles/2021-09-16/china-said-to-intensify-hunt-for-cryptocurrency-miners-in-hiding>.

firms not involved in cryptocurrency transactions.<sup>426</sup> The People's Bank of China has been leading this assault on cryptocurrencies but it has been advised by key players such as the Industrial and Commercial Bank of China, Agricultural Bank of China, Construction Bank, Postal Savings Bank, Industrial Bank, and major tech firms such as Alipay. To create a strong deterrent, the Chinese government has warned the public that all cryptocurrency-related transactions, including those done at cryptocurrency exchanges abroad, will be treated as criminal activity. Cryptocurrencies are not allowed to be in circulation in any form anymore. This ban has impacted the price of cryptocurrencies across the world,<sup>427</sup> highlighting the influence of China and its citizens in the cryptocurrency market. The price volatilities helped the government's ban look justified. Bitcoin was hardest hit by the ban as almost 65% of all Bitcoin was powered in China.

China's economic planning agency once commented that the crackdown was important to meet carbon goals, highlighting the importance of environmental factors in the regulation of cryptocurrencies. The Cambridge Center for Alternative Finance, which maintains the Cambridge Bitcoin Electricity Consumption Index to estimate the cryptocurrency's energy consumption,<sup>428</sup> has compared the usage of Bitcoin's electricity consumption to be equal to that of several nations combined. Prior to the ban, government agencies discouraged cryptocurrency mining activities by curtailing investments, raising electricity costs, and blocking new entrants into the sector. Such actions were necessary also because the spike in mining activities also led to higher electricity rates and a severe power crisis. The ban was also enacted due to the fact that cryptocurrencies were

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<sup>426</sup> Mitchell Clark, "What We Know about China's Cryptocurrency Crackdown," The Verge, June 23, 2021, <https://www.theverge.com/2021/6/23/22544367/china-crypto-crackdown-Bitcoin-mining-sichuan-ban-hydro-cryptocurrency-trading>.

<sup>427</sup> John, Alun, Samuel Shen, and Tom Wilson. "China's Top Regulators Ban Crypto Trading and Mining, Sending Bitcoin Tumbling." Reuters, last modified September 24, 2021. <https://www.reuters.com/world/china/china-central-bank-vows-crackdown-cryptocurrency-trading-2021-09-24/>.

<sup>428</sup> "Cambridge Bitcoin Electricity Consumption Index," Cambridge Centre for Alternative Finance, <https://ccaf.io/cbeci/index>.

draining capital from China. Since it's difficult to narrow down exact figures and locations given the nature of cryptocurrencies, there are no official estimates. However, some studies have claimed that close to \$50 billion worth of cryptocurrency moved from accounts that originated in East Asia between 2019 and 2020.<sup>429</sup> This trend escalated the need for more capital controls within China.

Although China already had strong capital controls including clear annual limits on the purchase of foreign currencies, which cryptocurrencies fall under, the government saw the need for more regulations due to the rise of global private currencies as a new alternative to traditional methods for transferring money out of the country. Traditional methods that facilitate capital flight include purchasing foreign real estate, under invoicing, over invoicing, and human-centered procedures such as hawala. Cryptocurrencies, especially Bitcoin, soon became a preferred method, thanks to their pseudonymity and decentralized nature, which make them harder to detect.<sup>430</sup> China's ban on cryptocurrency exchanges, which did not include the ban on mining activities, was seen as a response to the capital flight problem, although it was never officially attributed to it. Chainalysis, a premier cryptocurrency analytics firm, has noted that capital flight has been facilitated mostly by stablecoins such as Tether, which is also known as USDT. Tether is pegged to the value of the US dollar and therefore does not have the same levels of volatility as Bitcoin and other free-floating cryptocurrencies. The ban on cryptocurrency exchanges prohibited the exchange of Tether for both fiat currencies and cryptocurrencies. However, it was easy to use foreign bank accounts to procure Tether, making capital flight easy. The problem with capital

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<sup>429</sup> Arjun Kharpal, "Report Finds \$50 Billion of Cryptocurrency Moved out of China Hinting at Capital Flight against Beijing Rules," CNBC, last modified August 22, 2020, <https://www.cnbc.com/2020/08/21/china-users-move-50-billion-of-cryptocurrency-out-of-country-hinting-at-capital-flight.html>.

<sup>430</sup> Igor Makarov and Antoinette Schoar, "Blockchain Analysis Of The Bitcoin Market - Working Paper 29396," National Bureau Of Economic Research, October 2021, [https://www.nber.org/system/files/working\\_papers/w29396/w29396.pdf](https://www.nber.org/system/files/working_papers/w29396/w29396.pdf).

flight was not merely a socioeconomic one, but a political one because it stood in the way of the Chinese Communist Party's 'common prosperity' campaign.<sup>431</sup>

President Xi Jinping has used the term 'common prosperity' in his vision to create a China that could narrow the large wealth gap, which is seen as a threat to national unity and to the legitimacy of the Chinese Communist Party. Under Xi, the term has been defined in simple terms as a policy that would lead to a more equal income distribution. The term was originally used in the 1950s by the People's Republic of China's founder Mao Zedong and later in the 1980s by the President Deng Xiaoping. Xi Jinping has made common prosperity one of the core elements of the Chinese Communist Party's governing foundation. In an attempt to achieve this, he has initiated a pilot program in Zhejiang, one of China's wealthiest provinces, to narrow the income gap by 2025. To reach this goal, Chinese leaders have relied on taxation as an economic redistribution tool. Since Deng Xiaoping's economic reforms and opening-up of the Chinese market, China has had a wealth distribution system that relied primarily on labor. Taxation is seen as a part of the 'second distribution' system. Under Xi, there has been an increased push to encourage high-income firms and individuals to give back to society through donations. This channel has been referred to as the 'third distribution' system.<sup>432</sup> Since cryptocurrencies can help people evade taxes and relocate capital instead of donating or investing them within China, they are seen as a threat to Xi Jinping's goal of achieving common prosperity. This has also been a major factor in the government's decision to ban cryptocurrencies altogether. However, the most important reason for the ban is the risk that cryptocurrencies could compete with China's digital Yuan.

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<sup>431</sup> Kevin Yao, "Explainer: What Is China's 'Common Prosperity' Drive and Why Does It Matter?," Reuters, last modified September 2, 2021, <https://www.reuters.com/world/china/what-is-chinas-common-prosperity-drive-why-does-it-matter-2021-09-02/>.

<sup>432</sup> Ma Xuejing, "'Third Distribution' System to Common Prosperity," China Daily, September 24, 2021, <https://www.chinadaily.com.cn/a/202109/24/WS614d15c5a310cdd39bc6b282.html>.

China has shown keen interest in blockchain technology since the beginning. The digital Yuan has been strongly backed by President Xi Jinping from the beginning. He has explicitly declared that he wanted China to play a key role in formulating international rules on digital currency and digital tax in order to create new competitive advantages. Great power competition is a key factor that led to both the expedited development of the digital Yuan (CBDC) and also the absolute ban of cryptocurrencies. Almost every nation has expressed interest or initiated research but very few have made progress. The only CBDC to have undergone extensive trials is the digital Yuan. China began exploring the concept of a sovereign digital currency much earlier than other governments did. This was prompted by the success of Chinese e-commerce platforms such as Alibaba, Tencent and Baidu. These companies had created digital payment systems that scaled rapidly across China. The CBDC was designed to leverage these networks

The digital Yuan is part of the rising superpower's 14th five-year plan. The People's Bank of China (PBoC) created the 'Institute of Digital Money' as an internal research initiative within the bank to improve its CBDC. In contrast, this initiative's American counterpart - the Hamilton Project – is a public-private partnership between the Boston Fed and Massachusetts Institute of Technology (MIT). It has been frequently reiterated that the digital Yuan is just a digital version of the sovereign currency that is backed by the central bank, highlighting the strong culture of sovereignty within China. A working paper that was released by the Chinese central bank further clarified that, unlike Bitcoin and other digital currencies issued by the private sector, the digital fiat currency had the same legal status as the only fiat currency issued by the bank- the Chinese Yuan. The paper also suggested that, although some level of anonymity is necessary for small transactions, the digital Yuan's backend will retain the ability to monitor, report, and investigate activities that relate to terrorism and money laundering.



In 2016, the PBoC's efforts evolved, leading to the creation of the Digital Currency Research Institute, which later brought in commercial banks and other payment firms such as Tencent to collaborate. In early 2017, upon the approval of the State Council, the central bank started testing its prototypes. In October 2017, the PBoC reported that it had tested algorithms needed to maintain the digital currency supply, which was a major step ahead. In April 2020, the People's Bank of China and the Agricultural Bank of China carried out a larger internal test on the CBDC. A few months later, the first public trial was launched within one of the provinces. By April 2021, there had been at least ten such trials. The CBDC was being groomed for an international demo during the 2022 Winter Olympics in Beijing. Although this timeline looks long, it is still the fastest project of this sort in the world. No other central bank had been able to develop and test its CBDC by then. A Deutsche Bank research publication<sup>433</sup> on the Digital Yuan suggests that the introduction of the digital Yuan had two distinct but interconnected goals. The first one was to create a digital currency that could compete with other digital currencies such as Bitcoins, stablecoins, and other central banks digital currencies (CBDC), while ensuring that the renminbi continues to be the dominant currency in China. As described before, the digital Yuan was not just the government's response to cryptocurrencies,<sup>434</sup> it was also Beijing's latest weapon in its great power competition with the almighty Dollar. The second goal was to revamp China's existing payment systems by providing a cash-like digital payment method that's widely accessible at low costs.

The People's Bank of China has placed a lot of importance on the research and development of the digital Yuan. The design of the digital Yuan is important to understand both

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<sup>433</sup> "Digital Yuan: What Is It and How Does It Work?," Deutsche Bank, July 14, 2021, <https://www.db.com/news/detail/20210714-digital-Yuan-what-is-it-and-how-does-it-work>.

<sup>434</sup> Jane Li, "China Is Combating Crypto with a Push for the Digital Yuan," Quartz, last modified December 22, 2021, <https://qz.com/2065913/chinas-answer-to-crypto-is-the-digital-Yuan/>.

because it highlights similarities and differences vis-a-vis cryptocurrencies, helping us understand why CBDCs are in such demand across the world. The latter is simply because a CBDC can give unprecedented power to governments because money touches almost every aspect of life. The digital Yuan's features can also help us understand which factors were important to regulators and lawmakers. eCNY is designed to comply with AML laws, comply with traditional laws and systems designed for cash and other previous forms of fiat currencies, operate in a transparent manner i.e., to the government, strengthen sovereignty, and is designed to support China in its great power competition. To ensure victory in its great power competition, the eCNY is designed to scale rapidly while ensuring tax revenues, sovereignty, stability, transparency, and anti-money laundering features. The Chinese CBDC is a significant political tool that can disrupt global power dynamics.

The most important distinction between GPCs such as Bitcoin and the e-CNY is that the latter is fully backed by the Chinese government, specifically the People's Bank of China. However, the e-CNY is operated in partnership with payment service providers, some of whom may not be official government entities. Tencent and Alipay are good examples of such private service providers. The Chinese government has claimed that the eCNY will allow anonymity and has been built to protect personal information. However, it has also admitted that the eCNY system is designed to save sufficient records for tracing illegal activities such as money laundering and tax evasion. The PBOC's technical definition of eCNY describes it as a 'M0' i.e., the monetary base, which is the most liquid type of the money. M0 refers to the total amount of a currency in general circulation. M0 includes the general public's 'cash in hand,' commercial bank deposits held in the central bank's reserves, and other assets that are easily convertible into cash. Money Supply M0 and M1, are also known as narrow money. This is a marked difference from what

GPCs are. Bitcoin and other free-floating cryptocurrencies are merely digital entries in a distributed ledger that have perceived market value based on aggregate supply and demand. Even stablecoins, which are tethered to other currencies, usually strong fiat currencies such as the US Dollar, are not directly or officially connected to the currencies they're tethered to.

The PBOC's choice to define the eCNY as M0 has significant implications. In the world of central banks and monetary economics, M0 is remarkably different from its variants M1 and M2. The most important feature is that the eCNY, as M0 money, becomes a direct liability of the PBOC, making it the least risky currency within China, akin to the traditional fiat currency. In contrast, M1 and M2 types of money attract liability from commercial banks also. By removing these liabilities, the eCNY becomes more attractive to investors. Another important implication of the M0 designation is that the digital 'wallet' applications that hold eCNY are not treated as bank accounts, creating a uniquely new system that is much more efficient and manageable. The eCNY is designed to be delivered to the wallets within electronic devices that are identified based on phone numbers. As M0 money, the eCNY also does not carry interest. M1 and M2 types carry interest. GPCs such as Bitcoin, being an entirely new phenomenon, do not fit into any of these types and are therefore not yet fully embraced by most financial institutions across the world.

The M0 status also ensures that only banks can convert the e-CNY into bank deposits and vice versa, removing intermediaries such as cryptocurrency exchanges from ever getting involved. This way, the government can easily monitor and manage the entire system much more efficiently. In contrast, GPCs can be converted through exchanges, which are a weak link as seen in the case of Mt. Gox and other similar cautionary tales. The inability to carry interest, and to be mediated by banks, suggests that the People's Bank of China wanted to limit the circulation of the eCNY. This was probably done to ensure that the system can be monitored and managed even when the

system scales across the world. The eCNY still has features that allow large-scale circulation and the ability to be deposited a la traditional money, thanks to its two-tiered system. The PBOC is the controlling entity located on the first tier. The second tier includes large state-owned banks and online banks that facilitate these actions. Other banks and payment service providers such as Alipay also play roles in eCNY's operation, especially at the retail level.

The E-CNY is being designed as a retail CBDC that will be issued to the public. This is remarkably different from some of the wholesale CBDCs being developed in other parts of the world. Such wholesale CBDCs are meant for use only within the central bank. China's decision to create a retail CBDC is in line with the government's plan to modernize the domestic payment system. The issuance of e-CNY is aimed primarily at improving the efficiency of the retail payment system by reducing the cost of retail payment. The PBOC has defined the e-CNY as "the digital version of fiat currency issued by the PBOC and operated by authorized operators. The e-CNY is also defined by the PBOC as the digital version of China's fiat currency. The central bank's whitepaper outlines how, throughout history, currencies have evolved from being represented as objects, metal coins, banknotes, etc. This suggests how adaptive the Chinese government is. The bank further described the eCNY as "a value-based, quasi-account-based, and account-based hybrid payment instrument, with legal tender status and loosely-coupled account linkage". In its whitepaper, the PBOC has repeatedly highlighted that the e-CNY is the official fiat currency. The eCNY is designed to perform all three basic functions of money - unit of account, medium of exchange, and store of value. Most GPCs, in contrast, are not seen as being able to perform all three functions although technological, legal, and social changes are slowly changing how GPCs perform these functions. For example, when the Bitcoin network was seen as being too slow to act as an efficient medium of exchange, a technological change in the form of the lightning network

was added to increase the speed. Legal changes that recognize some GPCs as legal tenders enable them to be units of account as seen in the case of El Salvador.

The process of starting a new eCNY account is highly similar to existing processes used for bank accounts. The user is required to interact with the bank. GPCs such as Bitcoin, in contrast, were designed to circumvent such institutions. However, only tech savvy individuals are able to comfortably forego cryptocurrency exchanges, which simplify the process but increase risk by being vulnerable to hacks and by being unregulated in most parts of the world. An eCNY account i.e., the digital wallet can be opened only by the institutions in Tier 2. The lowest tier, referred to as 'Tier 2.5,' includes payment service providers, merchants, corporations, and other users. Once the wallet is created, all tiers will have access to the account and can offer various services. However, Tier 2.5 has limited access. Entities in the lowest tier can provide payment services but cannot carry out e-CNY transactions. The eCNY also allows peer-to-peer transfers, akin to GPCs. However, GPCs operate directly on a transparent, decentralized blockchain ledger while the eCNY system coordinates with tier 2 or tier 2.5. Similar to the financial systems that manage fiat-currencies, the eCNY system require Tier 2 institutions (banks) to provide customer service, protect customer privacy, perform Anti-Money Laundering (AML) measures such as the Know Your Customer (KYC) protocols, and maintain the infrastructure needed to operate the eCNY at the retail level.

Overall, the eCNY system is the same as the traditional banking system with the exception that the digitization of the entire process gives the PBOC unprecedented levels of traceability and control. This has been the biggest concern related to CBDCs. To address these concerns, the PBOC has stated that it plans to maintain 'controllable anonymity'. Yi Xiong, China's Chief Economist, has stated that the e-CNY will give its users the choice to hide their identity, but the system will

provide law enforcement agencies the ability to trace illegal transactions whenever needed. The anonymity feature within the eCNY system, was designed primarily to protect consumers from online platforms that could collect user information. Most GPCs, especially Bitcoin, in contrast, allow users to be pseudonymous and do not cooperate with law enforcement agencies. However, most cryptocurrency exchanges that trade GPCs are required to cooperate with law enforcement.

In July 2021, the People's Bank of China released an official document prepared by the working group that was focusing on the research and development of the eCNY.<sup>435</sup> This is the most detailed official document on the Chinese CBDC so far. This whitepaper is focused on research and development aspects. The PBOC's stated goals in releasing this document were: (1) to clarify the PBOC's position on specific issues related to the CBDC, (2) to explain the background, objectives and visions, design framework and policy considerations for the e-CNY system, (3) to seek public comments and to deepen communication with stakeholders. The PBOC further added that its goal is to build an open, inclusive, interoperable, and innovative digital currency service system that's built for the era of digital economy. Such openness and friendliness, taken at face value, is surprising given China's authoritarian system. It can be argued that this is a result of the competitive dynamics created by GPCs, which, as an alternative, offer unprecedented levels of freedom for the user.

The PBOC has made a good case for building the eCNY through its public relations efforts. The whitepaper highlights how recent technological developments and the new digital economy require a revamp of the retail payment services. The PBOC's idea of a modern payment system is one that's more convenient, safe, inclusive, and privacy friendly. The whitepaper also noted that several countries across the world are keeping tabs on the fintech sector in order to digitize their

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<sup>435</sup> "Progress on Research and Development of E-CNY in China," The People's Bank Of China, July 2021, <http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf>.

fiat currencies the right way. Before GPCs disrupted the scene, governments did not have to worry about competition or about building the best features because of their monopoly on money. The CBDC is essentially an attempt by governments to reclaim this monopoly, while gaining new powers in the process.

The e-CNY system is being designed to provide services to a large population in various scenarios. The CBDC does not require a bank account for its basic services. The digital wallet is sufficient to avail these services. This is similar to the ways GPCs operate. The e-CNY system is also designed to be used on a temporary basis by foreigners visiting China. The PBOC has also highlighted the differences between the eCNY and other digital payment systems. While the latter requires bank accounts, the former does not. The eCNY has intrinsic value and can also support off-line transactions. Unlike GPCs, digital payment systems do not pose a threat to fiat currencies and are therefore integrated into the eCNY system.

The Chinese government has carefully tracked the rapid rise of cryptocurrencies. The PBOC has noted in its whitepaper that the main issues with cryptocurrencies are the lack of intrinsic value, acute price fluctuations, low trading efficiencies, and huge energy consumption, and the inability to serve as currencies that can be used in everyday activities. The bank also sees cryptocurrencies as speculative instruments that pose potential risks to financial security and social stability. The use of cryptocurrencies in money-laundering and other illegal economic activities have also been highlighted by the bank. The Chinese government has also grasped how technological changes have led to a transformation in the role of cash within the economy. The rise of the digital economy in China has been accompanied by a sharp decline in the usage of cash payments.

A survey carried out by the PBOC in 2019 suggested that the number and value of transactions made through mobile payment accounted for 66 percent and 59 percent of the total respectively. In contrast, the number and value of transactions paid in cash accounted for 23 percent and 16 percent respectively. The number and value of transactions paid by credit and with debit cards were 7 percent and 23 percent, respectively. The survey also revealed that, among those surveyed, 46 percent did not use cash in any transaction during the survey period. While this is very low compared to the United States and some European nations, it's a remarkable statistic for China given the size of the population and the fact that most of its population does not have high levels of income. In parts of China where financial services are not easily available, cash usage remains common and preferred. The eCNY is being designed to change this so that the costs and inconveniences of managing cash dissipates.

Cash is not preferred by banks and governments either because of inconveniences or inefficiencies related to minting, printing, transportation, deposit, withdrawal, identification, processing, reflow, destruction, counterfeit prevention, etc. The PBOC's vision of developing a modern digital payments system for the digital economy includes new retail payment infrastructures that are safe, inclusive, and adaptive. By highlighting safety, the CBDC can better contrast how unsafe GPCs are as an alternative. CBDCs are also a more effective way for governments to ensure the safety and stability of the financial system because regulatory attempts to achieve the same goal by requiring transparency from GPCs is not guaranteed. The PBOC has noted that the Chinese economy is changing its focus from high-speed growth to high-quality development. The eCNY is seen by the central bank as a technological innovation that's necessary to support the economy in making this transition happen.



The bank has also highlighted the role of the Covid19 pandemic in accelerating digital transformation in all spheres of life. In line with the political goal of ‘common prosperity,’ the PBOC has also justified the eCNY as a tool that can support the Chinese economy in serving less developed and remote areas of the nation. The bank has also noted that the rapid spread of mobile payment systems has had a positive impact on the economy by enabling more people to participate more easily than ever before. The eCNY is being designed to integrate with such payment systems. However, The PBOC plans to issue the digital e-CNY and the physical Renminbi in parallel. Acknowledging that China has a large population with various ethnic groups and wide differences in regional development, the central bank has expressed the need to accept that people differ in their choice of payment habits and security needs. Therefore, the bank plans to issue physical currencies for “as long as there is demand.”

By highlighting attempts to create an inclusive tool, the CBDC is trying to appeal to those who might otherwise fall for GPCs that advertise themselves as solutions for the unbanked and underbanked. If the PBOC is able to launch a well-built CBDC that can scale internationally and also help the world be more financially inclusive, it would be a major political geopolitical success for China. Internally, the CBDC can help Xi Jinping achieve ‘common prosperity’ faster. Internationally, it can make China a stronger superpower. Some countries that adopted the US dollar instead of their failing domestic currencies have recently added GPCs to their list of preferred currencies. If the eCNY is successful, it might join or replace the US Dollar and other cryptocurrencies as legal tender in nations well beyond its sphere of influence. The eCNY could help China expand its Belt and Road initiative across the world. In other words, Dollarization and Cryptonization trends could be replaced by ‘Yuanization’.

The eCNY, despite being advertised as an economic tool meant to improve China's economy, is also designed to be used for international payments. This will help China internationalize the Yuan to a greater extent. The PBOC has, however, highlighted how difficult it is to manage cross-border payments due to issues such as monetary sovereignty, foreign exchange policies, and compliance requirements. The central bank sees the internationalization of Yuan as something that's dependent primarily on the natural results of free market dynamics since international demand for a sovereign currency is based on the economic fundamentals of the nation that manages the currency. The PBOC has also announced that it will align its eCNY efforts with efforts taken by the G20 and other international organizations to improve cross-border payments. The bank plans to collaborate with central banks and monetary authorities across the world to set up exchange arrangements and regulatory cooperation mechanisms on digital fiat currencies in order to promote interconnectivity and interoperability.

Since the e-CNY is a substitute for M0, it is treated the same way as physical RMB. M0 carries and pays no interest. The M0 nature leads to lower costs because the PBOC does not charge operators for exchange and circulation services. The operators also do not charge individual clients for the exchange of e-CNY. The PBOC claims that the e-CNY system is designed to collect less transaction information than traditional electronic payment, suggesting that the central bank is trying to appeal to privacy-conscious users who used to prefer cryptocurrencies. The PBOC also claims that the CBDC system also does not provide information to third parties or other government agencies unless existing laws and regulations permit such sharing. The bank also asserts that the internal backend of the system has a tiered authorization system with checks and balances designed to allow authorized audits while preventing unauthorized actions. In contrast, most GPCs make it difficult to trace transactions regardless of whether the person is authorized or

not. However, most cryptocurrency exchanges in the US and Europe work like the eCNY design and allow authorized audits.

The eCNY system has hybridized features from GPCs and traditional bank accounts. The eCNY system offers both personal and corporate wallets. The functions of wallets can be customized based on the users' needs. The eCNY system offers both software and hardware wallets. A software wallet provides services through mobile applications while a hardware wallet uses security chips. There are two types depending on the level of authorization - parent wallets and sub-wallets. The wallet holder can set the main wallet as the parent wallet and open several sub-wallets under it. Users can set payment limits, conditions, personal privacy protections, and other functions through sub-wallets. Sub-wallets allow companies and institutions to pool and distribute funds. The eCNY system is designed to allow smart contracts and other programmable features. During one of the pilot tests, the eCNY system experimented with money that has an expiration date i.e., the amount gets reduced from the wallet if left unused. CBDCs can also be tailored to specific purposes, unlike traditional cash and bank deposits. For example, if the government is issuing relief meant for essential food items, that amount cannot be programmed to be invalid if it's spent on non-essential items such as alcoholic drinks.

There are widespread concerns that such an authoritarian system might force countries and companies to give up their privacy and highly valuable data in order to do business with or in China. It can be argued that such concerns are overblown because most nations have strict rules that govern their financial systems and have plenty of oversight over transactions. The research and development of e-CNY has been aligned with the country's existing legal framework. The PBOC is authorized by the Law of the People's Bank of China to issue RMB and supervise its circulation. In order to allow the digital version of the money, a new law was released to clarify

both physical and digital forms of the legal tender are allowed. However, given the plethora of possibilities that the digital form has to offer, the PBOC has expressed the need for tailor-made regulatory measures and for e-CNY to ensure its status as a fiat currency while also allowing for innovative developments that can improve the economy. This logic suggests that a similar approach may be needed for cryptocurrencies in countries where they're not banned.

Compliance with existing laws and regulations that apply to traditional fiat money, which is one of the key factors in the regulation of cryptocurrencies, is baked into the design of the eCNY. This further validates the importance of this factor. The PBOC has clarified that the institutional design of the e-CNY system strictly complies with existing regulations that relate to the Renminbi. This includes regulations related to anti-money laundering (AML) and countering the financing of terrorism (AML/CFT), foreign exchange, and data and privacy protection. The PBOC has made it a priority to prevent the misuse of e-CNY in illegal and criminal activities such as tele-fraud, Internet gambling, money laundering, and tax evasion. The e-CNY system also supports interoperability with traditional electronic payment systems. The flow of information within the e-CNY system is easily accessible in order to support feedback loops and planning efforts. The eCNY system allows authorized entities to carry out anti-money laundering (AML) actions such as customer due diligence, maintaining data on customers' identity and transactions, and reporting transactions that are suspicious or large transactions.

In response to concerns that the CBDCs might trigger financial disintermediation, weaken monetary policy, or exacerbate bank runs, the PBOC has asserted that the eCNY's design will only enhance monetary policy and financial stability. The PBOC has claimed that the eCNY system is designed to ease the crowding-out of bank deposits and prevent arbitrage. The bank has also

claimed that it has established a framework that involves big data analysis, risk monitoring and early warning. This framework is designed to enhance the way the eCNY system will be managed.

The PBOC has admitted that the impacts of a digital fiat currency on the economy cannot be assessed because it's entirely new. The bank has therefore taken cautious steps through pilot tests within small regions to learn how the system can be improved. Large commercial banks, telecom operators and Internet companies were selected to collaborate on this project. The bank has approached this with a long-term vision and has taken an evolutionary approach in its development. The PBOC and partners developed and improved the e-CNY system through three phases: development and testing, internal verification, and managed external pilot. The PBOC has launched e-CNY pilots in Shenzhen, Suzhou, Xiong'an, and Chengdu, Shanghai, Hainan, Changsha, Xi'an, Qingdao and Dalian. The selection of pilot locations is based on several factors including relevant goals and strategies at the national, regional, and local levels. The pilot runs were designed to test the system's functionalities, stability, risk levels, and user-friendliness. Based on several pilots, the PBOC has developed three main functions of e-CNY: exchange and circulation management, interoperability, and wallet ecosystem. Features such as smart contracts were used to make the e-CNY programmable. The pilots also helped the PBOC test several scenarios.

The PBOC has taken efforts to engage with its counterparts across the world through the Bank for International Settlements (BIS), which promotes global monetary and financial stability through international cooperation. PBOC is a member of the Multiple CBDC Bridge (m-CBDC Bridge), led by the BIS Innovation Hub (BISIH). The PBOC has also established direct ties with the Hong Kong Monetary Authority. It's possible that the eCNY system could one day take over

the Hong Kong Special Administrative Region's financial system, which uses the Hong Kong dollar as the legal tender.

China's government is designing the eCNY system such that it can gain a better understanding of monetary transactions within the country in order to achieve economic goals such as increased effectiveness in monetary policy implementation and political goals such as common prosperity. In the process, the government is also ensuring increased tax revenues by preventing money laundering and improving security by preventing the financing of crime and illegal activities. By superimposing the eCNY system over existing payment systems such as Alipay, the government will gain the power and control accumulated by the technology firms that built and scaled these payment systems. The Ant Group's Alipay and Tencent's WeChat Pay - the two largest payment systems within China - have recently faced antitrust probes. Soon, these giants, along with smaller peers and several banks, will become part of the second tier within the mighty eCNY system. The PBOC has stated that it aims to deepen its analysis of the e-CNY's impact on monetary policy, financial system and financial stability in order to improve the continued research and development of the system and the larger ecosystem.

The creation of the eCNY, the first functional CBDC, started with clear ideas on the top-level design and functions. In contrast, the first GPC - Bitcoin - was born as an idea that was released as an open whitepaper on the internet. Development and testing of the eCNY and related systems were carried out by the PBOC through pilot programs in parts of China that were deemed to be representative of the overall national population. In contrast, Bitcoin evolved naturally. However, GPCs that followed, especially those backed by large companies with vast resources, took approaches similar to eCNY. Facebook's failed Libra project and some stablecoins such as Tether are examples of GPCs that took a highly structured approach in their design. The PBOC

reported that its pilot projects were carried out in a “steady, safe, managed, innovative, and practical manner”. This responsible approach, which is expected from a governmental entity, is at odds with the usual approach taken by young technology startups working on cryptocurrencies and related ideas. Such startups are usually led and operated by young individuals who prefer speed. Facebook, despite being a large publicly traded company, is still notorious for retaining its startup culture. Until 2014, Facebook’s internal motto was ‘move fast and break things.’ This marked difference in the way the two sides - governments and private sector - are designing and developing the products will have a major impact on the regulatory game.

The eCNY has survived its birth and is now scaling up across China. The system has been applied in over a million scenarios, which includes a wide range of contexts such as utility payments, catering services, transportation, shopping, and government services. More than 20 million personal wallets and over 3 million corporate wallets have been opened within the system. There have been over 70 million transactions, totaling over 30 billion Yuan.<sup>436</sup> The system is slowly being rolled out to everyone in China. During the 2022 Beijing Winter Olympics, the eCNY was successfully used to make payments through smartphone apps, physical payment cards, and wristbands. The PBOC announced that, during the Olympics, over 2 million Yuan was transferred everyday through the eCNY system.<sup>437</sup>

The eCNY’s success suggests that carefully designed and properly implemented CBDCs are the best regulatory response governments across the world can realistically carry out given that decentralized GPCs are impossible to eliminate. However, it may not be easy for democracies to launch a CBDC like the eCNY due to privacy concerns and political backlash. For example,

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<sup>436</sup> Ibid.

<sup>437</sup> Marc Jones, “Over \$315,000 in Digital Yuan Used Every Day at Olympics, PBOC Official Says,” Reuters, last modified February 16, 2022, <https://www.reuters.com/technology/around-300-mln-digital-Yuan-used-every-day-olympics-pboc-official-says-2022-02-15/>.

features like the eCNY's 'managed anonymity' will not be allowed in the United States or Europe. The success of CBDCs will depend on a large array of factors, most of which affect the success of GPCs and other crypto assets as well. These factors include political will, economic impacts, societal acceptance, technological features, legal implications, and environmental repercussions.

Unlike its counterparts in the United States and the European Union, the Chinese government did not focus on forcing cryptocurrencies and related entities such as exchanges to be more transparent in their operations. Although the Chinese government had a heavy focus on AML aspects just like its American and European counterparts, it did not do so in its usual heavy-handed way. Neither did China impose its existing laws on the new phenomenon by redefining legal definitions, unlike its Western peers. There also hasn't been much emphasis on tax evasion. The highly sophisticated CBDC, is the primary reason for all this. The Chinese CBDC was designed to ensure tax revenues, transparency in operations, state sovereignty, global competitiveness, and compliance with existing laws and systems that apply to traditional forms of money. It was also designed to prevent money laundering and misuse by bad actors such as terrorists and criminals. However, the most significant feature is that it gives the Chinese government unprecedented power by allowing it to dictate every action that involves the CBDC. The Chinese CBDC is expected to transform the nature of money within China and wherever it is used. The CBDC will be the only legal tender and is being built to look and feel like global private currencies. For example, the CDDBC will be stored in cell phones through wallet software just like Bitcoin and other GPCs.

The future of money will be digital. Even before the idea of a CBDC came about, governments across the world have been trying to cut down on their use of cash in order to have a more efficient monetary system. Thanks to the rapid proliferation of technology, especially affordable smartphones, many nations across the world have managed to reduce the use of cash.



In most cases, private technology companies have capitalized on this opportunity to build large payment system networks. In some cases, governments have managed to create such systems on their own. For example, the Indian central bank's Unified Payment system (UPI) helped the developing nation go from zero to 800 million monthly digital payment transactions in less than three years.<sup>438</sup> In China, Alipay and Tencent, two private technology firms led this arena. However, these companies thrived only because they had the support of the Chinese government, highlighting the importance for strong public-private cooperation in order to achieve both speed and stability.

Alipay is owned by Alibaba, the 'Amazon of China,' which thrived only because the Chinese government favored Alibaba over Amazon through its policies. Similarly, WeChat Pay is owned by Tencent, the 'Facebook of China,' which was made possible only because of the Chinese government's ban on Facebook. Although both companies have always been under the thumb of the Chinese government and their payment systems have been subordinated to the eCNY, they continue to operate and grow both within China and across the world, contributing indirectly to the growth of the eCNY. These companies have the capability to build and grow a large network of digital payment systems across Asia and other parts of the world,<sup>439</sup> helping the Chinese government consolidate economic power within its belt and road initiative (BRI) region. Such partnerships, where the government is the undisputed boss, are not possible in the United States or Europe. When Facebook tried to launch its own cryptocurrency,<sup>440</sup> the US government successfully fought the idea to its death. Facebook's Libra and the US digital dollar could not join

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<sup>438</sup> Manish Singh, "Mobile Payments Firms in India Are Now Scrambling to Make Money," TechCrunch, April 2, 2020, <https://techcrunch.com/2020/04/01/upi-india-growth-startups-business-model/>.

<sup>439</sup> Aaron Klein, "China's Digital Payment Revolution," Brookings, April 2020, [https://www.brookings.edu/wpcontent/uploads/2020/04/FP\\_20200427\\_china\\_digital\\_payments\\_klein.pdf](https://www.brookings.edu/wpcontent/uploads/2020/04/FP_20200427_china_digital_payments_klein.pdf).

<sup>440</sup> Daniel Palmer, "Facebook's 'GlobalCoin' Crypto Will Be Tied to Multiple Currencies: Exec," CoinDesk, last updated September 13, 2021, <https://www.coindesk.com/markets/2019/06/07/facebooks-globalcoin-crypto-will-be-tied-to-multiple-currencies-exec/>.

forces to create an American version of the eCNY that builds on Facebook's worldwide social network. This highlights the political and economic differences between China and the West, especially the United States. However, in both places, political factors have trumped economic factors as evidenced by the death of the Libra project in the United States and the subordination of Tencent and Alipay in China.

It is important to recognize China's response to the cryptocurrency phenomenon goes beyond the regulatory move to ban them and the launch of an alternative in the form of a CBDC. The Chinese government has made efforts to become the undisputed leader in blockchain technology and its applications. The eCNY's smart contract feature is one good example. The private sector in China is, once again, is at the forefront. Chinese technology companies lead the list of most innovative companies in the blockchain sector.<sup>441</sup> Alipay's parent company, Ant Financial, is a good example.<sup>442</sup> Ant Financial is on top of the list of companies that own the highest number of blockchain-related patents. At one point, the company owned over 10% of all blockchain patents.<sup>443</sup> Such technological advantages are at the heart of China's successful regulatory response to cryptocurrencies because the eCNY would not have happened if not for the partnership with such tech giants and their advanced proprietary technologies. Ant Financial and WeChat have both the technological know-how<sup>444</sup> and the scale to become undisputed world

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<sup>441</sup> Alice Ekman, "China's Blockchain And Cryptocurrency Ambitions," European Union Institute For Security Studies, July 13, 2021, <https://www.iss.europa.eu/content/chinas-blockchain-and-cryptocurrency-ambitions>

<sup>442</sup> John Detrixe, "China's Ant Financial, Thwarted in the US, Is Expanding Rapidly in Europe," Quartz, March 15, 2019, <https://qz.com/1570052/ant-financials-alipay-is-expanding-rapidly-outside-of-china/>.

<sup>443</sup> Mike Orcutt, "China's Ubiquitous Digital Payments Processor Loves the Blockchain," MIT Technology Review, May 3, 2019, <https://www.technologyreview.com/2019/05/03/135487/chinas-ubiquitous-digital-payments-processor-loves-the-blockchain/>.

<sup>444</sup> John Engen, "There Is No Disputing That China Is Ahead of the Rest of the World in Mobile Payments. What Insight Does It Offer U.S. Bankers?," American Banker, n.d., <https://www.americanbanker.com/news/why-chinas-mobile-payments-revolution-matters-for-us-bankers>.

leaders in payment systems. If this happens, the eCNY would indirectly become the most dominant financial system.

The successful launch of the eCNY is no surprise. China has been the leader in mobile payments for many years and has dwarfed the United States. Even in 2017, over \$15 trillion worth of mobile payments were made in China, more than forty times the amount processed in the US.<sup>445</sup> Now, China has the first-mover advantage in the CBDC race. The evolution of the eCNY teaches several valuable lessons. In the language of game theory, CBDCs represent a Nash equilibrium that's acceptable to both the government and the private sector. CBDCs are the future of money because the future will be more digital and at least a simple majority of the public will prefer the stability offered by governments over turbulent innovations offered by the private sector. They are the middle ground between risky yet convenient private digital currencies that are built on an innovative technology such as blockchain and reliable government-backed fiat money that uses old technologies such as printing and minting. A survey by the Bank for International Settlements among its members i.e., central banks from across the world, indicated that 86% of the respondents are actively researching digital currencies.<sup>446</sup> European Central Bank's President Christine Lagarde has planned for a digital euro by 2025.<sup>447</sup> In the United States, President Joseph Biden issued an executive order<sup>448</sup> to study the option of a digital dollar.

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<sup>445</sup> Erin Winick, "Tencent and Alibaba's Mobile Payment War Shows How Far China Is Ahead of the US," MIT Technology Review, June 15, 2018, <https://www.technologyreview.com/2018/06/15/142297/tencent-and-alibabas-mobile-payment-war-shows-how-far-china-is-ahead-of-the-us/>.

<sup>446</sup> Charlie Campbell, "How China's Digital Currency Could Challenge the Almighty Dollar," Time, last modified August 11, 2021, <https://time.com/6084146/china-digital-rmb-currency/>.

<sup>447</sup> Camomile Shumba, "ECB's Lagarde Supports Acceleration of Digital Euro Work," CoinDesk, last modified March 10, 2022, <https://www.coindesk.com/policy/2022/03/10/ecbs-lagarde-supports-acceleration-of-digital-euro-work/>.

<sup>448</sup> Andrea Shalal and Katanga Johnson, "Biden Orders Government to Study Digital Dollar, Other Cryptocurrency Risks," Reuters, March 10, 2022, <https://www.reuters.com/business/finance/biden-orders-government-study-digital-dollar-other-cryptocurrency-risks-2022-03-09/>.

In contrast to the cooperative games in the United States and Europe, China ended up banning cryptocurrencies. Although the government's narrative on the reason for this ban cites aforementioned factors such as financial instability, money laundering, and fraud, there are also other reasons that are more important and obvious, but not officially acknowledged. The driving force behind the ban is that the government was working on the launch of the digital version of the Yuan. This Central Bank Digital Currency had been in the making since 2014. Other reasons include the problem of capital flight and the need to shut down mechanisms that take away economic control from the highly centralized government. This culture of sovereignty, in part, led to the creation of the CDBC. The final but most important factor is China's desire to, one day, replace the dollar as the most dominant currency in the world by controlling the great power competition.

The eCNY system can have widespread geopolitical implications because it can also be used as an alternative to the US-dominated SWIFT system to circumvent sanctions. After Russia's invasion of Ukraine in 2022, America and its allies imposed heavy sanctions to cripple the Russian economy. But, with China's support, Russia managed to continue trading coal and oil by accepting payments in Yuan.<sup>449</sup> Economic sanctions, which have been a key component of America's grand strategy since World War II, can become pointless if the eCNY becomes ubiquitous. This would deal a death blow to America's ability to counter terrorism, transnational crimes, and other illegal activities as well.

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<sup>449</sup> Dan Murtaught and Qian Chen, "Russia Coal and Oil Paid for in Yuan Starts Heading to China," Bloomberg, last modified April 7, 2022, <https://www.bloomberg.com/news/articles/2022-04-07/russian-coal-and-oil-paid-for-in-Yuan-to-start-flowing-to-china#xj4y7vzkg>.

Cryptocurrencies have led to a new technological arms race for global domination<sup>450</sup> in which China now has a strong first mover advantage.<sup>451</sup> China has declared its intent to become the most dominant player in the blockchain sector by 2025. To this end, it has planned to create an ‘advanced blockchain industrial system’ and create a network that embraces leading developers in the field.<sup>452</sup> Blockchain technology can be a powerful tool in China’s ‘weaponized interdependence’ approach to geopolitical dominance. This approach refers to China’s track record creating ‘debt traps’ by offering loans and infrastructure development projects to underdeveloped and undeveloped parts of the world in exchange for strategic value, which can take several forms such as geographical access and natural resources. In many cases, China has seized ports and other infrastructure for failure to repay these debts.<sup>453</sup> Global blockchains that support monetary systems and other data services, including those run by Chinese companies like Alipay, can give China unparalleled access on an everyday basis. This approach can be used in developed parts of the world as well. Several Western nations have embraced Chinese payment systems<sup>454</sup> although the US invoked National Security concerns to block Alipay.<sup>455</sup>

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<sup>450</sup> “The US, China and the Global Race to Dominate Blockchain and Crypto Technologies,” London School Of Economics, February 22, 2022, <https://www.lse.ac.uk/ideas/events/2022/02/us-china-blockchain-crypto-technologies/us-china-blockchain-crypto-technologies>.

<sup>451</sup> Coco Feng and Masha Borak, “China Plans to Accelerate Blockchain Development and Adoption in Push to Become a World Leader in the Technology by 2025,” South China Morning Post, June 9, 2021, <https://www.scmp.com/tech/tech-trends/article/3136515/china-plans-accelerate-blockchain-development-and-adoption-push>.

<sup>452</sup> Rita Liao, “China’s National Blockchain Network Embraces Global Developers,” TechCrunch, February 4, 2021, <https://techcrunch.com/2021/02/03/bsn-china-national-blockchain/>.

<sup>453</sup> Maria Abi-Habb, “How China Got Sri Lanka to Cough Up a Port,” The New York Times, June 25, 2018, <https://www.nytimes.com/2018/06/25/world/asia/china-sri-lanka-port.html>.

<sup>454</sup> Jon Russell, Rita Liao, and Ingrid Lunden, “Alibaba’s Ant Financial Buys UK Currency Exchange Giant WorldFirst Reportedly for around \$700M,” TechCrunch, February 14, 2019, <https://techcrunch.com/2019/02/14/alibabas-ant-financial-buys-worldfirst/>.

<sup>455</sup> Greg Roumeliotis, “U.S. Blocks MoneyGram Sale to China’s Ant Financial on National Security Concerns,” Reuters, January 2, 2018, <https://www.reuters.com/article/us-moneygram-intl-m-a-ant-financial/u-s-blocks-moneygram-sale-to-chinas-ant-financial-on-national-security-concerns-idUSKBN1ER1R7>.

China's response to cryptocurrencies has been driven by its geopolitical ambition. The case of China v. GPCs is clearly a game of conflict. Although the eCNY system is labeled as a tool for reducing economic inequality within China, it's primarily a tool in the great power competition with the United States. China has successfully used its currency as a strategic tool for a long time.<sup>456</sup> The eCNY can now offer China new ways. For example, the system can be used as a tool for creating weaponized interdependence because the CBDC system can be tweaked to offer not just payment services, but also smart contracts and other record-keeping services that underdeveloped countries usually lack. By offering such digital infrastructure, China can access highly valuable economic data alongside unprecedented control. By encouraging 'Yuanization' in lieu of dollarization and cryptonization<sup>457</sup> in the developing world, China's eCNY can swiftly gain global dominance over the US dollar. This would affect not only the US dollar's long-standing position as the world's de facto reserve currency<sup>458</sup> but also America's hegemonic status. China can potentially overpower the world scene without firing a single shot through skillfully weaponizing the eCNY, just like the Medici family did. After all, as Sun Tzu said, "To subdue the enemy without fighting is the acme of skill."

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<sup>456</sup> Roya Wolverson, "Is China a Currency Manipulator?," Council On Foreign Relations, April 14, 2010, <https://www.cfr.org/expert-roundup/china-currency-manipulator>.

<sup>457</sup> Shannon Liao, "The Marshall Islands Replaces the US Dollar with Its Own Cryptocurrency," The Verge, May 23, 2018, <https://www.theverge.com/2018/5/23/17384608/marshall-islands-cryptocurrency-us-dollar-usd-currency>.

<sup>458</sup> Laura Shin, "Why Cryptocurrencies Could Push The Dollar From World Reserve Currency Status," Forbes, November 7, 2017, <https://www.forbes.com/sites/laurashin/2017/11/07/why-cryptocurrencies-could-push-the-dollar-from-world-reserve-currency-status/#89747376a9ed>.

## CHAPTER 9

### CONCLUSION

This dissertation set out to explore one specific research question: What are the factors that affect the regulation of global private currencies? Based on an extensive review of literature from international political economy and closely related fields such as economics, the dissertation discussed the several factors that have been established as being independent variables in the context of monetary policy and regulatory approaches involving money and currencies. Followed by an in-depth explanation of what money is, the dissertation also painted a detailed portrait of what global private currencies (GPCs) are. After explaining how cryptocurrencies work, how they started, and how they evolved over the span of a decade, previous chapters highlighted regulatory concerns. Based on the literature and history of money and GPCs, hypotheses were developed in response to the research question.

It was hypothesized that every major factor that affected the regulation of traditional money - anti-money-laundering (AML) laws, compliance with systems built for fiat currencies, transparency in operations, culture of sovereignty, and great power competition - was relevant to the regulation of GPCS. The one regulatory factor that affects traditional money but not GPCs is counterfeiting. This is because of the immutable nature of blockchain technology, which solves the problem of double spending and prevents counterfeiting. However, cryptocurrencies have created new problems like enabling of ransomwares. This has led to concerns about consumers and infrastructure. The nature of blockchain technology also brought up a concern that was not found in the context of traditional paper money and its digital operations: high demands for electricity and the resulting environmental impacts. A comparative study involving three cases - the United States, European Union, and China - proved every hypothesis and established that the

five factors are indeed relevant regulation of GPCs. These factors account for almost all major regulatory responses related to GPCs but are not exhaustive. More research is needed to further knowledge on this evolving phenomenon.

Based on the literature review and the histories of money and GPCs, it was also clear that there are six broad dimensions that are relevant to money - political, economic, social, technological, legal, and environmental (PESTLE). Using concepts from game theory, the dissertation also laid out three sets of frameworks. These simplified frameworks capture both the big-picture dynamics and the grassroots-level details that affect those dynamics. These frameworks are designed to help academics, analysts, and policymakers deliberate various scenarios. For example, a scenario that is similar to a 'conflict' game such as 'prisoner's dilemma' can be changed into a 'cooperation' game, where the Nash equilibrium is acceptable to both sides, by bringing about certain changes in payoffs, which usually reflect grassroots-level changes in political stances, economic policy, social norms, technological standards, legal provision, and environmental constraints. The game theory framework was also used to characterize strategic interactions between governments and GPCs on a spectrum between cooperation and conflict. This approach was used to analyze the cases of United States, European Union, and China. These case studies established that five key factors condition regulatory responses to GPCs. However, although every factor was relevant in each case study, the factors do not carry equal weights.

The first factor - compliance with anti-money laundering (AML) laws - is primarily related to the government's responsibilities in the areas of security, and the need to ensure tax revenues. AML laws help governments prevent terrorist activity by clamping down financial and monetary transactions by bad actors. AML laws also help governments ensure tax revenues, which are crucial for funding the state. GPCs, due to the ability to perform transactions that are difficult to



trace, can be used by bad actors to fund terrorism and other criminal activities. GPCs can also be used by white-collared criminals to avoid taxes, depriving the government of funds. GPCs and GPC exchanges that comply with these laws (e.g., Coinbase) have been seen favorably by lawmakers and regulatory agencies. Conversely, GPCs that attempt to disrupt this order are cracked down by governments.

The second factor - compliance with systems built for fiat currencies - is primarily related to the government's responsibility to maintain a stable economy. Fiat currencies are the legal tender within each nation i.e., the government's permitted unit of money that's used in all lawful exchanges. Governments have previously allowed tokens and other mechanisms that are used within privately-owned settings such as casinos and videogames but only if they're ultimately tied to the legal tender. In the case of GPCs, a subset known as stablecoins include digital currencies whose values are tethered to the legal tender. Such stablecoins have been seen much more favorably by governments while the rest are seen as threats to economic stability and governmental control over the economy.

The third factor - transparency in operations - is unique to GPCs because of the way the underlying blockchain technology operates. GPCs can be anonymous, pseudonymous, or fully transparent, depending on the way they are designed. Most governments have been cooperative with GPCs and exchanges that promise to cooperate. An example of cooperation in the context of operational transparency is the provision of a 'backdoor' to access user information during investigations. GPCs that have high levels of transparency by design have been allowed to operate more freely compared to those with opaque features. GPCs such as Monero, which fall under the 'privacy coins' category, have received increased security from regulators. Facebook's Libra was killed because Swiss secrecy laws would have prevented regulators from gaining access.

The fourth factor - culture of sovereignty - is a major force in regions where the State and its artifacts are held in high regard by its citizens. Since the State has had a monopoly over money for most of human history, large sections of the population are still not comfortable with the idea of money being separated from the State.

The fifth factor - great power competition - is the driving force behind the responses seen in China. This factor is also relevant in the context of the United States as seen in discussions on the digital dollar. Economic warfare through currencies has been an integral part of every superpower's global strategy for dominance across history.

The dissertation also demonstrated how these five factors have political, economic, social, technological, legal, and environmental (PESTLE) dimensions. The first factor – compliance with anti-money laundering (AML) laws – has political, social, economic, and technological aspects. The second factor – compliance with systems built for fiat currencies (i.e., legal tender) – has economic and legal aspects. The third factor – transparency in operations – has all six aspects. The fourth factor – culture of sovereignty – has political, social, and legal aspects. The fifth factor – great power competition – has political and social aspects. The PESTLE framework is more than a tool that helps us organize factors. It helps us understand the interconnected nature of these factors. The framework, when used as a tool for inquiry, is helpful in eliciting more details and new factors. This is important because the five factors do not explain every regulatory action. Given the rapidly evolving nature of the phenomenon, it is difficult to ascertain every factor. It's also important to note that the five factors identified in this dissertation are relevant only within the context of the PESTLE settings and other conditions that exist in each nation. For example, in the United States, cultural and political values such as individual liberties will ensure that the digital dollar does not resemble the eCNY. Other settings such as the type of government and

economy are also relevant. For example, it can be argued that democratic states that have liberal tendencies and a free-market economy seem to be interested in legalizing and integrating GPCs (i.e., a cooperation game) while authoritarian states that want more control over their economies and societies have taken measures to restrict or ban GPCs (i.e., a ‘conflict’ game.).

GPCs may seem new and revolutionary but they’re merely the latest version of an age-old phenomenon. Private currencies have existed for centuries, in various forms. However, the blockchain is seen as a revolutionary invention not just for currencies but also for other applications such as energy, transportation, and record-keeping. Blockchain technology is said to be in its infancy, just like the internet once was. Several scholars have compared the current era to the dot-com bubble era, suggesting that blockchain, like the internet, will survive and transform the world later even if some of the companies and applications do not survive. The rise of GPCs has unexpectedly led to the creation of Central Bank Digital Currencies (CBDCs), a more efficient and more potent form of state-backed money that can further strengthen governments and their control over monetary systems. Every major nation is working on its own version of the CBDC to mitigate the effects of GPCs within its economy. While CBDCs might offer some of the same features as GPCs, they cannot offer the ideological comfort that many derive from owning and using private currencies. CBDCs also cannot act as a hedge against inflation the way some believe GPCs can. While GPCs have the potential to transform finance the way internet transformed media, it’s more likely that digital fiat currencies will dominate while GPCs continue to co-exist. When future generations use the cliché about money making the world go around, they will be referring to money in the forms of CBDCs and GPCs.

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Girish's eclectic background includes a bachelor's degree in biotechnology, a master's degree in business administration, and a doctorate degree in international studies. In his doctoral studies, he majored in international political economy and development, and minored in modeling and simulation. During this time, he worked at the Virginia Modeling Analysis and Simulation Center (VMASC), an interdisciplinary research center. He has presented his research at forums such as the International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS). Girish previously served as a Fellow at the Donovan Group, a think tank within the United States Special Operations Command (US SOCOM), where he focused on strategic futures at the intersection of technology and security. Specifically, he focused at the intersection on geopolitics and the future of money. He has published whitepapers on related topics for the Center for Global Security Research (CGSR) at the Lawrence Livermore National Labs (LLNL), and for the Pentagon's Strategic Multilayer Assessment (SMA) program. Girish has also served as a Fellow at the NATO Innovation Hub. During this time, he founded the Disruptive Technology Experiment (DTEX) initiative and the Academic Alliance initiative. Girish also recently completed the Stanford LEAD professional certificate, a year-long executive education program in innovation leadership.