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Transnational Political Regulation of Bitcoin

Virtual Currencies and the Governmentality of Money

Ludovico Rella

LUND UNIVERSITY
Faculty of Social Sciences

Ludovico Rella
Master of Science in Global Studies
Master Thesis in Political Science

We believe that the world,
even this terrible, intricate world
can be understood, interpreted, transformed,
and put to the service of humankind, of its wellbeing, of its felicity.
The struggle for this aim can fulfill a whole life worthily.
Enrico Berlinguer

Everyone can speak obscurely, only the few can speak clearly.
Galileo Galilei

A process cannot be understood by stopping it.
Understanding must move with the flow of the process,
must join it and flow with it.
Frank Herbert

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Abstract

Virtual currencies have recently emerged at the intersection of Internet and finance, bringing unprecedented innovations in payment systems, money and finance. In particular, Bitcoin is examined as the first example of virtual currency, dating back to 2009. Ever since virtual currencies emerged, they received increased attention from public, private and societal regulators, especially in the field of finance. Since regulation of Bitcoin is still in its infancy, this project will rather aim to unpack the underlying rationalities of power. Employing the concept of governmentality, this thesis performs Critical Discourse Analysis on policy papers, statements and press releases from public, private and societal regulators of finance. Rationalities of power and regulation are unpacked along three categories: ideas over the object that has to be regulated; ideas over the objectives that regulation has to achieve; ideas over the technical tools to be employed to achieve said aims. The results envision a future in which regulation will be public, transnational and permissive. The attitude of regulators is aimed at co-opetition, understood as a mix of competition and co-optation of virtual currencies in the current paradigm of regulation of money and finance. The future scenario will be mostly decided by strategic employment of material and institutional power by public and private actors in order either to limit or to support the adoption and diffusion of virtual currencies. However, it seems unlikely that virtual currencies will simply vanish in the future.

Keywords: Bitcoin, Governmentality, Critical Discourse Analysis, Currency, Regulation.

Word Count: 19.976

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Abbreviations

AML-CTF.....Anti-Money Laundering and Counter-Terrorism Financing

AIRFA.....Association of Independent Risk & Fraud Advisors

BIS.....Bank of International Settlements

BTC.....bitcoins (currency unit)

CA – AMF.....Autorité Des Marchés Financiers (Quebec, Canada)

CFA.....Chartered Financial Analysts

CFPB.....Consumer Financial Protection Bureau

EBA.....European Banking Authority

ECB.....European Central Bank

EDC.....Edgar, Dunn & Company

EPA.....Emerging Payments Association

ESCB.....European System of Central Banks

FATF.....Financial Action Task Force

FinCEN.....Financial Criminal Enforcement Network

FR – AMF.....Autorité Des Marchés Financiers (France)

G30.....Group of Thirty (Banking)

GPE.....Global Political Economy

IASB.....International Accounting Standard Board

IBRD.....International Bank for Reconstruction and Development – World Bank

IMF.....International Monetary Fund

IPE.....International Political Economy

IOSCO.....International Organization of Securities Commissions

IRS.....Internal Revenue Service – United States of America

NYS – DFS.....New York State – Department of Financial Services

OECD.....Organisation for Economic Co-operation and Development

SEC.....Securities Exchange Commission – United States of America

VCS.....Virtual currency Schemes

WSBI.....World Savings and Retail Banking Institute

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I. Introduction

In the last decades, the speed and the relevance of flows of capital have steadily increased, both within and across national boundaries: especially Internet has revolutionized not only stock exchanges, but also banking and payment systems (Turpin 2014). Thanks to this, the size of digitalized money employed in commerce and other payments has increased at a skyrocketing pace. Innovation, digitalization and interconnectedness allow new agents to emerge in the transnational arena, challenging the current regulatory framework in banking, payment systems and finance more in general (Committee on Payments and Market Infrastructures 2014). Adding to this increased complexity, the 2007-08 financial crisis has brought into question the legitimacy and the trustworthiness of the established intermediaries and decision makers (Blundell-Wignall 2014; Negurita 2014). In the recent years social movements have emerged, which ask for a new financial order (Chomsky 2012; Harvey 2013) and more transparency and privacy for costumers and users, thus challenging the role of powerful financial intermediaries (Joh 2013).

The emergence of Bitcoin[1] and virtual currencies can be understood as the product of all the aforementioned phenomena. Bitcoin is a new financial instrument, a new IT technology, and a political project which questions the way in which money is managed. Bitcoin is a virtual currency managed through a dispersed network, with no center of power. It allows users to transfer money in an anonymous way all over the world using open source software, and with low or absent transaction fees (Hendrickson, Hogan, and Luther 2014). Moreover, exchanges between bitcoins and other national currencies are free, as long as there is supply and demand. First introduced in 2009, Bitcoin has grown both in popular interest and in the number and size of transactions (Garcia et al. 2014). The number of merchants accepting bitcoins for payments is on the rise, and includes important

[1] In this paper, Bitcoin will be used with the capital B to define the network, the protocol, and the organizations which in any way collaborate to the development of the virtual currency, as well as the virtual currency itself. On the other side, bitcoin with the lower case letter – or the abbreviation BTC – will be used to define the single currency unit, and quantities of money denominated in bitcoins.

retailers such as Dell and Microsoft (Dell Inc. n.d.; Microsoft Corporation [2014] 2014), and societal actors such as Wikimedia Foundation (Wikimedia Foundation 2014) and Wikileaks (Wikileaks n.d.). Moreover, in the US, the Federal Election Commission (FEC) has allowed the funding of political campaigns with bitcoins (Federal Election Commission 2014). All these developments have drawn the attention of multiple regulatory agencies.

1. Research Question and Aim.

The transnational monetary and financial landscape has already moved from the public monopoly in the issuance of sovereign currencies, to an oligopoly of competing currencies (Cohen 1999; Cohen 2001; Cohen [2008] 2008; Cohen 2011). Bitcoin can be seen as the next in this evolution: Bitcoin is the first private, virtual, convertible and transnational currency. What has to be understood is how the old and new regulators of money and finance are framing Bitcoin and private money, and which role they will play in the future. This project will address the question of *how is the emergence of Bitcoin, understood as private virtual money, changing the governmentality of money at a transnational level?*

Drawing on Foucault, governmentality is defined "how we think about governing others and ourselves in a wide variety of contexts" (Dean [1999] 2010, 267). Governmentality, thus, is the rationality of government, understood as "[any] relatively systematic way of thinking about government. This can include the form of representation for the field to be governed, the agencies to be considered and enrolled in governing, the techniques to be employed, and the ends to be achieved" (Ibid: 268). Especially, three dimensions of governmentality are important: the *episteme* (the representation of the field, the agencies, and everything that relates to *how* to govern, and *what* has to be governed), the *telos* (the ends to be achieved by governing), and the *techne* (the specific tools that have to be employed in governing). This thesis will perform Critical Discourse Analysis (CDA) on a sample of official documents aimed at regulating Bitcoin, issued by public, private and societal regulators of finance. I will, on one side, reconstruct the governmentality of money as it is now. On the other side, I will see how this governmentality changes in response to Bitcoin.

2. Background Information and Key Terminology.

a) What Bitcoin is, and How It Works.

Bitcoin is "a decentralized virtual currency scheme with bidirectional flow, and a cryptocurrency" (Segendorf [2014] 2014, 73). A "virtual currency scheme" is a means of payment in which transactions take place only within and through internet. Unlike electronic money, payments through a virtual currency scheme are not denominated in any pre-existing unit of account, such as US Dollars, Swedish Krona or UK Pound Sterling. Instead, payments are denominated in the virtual currency itself. BTCs are units of account associated with "wallets", which are digital identities, such as e-mail accounts. Transactions take place between the wallet of the sender and the one of the receiver, by switching the wallet associated to a certain amount of BTCs.

Bitcoin is decentralized: transactions take place in a horizontal, peer-to-peer (P2P) network, a network with no server and trusted third party. In payment systems such as inter-bank payments or PayPal, there is the need for an authority to validate transactions: a bank or a payment service provider such as PayPal (See Figure 1 on Page 4). In payments in cash an intermediary is also required: the central bank is the one which decides how much cash to issue, and the state decides which currencies are considered legal means of payment – legal tender – in a given jurisdiction. None of the aforementioned institutions is needed in Bitcoin. All the transactions are not validated by any intermediary, but they are rather validated by the whole network.

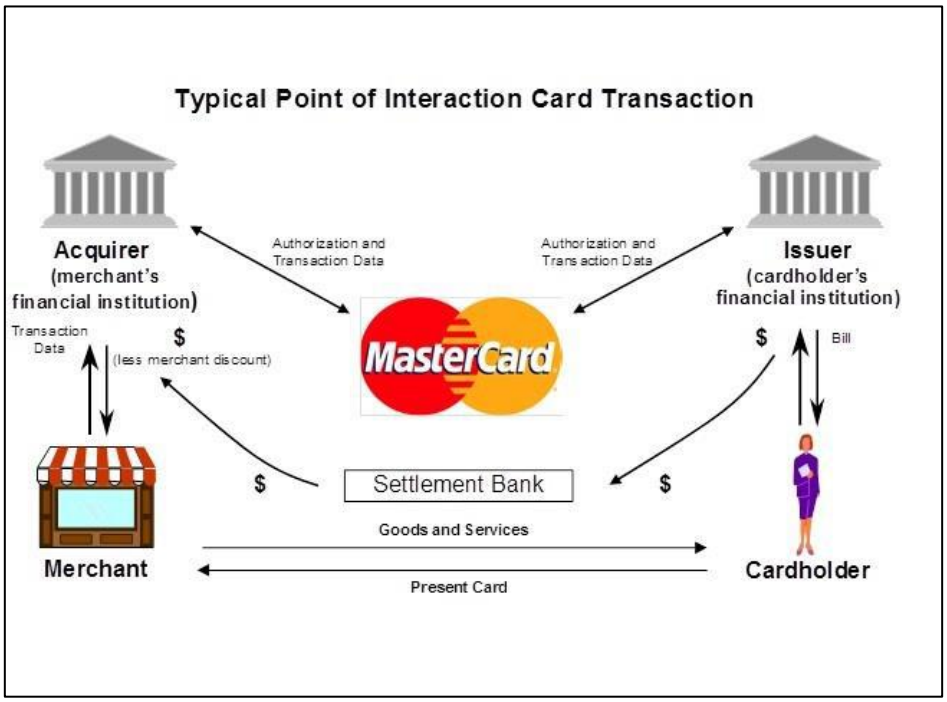

Figure 1: Standard Payment Systems (Federal Reserve [2014] 2014, 36)

Bitcoin is a bidirectional currency: it allows free exchanges between BTCs and other currencies insofar as there is demand of legal tenders on one side, and supply of bitcoins on the other. In short, one can freely exchange US Dollars for bitcoins, and the other way around, as long as there is someone selling one of the two currencies, and accepting the other in return. Decentralized virtual currencies such as Bitcoin are called cryptocurrencies, because they employ cryptography to validate transactions. Every user has two keys, one private and one public. Through the use of the private key, no Bitcoin user can access the BTCs in one wallet besides the rightful owner. The public key, on the other hand, is used in transactions.

Example (see Figure 2): Anna (A) wants to send some bitcoins to Brian (B). She issues a transfer of some BTCs to Brian's wallet. In order to do that, she needs her own *private* key in order to access her wallet, and Brian's *public* key to issue the payment. The payment, then, is encrypted using Brian's public key. In order for the payment to be accepted, Brian has to de-encrypt it using his *private* key. Thus, if a private key is lost, all the BTCs contained in a wallet are lost. On the other

hand, if the private key falls in the hands of someone else, this will allow the "thief" to perform unwanted, illegitimate transactions.

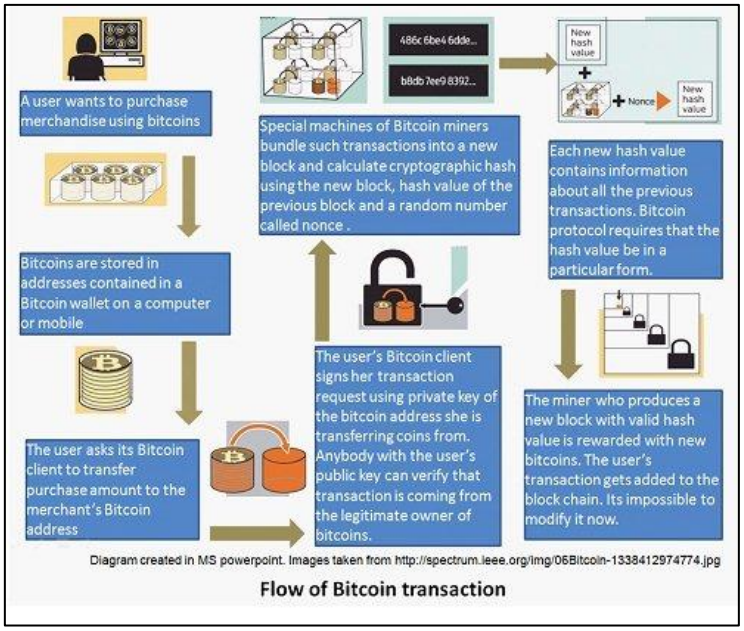

Figure 2: Bitcoin Transaction (Dhuri and Shah).

Once the payment is accepted, it is broadcasted to the network of "miners". Miners are powerful computers which validate transactions. In order to perform this task, miners have to solve complex mathematical problems. This task, called proof-of-work (Ali et al. 2014), is a way to show that the miners are not fraudulently validating illegitimate transactions, and thus can be trusted. Once one miner has solved the problem, the solution is broadcasted to the other miners and they "vote" on the validation. Each miner has a weighted vote according to the share of computational power the computer has in comparison with the whole network of miners. When a decision is taken, the transaction is added to the blockchain, which basically is a spreadsheet in which all transactions are stored (Turpin 2014), from the first moment in which Bitcoin has started functioning.

For the effort of validating transactions, miners are rewarded with newly mined bitcoins. Transactions are put together in blocks every 10 minutes (Kondor et al. 2014) forming a block, which is validated as a whole, rather than transaction per transaction. When a block is validated – or mined – the network generates new BTCs, and gives them to the computer which successfully validated the block.

The number of newly mined BTCs was originally 50 per block. This quantity is halved every 210.000 blocks: the number of BTCs being created will reduce over time, and the total amount of BTC in circulation will top 21 billion, expectedly in 2140 (Brito and Castillo 2014). After that point, the only incentive for miners to validate transactions will be transaction fees. Thus, the gratuity of transaction – one of the main strength of Bitcoin – may no longer be in place in the future.

Bitcoin is different from electronic money – or e-money – such as PayPal and other electronic means of payment (Omwansa and Sullivan 2012), because it is not backed by any legal tender currency, such as the US Dollar or the Euro. Instead, Bitcoin is a currency in its own right. Bitcoin differs from sovereign currencies since it is not issued by any central bank, and its adoption is not compulsory in any territorial jurisdiction (Rotman 2014). Rather, the use and acceptance of Bitcoin is determined by supply and demand of it (Cohen 2001), and from a voluntary, tacit agreement among users, miners, currency exchangers and merchants to accept it as a means of payment.

In common with nowadays legal tender currencies, however, Bitcoin has the fact that it is not backed by any real asset, such as gold or other physical objects: legal currencies and Bitcoin are only *fiat* money (Castronova 2014). The value of *fiat* money is not connected to a real asset such as precious metals. Rather, value is only based on the trust given to issuer of the currency, being it a state or a virtual community. The difference is that legal tender currencies draw their real value from their compulsory adoption: merchants, banks and any other commercial institutions are "forced" to accept that currency as a means of payment, while Bitcoin is completely voluntary. Moreover, a legal tender fiat currency is contingently scarce: the government or the central bank can decide to inject or withdraw liquidity in the system through monetary policy tools. Bitcoin, on the other side, is inherently scarce: the amount of bitcoins in circulation is predetermined, thus monetary policy decisions are impossible.

b) Bitcoin's History.

Forecasts of the coming of electronic money date back to the late 1990s and early 2000s (Cohen 2001). In the same period, the cryptographer and crypto-anarchist

Wei Dai published the first idea of a cryptocurrency on a cyberpunk newsletter (Wei Dai 1998). Bitcoin as we know it was born theoretically only on 2008 in a paper written by an unknown cryptologist under the alias of Satoshi Nakamoto (Lemieux 2013; Nakamoto 2008), and started to work in practice in early 2009: the first block (the Genesis Block) was mined on January, 3rd (Bitcoin Wiki 2014). Nakamoto disappeared from any Bitcoin-related forum in 2010 and has been missing ever since. The obscure identity of its founder is the main reason behind both the curiosity and the bad press concerning Bitcoin (Vigna and Casey 2015).

Until now, Bitcoin has witnessed an impressive, yet swinging growth in the number of users, the amount of money exchanged, and in the curiosity by the public (Garcia et al. 2014). The number of merchants and businesses accepting Bitcoin as a means of payment has increased in the last years, even though less and less sharply over the years. However, even big players such as Dell and Microsoft now accept Bitcoin (Microsoft Corporation 2014). The number of users has grown from 500 in 2012, to over 3 million in 2015 (Blockchain.info 2015a), the number of transactions per day increased from 5000 in 2012 to around 100.000 in 2015 (Blockchain.info 2015b). Moreover, this increase in curiosity and the growing number of users has caused a proliferation of Bitcoin-based and Bitcoin-inspired cryptocurrencies, called alternative coins or "altcoins". Some estimate in 200 the number of cryptocurrencies currently in place (WSBI [2014] 2014, 4).

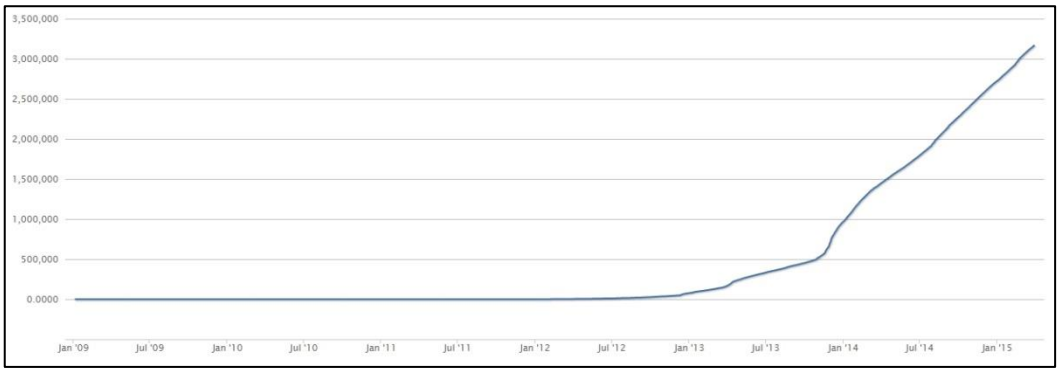

Figure 3: Number of Bitcoin "My Wallet" users from 2009 until 2015 (Blockchain.info 2015a).

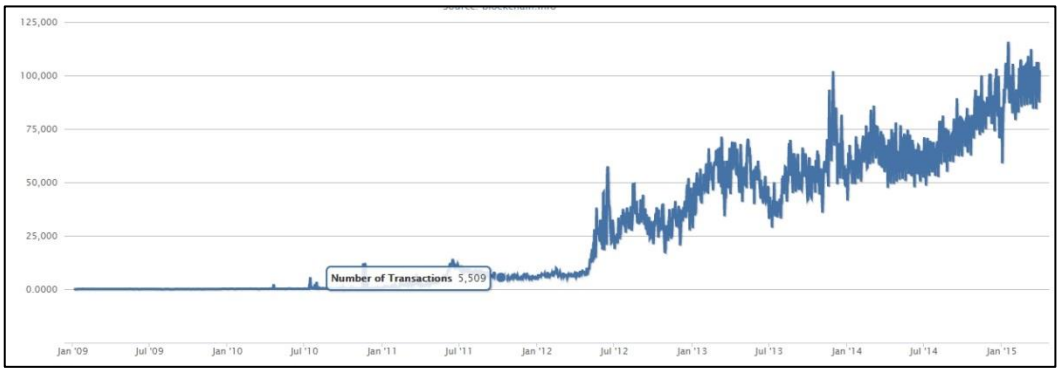

Figure 4: Number of Bitcoin transactions per day from 2009 (Blockchain.info 2015b).

Time has shown that the hype surrounding Bitcoin has brought in business a host of operators which were not prepared well enough to deal with security issues. On the 9th of April 2013, a cyberattack hit the biggest Bitcoin exchange to date, Mt.Gox., causing the loss of 744.400 BTCs, worth tens of million US Dollars (The Economist 2014). This caused the price of bitcoins to fall from over 200 USD per BTC, to around 70. Mt.Gox. then filled in for bankruptcy, and there is not any news yet as to how the damaged users will be refunded. Later that year, the online illegal market Silk Road – which accepted bitcoins – was shut down by being "the Ebay of drugs" (Barratt 2012, 683), causing another fall in BTC price. In general, as it is shown by the Bank of France (Bank of France [2013] 2013), the value of Bitcoin has sudden and sharp increases connected to either bad or good news connected to it. On the other hand, most of the security problems do not derive from Bitcoin itself, but rather from untrustworthy third-parties.

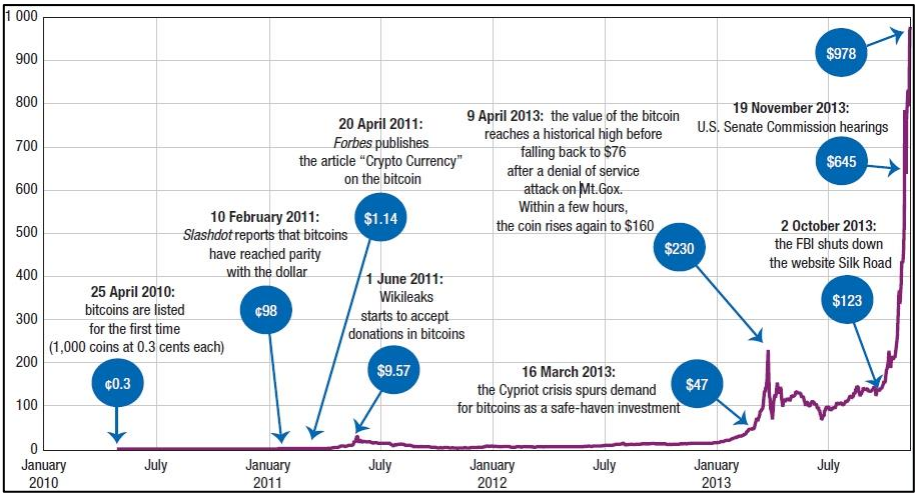

Figure 5: Bitcoin's exchange rate from 2010 to 2013 (Bank of France [2013] 2013, 4).

These security scandals surrounding Bitcoin, and the sharp fluctuation in value, are affecting adoption of Bitcoin among merchants and exchangers. This is often defined as a chicken-and-egg problem: if fewer merchants are eager to accept Bitcoin, it will be less valuable and more instable in its value. On the other side, until Bitcoin remains volatile, fewer merchants will be eager to accept it as a means of payment (Goldman Sachs [2014] 2014, 18).

c) Bitcoin's Political Project.

Bitcoin was born within the crypto-anarchist and cyberpunk community (Vigna and Casey 2015). Moreover, Bitcoin was born in the same years in which the financial crisis reached its peak (Ibid). Even though this concomitance could be totally serendipitous, many of the elements of Bitcoin's political nature are strongly intertwined with the questions raised by the crisis. Bitcoin's political elements can be synthesized as both anti-systemic and radically neoliberal in nature. Bitcoin is anti-systemic insofar as it proposes a way of conducting exchanges and managing money which gets rid of intermediaries and puts the users themselves in charge of managing transactions (Maurer, Nelms, and Swartz 2013).

A second "radical" element of Bitcoin is the stress it puts on the need for anonymity and privacy for the users. Bitcoin does not allow anyone to associate unequivocally a real person with a Bitcoin user. This is especially relevant if analyzed in the light of the Wikileaks and NSA scandals, and of the SWIFT case. In this last case, both US and European intelligence and police authorities asked to have access to SWIFT's database, which represents one of the riches datasets concerning financial transactions (Romaniello 2013). Bitcoin's anonymity, however, is overestimated: Bitcoin's transactions are *almost* anonymous, i.e. pseudonymous[2]. These exchanges remain *less* anonymous than payments in cash, which are not traceable at all: all the public keys of all Bitcoin users are in plain sight, and so are the transactions associated to these public keys. A skilled IT

[2] Pseudonymous means that the identity of a user is permanently hidden behind a pseudonym, in this case the address of his or her wallet. This address, however, is completely disclosed and it never changes unless the user opens a new wallet.

scholar or practitioner can reconstruct patterns of transaction and identify real users starting from Bitcoin public keys (Kondor et al. 2014).

A third libertarian element of Bitcoin comes from the philosophy behind the software employed. Cryptocurrencies, and especially Bitcoin, are based on open source code, thus freely available for developers to change. However, all the operators in Bitcoin's network need to run the same version of the software and protocol, otherwise a "fork" might happen: miners using different version of the software will produce different blockchains. This will result in the creation of a parallel virtual currency, with its own public ledger of transactions, its own network of users and miners, depending on which software they are running. Every technical change in the protocol might result in a political division of the network of users. For this reason, changes in the software have to be adopted with the consensus of almost all the users and developers (Bitcoin.org 2015; Cusumano 2014).

Bitcoin is not only a radical anti-system political project: it is also deeply neo-liberal. The concerns with how to manage transactions is mirrored by a completely de-politicized vision of money: the maximum amount of bitcoins is pre-determined and it mimics gold extraction, and it cannot be managed by anyone (Karlstrøm 2014; Kostakis and Giotitsas 2014; Maftei 2014; Maurer, Nelms, and Swartz 2013). The maximum amount of bitcoins could only be changed by changing the core code of Bitcoin's software, but that would create a new virtual currency, in competition with Bitcoin, rather than changing Bitcoin itself (Karlstrøm 2014). Moreover, it is a de-nationalized currency, and it is private. These elements seem to agree with the neo-liberal economist Friedrich Hayek (Hayek 1990) who, in the 1970s, theorized a world of competing denationalized currencies, each of which inspired by gold-standard-like economic models, competing over acceptance and reliability, in a process which would have let only the fittest survive.

Given this twofold anti-system and neo-liberal elements inherent to Bitcoin, this new currency represent an example of "distributed capitalism" (Kostakis and Bauwens 2014, 18; Kostakis and Giotitsas 2014, 431). Distributed capitalism

"matches distributed control on the infrastructure [...] while maintaining a focus on capital accumulation. Under this technological regime, P2P infrastructures are designed in such a way as to allow the autonomy and participation of many players. [...] [P]ersonal motivation are driven by exchange, trade, and profit" (Kostakis and Bauwens 2014, 30–31).

3. Literature Review.

The Law Library of Congress has recently published a report on the regulatory landscape (Law Library of Congress [2014] 2014). The results of this research have been rather inconclusive: Bitcoin's regulation is still in its infancy, and there is no unitary approach on how to properly regulate the issue at hand. Ly's analysis of the American regulation (Ly 2014) has been slightly different, since it analyzed the nature of Bitcoin and compared different ways to govern this new phenomenon. In particular, this research tried to understand the structure of Bitcoin's network, in order to understand which actors to regulate, if users, exchangers, software developers, miners or merchants.

Other authors have engaged in the classification of Bitcoin in the financial system of products and assets. Some see it as mainly a currency (Evans-Pughe 2012), others as an investment (Baek and Elbeck 2014; Gross, Hoelscher, and Reed 2014; Wu and Pandey 2014), and others as a commodity like physical objects (Jacobsen and Peña 2014). Opinions over how to regulate Bitcoin differ precisely because its multifold nature and the multifold understanding the different authors have of it. Some stress the risks of Bitcoin's secrecy and aim to regulate its potential uses for money laundering, drug dealing and terrorism (Barratt 2012; Barratt, Lenton, and Allen 2013; Bryans 2014). Others are concerned with Bitcoin's transnationality and its potential for tax evasion (Internal Revenue Service, USA 2014; Jacobsen and Peña 2014). Others, lastly, want to enhance consumer protection in face of risks concerning volatility and loss of value, fraud and cyberattacks (Congiu [2013] 2013; Connell 2014; Harper 2014; Parthemer and Klein 2014).

Other authors have scrutinized Bitcoin as a technological enhancement, capable of improving several kinds of economic activities. For instance, Bitcoin assures low-

fee transactions throughout the world, thus being potentially a very powerful tool for remittances and other small transactions worldwide (Thomas 2014). Moreover, it is able to provide basic banking tools and payment systems to the "unbanked" (Vigna and Casey 2015), and a currency which, if stabilized in terms of exchange rates, could secure value from hyperinflation in some countries historically afflicted by it (Brito and Castillo 2014; van Alstyne 2014). Others stress how Bitcoin's protocol can be used to secure any kind of transaction and exchange of information, from validating research results and papers (Mas 2014) to votes in elections (Aron 2012; Aron 2014; Clark and Essex [14712/2011] 2011; Filippi 2014).

There is one last strand of literature which scrutinizes the rationality and political project underlying Bitcoin (Blanchette 2011; Kostakis and Bauwens 2014; Kostakis and Giotitsas 2014; Maurer, Nelms, and Swartz 2013; Pinch and Swedberg 2008). These studies are the few ones which acknowledge the political content of Bitcoin and not only the tricky technical dimensions of how it impacts on the established framework of actors, rules and technological infrastructures.

The analysis of the literature shows a sensitive gap in unpacking Bitcoin's political implications. Moreover, an analysis of the interests and powers which are being mobilized in response to this new challenge is completely missing. Most of the literature concentrates on Bitcoin seen as a technical element, either in finance or in information technologies. In short what is here overlooked is, as Maurer et al. point out, that with Bitcoin "maybe the problem is money itself" (Maurer, Nelms, and Swartz 2013, 261). This thesis aims at filling this gap. What differentiates this project from the last strand of literature I analyzed is that I will not study the internal rationality of Bitcoin, but rather the rationality of transnational regulators of money and finance, and how this rationality is changed in response to the emergence of Bitcoin.

4. Expected contribution

The main problem with the current research on virtual currencies is that Bitcoin is framed only within the current paradigm of money, currency and finance. What is overlooked is precisely that Bitcoin is born beyond and partially against the

established ways of thinking and governing money: my aim is precisely to scrutinize whether and how Bitcoin is changing that paradigm.

Regulation of Bitcoin is still in its infancy. Some might see that as a challenge and a weakness. I would rather say that this is the main point of strength of this thesis. On one side, we still are in a too early stage to assess the material impact of virtual currencies and their regulation on the financial system. On the other hand, this is the perfect moment in which to observe the rationalities that will shape and inform future regulation. This thesis aims to detect the driving ideational forces and their possible future directions in governing private virtual money. In short, why would we care studying a phenomenon like Bitcoin? I think that Benjamin Cohen's words are clearer than any other explanation:

> "In the end, then, we find that the traditional Westphalian model has become little more than a convenient fiction […] where the sovereign state once ruled, market forces now prevail. Does it matter? Given money's central role in modern economies, the answer is most certainly yes. Money affects us all, every day of our lives; its impacts are manifold and direct. The real issue is the legitimacy of decision-making in this new deterritorialised system of governance – a decidedly normative question. Should we be content with this dramatically new geography of money? […] Currency deterritorialisation *does* matter" (Cohen 1999, 135).

5. Outline of the Thesis.

This thesis is structured as follows: the second chapter is devoted to the theoretical framework and its operationalization for the subject at hand; the third chapter explains the methodological framework and goes in-depth in the methods and tools used in this project; the fourth chapter will perform the analysis of the collected data and, in the fifth conclusive chapter, I will synthesize and discuss the outcomes of the analysis and spell out my conclusive remarks on the subject.

II. Theoretical Framework.

Globalization has fostered once again the debate between those who put states at the center, as monopolist of political power, and those who picture the international system as populated by a wider range of actors (Scholte 2005). Twenty years ago Susan Strange argued that authority and power were no more in the sole hands of states. The consequence of this was *ungovernance*, a "yawning hole of non-authority" in international politics (Strange 1996, 14). On the other side, Saskia Sassen (Sassen [2006] 2008) argued that deterritorialization does not imply the end of geography: the task, rather, is to "de-reify globalization" (Ibid: 14-5). Benjamin Cohen (Cohen 1999; Cohen [2008] 2008; Cohen 2011) has shown how, in monetary policy, the market is increasingly seen as the regulatory arena, through competition and private self-regulation. However, leaving regulation to the market does not mean that no one governs: an increasing number of new private actors now play a political role. Globalization is not a matter of missing rulers, but of new rulers. It is not about absence of power, but about reshaping power.

Regulation is performed not only via public *hard* laws, but also though *soft* rules, standards, best practices and voluntary codes. Seemingly voluntary, technical agreements become quasi-binding rules, which are often implemented by public authorities only as a second step (Botzem and Dobusch 2012; Botzem and Hofmann 2010; Botzem and Quack 2009; Djelic and Sahlin-Andersson 2006a). Regulation is more and more often established by private actors and technical agencies. This challenges the private-public division of authority and power without removing governance altogether (Cutler 1999; Cutler 2009; Cutler and Gill 2014b; Strange 1996). Finance is one field in which this growing influence of Regulatory Standard Setting (RSS) (Abbott and Snidal 2009) can be observed more clearly. Thus, the end of the primacy of public authority does not imply the end of authority altogether. Rather, it is now unavoidable to study how these new actors negotiate power and regulation at a transnational level. What is needed is an overarching theoretical framework which allows detecting authority in its new forms.

1. New Actors and Actor Constellations in the Transnational Space.

We have said thus far that new actors have emerged in several fields. We have now to conceptualize this changing actor constellation. Abbott and Snidal propose a tripartite categorization in States, Non-Governmental Organizations (NGOs) and Firms. This conceptual framework has served as a basis for other studies on transnational governance and regulation by a variety of scholars coming from different approaches (Abbott and Snidal 2009; Djelic and Sahlin-Andersson 2006b; Graz and Nölke 2008a). In Figure 6 there is a graphical representation of the Governance Triangle. The vertexes are occupied by "pure" actors (States, Firms and NGOs). Areas 4, 5 and 6 stand for mixed regulators, and the triangle number 7 comprehends actors with the all three types of membership within it.

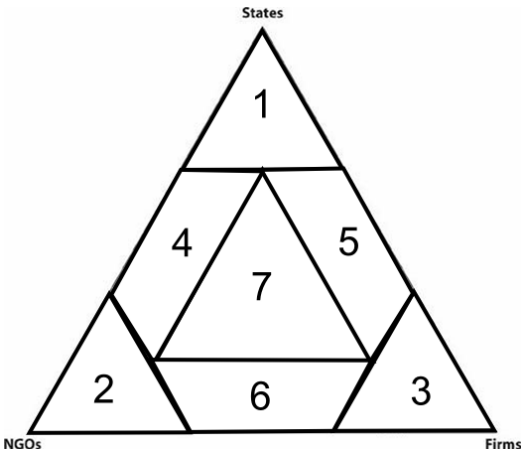

Figure 6: The Governance Triangle (Abbott and Snidal 2009, 48).

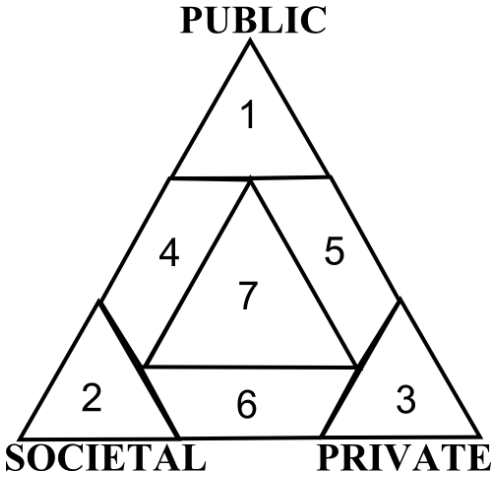

Figure 7: The Governance Triangle Reworked.

While acknowledging the important contribution of this framework, I would say that Public, Societal and Private Actors could be more suitable labels for the different players in the transnational arena (Figure 7). First, "Public Actors" could be better than "States" for it preserves the internal variety of ways of acting which differentiate States, sub-state territorial branches of government, specialized public agencies, and international organizations. Second, "Societal Actors" is a better label than NGOs because it focuses more on the source of authority and legitimacy, and on the functions performed, rather than on the organizational form of the actors. Societal actors, thus, encompass grassroots movements, influential

individual people *and* NGOs. Private Actors is preferable to Firms because it encompasses also business organizations and business-related technical agencies, which are not only profit-driven, so they do not qualify completely as firms.

Claire Cutler puts business-related technical agencies in a separate field, with a form of authority in its own rights (Cutler 2012). She claims that technical expertise is a third source of authority, distinguished from both public and private. Yet, I argue that technical actors and business organizations share a concern with the well-functioning of markets, a business-related accountability and rationality which makes them more similar to each other than to the other two categories.

2. Historical Structures and Fields.

Robert Cox theorized power as organized in historical structures, understood as "limited totalities […] [i.e.] the historical structure does not represent the whole world but rather a particular sphere of human activity in its historically located totality" (COX [1981] 1981, 137). The meaning of "sphere of human activity", however, remains rather uncertain: how can we draw clear boundaries between one historical structure and another? Susan Strange proposes a delimitation of fields according to functions and markets (Strange 1996, 41–42). Strange, thus, understands fields as determined by chains of economic interconnectedness. Djelic and Sahlin-Andersson, on the other hand draw upon a definition of "field" understood as a "totality of coexisting facts which are conceived of as mutually interdependent" (Djelic and Sahlin-Andersson 2006b, 19). A field, thus, is not only determined by chains of cause and effect which makes it internally interconnected and interdependent, but also by subjective construction. A field not only *is* interdependent, but is also *constructed* as interdependent. I will keep the causal and the discursive foundations together in reconstructing the field on which Bitcoin is impacting.

Historical structures are the fixation of equilibrium of three kinds of forces and power resources: material power, ideas and institutions. First, material resources are "technological and organizational capabilities […] natural resources which technology can transform, stocks of equipment […] and the wealth which can command these" (COX [1981] 1981, 137). Ideas, on the other hand, can be of two

kinds. First, they are "intersubjective meanings, […] shared notions of the nature of social relations which tend to perpetuate habits and expectations of behavior" (Ibid). Second, they are "collective images of social order held by different groups of people [concerning] legitimacy of prevailing power relations, the meaning of justice and public good, and so forth" (Ibid.). The third element of an historical structure is institutions. Institutionalization is a way to fix in a long-lasting, yet not ahistorical and permanent way the set of shared meanings and collective images, and to secure one specific distribution of material power (Ibid: 136-7).

3. Governmentality: Rationalities of Power.

This project mainly focuses on the second category of forces within historical structures and fields, i.e. ideas. My understanding of the role of ideas in shaping political power draws on Foucaultian studies on governmentality. In this approach, government is defined as "the 'conduct of conduct' [i.e.] [a]ny more or less calculated and rational activity, undertaken by a multiplicity of authorities and agencies, employing a variety of techniques and forms of knowledge, that seeks to shape conduct by working through desires, aspirations, interests and beliefs" (Dean [1999] 2010, 266–67). Power is performed following specific aims and according to specific logics. The assemblages of these logics form what Foucaultian theories define as governmentality or rationality of government. Governmentality is "any relatively systematic way of thinking about government. This can include the form of representation for the field to be governed, the agencies to be considered and enrolled in governing, the techniques to be employed, and the ends to be achieved" (Dean [1999] 2010, 267).

Governmentality is constructed on three kind of ideas, involving different sides of power: ideas about *episteme, telos* and *techne* of government and regulation (Cutler and Gill 2014a, 316; Dean [1999] 2010). Together, these three sides of "mentality of government" answer the three aforementioned questions: what has to be governed? Which aims have to be pursued? Which means have to be employed? *Episteme* is the "[body] of thought, knowledge, expertise, strategies, and means of calculation, or rationality [which is] employed in practices of governing" (Ibid: 42). *Telos* of government is the core assemblage of ideas

concerning the "type of person, community, organization, society or even world which is to be achieved". In short, *telos* is the aim, the ends of government. *Techne*, lastly, is the set of ideas on "by what means, mechanisms, procedures, instruments, tactics, techniques, technologies and vocabularies […] authority [is] constituted and rule accomplished" (Ibid).

4. Hegemony, Conflict and Change

For Cox, historical structures can be either hegemonic or non-hegemonic. The difference between them is the one "between those in which the power basis of the structure tends to recede into the background of consciousness, and those in which the management of power relations is always at the forefront" (COX [1981] 1981, 137). In order for a structure to be hegemonic, all the resources have to be firmly in hand of a hegemonic group. However, the struggle over hegemony might take place in just one of the various fields of power. Change is conceptualized as a successful act of resistance: "To the extent that [people] do successfully resist a prevailing historical structure, they buttress their action with an alternative, emerging configuration of forces, a rival structure" (COX [1981] 1981, 135).

Foucault and the studies on governmentality, on the other side, distinguished power structures according to the degree to which the core elements of the rationality of power are naturalized and taken for granted, thus considered "true" and unquestioned (Dean [1999] 2010; Di Munzio 2014; Foucault 2007; Rose and Miller 1992; Schneiderman 2014). For Foucault, every conduct and regime of government produces multiple counter-conducts because power, for how strong it could be, cannot determine the specific individual behavior of every single person. Practices and rationalities of power are always altered, molded, reinterpreted by those receiving them. This, however, does not automatically bring about change. A pressure for change stems from problematization, i.e. "a way of questioning and interrogating past, present and potential alternatives" (Dean [1999] 2010, 38). Each regime of government is born by questioning previous regimes; it might question itself, and might be questioned. Problematization assumes a stronger connotation when it is structured in

programmes, i.e. "explicit, planned attempts to reform or transform regimes of practices by reorienting them to specific ends or investing them with particular purposes. Programmes often take the form of a link between theoretical knowledge and practical concerns and objectives" (Dean [1999] 2010, 268).

Djelic and Quack (Djelic and Quack 2003), on the other side, propose a more contingent interpretation of change. They state that the regulatory environment, is divided between dominant and fringe players. The former are placed at the core of an already regulated arena, and they often take a conservative stance especially during periods of stability, working for the preservation of the status quo (Ibid: 24). Fringe players, on the other side, are actors placed at the periphery of a regulated and institutionalized environment, and often their very survival might depend upon changes in the current regulation (Ibid). Especially in times of crisis and redefinition of authority, fringe players might emerge, and those who already are in place might assume a stronger transformative stance, leading the effort of reshaping regulation. Some dominant players, in this view, might even detach themselves from the hegemonic group and associate themselves with the transformative effort, often in order not to lose power in the new scenario.

Cox and Neogramscian studies considers change as a more systemic and integrated process, Foucault and Foucaultian approaches focus more on ideas and, lastly, Djelic and Quack and sociological institutionalism focus more on material capabilities and institutions. This project will focus on the role of ideas and rationalities: regulation of Bitcoin is at a very early stage, thus the material capabilities and institutions are on hold for the time being. By understanding the underlying rationalities, we will be able to hypothesize how institutions and material capabilities will move when the right moment will come. However, we have to recognize that these two driving forces are at least partially independent from rationalities, and might bring about unexpected developments.

The theoretical framework has now to be operationalized to the empirical object. We have to define the field and the historical structure on which Bitcoin impacts. Then, the task of the empirical research will be to determine the discursive and ideational content of the historical structure, and to which degree it can be

considered hegemonic. After having done so, we can hypothesize which kind of threat and challenge Bitcoin represents to the given historical structure. The task of the next section will be to apply the aforementioned theoretical framework to the fields of money and finance.

III. Operationalization of the Theoretical Framework to the Case of Bitcoin.

Bitcoin is a private currency, thus it impacts first and foremost with the sphere of human activity of monetary policy, which is mainly, if not only, ruled by central banks (Cohen 1999; Cohen [2008] 2008; Marcussen 2006). However, we should not observe only central banks in order to understand the political responses to the challenge of Bitcoin. Quite the opposite, we have to ask whether monetary policy can be comprehended in a broader field.

1. The Actor Constellation.

The first network of relevant actors is the transnational network of central bankers. Marcussen's study of this field allows us to draw some implications, both at an institutional and at an ideational level (Marcussen 2006). First, we can see how the network grew over during the twentieth century: from 30% of the countries having a central bank in 1900, now 90% of the countries have one (Ibid: 181-2). Second, this network has a deeply hierarchical structure, with OECD countries at the center, a "semi-peripheral" group, and a very big periphery (Marcussen 2006, 195). Third, the central banks' tasks and the knowledge to perform them have become more and more "standardized". Central banks are often strongly independent from governments and parliaments (Ibid: 182), and central bankers are selected often from a very tight number of prestigious universities worldwide (Ibid: 187-9). Central banks also produce knowledge, by hosting their own Ph.D. programmes and research activities.

Connected to central banks, we expect banking to be involved in the effort to regulate Bitcoin, for several reasons. First, because banking and monetary policy are already intertwined. Bankers and central bankers often come from the same epistemic community, thus we can also expect them to share the same concerns. Second, banks are also deeply concerned with payment systems (Jeffs 2008). Banks and banking regulators have shown concerns over non-bank firms which are operating on the field of payment systems, such as PayPal (BIS - Committee

on Payments and Market Infrastructures 2014). Thus, it seems reasonable to retrieve the same concerns over Bitcoin.

At the political level, banking shows a change in the role of public authority from "regulation to supervision" (Tsingou 2008), leaving a very high degree of freedom in private actors' hands. This tendency is fostered by the fact that public and private actors share the same education and have several formal and informal fora for discussion and socialization (Ibid: 60). The result is a private self-rule that strengthens the role of already powerful actors and keeps other players, and societal actors at bay. These tendencies does not seem to have changed in response to the 2007-08 financial crisis, and some authors claim that this make the overall system prone to other future shocks (Rossi 2011).

Another sensitive policy section is securities and financial instruments. The International Organization of Security Commissions (IOSCO) plays a crucial role in fostering regulation, standardization and institutionalization in the field of finance as a whole. Especially the American Securities Exchange Commission (SEC) can be considered as a domestic player with an almost global reach (Botzem 2014; Botzem and Quack 2006; Botzem and Quack 2009). Insurance firms might be involved, since Bitcoin raises questions concerning how to protect value of those investing and speculating on the value of the currency.

2. Finance as a Unified Field.

When it comes to the relationship between monetary policy and banking there is evidence showing a pendulum movement between more and less interconnection (Marcussen 2006). The first phase goes from the end of the XIX century until the Second World War: private actors played a pivotal role in establishing strong national currency, redeemable in gold (the so called gold standard), and especially in advocating the institution of central banks in order to keep the system stable (Gilbert 1999; Gilbert and Helleiner 1999; Zelizer 1999). Private banking and monetary policy formed a unified field.

After the 1929 Great Depression and until the collapse of the Bretton Woods framework in the 1970s, states gained stronger and stronger influence over central

banks, alongside with a more interventionist attitude towards the economy (Leyshon and Thrift 2005, 70–79; Marcussen 2006). This resulted in a partial divorce between banking and monetary policy, and an attempt of state-driven economic policy to absorb monetary policy. But as soon as the Bretton Woods system went down, central banks gained new influence, and got separated from economic policy both formally (by establishing the principle of the independence of central banks from governments) and substantially (in the way in which central banks decide their own guidelines, and coordinate with each other to establish them) (Marcussen 2006).

In the current period, often called neo-liberal (Helleiner 1999), we are witnessing a renewed "marriage" of monetary policy and banking (Cohen 1999; Thrift and Leyshon 1999). After the collapse of the gold standard, money has lost any kind of connection with real goods and has become *fiat* money, which derives all its value from being legal tender within the borders of the state, and from the trust given to the issuer (Helleiner 2009). This central role of public authorities, however, obscures the role played by private banking industries in granting liquidity and money. There is a connection between *fiat* money and *credit* money (Cohen 1999), that makes banking and monetary policy a materially unified field. This independence of central banks from government has brought about the relative decrease of relevance of political organizations such as the International Monetary Fund (IMF) in favor of the Bank of International Settlements and, for Europe, the European Central Bank, the European System of Central Banks (ESCB), and the Eurosystem (Dodd 1999; Marcussen 2006).

Moreover, this interconnection is based on shared ideas and world-views. The community of central and private bankers as a whole share the features of an epistemic community, i.e. "a network of professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy relevant knowledge within that domain or issue-area" (Haas 1992, 3; Marcussen 2006). Both public and private bankers are selected through the same channels, share the same education (often obtained in the very same universities), and have frequent institutionalized and informal occasions to discuss and coordinate strategies and policies. Two prominent examples of this coordination are the

Group of Thirty (G30), a private network of bankers, and the Bank of International Settlements (BIS) (Marcussen 2006).

Banking, in turn, is at the center of a broader spectrum of financial activities, which encompasses accounting, securities, insurance and many other activities (Botzem 2008; Botzem 2014; Botzem and Dobusch 2012; Botzem and Hofmann 2010; Botzem and Quack 2006; Botzem and Quack 2009). Banks have the paramount function of providing credit for those who want to carry financial activities. Moreover, the very nature of banks has changed in the last decades: banking has witnessed a profound restructuration, the division between commercial and investment banks, decided in the aftermath of the 1929 Great Depression, has been overcome (Rossi 2011; Vigna and Casey 2015). Now banks operate more and more often like finance "supermarkets" (Vigna and Casey 2015), offering a broad range of financial products (Thrift and Leyshon 1999). Thus we see how finance is constructed as a unified, interconnected and interdependent whole.

3. What has to be Studied: Rationalities of Power and Hegemony.

The main hypothesis of this work is that the main point of friction between Bitcoin and the regulatory framework of finance has to be located within ideas and rationalities, with material and institutional power being still for the time being. Thus, we have to understand the ideational response to Bitcoin from the public, private and societal regulators of currency, banking and finance. First, I will understand which actors are more active in the attempt to regulate virtual currencies, and which ones are absent or isolated. I will, then, see which ideas are proposed on *telos, episteme* and *techne*. Lastly, I will understand which of these ideas are widely shared and hegemonic, and which one are contested. Through this analysis I will be able to say if Bitcoin is a threat to the hegemonic equilibrium within finance, if the response of the system is hegemonic, and towards which direction it is aimed. In order to do that, my methodological choice will be Critical Discourse Analysis of official documents issued by the actors. The description of the employed method and the criteria of selection of the sample will be the aim of the next section.

IV. Methodology: Critical Discourse Analysis.

1. The Aim and the Epistemological Stance.

Critical Discourse Analysis (CDA) has the aim to

> "Disentangle the giant milling mass of discourse, to chart what is said and can be said in a given society at a given time with regard to its qualitative spectrum […] and to uncover the techniques through which discursive limits are extended or narrowed down. Last but not least […] CDA aims to question and criticize discourses." (Jäger and Maier 2009, 36).

CDA is strongly linked to critical realism, and especially in critical realist interpretations of Michel Foucault's works (Fairclough and Chouliaraki 1999; Wodak and Meyer 2009). Critical realism stands for an understanding of social reality as built by the dialectic between discursive *and* non-discursive elements (Bhaskar 2008; Brante 2001). Thus, reality is neither completely independent from our own mind, nor is it only forged by our interpretation of it (Fairclough 2009; Fairclough [1995] 2010; Fairclough and Chouliaraki 1999).

Discourses can construct, disrupt and transform objects and their meanings. However, discourse cannot completely obfuscate the autonomy that other elements of reality have in shaping boundaries of discourses and meanings. Critical realism acknowledges reality as stratified in different levels. A change in one level might bring about changes in the others. However, there is not a unified, all-encompassing foundation of reality, or a privileged way to access it. Discourse is one of the levels of such stratified ontology, but it cannot change the other levels of reality alone. This means to acknowledge discourse as a dialectic-relational element of social life, and a social practice (Bhaskar 2008). This epistemological characterization has a practical implication: if we use CDA we have to be thorough in providing detailed information on the non-discursive background, i.e. the context within which the discourse we want to analyze is situated.

2. What is Discourse?

Discourse can be defined as "an institutionalized way of talking that regulates and reinforces action and thereby exerts power" (Jäger and Maier 2009, 45; Link 1983, 60). Discourse is organized in discourse strands: they are defined as flows of discourses that center on a common topic (Jäger and Maier 2009). Discourse strands are internally subdivided into planes. Discourse planes are the social locations in which the discursive practice takes place. Discourse planes, in turn, might be divided in sectors. For example political regulation is the discourse plane to be analyzed, in its public, private and societal sectors. Discourse strands are the sum of fragments of discourse, which are texts in their empirical occurrence. Every fragment might cover more than one discourse strand: every fragment in which two or more discourse strands are entangled is called a discursive knot.

3. How Do We Perform Critical Discourse Analysis?

Now we have to define how to conduct research analysis. This involves two major explanations: how to choose the sample of discourse fragments, and how to practically conduct the analysis of them.

a) The Criteria of Sample Selection.

First, we have to acknowledge that discourse analysis is not based on the idea of the representative sample as random selected. The choice of the sample is based on the concrete research question and the chosen theory, i.e. it is a theoretical sample (Emmel 2013). The aim of theoretical sampling is to add new material insofar as it provides new and important theoretical contributions to – or against – the main argument which is push forth. This also means that the sampling stops when theoretical saturation is reached: theoretical saturation occurs when adding new material provides only redundancy (Jäger and Maier 2009).

My sample will be based on previously collected databases of organizations in the field of finance. In particular, Tony Porter and Heather McKeen-Edwards (McKeen-Edwards and Porter 2013) produced a list of organizations both at a local and at a transnational level in the multiple sub-fields of finance from the Yearbook of International Organizations (YIO). I will add to the sample central

banks, the G30 and the Institute of International Finance which, from previous studies, have resulted as important in regulation of finance (Tsingou 2008). The sample will be limited to those papers that represent and express the opinions of the organizations issuing them. For this reason, I will exclude from the detailed analysis all those papers which explicitly say that they represent only the views of the scholars writing them, even though they are hosted and published by relevant actors. These papers, anyhow, will be used in the structural analysis in order to provide insights on how the relevant knowledge is produced and shared. The sample will be narrowed down to the organizations that have issued regulatory papers on Bitcoin.

In order to enlarge or narrow down the sample, two criteria will be followed. First, we do not expect to find relevant documents issued by all the actors. Rather, the fact that one organization has issued a document on Bitcoin or not will be in itself empirical evidence: in the discussion of the collected data, the inactivity of some players and the hyperactivity of others will be taken into account as a sign of an internal differentiation of the field. Second, the sample might be expanded following the principle of the "snowball sample" (Emmel 2013; Vogt 2005): I will expand following the network of connections among actors, until the point in which theoretical saturation is reached (Bloor and Wood 2006). Thus, my main aim will be to have a sufficiently wide, yet non-redundant sample.

b) The Method of Analysis.

The analysis is formed by three phases: structural analysis, detailed analysis and synoptic analysis (Jäger and Maier 2009, 53–57). With structural analysis I will map the field and the actor constellation around Bitcoin and its regulation. First, I will list all the chosen texts with bibliographical information, topics covered in each text, and literary genre[3]. Second, I will scrutinize the structure of the discourse, in order to see how the topic is framed. Third, I will search inter-discourse entanglement, especially references among sources and connections among topics. I will provide a map of the discursive network, based on the patterns of quotations and references. In this way I will be able to understand not

[3] All these information are provided in Appendix 1.

only which typicalities are used across documents, but also the hierarchy established among documents: a text which is referenced more and more often contains fragments of discourse which are "borrowed" by others, thus we can consider it more representative of the discursive structure as a whole. I will place every actor within Abbott and Snidal's Governance Triangle, in order to understand whether one category of actors is mostly concerned with Bitcoin's regulation.

After we have identified the typical discourse fragments, we have to perform what is called detailed analysis (Jäger and Maier 2009). First, I will contextualize the sources I will use in the detailed analysis. In particular I will have to legitimize the choice of the given fragment. Second, I will explain how the regulators typically frame the question in terms of layout, expressive tools, text structure, and the topics which are dealt with. Third, I will analyze the rhetorical means employed. I will also take into consideration how the actors portray themselves and others, which references are made to bodies of knowledge. Fourth, I will unpack the content and ideological statements contained in the sources. I will look for portrayals of money, the meanings attached to it, which ideas concerning the "nature" of money are pushed for, and which ones are rejected. Fifth, other peculiarities of the articles are examined. Sixth, and last, I will explain the overall message of the article.

Lastly, we have to perform synoptic analysis (Jäger and Maier 2009, 56), which consists in an evaluation and assessment of the results of the structural and detailed analysis. In this last step I will synthesize the results of the detailed analysis in the light of both the theoretical framework and the structural analysis. I will summarize the sub-topics and group them within the categories of *episteme*, *telos* and *techne* of regulation. I will then show whether there are patterns of rationalities within or across the three groups of public, private and societal actors. I will assess the strength with which these rationalities are shared and taken for granted, or contested. This will allow me to assess whether the rationalities of power over money, and the responses to the challenge represented by Bitcoin are conceivable as hegemonic. Lastly, I will say whether the results allow us to envision possible future scenarios, and which characteristics they might have.

V. Data Analysis and Discussion

From the first sample (McKeen-Edwards and Porter 2013), I expanded as to comprehend all the documents issued by public, private and societal organizations within the field of finance. The resulting list, available in full at Appendix 1, lists 117 documents issued by 92 organizations and agencies. The aim of the following sections will be to scrutinize these sources. First, structural analysis will be performed across them. Then, detailed analysis will focus only on a small number of sources. In the end, synoptic analysis will address the research question by detecting the main ideational forces in place, and their possible future directions.

1. Structural Analysis

a) The Actor Constellation

The mapping of the nature of the organizations involved in regulation and actively issuing documents concerning Bitcoin shows some typicality. First there is an overall absence and isolation of societal actors: only two social movements, ATTAC network and OCCUPY movement, have issued documents which in some way relate to Bitcoin (ATTAC [2012] 2012; Occupy [2013] 2013). The Chartered Financial Analysts Institute (CFA Institute) has interviewed Antonopoulos (Jaye 2014), an investor particularly advocating in favor of Bitcoin, and this document is the only one showing an interconnection between established players and Bitcoin discourse. These three documents are not connected to each other, thus, it seems that there is an underlying isolation of societal voices vis-à-vis the transnational network of regulators. The only societal voice in this matter is the one of Bitcoin's network itself. While it would be interesting to analyze Bitcoin's discourse in its own right, this would require a parallel project and a completely new sample. Besides that, I said above that the analysis of the internal rationality of Bitcoin has already been scrutinized: the aim of this project is precisely to cover the rationalities of established regulators. This project, thus, will overlook Bitcoin's internal discourse.

A second structural typicality is that, while the actor constellation comprehends important private players, a pivotal role is still played by public actors. Of 117

documents, 94 are issued by purely public agencies such as central banks and regulators of stock exchanges and securities industry, 16 by purely private actors, 4 by mixed organizations and 3 by societal organizations and movements.

Table 1 Sample: overall number and division among Public, Private, Societal and Mixed Actors.

Type of Actors	Number of Documents
Public	94
Private	16
Societal	3
Mixed	4
Total	**117**

I used the software Visone (Visone team 2011), elaborate by the University of Konstanz and the Karlsruhe Institute of Technology, to visualize the documents as nodes (in Figures 8 and 9 they are visualized as dots), and then grouped the nodes within the areas of the Governance Triangle.

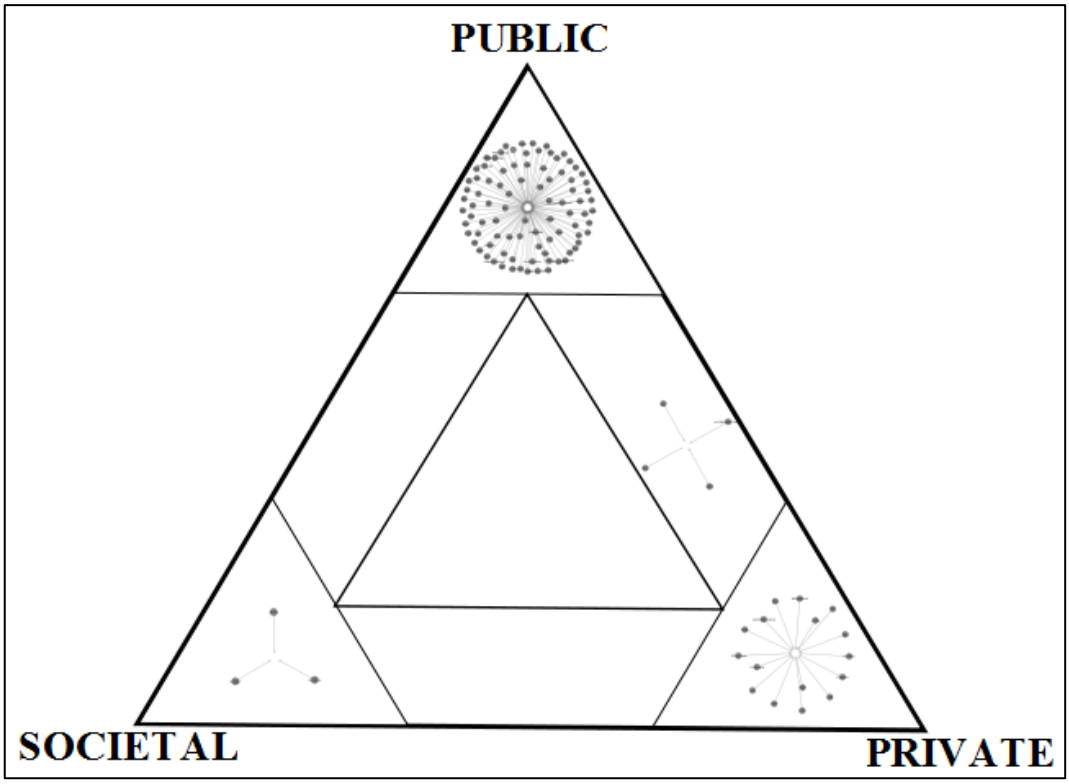

Figure 8: The Sample of Documents and the Governance Triangle.

b) The Discursive Network.

The discursive network shows a quite strong hierarchy and centrality of a small number of documents. Table 3 shows the number of times a given document has been cited by different sources.

Table 2 Core documents and frequency of references

Paper	Citations
European Banking Authority (EBA) (2013 and 2014)	26
European Central Bank (ECB) (2012)	19
Financial Criminal Enforcement Network (FinCEN) (2013)	13
Financial Action Task Force (FATF)	6
Internal Revenue Service (IRS) USA (2014)	4
Securities and Exchange Commission (SEC) USA (2013)	3
Goldman Sachs (2014)	3

Figure 9 shows a graphical representation of the network of sources. I used these references as network data and elaborated a graphical representation of the connections between the examined texts. In order to do that, I used Visone as in Figure 8. The graphical representation visualizes documents as nodes in the network, and references among them as ties connecting them. Those ties are visualized as arrows pointing from the document citing to the one being cited. I personally highlighted the sources I will use in my detailed analysis in a different colour.

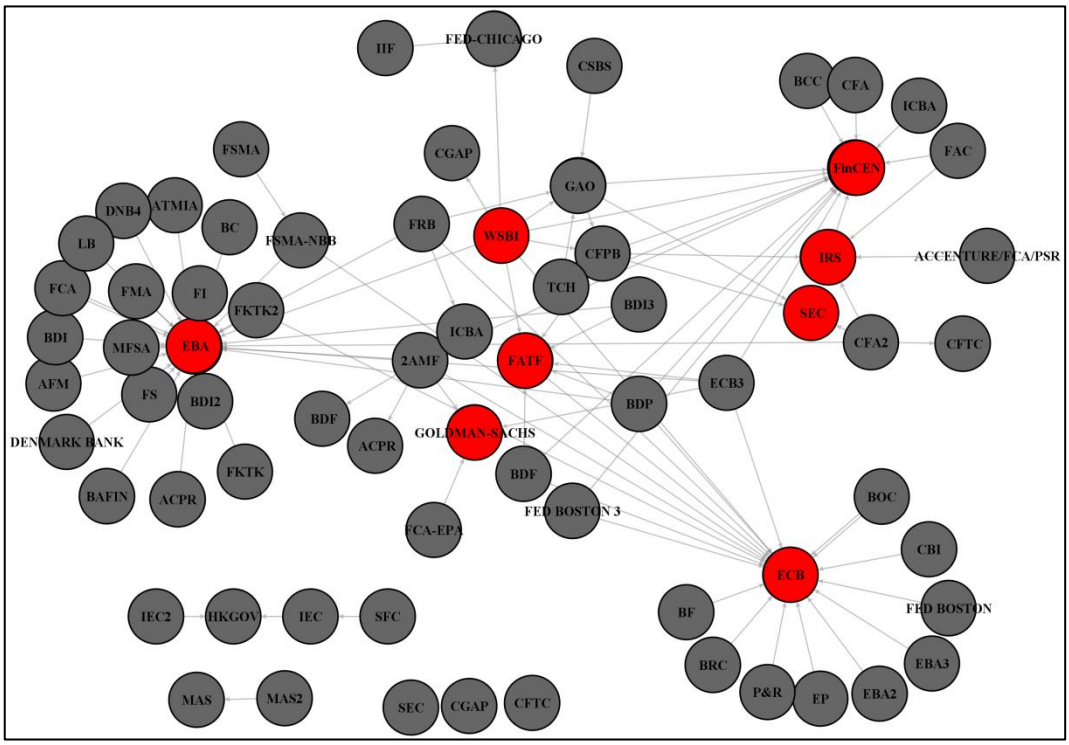

Figure 9: The Discursive Network (my own elaboration via Visone).

c) The Central Documents.

First, the 2013 consumer and investors warning issued by the European Banking Authority (EBA) (European Banking Authority [2013] 2013) and the 2014 official opinion paper by the same organization (European Banking Authority [2014] 2014) are the two most frequently cited papers: combined, they are cited by 26 other sources.

Then, the 2012 paper issued by the European Central Bank (ECB) (European Central Bank 2012) is cited 19 times in other sources. This paper is important because it is the first official paper on virtual currencies. Moreover, the same ECB recently issued an update to that paper, titled "Virtual currency schemes – a further analysis" (European Central Bank [2015] 2015). This last paper will be incorporated as well, even though it is not widely or frequently cited, since it is mere continuation of the older document. An important institution such as the ECB needed to update its analysis after only three years: this shows how virtual currencies are still difficult to grasp and need to be constantly monitored.

The third central document is issued by the US-based Financial Criminal Enforcement Network (FinCEN). This paper is titled "Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual currencies" (FinCEN [2013] 2013). It was issued in 2013 and it has been cited 13 times.

The fourth document was issued in 2014 by the Financial Action Task Force (FATF), a transnational public organization on financial stability. This document mainly related to Anti Money Laundering and Counter-Terrorism Financing (AML-CTF) (FATF [2014] 2014), and was cited 6 times.

The fifth document is the so called notice 2014-21 was issued by the US-based Internal Revenue Service (IRS) and it has been cited 4 times (Internal Revenue Service, USA 2014). This document is important because it was the first specific piece of "hard" regulation concerning Bitcoin. I put *hard* in quotation marks because this paper is not an ex novo, legally binding document, but rather an interpretation of the existing regulation and its application to virtual currencies.

The sixth document is issued by the US local branch of the International Organization of Securities Commissions (IOSCO), the Securities and Exchange Commission (SEC). This document is mainly concerned with frauds involving virtual currencies, it was issued in 2013 and cited 3 (SEC 2013).

Lastly, Goldman Sachs has recently published a Research Paper in the form of a collection of articles and expert interviews on the theme of Bitcoin. This document' has been cited 3 times, with special mention that this has been the first attempt of a powerful financial for-profit player to ever issue a paper on the matter (Goldman Sachs [2014] 2014).

However, other sources are worth being mentioned in the discussion. First, some documents are too recent to be acknowledged by other sources. One suitable example is the "One Bank Research Agenda", published in 2015 by the Bank of England (Bank of England 2015). This document is a very detailed and advanced analysis of innovation in finance, money and payment, and the role that central banks may play in this changed scenario. Second, other documents will be brought into the discussion to show whether and how some understandings of the subject at hand varies across types of actors. Thus, other sources will be cited in

order to compare the stance across the private, public and societal nature of regulators, and to compare and contrast the stance adopted by central documents with the one proposed by more "peripheral" sources. Third, some documents are not cited by other sources, but they are coming from very important organizations and they cite many other sources. Thus, they acknowledge the complexity in the discourse, and they can be considered as interesting inter-discursive knots in themselves. An example of this is the document issued in late 2014 by the World Saving and Retail Banking Institute (WSBI [2014] 2014), which builds its analysis upon a review of all the central documents listed here.

d) The Typical Framing of Bitcoin: Genres and Topics.

Most of the documents are press releases aimed at warning and informing consumers and investors on the possible risks they can run into by engaging in virtual currency-connected businesses. Others are papers trying to define Bitcoin as a currency, a commodity or just as a means of payment. Others again, are policy papers aimed at reviewing the state of the art of regulation on the topic. Others, again, are more comprehensive reports, or documents which put Bitcoin in a broader perspective. One last group of sources is made by research papers: many institutions are hosting and financing academic papers which are aimed at defining and understanding what Bitcoin and virtual currencies are about. This last group of sources will not be used directly in the analysis, because it is clearly stated that they do not reflect the political orientation of the organization hosting and funding them. However, they give us the picture of how much the study of Bitcoin is considered a technical issue, rather than a political one. A distribution of the documents according to their genre is provided in Table 3.

Table 3 Genre and Number of Analyzed Documents

Type of Document	Number
Press Release and Warning	44
Policy Paper	25
Speech	16
Annual Comprehensive Report	15
Academic Article	10
Presentation	7
Total	**117**

After reading the documents within the sample and coding the collected material, I elaborated a list of the topics and sub-topics the discourse fragments deal with. I then organized them into discursive strands connected to the *episteme, telos* and *techne* of regulation. I will list them here in order to follow better the detailed analysis which I will provide in the next sub-section.

The *episteme* of regulation is mainly divided into three sub-topics. First, many documents are engaged in defining money, its characteristics and functions, and its sources of value. This sub-topic comprehends also the effort to understand if private money is considered possible or not. The second sub-topic is about how much have the regulators to intervene. The third sub-topic is the definition of finance as the field that has to be governed: at which level has regulation to be adopted, between the national and transnational level. The *telos* comprehends the aims that regulation has to achieve. The main aims are consumer protection, promotion of technological innovation, and neutralization of political challenges. Finance is recognized as neutral and a-political, and the aim of regulation is to preserve it in this way. Within the *techne*, the option tends to vary more clearly. Three strands can however be detected: warning and damage control, the interpretative adaptation of existing regulation, and ex-novo, case-specific regulation, mostly in the form of business-based licenses. Bitcoin's inherent political element is the most important overlooked topic: Bitcoin is often

considered a purely technical innovation in the already existing field of finance, or at most an economic anomaly, while only very few actors consider it a political player, and regulation of finance as a political activity. The next step will be to analyze these topics in detail.

2. Detailed Analysis

a) Money, Value and Virtual currencies.

Within the discursive strand of *episteme*, the first sub-topic deal with the definition of money and its value, in order to understand if private money is theoretically possible or not. We can see one widespread and uncontested definition of money. Here is a comparison between the understanding of money given by EBA and the one acknowledged by the Danish National Bank:

> "In economic theory, money performs three different functions: (1) a unit of account, (2) a means of exchange and (3) a store of value." (European Banking Authority [2014] 2014, 12)

The EBA pictures money as a unit of account, a means of exchange, and a store of value. By comparing this understanding with the one provided by national regulators, we retrieve the same picture, with differences only in wording. As an example, let us take the explanation given by the Danish National Bank:

> "Irrespective of their form, [currencies] have filled three basic functions:
>
> • They have been widely accepted as a means of payment, i.e. they have been used for the purchase and sale of everyday goods and services.
>
> • They have been used as a unit of account for determining prices of goods and services.
>
> • They have been used as a storage of value, meaning that the purchase and sale of goods and services did not need to coincide in time." (Danish National Bank 2014, 86)

The interpretations of the nature and the functions of money are unanimous. In this respect, we can consider these interpretations as hegemonic and naturalized: this understanding is not put at the forefront of the power struggle. However, a divide appears between two kinds of actors. On one side there are national public actors whose understanding of money is delimited to the "basic", hegemonic definition outlined above. On the other side we retrieve transnational public and

private actors, and very powerful national actors, such as the Federal Reserve or the Bank of England. The difference between these two kinds of actors is not a political conflict between two contradictory understandings, but rather a difference between a shallower and a deeper analysis of the social roots of money and its value. Let us consider this quote from the European Central Bank:

> "Money is a social institution: a tool created and marked by society's evolution" (European Central Bank 2012, 10)

The Bank of Canada shows a similar understanding of the process of adoption of a means of payment as money:

> "At the Bank of Canada we've done some experiments in behavioral economics to look at what elements determine the success or failure of e-money. What we find is that adoption of e-money is exactly like the tango—it takes two. Buyers need to decide whether to use the new payment method while sellers need to decide whether they'll accept it. It turns out that it's the seller's side that leads the dance; if there is a large enough fraction of sellers accepting new payment methods, more and more buyers are prompted to use them, eventually leading to complete adoption on both sides." (Bank of Canada [2014] 2014, 5)

We can see a much more complex and contextualized conceptualization of the role and origins of money. Despite the differences between the latter and the former approach to money, we can reconstruct a connection: all the sources understand money as something "natural", thus technical in its management. Money "performs functions" (Danish National Bank 2014; European Banking Authority [2014] 2014) and emerges from an evolutionary process (European Central Bank 2012), and its natural roots can be recreated through social experiments (Bank of Canada [2014] 2014). Even when money is a "social institution", its roots are not recognized as political: money emerges purely in the separate realm of economics rather than through political decisions.

Connected to the nature of money is the debate over its sources of value. Most of the texts imply that money, even when it is *fiat* money, has inherent value, i.e. value that does not purely derive from the supply and demand of it. Other sources, however, acknowledge that money has not such clear an inherent value. What creates value, both in gold and in money, are two elements: use and trust. Something has value insofar as it is either widely adopted, or as the institution

issuing it is widely trusted: "Anything that *has* currency in this sense *is a* currency." (Lemieux 2013, 14).

This is especially important when it comes to the value of *fiat* money. In this case, use and trust intertwine. Legal tender currencies are *fiat* currencies, thus their value does not derive directly from commodities backing them: they derive value from compulsory use, and from the trust given to the authorities issuing them. Let us see a quote from the Federal Reserve Bank of Chicago:

> "History certainly offers several examples of currencies used without state support, oftentimes because the state-sponsored currency was proving deficient. But throughout most of Western history, the state has involved itself in money. At a minimum, the state has used money as a coordinating device, usually supporting its value by accepting it in the payment of taxes." (Velde 2013)[4]

We can see how the Federal Reserve Bank of Chicago recognizes the role of the State not in establishing money, but in sustaining its value and reinforcing its use as a means of payment. The WSBI, a private actor, gives a similar interpretation of the relationship between money and the state. Moreover, it deals with *fiat* money, which is a form of money with no intrinsic value besides use and trust.

> "The value of money as a medium of exchange then depends on individuals' expectations that it will be accepted by other people. […] Generally, such acceptance was facilitated further when states made a money legal tender […]. Eventually most states suspended the redeemability of money in favor of "fiat" money, which has no non-monetary value (it is just paper, or - for coins - low value metal)." (WSBI [2014] 2014, 3)

Trust is assured by the trustworthiness of the state itself, and of the Central Bank issuing the currency. Some of the sources explain currency substitution and competition as a proof of a deeper crisis of trust in the state, as the private investment fund cited below:

> "Not all central banks around the world are trustworthy. The strong volatility of certain currencies could prompt users of that currency to seek a replacement solution." (Desjardins Economic Studies [2013] 2013, 5)

[4] Document issued by the Federal Reserve of Chicago (FED CHICAGO in the sample, Appendix 1)

The European Central Bank seems to summarize the discussion about the nature and value of money:

> "From a legal perspective, money is anything that is used widely to exchange value in transactions. The term currency is used for "minted" forms of money; nowadays usually taking the form of coins and banknotes. In a more conceptual sense, a (particular) currency refers to the specific form of money that is in general use within a country." (European Central Bank [2015] 2015, 24)

How are virtual currencies understood? What we can retrieve is, again, a unanimous understanding: almost all the sources do *not* acknowledge Bitcoin and virtual currencies as money. Let us compare some understandings of Bitcoin:

> "Virtual currencies do not have the nature of a highly liquid asset and have not reached the level of acceptance commonly associated with money." (European Central Bank [2015] 2015, 25)

The Japanese Ministry of Finance (FAS), agrees in not defining Bitcoin as money, but bases its conclusion on the fact that BTCs are not legal tender anywhere:

> "I think it is clear that Bitcoin is not a currency because it does not have mandatory circulating power" (FSA [2014] 2014)

The Bank of France, among other national regulators, agrees with the FSA and adds new reasons why Bitcoin is not money. Not only virtual currencies are not legal tender, but they do not follow the "normal" rules of payment systems, which have to rely on funds, normally denominated in legal tender currencies:

> "bitcoins cannot be regarded as a means of payment, or even as electronic money, in the sense defined in the French Monetary and Financial Code, as they are not issued on the receipt of funds. Moreover, unlike electronic money, there is no legal obligation to reimburse bitcoin owners at face value and at any time." (Bank of France [2013] 2013, 1)

Even though the sources agree in defining virtual currencies as not money, we can retrieve once again a different level of complexity, between national and transnational regulators. National players think that there are legal and economic preconditions for money to be money, thus private currencies simply cannot exist. Transnational players such as the ECB, on the other side, implicitly consider that something that can reach levels of adoption rates and trustworthiness comparable with legal tenders, might affirm itself as a currency. To draw a hyperbole, for the Bank of France Bitcoin *cannot* become money, while for the ECB, Bitcoin has not

become money *yet*. One further proof of the theoretical possibility of private money is this other quote, again from the European Central Bank:

> "However, the overall situation as regards payment system stability might change if: i) large financial sector players interconnected to the global banking system started offering services related to VCS[5]; and/or, ii) a significant increase in users and the volume of transactions took place (for example due to the acceptance of virtual currencies by large e-commerce merchants). […]In addition, a major internet company could decide to issue a centralized VCS to facilitate payments on its platform or "community". These could be payments for digital content, e.g. a newly released song, an exclusive video, a high-quality media article, a new level within a game, etc. Once a couple of hundred million users keep a small balance of VCS units, they could also start using these for payments for real goods and services or for person-to-person payments" (European Central Bank [2015] 2015, 27)

We notice two elements from this fragment. First, the European Central Bank recognizes that the future developments in transnational finance are only partially under its control. For this reason, the discourse assumes a hypothetical tone, and the sentences are not enunciated as truth statement, but rather as forecasts and future scenarios. Second, the ECB lists the conditions under which virtual currencies might make a leap and become a "mainstream" payment instrument. First, the issuer should be well connected: this player would already have a system of costumers and connections in place that will enable the virtual currency to access a widespread use basis. Second, this player should be already trusted in other fields: the virtual currency would be able to rely on the "capital" of trust with which this new hypothetical player would be endowed, even though it does not have the strength deriving from a legal tender status. Again, trust and use are the main driving forces behind the value of money.

b) What Has to be Regulated, and Who Has to Regulate.

Another element of *episteme* is the construction of the field that has to be governed. Finance is constructed as a unified field, as a complex system with several parts playing a vital role within it, and with specific nodal points which act as sorts of gatekeepers. Especially banking, stock exchanges and investment funds are paramount in order to allow for creation and circulation of money. Here are

[5] Virtual Currency Schemes.

some representative quotes from documents in the sample. First, Goldman Sachs states that no payment system will be considered reliable without the support of an efficient banking system to store funds provide loans, and clear transactions. Moreover, since every payment system has risks and BTCs appear to be especially risky, hedge funds are needed for investor to protect themselves:

> "The fundamental obstacles to bitcoin [sic] being used more broadly in the payments system are arguably not insurmountable, though connections with the conventional banking system are ultimately essential to its functioning. The absence of derivative markets makes it harder to manage and hedge risk around bitcoin's value, but it is possible to imagine how those could ultimately develop." (Goldman Sachs [2014] 2014, 6)

Also the CFA Institute stresses the same point. Without banks providing products and accounts denominated in BTCs, it is difficult to imagine that Bitcoin will take off as a currency:

> "A major challenge facing Bitcoin is that even when merchants choose to accept payments, it is difficult for them to convert bitcoins into fiat currencies or store them in deposit accounts. This is due to the reluctance of banks to create bitcoin-denominated products." (CFA Institute [2014] 2014a, 5)

Thus, both the CFA Institute and Goldman Sachs show how the building of a new payment infrastructure, which is paramount in order to support a currency, has to consider the several different functions performed by sub-systems of finance, in these cases banking and derivative markets. These intermediaries operate as "gatekeepers" of the system as a whole: regulating fluxes and the interactions between the system and the surrounding environment, as well as the internal wellbeing of the system itself.

The role of these gatekeepers is keeping negative influxes outside the system; let the positive ones in, and allowing for the financial system to work positively for "real economy", thus avoiding systemic crisis to impact with the real economy:

> "In doing so, the EBA contributes to:
> - improving the functioning of the internal market, including, in particular, a sound, effective and consistent level of regulation and supervision;
> - ensuring the integrity, transparency, efficiency and orderly functioning of financial markets;

> - strengthening international supervisory coordination;
> - preventing regulatory arbitrage and promoting equal conditions of competition" (European Banking Authority [2014] 2014, 45)

Bitcoin is treated as a potential systemic challenge for two reasons. First, being finance a unified system, anything which impacts on one of the elements make the whole system resonate with the consequences of that impact. Second, Bitcoin is itself something that spans across several sub-fields: banking, payments, investments, currency exchange balance.

> "Overall, the advent of digital financial services is likely to change the profile of risks across the financial system. Almost certainly it will raise new risks; it may also arguably make others easier to manage." (G30 2014, 25)

Since Bitcoin is a systemic challenge, the need is for a systemic answer. Regardless of their public or private nature, most of the actors vocally ask for a regulation which should be transnational in scope, public in nature, and consistent across jurisdictions in order to prevent regulatory arbitrage, i.e. the possibility to switch jurisdiction in search for a more suitable environment. The first example is provided by the public actor EBA:

> "the global, internet-based nature of VCs would require a regulatory approach to strive for an international, and ideally global, coordination" (European Banking Authority [2014] 2014, 43)

The WSBI agrees almost word by word with the EBA, showing how the core understandings cut across categories:

> "At the very least there should be the ambition for a global, common definition and classification of virtual currency." (WSBI [2014] 2014, 21)

The CFA Institute, despite coming from the private sector, openly endorses a state-based solution:

> "In general, CFA Institute believes that common minimum standards at the international level are preferable to a patchwork of potentially divergent national regimes in order to minimize scope for regulatory arbitrage. […] Experience in other markets suggests market-based solutions may be unlikely to completely solve these issues. " (CFA Institute [2014] 2014b, 2)

This last quote in particular is quite surprising. As I said earlier, finance is one of the fields which have witnessed an increasing relevance of private self-regulation

(Graz and Nölke 2008b; Hassel 2008). However, CFA states that private self-regulation would be suboptimal. We can thus say that transnational public actors are in a leading position, and will be in the future, both because the higher activism of public actors in the effort of regulating virtual currencies, and also because the other actors ask for them to be pivots in establishing regulation.

c) How Much to Regulate.

In order to determine the regulatory approach that will be followed, many regulators recognize that trust is paramount, and that it may be now at stake. Trust in regulators can be undermined if regulation is systemically bypassed and violated. For this reason the European Banking Authority and the European Central Bank have analyzed separately the so called "reputational risks":

> "The risk can arise if a decision not to regulate was made based on an incomplete analysis of the VC risks, or if the decision was insufficiently communicated to market participants. The priority of the risk is medium. […] The risk can arise if the analysis of the risks and the identification of the regulatory response have been incomplete, if the regulatory approach was arbitraged by market participants acting from outside the regulator's jurisdiction, or if the regulatory measures chosen were not suitable to mitigate the risks. The priority of the risk is medium." (European Banking Authority [2014] 2014, 36)

For the EBA, reputational risks arise mainly from direct responsibilities. Reputation is at stake when the problem is wrongly understood, regulation is poorly implemented, and enforcement is not assured. The European Central Bank, on the other side, considers reputational risks the ones arising from people considering virtual currencies as falling within the reach of public regulators, even when this is not true. Thus, public regulators could be blamed for flaws the do not have direct responsibility for:

> "If the use of virtual currency schemes grows considerably, incidents which attract press coverage could have negative impacts on the reputations of central banks, if the public perceives the incidents as being caused, in part, by central banks not doing their jobs properly. As a consequence, this risk should be considered when assessing the overall risk situation of central banks." (European Central Bank 2012, 45)

The puzzle for regulators, thus, is how much to regulate in order, on one side, to be effective in the desired results and, on the other, not to be considered

accountable for flaws and failures. We can see how this concern is especially perceived as important by public regulators. Moreover, there is a wide understanding that, regardless of the regulatory approach that has to be followed, Bitcoin created a precedent, and might have triggered processes of innovation with unforeseeable outcomes. The feeling that emerges is that future developments are only partially dependent on the regulators' wills. For this reason, and in order to avoid the aforementioned reputational risks, I would suggest that future regulation will be cautious and generally permissive.

d) Which Ends Have to Be Achieved?

When it comes to the *telos* of regulation, we have to ask ourselves: to which end have Virtual currencies to be regulated? The fact that private money is theoretically possible does not imply in any way that it is desirable. Thus, we have to analyze which stance is taken by the relevant actors on whether to ban, incentivize or limit virtual currencies. Again, the divide between national and transnational regulators recurs. There are, however, internal differentiations: the same stance taken by national regulators is also endorsed by the transnational organization Financial Action Task Force and, partially, by the European Banking Authority. On the other side, there are some national regulators that show a more "transnational" agenda, such as the Federal Reserve and the Bank of England.

Among the national regulators the positions tend to vary quite sensibly, with a stronger stance taken by China (European Central Bank [2015] 2015), that has issued a prohibition against virtual currencies and their use by standard financial actors[6]. Hong Kong is likewise strict (Hong Kong Government [2014] 2014; IEC 2013a; IEC 2013b), and so are Iceland (SB [2014]) and Russia[7] (Tessier [2014] 2014). What unifies the position of almost all the national regulators, with notable exceptions is the focus only on one aim: consumer protection. While this

[6] China's document banning Bitcoin, or at least prohibiting banks and exchangers in dealing with virtual currencies, is not available in English, besides some non-official translation. The official text is only available in Chinese. Since using unofficial translations would not be reliable, that document will be overlooked in the analysis, while the regulatory innovation introduced by China is acknowledged.

[7] Also in this case, no official translation in English or other languages than Russian are available. Thus, I will just report the news related to the ban, but I will not use the document issued by Russian authorities in the analysis.

dimension is shared also by transnational regulators, what is important here is that national actors perceive their role as limited only to consumer protection and warning. The aim has to be to warn investors and consumers to the unknown elements of this disruptive innovation. Let us compare the beginning of some documents issued by national regulators, starting with the US-based Securities Exchange Commission (SEC):

> "The SEC's Office of Investor Education and Advocacy is issuing this investor alert to warn individual investors about fraudulent investment schemes that may involve Bitcoin and other virtual currencies." (SEC 2013)

The same understanding is provided by the Bank of France, which confirms its critical stance towards Bitcoin:

> "Although bitcoins are not currently a credible investment vehicle and therefore do not pose a significant threat to financial stability, they do constitute a financial risk for those that hold them" (Bank of France [2013] 2013, 3)

The European Banking Authority shows a dual approach. EBA was the first in Europe to issue an official warning for the private sector, shortly after the more academic paper issued by the European Central Bank. In this warning, the stance of the EBA is quite similar to the one of national regulators:

> "When using virtual currencies as a means to pay for goods and services you are not protected by any refund rights under EU law offered, for example, for transfers from a conventional bank or other payment account." (European Banking Authority [2013] 2013, 2)

The stance is reiterated in 2014's paper. However, this second document is much more analytical and it has a more systemic approach. Rather than limiting itself to the "consumers beware" discourse, EBA is now much more concerned with retrieving the causal roots of Bitcoin's risks:

> "Risks to financial integrity comprise risks of money laundering and terrorist financing, as well as financial crime. […] The risk arises because market participants are often led by individuals who are not 'fit and proper'. The risk also arises because VC schemes are not confined to, and are accepted across, jurisdictional borders [...] The priority of the risk is high." (European Banking Authority [2014] 2014, 32)

The European Central Bank continues to unpack the social roots of money by comparing the current situation with pre-modern times, in which private money was not unthinkable:

> "The existence of competing currencies is not new, as local, unregulated currency communities existed long before the digital age. These schemes can have positive aspects if they contribute to financial innovation and provide additional payment alternatives to consumers. However, it is clear that they can also pose risks for their users, especially in view of the current lack of regulation." (European Central Bank 2012, 11)

Especially in the update published in 2015, the ECB shifts the focus on the obstacles which might prevent an increase in Bitcoin's adoption rates. In particular, the so called "digital divide", i.e. the difference between developing and developed countries in the access to the Internet. If and when these infrastructural flaws are repaired, however, virtual currencies could be a very positive improvement in the financial system:

> "For cross-border customer-to-business and person-to-person payments across the world, users may consider using VCS as an alternative. However, the technical infrastructure and knowledge needed for payments with VCS is a barrier. […] However, there is major room for improvement [...] and hence a VCS could have the potential to offer a better service than traditional providers (banks, money remitters and informal remittance systems)." (European Central Bank [2015] 2015, 20)

The same idea is shared by The Clearing House, a private transnational banking and payment system's organization:

> "Virtual currencies, like other alternative payment products and services, have significant potential to foster innovation and customer choice" (Douglass and Giles 2014, 38)

Another private transnational organization, the WSBI, shares this view, in which Bitcoin can bring about many positive innovations:

> "[V]irtual currency is a development which should not be discarded […] Several regulators express a need for moving cautiously in legislating virtual currency, for fear of hurting valuable innovation." (WSBI [2014] 2014, 21)

From the first ECB's statement, we see how the risks are especially linked to the lack of regulation, rather than to an intrinsic source of danger. The other three sources converge in understanding competition and innovation as inherently

positive. These sources see innovation as natural, and as the product of market in the unleashing its "creative disruption". Their role, thus, is more the one of "nurturing" innovation than to ban it (CBI [2014] 2014). Moreover, we can see how the Bank of England endorses a positive stance and a complex understanding of the questions posed by virtual currencies:

> "While existing private digital currencies have economic flaws which make them volatile, the distributed ledger technology that their payment systems rely on may have considerable promise. This raises the question of whether central banks should themselves make use of such technology to issue digital currencies." (Bank of England 2015, 31)

This stance is actually more open than the one taken by the European Central Bank when it spoke about the possibility of a powerful private player issuing a digital currency (see above, page 40). Bank of England openly invites regulators to learn from Bitcoin and to coopt it in the system. Another national regulator which shows an open stance is the Federal Reserve, in its Federal Advisory Council:

> "Bitcoin does not present a threat to economic activity by disrupting traditional channels of commerce; rather, it could serve as a boon." (FACBG [2014] 2014, 11)

Two elements emerge as paramount contributions that have to be preserved. First, virtual currencies might provide access to money and credit to the "unbanked" (Bank of England 2015, 31; FACBG [2014] 2014, 10). These people are living in countries in which banking and credit are not developed enough. Thus, we can understand as one of the main aims of regulation to continuously enlarge the basis of people involved in financial markets. Second, especially cryptocurrencies, with their decentralized infrastructure, can provide for a smoother financial market and, thus, minimize costs.

However, we ought not to be misguided and think that the whole discourse strand is uncritically open to legitimize virtual currencies (Goldman Sachs [2014] 2014, 3). Let us see this fragment from Financial Action Task Force's document:

> "These potential benefits need to be carefully analyzed, including whether claimed cost advantages will remain if virtual currency becomes subject to regulatory requirements similar to those that apply to other payments methods, and/or if exchange fees for cashing out into fiat

> currency are factored in, and whether volatility, consumer protection and other factors limit their potential for financial inclusion." (Financial Action Task Force [2014] 2014, 9)

This document has a potentially negative stance towards virtual currencies. However, even it agrees with the other sources when it comes to the aims and objectives of regulation. In particular, it agrees with the need for protecting and fostering innovation, and it focuses on a specific application of it: cost reduction. Insofar as virtual currencies can maintain the lower costs of transactions, they could be a useful innovation. What is questioned is whether virtual currencies are able to deliver on the promises of financial inclusion and technological innovation.

In the mind of transnational actors, there are two major aims that have to be achieved. First, regulation has to make the players in financial markets *learn* from Bitcoin and its innovative side. This approach can be summarized with "co-opetition": a mix of cooptation and competition with distributed private virtual currencies. The first generation of virtual currencies such as Bitcoin and the altcoins will remain in place but will remain a niche of the overall economy. On the other side, big players such as private firms and even Central Banks may incorporate the useful innovations of virtual currencies, while discarding too dangerous or politically controversial sides.

> "Indeed, "co-opetition" is already a prevalent feature of the current payments system. PayPal, for example, both competes and cooperates with the current payments ecosystem. […] On net, more than taking off as a widely-used alternative currency, it is much more plausible that bitcoin [sic] eventually has a significant impact in terms of its innovation on payments technology, by forcing existing players to adapt to it or coopt it." (Goldman Sachs [2014] 2014, 18)

Even though some forecasts seem overly optimistic, these enthusiastic interpretations provide clear representations of the *telos* of regulation in their purest version. For example, the WSBI fleshes out several elements of the normative, even utopian (Dean [1999] 2010, 44–45) content of regulation, such as the completely technical nature of monetary policy, which could be devolved completely to computers; and the improvement of economic conditions in unstable developing countries:

> "If economists and central bankers could agree upon optimal monetary rules, then it might be possible to design a digital currency that carries out these rules automatically. The potential is there to supply the foundation for monetary regimes that do not require oversight by any monetary author yet are capable of providing such changes in the money stock as may be needed to achieve a high degree of macroeconomic stability. Whilst this may not sound appealing to countries with stable currencies, some say that citizens from Argentina or Zimbabwe would have benefited from adopting Bitcoin as their nation's currency. […]Finally, a virtual currency-like technology platform could enable central banks to migrate cash from a physical to a digital form factor – thus significantly reducing the cost of cash to society." (WSBI [2014] 2014, 8)

What is surprising here is that a national public regulator openly endorses many of the utopian elements outlined by private actors (Dean [1999] 2010, 44–45). The Bank of England shows that some national players seem to perceive themselves as more "transnational" than purely national.

> "For example, making central bank money widely available could have an impact on deposits held at commercial banks and a knock-on effect on the banking system. Another relevant issue is the impact that offering a new method of settlement in central bank money would have on existing payment systems." (Bank of England 2015, 31)

The relevance of the Bank of England and its stance towards Bitcoin is particularly important: the Bank of England is not only a very important national actor, but it played an especially important role in the European and global process of standardization of payment systems (Jeffs 2008).

The second aim of regulation is de-politicization: for Bitcoin to serve as a useful technological innovation, its political side has to be neutralized. If Bitcoin remains "political", it will remain a niche and die of internal consumption. If, on the other side, Bitcoin is "neutralized", it could become what Internet has been in the past twenty years: neutral, technical innovations with huge positive repercussions and promising pathways ahead.

> "An analogy they often give is the impact that file-sharing had on the music industry in the late 1990s and early 2000s. However, as has been the case with the music industry, it is unlikely that the new technology will meet the lofty socio-political goals of its proponents. It is more likely that Bitcoin will force incumbents in the financial industry, including regulators, to adapt the way they do business." (CFA Institute [2014] 2014a, 9)

There is a connection between the *episteme* and the *telos* of money: if Bitcoin has to be neutral, this is also because money itself has to be neutral (Polanyi [1944, 1957] 2001; Schneiderman 2014). As we said above, finance is considered a purely technical field, and money as a neutral, natural instrument:

> "In an economy hypothetically dominated by Bitcoin, its finite number (21 million) would prevent the application of traditional monetary policy tools to provide support in a downturn or reduce growth during excessive expansion." (FACBG [2014] 2014, 11)

Monetary policy is not seen as a "political" tool, but rather the employment of a technical tool and a technical characteristic of money, in order for it to flow better in the real economy in case of economic distress.

e) How to Regulate: the Technical Tools to be Adopted.

We have seen how money is acknowledged, how Bitcoin impacts on it, and to which ends it should be regulated. Now we have to understand the *techne* of regulation, i.e. the technical tools, instruments and strategies through which the aims of regulation are achieved. While the characteristics of future regulation are shared by the actors (it has to be public, transnational, and consistent), there is no widespread agreement of the tools that have to be employed. One can retrieve three discursive strands in this field. The first group is the biggest in size. Once again, these actors are most often national public regulators, with the notable exception of the Financial Action Task Force. These regulators limit their intervention to consumer protection and due diligence.

> "Financial institutions, virtual commodity dealers or operators, or individuals are reminded of their statutory duty to report suspicious transactions to the Joint Financial Intelligence Unit [...] A failure to disclose [...] may amount to an offence [...]." (Hong Kong Government [2014] 2014, 2).

These regulators share a vision of their role that is limited to supervision and support in case of accidents and other distress experiences by costumers and investors (Danish National Bank 2014; Hong Kong Government [2014] 2014; MNB [2014] 2014; National Banken [2014] 2014). Law enforcement (FATF [2014] 2014; FinCEN [2013] 2013; SEC 2013) is recognized to be difficult for the technical characteristics of Bitcoin and cryptocurrencies, such as anonymity and

deterritorialization. Thus, the need is for more monitoring before issuing case-specific regulation the regulatory effort (MAS [2014] 2014a; MAS [2014] 2014b).

The second approach is inspired by parallelisms between Bitcoin and other technological innovations in finance and other fields. These sources propose either to expand existing regulation in other fields in order for it to incorporate virtual currencies, or to implement regulation inspired by the same principles and using the same tools. In this respect, Bitcoin is called by some actors as "the Interned of money" (FIA [2014] 2014).

The first paper by the European Central Bank tried to understand whether either the EU Electronic Money Directive (2009/110/EC) or the Payment Services Directive (2007/64/EC) could effectively cover virtual currencies. The final answer, however, has been negative in both the cases (European Central Bank 2012). The Securities and Exchange Commission (SEC) of the US has likewise stated that bitcoins are not securities under current regulation, thus they do not fall within the scope of SEC's power (SEC 2013). Similarly, the US Internal Revenue Service (IRS) tried to incorporate Bitcoin in the tax regulation framework, by considering it as a commodity, and by treating exchanges between bitcoins and other currencies as commerce. Using BTCs for buying good, on the other hand, is considered barter by the IRS, because it represents an exchange between two commodities (Internal Revenue Service, USA 2014). This last attempt has been too recent to assess its real impact. As suggestive parallelisms and metaphors may be, it seems that there is no previous regulation that seems to suit virtual currencies in an effective way (Central Bank of Cyprus [2014] 2014; CFA Institute [2014] 2014a; DNB [2014] 2014; FSMA [2014] 2014a; FSMA [2014] 2014b).

A third approach is currently gaining momentum. This approach is inspired by the so-called BitLicence, implemented by the New York State Department of Financial Services (NYS - DFS 2014). The idea is to implement a specific license for virtual currency operators such as merchants accepting them, exchangers, and investors in virtual currencies. This license compels to disclose the amount of virtual currency hold by the operators, as well as the identity of those using the

operator's services, and to keep enough legal tender funds as to cover for possible losses experiences by the clients. Many sources now propose case-specific licenses as a way out (Douglass and Giles 2014; ICBA [2014] 2014; WSBI [2014] 2014). The European Banking Authority proposed to institutionalize governance authorities within each virtual currency:

> "The governance authority should be accountable for the overall functioning of the scheme that promotes the (initiation of the) payment instrument in question, and for ensuring that all the actors involved comply with the scheme's rules. Moreover, it is responsible for ensuring the scheme's compliance with oversight standards" (European Banking Authority [2014] 2014, 39).

This approach seems promising for many actors, but flaws have already been outlined. Licenses, with their requirements in terms of disclosure of identities and accounts will need software corrections in Bitcoin. As I said in the Introduction, changes in the code require consensus within Bitcoin's network: It is difficult to think that changes which are hardly compatible with Bitcoin's political propositions will be accepted. As a response, Bitcoin's users, miners and developers might implement measures to "isolate" users of Bitcoin which decide to adhere to the new system of licensing. On one side, a regulation which completely overlooks Bitcoin's political elements seems difficult if not unsustainable. On the other, Bitcoin seems hardly governable at all, since it has almost always the capacity to adapt and dodge adverse regulation. This is an example of this skepticism:

> "Already there are reports that traders are working on arbitrage strategies for these "New York" bitcoins. It is possible that the bitcoin market will experience a phenomenon similar to that of the Argentinian "blue-dollar" exchange rate, which sees the USD trade at a premium to the official Central Bank rate. In this way, the BitLicence-bitcoin exchange rate may end up resembling a quasi-official "New York" exchange rate for bitcoin." (CFA Institute [2014] 2014a, 8)

It seems again that future developments will fall at least partially outside regulators' reach and control. Thus, unforeseen changes might happen without authorities being able to avoid or stop them.

3. Synoptic Analysis

The aim of the synoptic analysis is to summarize the results in order to address the research question. As said earlier, governmentality is the system of rationalities of power, and it is organized around who rules (the actor constellation), what has to be ruled (*episteme*), towards which end (*telos*) and with which means (*techne*).

When it comes to the actor constellation, the analysis outlines a landscape in which public actors are in a leading position, both because their intensive intervention in the matter, and because even private actors are calling for public intervention and state-based regulation. There is an almost complete absence and isolation of societal actors in the debate. This is interesting, although not surprising: other authors have showed elsewhere that finance is a field in which civil society is often ruled out from important debates and decisions (Tsingou 2008, 60). In general, the leading position in the discourse is assumed by those actors which are either very central in the financial system (US and British national regulators such as SEC, FinCEN and the Federal Advisory Council of the Federal Reserve Board of Governors, and the Bank of England; and a private actor such as Goldman Sachs) or transnational in nature (The Clearing House, the Financial Action Task Force, the World Saving and Retail Banking Institute) or both (European Central Bank, European Banking Authority). This centrality, in turn, is reinforced by the request coming from many peripheral actors for a transnational, consistent regulatory framework.

The *episteme* of the proposed regulation, as I showed in the detailed analysis, is widely hegemonic and spans across public and private actors. Central to this *episteme* is the idea that finance is more than a collection of economic activities: finance is a unified and organic field. Money, in this respect, performs "natural" functions in this system that have to be preserved, such as circulation and exchange. Overall, the understanding is of finance as a deeply technical and "neutral" system, and regulatory intervention has to be equally neutral: it has to preserve the core functions of the system, and to unleash its full potential for innovation. In this respect, a divide emerges which is not really a difference in the stance adopted, but rather a difference in the depth of the analysis. National

regulators, on one side, maintain a more clear-cut stance in which money is only what is established as a legal tender, thus consider private currencies impossible. Transnational regulators, on the other hand, are more open to the possibility of private money. Rather they assume that Bitcoin and other virtual currencies are not money *yet*.

The differences between national and transnational regulators are reflected in the *telos* that regulation has to fulfill. Again, the national regulators take and keep a much more cautious stance towards virtual currencies and private money. Some of them have openly banned Bitcoin, and on average the idea is that investors and consumers have to be warned against potential risks. The transnational actors, on the other side, take a more permissive stance, and they clearly privilege innovation over fear for risks: the system as a whole has plenty of room for learning from these new innovations. This form of learning is described as "co-opetition". The aim of regulation should be to welcome whichever innovation that may increase the fluidity of exchanges, reduce transaction costs, and enlarge the basis of those to whom is given an access to the transnational financial system, by including the "unbanked" and the non-connected to the internet.

The second element of *telos* is much more subtle, and it interacts with the political elements inherent to virtual currencies. Again, we can retrieve a cleavage between national and transnational regulators. Most of the documents retrieved in the sample overlook completely the political roots of Bitcoin and altcoins, together with the links between the emergence and diffusion of virtual currencies and the lack of trust in the regulatory framework in finance brought by the crisis. This is already a sign that virtual currencies are not acknowledged as a political element. Most national regulators overlook anonymity as a resistance to deep scrutiny by public and private authorities, deterritorialization as a way to overcome the digital and economic divide, and peer-to-peer transactions as a way not to rely on intermediaries which have proven to be not always trustworthy. Rather, they only focus on the technical side: these are not political propositions which may or may not be compatible with the *status quo*, but are anomalies and risks that have to be managed and normalized.

The few regulators that actually acknowledge these links are transnational actors. These documents acknowledge some or all the political sides of Bitcoin. However, these political claims have to be normalized in order for virtual currencies to be accepted as new elements of the financial system. Finance, apparently, is not considered a field open for political struggles, so Bitcoin and altcoins are allowed only insofar as they provide "neutral" technical enhancements to core functions of the exchange system: higher velocity of money, broader access to credit and liquidity, and lower costs and higher efficiency by reducing the number of intermediaries involved.

Previous studies on finance acknowledged two powerful ideational forces, aiming towards "scientization" and "marketization". "Scientization disciplines and rationalizes the chaotic uncertainties of social environments, facilitating the creation of articulate rule systems, so that social actors can organize to deal with them" (Drori and Meyer 2006, 31). Marketization, on the other side, is the neo-liberal idea pushed forth by the Chicago School and the Austrian School, especially Ludwig Von Mises and Friedrich Hayek (Djelic 2006). Marie-Laure Djelic (2006: 60-1) identifies six elements of marketization: (1) the endorsement of the mathematical modeling of economic phenomena, thus claiming for economics to be a "hard science" in its capability to explain human behavior (2) a claim for the public, political role of the economist (3) a belief in markets as instruments through which to reach greater efficiency, collective prosperity and individual freedom (4) the idea that a market without state intervention is self-sustaining and prone to reach a win-win equilibrium (5) the conception of human beings as rational actors whose aim is to maximize utility (6) reconciling economics and politics insofar as the economists were deeply engaged in detailed policy making. These two driving ideational forces seem to be at play in the tendency to consider finance as a neutral, a-political field, which has been retrieved in the analysis of the documents.

This tendency within the actor constellation to consider finance as technical and neutral, and to depoliticize challenges, confirms the mainstream way of dealing with Bitcoin within academia. As I have pointed out at the beginning of the thesis in the literature review, Bitcoin has been framed so far only as a technical

element. Moreover, I have shown how important academic research is for regulators. As I said in the structural analysis, there is a consistent group of documents which are academic papers sponsored by public or private organizations. We can see then three elements: 1) a continuity of thought, and a mutual permeability, of economic scholarship and regulators of finance, 2) a central role of regulatory authorities in issuing research paper and, thus, in producing knowledge and 3) a generalized agreement on scientization and marketization. This, in turn, confirms what stated by Marcussen and other scholars, who recognize finance not only as a unified field, but also as an epistemic community (Djelic 2006, 69–70; Gill 2014; Marcussen 2006).

The *techne* reproduces the same national-transnational divide retrieved in the *episteme* and *telos*. Some public national regulators have performed an explicit or implicit ban of Bitcoin and other virtual currencies. However, most of the other actors have adopted a different stance, regardless of their public or private nature. Most of the actors advocate for a regulation which has to be public, transnational and consistent. Again, the national-transnational divide is in place: many national regulators are stuck to a regulation made of "consumers beware" warnings, and legal actions against fraudulent use of virtual currencies. Many transnational, public and private actors, on the other side, are increasingly taking a stance which is based on licensing virtual currency operators and disclosure of data. Sometimes this approach clashes against the core political reasons that brought Bitcoin to life, such as with disclosure against anonymity, and establishment of governance authorities against peer-to-peer horizontal networks. In opposing technical versus political aims, this regulatory approach shows once more that the idea is to de-politicize monetary issues as much as possible, neutralize virtual currencies and to reduce them to pure technological innovation.

Again, licensing appears to be in line with co-opetition as a model of coexistence between virtual currencies and standard players in the financial system. The idea is that original virtual currencies will remain niches, while the protocols and ideas will find fruitful ground in established actors in the financial markets. The aim, thus, is to allow for private actors to adopt standards and protocols from virtual currencies, which might in turn trigger further technological innovation and foster

market efficiency. The door is somehow open even to the possibility of private virtual currencies, if issued by economic players which are stronger than Bitcoin.

There is an important remark to make: the future will depend only partially from the will of powerful players, and all the transnational regulators admit it. The possibility of private currency, while not openly endorsed, is implicitly admitted. The requirements for "real", relevant virtual currencies to emerge would be a powerful, well-connected issuer, in order to provide a wide basis of use and to have an already established trust basis to draw upon. The ECB envision big bank and credit institutions or internet companies as the most likely to be the future issuer of virtual currencies. This acknowledges the fact that Bitcoin has created an important precedent on the transnational level, and it is difficult to think to "de-invent" what has already be invented (Jaye 2014), or to stop this invention to spread and gain momentum. Thus, we need to continue monitoring and see whether this leap of quality will take place, if important players are moving in order either to endorse Bitcoin, or to issue new independent virtual currencies.

This means that the struggle over virtual currencies and private money is far from being over, but the field of struggle will most likely change: from ideas, discourses and rationalities, new developments will happen within the field of material and institutional resources of power. As said before in the theory section of this thesis, an interesting theoretical framework could be Djelic and Quack's (Djelic and Quack 2003). They divide the actor constellation in dominant and fringe players. The former act to secure the *status quo*, the latter might be triggered by a crisis of the system into advocating reform. Acknowledging that the future is not only in the hands of regulators means that we have to observe future developments in search for fringe players gathering around Bitcoin or altcoins in order to protect them, or dominant players securing their own source of power by issuing their own virtual currencies, or simply discouraging the adoption of virtual currencies as wholes.

Let us remember that a field is considered hegemonic when the management of power is not questioned, and the common understandings around *episteme*, *telos* and *techne* are naturalized. Is Bitcoin a counter-hegemonic project? Is it perceived

in this way? Which kind of response is being given? Overall, it seems that Bitcoin as such is a counter-hegemonic project (as said above in pages 9-11). However, the system seems able to push back this attempt to subvert or change the power structure. The response seems adaptive and hegemonic: the field is strong enough to co-opt some technical elements while removing any political problematization, thus being able to continue "business as usual". Only the future can tell if Bitcoin's network will grow in size and relevance enough as to pose a challenge to the hegemonic understanding of transnational finance. Once again, this kind of development will most likely take place in the field of material power and institutions, rather than on the discursive level.

VI. Conclusions.

This thesis had the aim to unpack the rationalities of power around the transnational regulation of money, and how these rationalities are mobilized and changed by the emergence of virtual currencies. I moved from the idea that monetary policy had to be considered in its wider entanglements with banking and exchange, thus in its broader situatedness within the field of finance. I said that, in order to understand the rationalities of regulators, we had not only to delve into law and hard rules, but to watch at a wider sample of soft regulation and more informal documents. Moreover, and especially suitable for the field of finance, I had the need not to stop at national public regulators, but to enlarge the focus as to catch all the important public, private and societal players. Moreover, the need was to understand how strongly hegemonic these rationalities were across the actor coalition. The aim this analysis was to understand what was supposed to be regulated, how and towards which ends, i.e. *episteme*, *techne* and *telos* of regulation.

The fact that regulation of Bitcoin is still in its infancy was both a challenge and an added value of this research: especially in the early stages of regulation, a focus on the rationalities of power is needed, more than an assessment of the material outcomes. By understanding how rationalities of power are crystallizing around the issues raised by virtual currencies, I provided an analysis which could be able to envision possible future scenarios and draw possible pathways of future development. The analysis of the network of documents showed an almost complete absence of societal voices in the debate, a centrality of public actors, and, in general, a leading role taken by transnational actors on one side, and very powerful national actors, on the other.

The analysis has provided a picture in which there is somehow a divide between national public regulators on one side, and transnational or very relevant national players on the other. This cleavage seems to explain more of the differences in stances than the public-private one. This cleavage does not concern the basic concepts within the *episteme*, but rather the depth of the analysis. National regulators are overall more cautious on protecting sovereign currencies. Virtual

currencies are not accepted as money because they are not legal tender. Transnational regulators, on the other side, acknowledge that money has value insofar as it is used and trusted. Private money, thus, is theoretically possible. However, both national and transnational regulators recognize that Bitcoin is not money, at least not yet.

The *telos* of regulation is twofold. First, regulation ought not to jeopardize important technological innovations associated with Bitcoin. Regulation should be inspired by "co-opetition": on one side, virtual currencies should be co-opted as technological innovations. On the other side, competition between different virtual currencies has to be accepted and even incentivized. Second, regulation has to keep political programs aside from finance, its institutions, functions and flows. National regulators do not acknowledge at all the political causes and implications of Bitcoin and virtual currencies. The political elements of these new players are downgraded from political challenges to risks and anomalies. Regulators have to warn in order to minimize risks and control damages. Transnational regulators, on the other side, take a more active stance.

The *techne* of regulation is more divided. National public regulators have less clear ideas than transnational public and private actors. Among this latter group of regulators, the idea is to establish *ex novo*, case-specific licenses. The requirements in terms of disclosure of clients' identities and accounts, as well as the tracking of transactions are against the political principles underpinning the emergence of Bitcoin and other virtual currencies. This, in turn, is a further confirmation of the willingness of the regulators to de-politicize virtual currencies. However, this is also a sign that the widespread idea is not to ban them altogether.

As many sources have stressed, the need is for constant monitoring of future development of both regulation and virtual currencies as a phenomenon. As said above, virtual currencies have proven to be quite resilient and adaptive, so there is no final say about whether they will stay here or fade away. This study has produced two important findings. First, private money is not completely removed as an option at an ideational level. Second, the struggle for the practical

establishment of private money will move from the ideational level of power to the material: in the future, attention will have to see whether and how economic players are making use of their material resources to issue, incentivize or discourage virtual currencies. However, the idea that virtual currencies will just vanish seems unlikely: "The environment (an increasingly peer-to-peer, sharing and digitalized economy) is too favorable for the concept to vanish" (WSBI [2014] 2014, 21). As has been put: "What the future will look like is unclear, but it is increasingly less likely to look like the present" (CFA Institute [2014] 2014a, 9).

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VIII. Appendix 1: The Sample of Analyzed Documents and Coding.

In this Appendix are listed all the documents analyzed. For every document, I provide the acronym and the full name. For organizations having issued more than one document used in the sample, I attach a number in order to make every document univocally identifiable. Moreover, the acronym has an embedded link to the website where the given document can be retrieved. All the documents are listed with a definition of their genre (press release, policy paper and so on). Moreover, a list of keywords, topics, sub-topics and omitted elements is provided for each source. Lastly, I show all the references made by each document to others, starting from which I reconstructed the discursive network shown in Figure 9.

Appendix 1: Sources

Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
2AMF	Autorité des marchés financier	France	PU	Report	Classification of regulatory framework				EBA, 2014; FinCEN, 2014; ACPR, 2014; BDF, 2013; ECB, 2012; GOLDMAN SACHS, 2014;
ACCENTURE/FCA/PSR	Accenture, Financial Conduct Authority, Payment System Regulator (FCA subsidiary)	UK	MIX	Presentation	charts, bullet points, diagrams	Currency, Politics	Internet, Technology	Innovation, Payment systems, Internet,	IRS, 2014
ACPR	Autorité de Contrôle Prudentiel	France	PU	Position statement					EBA, 2014
AFM	Authority for the Financial Markets	Netherlands	PU	Press Release	Regulatory vacuum, Consumer protection, Risks, Bitcoin as an investment and a speculative asset	Bitcoin's politics, currency	Regulation, Consumer Protection, Financial Security,	Regulation, Consumer Protection, Financial Security,	EBA, 2014
AMF	Autorité des marchés financier	Canada (Quebec)	PU	Guidelines	Questions and Answers,	Positive sides, innovation, political implications	Finance, currency, technology, law enforcement and crime	Risk (Volatility, Liquidity, Technological and Operational, Legal, Money Laundering, Terrorism), explanation, Money, Technology, Speculation, Legal tender	
ATMIA	ATM Industry Association	WorldWide	PR	Position statement	Classification, clarification, expression of a position, regulatory approach, conundrums	Bitcoin's politics	Technological change, Consumer protection, private self-regulation	Regulatory complexity, Regulatory uncertainty, need for international coordination, future scenarios (Bitcoin has potential), best practices and self-regulation, creative disruption, ATMIA as a gate keeper, consumer protection	EBA, 2014
ATTAC	ATTAC network	Worldwide	SO	Proposal	reform, examples, critiques			Monetary reform, Franction Reserve Banking System, Local Exchange Trading System, Credit Coin, Electronic Community Currencies, Credit and Banking, Complementary use of cryptocurrencies	
BAFIN	Federal Financial Supervisory Authority	Germany	PU	Report	Explanation, Classification, Enumeration		Technological change, Consumer protection, Law Enforcement	Bitcoin's politics, Regulatory approach (Bitcoin as a financial instrument, and as a commodity), Definition of money, Bitcoin not considered as money, Telos (regulation assesses trustworthiness of actors, thus finance is based on trust)	EBA, 2014;
BAFIN 2	Federal Financial Supervisory Authority	Germany	PU	Report	Explanation, Classification, Enumeration	Bitcoin's politics	Technological change, Law enforcement	Regulatory approach (Bitcoin as a financial instrument), Definition of money (Money = legal tender), IT and monetary sides of Bitcoin, Complexity of regulation, connection to gold-standard theories	
BC	Bank of Canada	CA	PU	Speech	Hipothetical thinking, examples, warnings, reluctancy, skepticism	Politics (just the political side of it, anonimity is dealt with)	National Interest, Finance, Law Enforcement,	Speculation, Investments, Finance, Law Enforcement, Monetary policy, role of Central Banks	EBA, 2014
BC2	Bank of Canada	Canada	PU	Report	Explanation, Classification, Questions and Answers, Historical examples	Bitcoin's politics, regulatory approach	Technological change, Consumer protection	Definition of money (money=unit of account, store of value and means of exchange), Definition of Bitcoin and cryptocurrency, Bitcoin/money comparison (Bitcoin is not money), Risks	
BCB	Banco Central de Bolivia	BO	PU	Bullettin					
BCC	Banco Central de Cuba / Cuba Central Bank	Cuba	PU	Report	Money Laundering, Law enforcement, Bitcoin's definition and functioning, explanation questions		Money Laundering, Law enforcement, Bitcoin's definition and functioning, explanation questions	Money Laundering, Law enforcement, Bitcoin's definition and functioning, explanation questions	FinCEN, 2014
BDF	Banque de France / Central Bank of France	France	PU	White paper/focus paper	Definition of bitcoin and virtual currency, description of its functioning, distinction from money, notions of Bitcoin's politics, Risks, Charts, Figures, Anecdotes, Map of the regulation thus far		Finance, Consumer Protection, Law Enforcement, Internet	Money, Financial security, Consumer Protection, Financial Regulation (Electronic Money, Payment Systems, Investments and Speculation)	ECB, 2012, FinCEN, 2014, FATF, 2014

Appendix 1: Sources

Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
BDI	Banca d'Italia/Bank of Italy	Italy	PU	Circular-Report					EBA, 2014
BDI2	Banca d'Italia/Bank of Italy	Italy	PU	Speech	Regulation	Bitcoin's politics, Monetary policy,		Finance, Risk, Investments, Speculation,	EBA, 2014
BDI3	Banca d'Italia/Bank of Italy	Italy	PU	Warning	Definition of virtual currencies, List of Risks, Transnational comparison, National regulation assessment	Bitcoin's politics, regulatory approach	Law enforcement, Risk(Speculation, Fraud, Hacking, Loss of value, Lack of protection)	Commerce, Investment, Financial stability, consumer protection	FATF, 2014; EBA, 2014
BDLR	Banco De La Repùblica	CO	PU	Press Release - Guideline	Assertive, Bullet point, prohibition	Anything but monetary policy	Currency, Monetary Policy, Law Enforcement	Currency, Monetary Policy, Law Enforcement	
BDM	Banco de Mexico/Bank of Mexico	Mexico	PU	Warning	Risk list, consumer protection, payment systems				
BDP	Banco de Portugal	Portugal	PU	Presentation	Bullet points, Comparisons, Classifications, Graphs (Blockchain)		Finance, currency, technology, law enforcement and crime, taxation	Risks (Lack of transparency and accountability, incomprehension of the phenomenon, Lack of certainty of the acceptance of Bitcoin as a means of payment, Loss of value, volatility, reputational risk, risks for enterprises, illicit activities, fiscal evasion, **risk of loss of confidence towards regulators, if the system does not work, need for a global answer**), Advantages (no intermediaries, no costs, irrevocability, simplicity in transnational transactions, growth, unbanked), Political factors (confidence in the financial system through anonymity and absence of intermediaries)	ECB, 2012; EBA, 2014; FinCEN, 2013; FATF, 2014
BF	Bank of Finland	Finland	PU	Report	Numerical data, anecdotes, explanations	Money	Politics, Technology and Innovation, Internet,	Technology (anonymity, P2P, proof-of-work, centralized ledger, mining), Exchange (rates, means), Actor constellation (Internet subculture, WikiLeaks), Risks (theft by hacking, volatility)	ECB, 2012
BJ	Bank of Japan	JA	PU	Speech	Cautious optimism, Incentives rather than deep comand-and-control legislation	Politics	Payment system, banking	Payment system, banking	
BM	Bank of Mauritius	MSZ	PU	Speech	Enthusiasm, hyperboles	Politics, Law Enforcement	National Interest	Innovation, Payment systems, Internet, Finance, Currency	
BM2	Bank of Mauritius	MSZ	PU	Letter to Stakeholders	Caution, warning, reluctancy	Politics		Speculation, Investments, Finance, Law Enforcement	
BNM	Bank Negara Malaysia / Central Bank of Malaysia	Malaysia	PU	Warning	Risks, definition of money and currency, definition of virtual currency, uncertainty concerning regulation	Proposed regulation, Bitcoin's politics	Risks, definition of money and currency, definition of virtual currency, uncertainty concerning regulation	Risks, definition of money and currency, definition of virtual currency, uncertainty concerning regulation	
BOC	Bank of Canada	Canada	PU	Academic					ECB, 2012
BOC	Bank of Canada	Canada	PU	Academic					ECB, 2012
BOE	Bank of England	UK	PU	Academic					
BOE	Bank of England	UK	PU	Research report and research agenda	Exploration and preliminary analysis, benefit analysis, risk assessment	Bitcoin's politics, Bitcoin's network, systemic regulatory approach	Technological change, payment systems, payment systems, political side of protocols, technical expertise, conduct,	Technological Innovation, International Coordination, Central Bank's autonomy in issuance of money, Regulatory approach, Technical expertise, Political economy of protocols, Financial Conduct, inter-bank competition, payment system, banking, honest behavior,	
BOF	Bank of Finland	Finland	PU	Press Release	Assertive, Consumer protection discourse	Bitcoin's politics	Consumer Protection, Financial stability, payment system	Currency, Monetary Policy, Payment System, Financial Stability	
BOI	Bank of Indonesia	Indonesia	PU	Statement	Assertive	Bitcoin's politics	Law enforcement, definition of momeny	Currency, Risks	

Appendix 1: Sources

Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
BOI	Bank of Israel	Israel	PU	Statement	Regulatory complexity, further research, risks	Bitcoin's politics, Bitcoin's network, systemic regulatory approach	Inter-institutional coordination, regulatory complexity, research, expertise, law enforcement, consumer protection, financial stability, economics, financial interconnectedness	Inter-institutional coordination, regulatory complexity, research, expertise, law enforcement, consumer protection, financial stability, economics, financial interconnectedness	
BOT	Bank of Thailand	Thailand	PU	Explanation	Risk list, consumer protection, definition of Bitcoin	Bitcoin's politics, Bitcoin's network, systemic regulatory approach	Consumer protection, IT	Risk list, consumer protection, definition of Bitcoin	
BRC	Banco de la Repùblica de Colombia	Colombia	PU	Research	Mathematical model, higly formalized economic language and structure, formulas, hypotheses over money, assets and finance	Bitcoin's politics, Bitcoin's network, systemic regulatory approach, consumer protection	Risks, economic theory, economic models, political economy, economic policy, money, assets, speculation	Risks, economic theory, economic models, political economy, economic policy, money, assets, speculation	ECB, 2012
BSP	Bangko Sentral ng Pilipinas / Philippines' Central Bank	Philippines	PU	Research report	Regulatory vacuum, Warning, Consumer Protection, Definition of Bitcoin, Definition of currency,	Bitcoin's politics, regulatory approach	Law enforcement, Risk(Speculation, Fraud, Hacking, Loss of value, Lack of protection)	Law enforcement, Risk(Speculation, Fraud, Hacking, Loss of value, Lack of protection)	
CBC	Central Bank of Cyprus	CY	PU	Press Release	Bullet points, explanation	Politics	Internet, Technology, Criminality, Law Enforcement	Risk, IT, Internet	
CBI	Central Bank of Ireland + Gareth Murphy	Ireland	PU	Speech	Future scenarios, possible regulation, financial crisis, questions and answers, political economy of money	Bitcoin's politics	Law enforcement, consumer protection, technological innovation	Political economy of money, regulation, regulation process, regulatory approach, consumer protection, public-private relationship, expertise, law enforcement	ECB, 2012,
CBJ	Central Bank of Jordan	Jordan + Worldwide	PU	Presentation	Exploration and preliminary analysis, benefit analysis, risk assessment, slides, anecdotes and examples	Bitcoin's politics	Technological change, payment systems, development, developing countries and economies, political economy of payments and remittances	Remittances, the unbanked, opportunities, developing countries, political economy of payments and remittances, third party applications over Bitcoin, alternative use and channels to Bitcoin, Bitcoin's network: (M-PESA, bitPESA, Kipochi)	
CFA	CFA Institute	Worldwide	PR	Answer to public call - HM Treasury, UK	Questions and answers, future scenarios, regulatory approach, complexity, internationalization	Bitcoin's politics	Fiancial stability, law enforcement, crowdfunding, technological innovation and finance, Internet	Benefits of digital currencies, political economy of protocols, financial field interconnectedness, need for systemic regulation, international interconnectedness, international coordination, consumer protection, financial stability, technological innovation, trust in money and finance, private self-regulation vs. public regulation, impact of digital currencies, Bitcoin's network	FinCEN
CFA2	CFA Institute	Worldwide	PR	Policy Paper	Questions and answers, explanation of Bitcoin and cryptocurrencies, regulation comparative analysis, pros and cons, risks, anectdotes, technical language, lists of altcoins, financial interconnectedness, future scenarios	A clearcut regulatory proposition	Technological Innovation, International Coordination, International comparison, Financial field interconnectedness, Political economy of payments, financial intermediaries, regulatory approach, Bitcoin's politics, Bitcoin's and Altcoin's networks, Financial stability, security, Law enforcement, banking, Altcoin's and protocols, political economy of protocols, difficulties in regulation, outcomes of regulation	Technological Innovation, International Coordination, International comparison, Financial field interconnectedness, Political economy of payments, financial intermediaries, regulatory approach, Bitcoin's politics, Bitcoin's and Altcoin's networks, Financial stability, security, Law enforcement, banking, Altcoin's and protocols, political economy of protocols,	IRS, 2014, EBA, 2014, SEC, CFTC,
CFPB	Consumer Financial Protection Bureau	USA	PU	Report	Anectdotes, Questions and Answers	Money, Politics	Technology, Internet, Law enforcement and crime	Risks (Hacking, Lack of protection, Costs, Scams and frauds), Trust (in public issuers of money, in public regulators of finance, do you trust private, non-regulated operators?), Costs (transactions, risks)	IRS, 2012, FATF, 2014, FinCEN, SEC
CH	Helvetic Confederation	CH	PU	Offical Notice					
CRA	Canadian Revenue Agency	Canada	PU	Press Release - Guideline	Definitions, interpretation of the legislation to date and how to apply it to Bitcoin	Currency, Politics, Monetary Policy	Commerce and Barter	Commodities, Tax Laws, Barter, Commerce	

Appendix 1: Sources

Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
CSBS	Conference of State Bank Supervisors	USA	MIX	Policy Paper	Ad hoc intervetion, ad hoc task forces,	Bitcoin's politics, Bitcoin's network, technological innovation, protocol	Consumer protection, financial stability, law enforcement	Regulatory environment, multi-stakeholder regulation, regulatory approach, definition of virtual currency, assessment of previous regulation	GAO, 2014
DBB	Deutsche Bundesbank	DE	PU	Speech	Dismissive	Politics, Law Enforcement	Finance, Speculation	Risks, Currency, Speculation, Finance	
DENMARK BANK	Denmark Central Bank	Denmark	PU	Monetary Review	anecdotes, definitions, charts,	Bitcoin's network	Technological innovation	Definitions, characteristics and functions of money; Bitcoin's political element; Consumer Protection; Episteme, Telos and Techne; Role of Trust in Monetary policy; Regulation and regulatory approach; Law Enforcement	EBA, 2013
DESJARDINS	Desjardins	Worldwide	PR	Economic viewpoint	anecdote, chart, forecasts, pros and cons, definitions and explanations		Technological Innovation, International Coordination, International comparison, Financial field interconnectedness, Political economy of payments, financial intermediaries, regulatory approach, Bitcoin's politics, Bitcoin's and Altcoin's networks, Financi	Bitcoin network; Technological Innovation, Bitcoin's political element; Role of Central Banks; Definitions, conditions and functions of money; Commodity vs Fiat money; Financial Crisis; Financial Interconnectedness; Value of Money; Consumer Protection; Future scenarios; Speculative bubbles; Role of Trust; Episteme Telos and Techne; Regulatory approach	
DNB	De Nederlandsche Bank/ Central Bank of the Netherlands	NL	PU	Report	Explanations, anecdotes, some hyperboles	Politics,	Internet, Technology, Finance, Law Enforcement	Payment system, banking, currency, Internet, thecnological innovation	
DNB2	Danmarks Nationalbank/Danish National Bank	Denmark	PU	Press Release	Definitions, Graphs, Authoritative sentences, reference to the european system	Bitcoin's politics		Money, Consumer protection	
DNB3	De Nederlandsche Bank/ Central Bank of the Netherlands	Netherlands	PU	Press Release	Consumer Protection	Anything but consumer protection	Consumer Protection	Consumer Protection	
DNB4	De Nederlandsche Bank/ Central Bank of the Netherlands	Netherlands	PU	Bullettin	warning, anecdote, definitions, example, explanations, comparisons, parallelisms, data	Bitcoin's politics, Bitcoin's network, regulatory approach		Virtual currencies vs. fiat currency, Virtual currencies vs. legal tender, impact assessment, payment systems, technological innovation, innovation as positive and natural, IT definitions and technical side, risks (security, IT, consumer protection, legal protection, volatility), law enforcement, Bitcoin is not money (and will not be), warning	EBA
EBA	European Banking Authority	EU	PU	Annual Report	Forecasts, warnings, consumer protection discourse	some politics	Finance	Risks, Payment system, financial stability, investments, securities, some politics	
EBA2	European Banking Authority	EU	PU	Warning	parallelisms; questions and answers; explanation;	Bitcoin's politics, Bitcoin's network, Financial crisis		Role of Banking as gatekeeper; Bitcoin as proxy for all the virtual currencies; Need to educate the public; Law Enforcement; Taxation; Fiat currency vs. Virtual currency; Risks (volatility)	ECB, 2012
EBA3	European Banking Authority	EU	PU	Opinion Paper	anecdote, parallelism, charts, explanation, definitions, forecasts, history, pros and cons, comparisons			Definition, conditions and functions of money (episteme), barter vs. commerce and finance, risks, IT, technological innovations, Bitcoin's network, Bitcoin's political element, Assessment of the regulatory approaches (ban unfeasible, minimun capital and reserve requirement is better), need for global, state-based, transparent and consistent regulation (Techne and Telos), competition, consumer protection, growth (Telos), Cooptation of Bitcoin, Consumer due diligence (Episteme and Telos), Definitions and elements of virtual currencies, Innovation as "natural" economic and social phenomenon; European context, Financial interconnection, Regulatory approaches, theory of value, Trust, Virtual currency vs commodity currency, fiat currency and legal tender; Innovation as natural and irreversible; Episteme, Techne and Telos; Need for global, state-based, organic regulation; Investor and Consumer protection; Systemic risk; Reputational Risks; Crisis and distrust	ECB, 2012

Appendix 1: Sources

Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
ECB	European Central Bank	EU	PU	Speech	skepticism, wait-and-see,	Politics	Economic policy, monetary policy	Payment system	
ECB2	European Central Bank	EU	PU	Analysis Paper	anectdotes, graphs, examples, explanations, parallelisms, history, comparisons, datas, pros and cons, hypothetical thinking, forecasts		Technology; Law Enforcement; Consumer Protection;	History of Money, Nature of Money, Monetary Policy, Currency, State and sovereign power, technological innovation, payment systems, internet, Bitcoin's Network, Bitcoin's Political and Theoretical foundations, Crisi and distrust, Virtual Currency vs. commodity, commodity-backed, fiat and legal tender currencies; Future scenarios; Pros and Cons; Bitcoin is not money (but it is a close alternative); Reputational Risks; Consumer Protection; Role of Banking and Credit; Adoption; Trust; Actor Constellation; System; Systemic risk	
ECB3	European Central Bank	EU	PU	Analysis Paper, Update of Previous Research	anectdotes, graphs, examples, explanations, parallelisms, history, comparisons, datas, pros and cons, hypothetical thinking, forecasts		Technology; Law Enforcement; Consumer Protection;	History of Money, Nature of Money, Monetary Policy, Currency, State and sovereign power, technological innovation, payment systems, internet, Bitcoin's Network, Bitcoin's Political and Theoretical foundations, Crisi and distrust, Virtual Currency vs. commodity, commodity-backed, fiat and legal tender currencies; Future scenarios; Pros and Cons; Bitcoin is not money (but it is a close alternative); Reputational Risks; Consumer Protection; Role of Banking and Credit; Adoption; Trust; Actor Constellation; System; Systemic risk	ECB, 2012; EBA, 2014; FinCEN, 2013; FATF, 2014; Goldman Sachs, 2014
EFTA-ATMIA	Electronic Funds Tranfer Association - Automated Teller Machine Industry Association	WorldWide (USA)	PR	Joint Press Release	Wishful thinking, optimism	Bitcoin's politics	Digitalization, monetary policy	Payment systems, technological innovation, cash/e-money relationship	
EP	Eesti Pank	Estonia	PU	Article					ECB 2012
FAC	Federal Advisory Council - Federal Board of Governors	USA	PU	Meeting minutes	Characteristics, Risks, Regulation, Bullet points	Definition of Money		Finance, Risk, Investments, Speculation, Payment System, Banking, Economic Policy, a bit of Bitcoin's politics	FinCEN 2014, IRS 2014
FATF	Financial Action Task Force	Worldwide	PU	Analysis Paper	anecdotes, parallelisms, definitions, explanations, hypothetical thinking	Bitcoin's politics, financial crisis	Technology and Internet, Innovation, Law enforcement, International crime, Consumer Protection	Technological innovation, altcoins, Bitcoin as a proxy, Risks, Internet, need for further research, e-money vs virtual currency, functions of money, functions of virtual currencies, governance authorities, need for common categories and terminology, Law enforcement, Money laundering, terrorism	ECB, 2012
FCA	Financial Conduct Authority	UK	PU	Interview/Debate	Examples, News, Informations. Uncertainty	Politics	banking	banking, financial assets, exchange rates	EBA, 2014
FCA	Financial Conduct Authority	UK	PU	Press Release					EBA, 2014
FCA2	Financial Conduct Authority	UK	PU	Feedback comments	Questions and answers, Declarations of intent	Politics	Internet, Technology, Innovation, Currency and Monetary Policy, Transnational coordination of regulatory policies	Possibilities, Innovation, Technology,	
FCA-AIRFA	Financial Conduct Authority - Association of Independent Risk and Fraud Advisors	UK	PR	Survey	Formal, synthetic, practicitioner-oriented answers	Politics, Internet, Law Enforcement		Payment system	
FCA-EDC	Financial Conduct Authority - Edgar Dunn Company	UK	PR	Survey	Lengthier expressions, but still executive and practicioners-oriented	Politics, Internet, Law Enforcement		Payment system	

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Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
FCA-EPA	Financial Conduct Authority - Emerging Payments Association	UK	PR	Survey	Definitions, example, propositions	Politics		Payment system, Currency, International Politics	Goldman Sachs, 2014
FED - Chicago	Federal Reserve - Chicago	USA	PU	Academic	Explanation of Bitcoin, Definition of virtual currencies, Definition of money, governance of money, regulation of Bitcoin	regulatory approach	Political Economy of Money, Bitcoin's politics, IT system of Bitcoin, Risks, Flaws Consumer Protection, Possible future scenarios, Technological Innovation	Political Economy of Money, Bitcoin's politics, IT system of Bitcoin, Risks, Flaws Consumer Protection, Possible future scenarios, Technological Innovation	
FED BOSTON	Federal Reserve, Boston	USA	PU	Presentation	explanations, bullet points, anecdotes, history, comparisons, parallelisms, definitions, data, forecasts, charts	regulatory approach	Technology, altcoins, technical expertise, innovation, creative disruption	Economic theory, theory of value, digitalization, technological innovation, mobile payments, payment systems, Episteme (markets, competition, efficiency, requirements for money and payments), Telos (trustworthiness, smoothness, velocity, efficiency), financial interconnectedness, intermediaries, banking and credit, crisis and distrust, Bitcoin's political and theoretical foundations, learning from Bitcoin, co-opetition	ECB, 2012
FED BOSTON 2	Federal Reserve, Boston	USA	PU	Academic					
FED BOSTON 3	Federal Reserve, Boston	USA	PU	Presentation	anecdotes, charts, definitions, forecasts, explanations, parallelisms, history	Bitcoin's politics, financial crisis, Bitcoin's network	Technology, altcoins, technical expertise, innovation, creative disruption	Functions of money, technological innovation, protocols, barter vs. commerce and exchange, Role of Trust, Lack of common shared definitions, positive attitute, creative disruption	ECB, 2012; FinCEN, 2014
FED DALLAS	Federal Reserve, Dallas	USA	PU	Presentation	definitions, explanations, imagines, bullet points		Consumer protection, Bitcoin's political and theoretical foundations, crisis and distrust, financial interconnectedness, financial stability, functions of money, intermediaries, Bitcoin vs. money, technical expertise, need	Consumer protection, Bitcoin's political and theoretical foundations, crisis and distrust, financial interconnectedness, financial stability, functions of money, intermediaries, Bitcoin vs. money, technical expertise, need for research, technological innovation, Role of Trust, security,	
FED ST LOUIS	Federal Reserve, St Louis	USA	PU	Presentation	definitions, explanation, positive attitude, historical comparison	Bitcoin's network	Law enforcement, consumer protection, technological innovation	altcoins, bubbles and assets, Bitcoin's political and theoretical foundations, how and how much to regulate, regulation and regualtory approach, financial interconnectedness, intermediaries, crisis and distrust, exchange rate, virtual currency vs. ordinary currency, evolution of money, innovation as natural and evolutionary	
FI	Finansinspektionen	Sweden	PU	Document	Consumer Protection	Bitcoin's politics, Monetary policy,		Finance, Risk, Investments, Speculation,	EBA, 2014
FIA	Future Industry Associations	INT	PR	Article	Methaphores (Gold, Internet of Money), figures,		Technology and Innovation, Internet, Gold and commodities, Trust	Internet (Internet of Money, you cannot shut Bitcoin down as much as you cannot shut the Web down), Money (Bitcoin as a gold-like commodity, as a proxy for distrust towards financial institutions), Trust, Currency (all the fiat currencies are witnessing a trust issue)	
FIN-2013-G001	Financial Criminal Enforcement Network	USA	PU	Regulation, Interpretation	definitions, explanations , parallelism, history	Bitcoin's network, Bitcoin's politics, financial crisis	Technology, economic theory, law enforcement	definition of currency, definition of virtual currency, exchange, Functions of money, history, issuer, money transmission services, money transmitter, parallelism, users, Virtual currency vs. legal tender, virtual currency vs fiat currency	

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Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
FINMA	Swiss Financial Market Authority	Helvetic Confederation	PU	Fact sheet	definitions, explanations , parallelism, history	Bitcoin's politics, Bitcoin's network, Financial crisis	Technology, consumer protection, payment systems	Growing interest, Risks, Consumer protection, law enforcement, positive attitude, currency exchange, payment system, regulatory approach (licensing), Technological innovation	
FINMA 2	Swiss Financial Market Authority	Helvetic Confederation	PU	Warning	definitions, explanations , parallelism, history	Bitcoin's politics, Bitcoin's network, Financial crisis	Technology, consumer protection, payment systems	Growing interest, Risks, Consumer protection, law enforcement, positive attitude, currency exchange, payment system, regulatory approach (licensing), Technological innovation	
FKTK	Financial and Capital Market Commission	Latvia	PU	Press Release					EBA, 2014
FKTK2	Financial and Capital Market Commission	Latvia	PU	Press Release	Regulatory vacuum, Consumer protection, definition of (virtual)currency, Risks	Bitcoin's politics	Regulation, Consumer Protection, Financial Security, Currency	Regulation, Consumer Protection, Financial Security, Currency	EBA, 2014, ECB, 2012
FMA	Finanzmarktaufsicht/ Financial Market Oversight	Austria	PU	Press Release	Factlist, warnings, consumer protection, unclarity of the actual regulation around Bitcoin	Bitcoin's politics, Monetary policy,		Risk, Money, Consumer protection, Law Enforcement	EBA, 2014
FRB	Federal Reserve Board	USA	PU	Article*	Data, graphs, figures, questions, models	Legal, Political and Regulatory Implications	Technology, Cryptography, Internet, Monetary Policy	Cryptography, Technological Innovation, Internet, Monetary Policy (Exchange Rates, Velocity, Liquidity)	GAO, 2014; ECB, 2012; EBA, 2014; ICBA, 2014
FS	Finanstilsinet/The Financial Supervisory Authority of Norway	Norway	PU						EBA, 2014
FSA	Financial Service Agency/Minister of Finance	Japan	PU	Press conference - minutes	Uncertainty			Definition of money (problem) Regulation (problem)	
FSA2	Financial Service Agency/Minister of Finance	Japan	PU	Press conference - minutes	Uncertainty, urgency	Bitcoin's politics, transnationality of the issue	currency definition, money definition, regulation	currency definition, money definition, regulation	
FSA3	Financial Service Agency/Minister of Finance	Japan	PU	Press conference - minutes	Uncertainty, no definition of any regulatory approach	Bitcoin's politicts, proposed regulation		Definition of currency, uncertainty about regulation,	
FSMA	Financial Services and Martke Authority	Belgium	PU	Press Release/regulation	Assertive, prohibition, warning, consumer protection discourse	Bitcoin's politics, definition of money, monetary policy, definiton of virtual currency, virtual currency, currency, proposed regulation	financial stability	Finance, speculation, financial crisis, consumer protection, risks,	FSMA - NBB
FSMA-NBB	Financial Services and Martke Authority - National Bank of Belgium	Belgium	PU	Joint Press Release	Uncertainty, risk list, bullet points, definition of virtual currency, absence of regulation, warning	Bitcoin's politics, definition of money, monetary policy, regulatory strategy	Fiancial stability	Definition of money (problem) Regulation (problem), Speculation, financial stability, consumer protection, consumer warning,Risks	EBA, 2014; ECB, 2012
G30	Group of Thirty	Worldwide	PR	Research/Policy paper	anecdotes, charts, impact assessment,		Innovation, creative disruption, taxation	banking as nexus and gatekeeper, adoption, trust, should Bitcoin be regulated? How? How much? Risks, Financial interconnectedness,financial crisis and distrust, globalization and transnational reach of the challenges, industry and field boundaries, lack of regulation, sovereignty, learning with bitcoin, innovation as natural and evolutionary, systemic risks,	

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Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
GAO	Government Accountability Office	USA	PU	Policy Paper	anecdotes, explanations, assessment, comparison, pros and cons	Bitcoin's politics, financial crisis	Innovation, creative disruption, taxation	Bitcoin's definition and characteristics, consumer and investor protection, financial inclusion, intermediaries, law enforcement, need for global, state-based, coordinated and consistent regulation, Telos (safety and soundness), potential benefits, positive attitude, the unbanked, can Bitcoin be regulated? how? how much?	CFPB, 2014, FinCEN, 2014, SEC, 2013
GOLDMAN SACHS	Goldman Sachs	USA+World wide	PR	Research Paper	Explanations, definitions, anecdotes, Economic models, Economic theory, charts, figures, data, comparisons, parallelism, history			"co-opetition", adapt it or coopt it, adoption, alternative uses of the protocol, banking,bitcoin and gold,bitcoin as a commodity, bitcoin is not money, Bitcoin's political element, blockchain, chicken-and-egg-problem, commodity money, co-opetition, cooptation, Definitions, detractors, detractors vs supporters, disruption, figures, future scenarios, gatekeepers, gold, history, Intermediaries, investment funds, Lack of regulation, Law enforcement, legal tender, merchants, money, payment systems, political economy of protocols, protocols, Regulation, regulation issues, security, Security Concerns, store of value, virtual currency vs fiat currency, volatility,	
HKGOV	Hong Kong Government	Hong Kong	PU	Press Release	Warning, allarming tones, repetitions, intimations	Politics	Law enforcement, Internet, Consumer Protection, Currency and Monetary Policy	Risks (Monetary loss, money laundering, cyber-crime, speculation), Consumer Protection	
ICBA	Independent Community Bankers of America - The Clearing House	USA + Worldwide	PR	Policy Paper	anecdotes, Bitcoin as proxy, Charts, definitions, explanations, parallelisms,	Bitcoin's politics,		Banking, Regulatory approach, Bitcoin's Network, Definition of money+virtual currency, Bitcoin IS money, Impact assessment, Financial Interconnectedness, Episteme, Intermediaries, issuers, need for coordination and global approach to regulation, payment systems, law enforcement, consumer protection, risks	FinCEN, 2014
IEC	Investor Education Center	Hong Kong	MIX	Report	Repetitions, news reminders, anecdotes, very simple explanations, allarming tones	Currency, Politics	Law enforcement, Internet, Consumer Protection	Risks (Monetary loss, money laundering, cyber-crime, speculation)	Hong Kong government, 2014
IEC2	Investor Education Center	Hong Kong	MIX	Report	Repetitions, news reminders, anecdotes, very simple explanations, allarming tones	Politics	Law enforcement, Internet, Consumer Protection, Currency and Monetary Policy	Risks (Monetary loss, money laundering, cyber-crime, speculation)	Hong Kong government, 2014
IIF	Insitute of International Finance	Worldwide	PR	Analysis Paper	anecdotes, history, explanation, definitions, parallelisms, charts, figures, data			advantages of regulation,banning, bitcoin as a commodity, Bitcoin network,Bitcoin's political element,central banks,central issuer,Chart,Consumer protection ,Definitions, detractors vs supporters,explanation,Intermediaries,intra-state uncoordinate regulation (USA),Intrinsic value ,IT,IT risk,Lack of regulation,Law enforcement, need for consistency in regulation, need for state regulation,positive, pseudonymous,RISKS ,tacit approval,tacit ban ,Telos,Trust,trusted third-party,volatility,Bitcoin as proxy,definition of virtual currency,difficulty of impact assessment,disclosure,exchange,exchange rate,gatekeepers,legal tender,Miners,questions,taxation,virtual currency vs fiat currency,virtual currency vs legal tender	FED CHICAGO

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Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
IRS	Internal Revenue Service	USA	PU	Interpretation and Regulation paper	Question and answers, parallelisms, comparisons	Protocols, Bitcoin's network, Bitcoin's political element, financial crisis	Payment system, banking	Bitcoin as proxy definition of virtual currency difficulty of impact assessment disclosure exchange exchange rate FinCEN For federal tax purposes, virtual currency is treated as property. gatekeepers legal tender Miners questions taxation techne Under currently applicable law, virtual currency is not treated as currency that could generate foreign currency gain or loss for U.S. federal tax purposes. virtual currency vs fiat currency virtual currency vs legal tender	FinCEN
LB	Lietuvos Bankas / Central Bank of Lithuania	Lithuania	PU	Document					EBA, 2014
LB	Latvijas Banka	LV	PU	Press Release					
LB2	Latvijas Banka	LV	PU	Press Release					
MAS	Monetary Authority of Singapore	Singapore	PU	Press Release	Regulation, Risk, historical reconstruction,	Definition of Money, Monetary Policy, Bitcoin's politics	Finance in general, consumer protection, financial stability	Money laundering, law enforcement, risks, criminal uses, consumer protection, transnational scope of regulation	
MAS2	Monetary Authority of Singapore	Singapore	PU	Parliamentary debate - minutes	Examples, figures, historical anecdotes	Bitcoin's politics	Definition of money, law enforcement, tax policy	Money laundering, law enforcement, risks, criminal uses, consumer protection, transnational scope of regulation, definition of virtual currency	MAS
MAS3	Monetary Authority of Singapore	Singapore	PU	Analysis Review Paper	Explanations, definitions, educations, examples, comparisons, anecdotes			Consumer protection financial stability increased interest innovation IT Law enforcement pros and cons RISKS Technological innovation	
MFSA	Malta Financial Services Authority	Malta	PU	Press Release - Guideline					EBA, 2014
MNB	Magyar Nemzeti Bank / Central Bank of Hungary	Hungary	PU	Analysis Review Paper	Definitions and explanations	Bitcoin's political elements, Bitcoin's network, Regulatory approach	banking Consumer protection decentralization Definitions explanation Financial interconnectedness innovation Intermediaries IT IT risk Lack of regulation Law enforcement RISKS Systemic Risk taxation techne Technological innovation	banking Consumer protection decentralization Definitions explanation Financial interconnectedness innovation Intermediaries IT IT risk Lack of regulation Law enforcement RISKS Systemic Risk taxation techne Technological innovation	
NBKR	National Bank of the Kyrgyz Republic	Kyrgyzstan	PU	Warning	Risks, definition of virtual currency, lack of regulation, consumer protection, prohibition, description	Bitcoin's politics, proposed regulation, definition of money	consumer protection, law enforcement, financial security	Definition of virtual currency, uncertainty concerning regulation, consumer protection, law enforcement, financial speculation	
NY BITLICENCE	New York State Department of Financial Services	USA	PU	Regulation	Definition, regulation, conceptualization	Bitcoin's political elements	Banking, exchange, law enforcement	Consumer protection cybersecurity risks definition of virtual currency disclosure exemptions Fiat money Law enforcement legal tender material change minimum capital requirements network supervision techne Telos transaction disclosure Trust virtual currency business activity	
OSC	Ontario Security Commission	Canada (Ontario)	PU	Vademecum	Risks, examples, uncertainty, questions and answers, warnings,	Bitcoin's politics, proposed regulation, definition of money	Consumer protection, law enforcement	Definition of (virtual) currency, uncertainty about regulation, consumer protection, law enforcement	
P&R	Payden & Rygel	WorldWide (USA)	PR	Bullettin	Enthusiasm, hyperboles, hope. Graphs and figures, examples and anecdotes, examples from history (Pre-industrial and proto-industrial history)	Bitcoin's politics	Deterritorialization, globalization, internet, technology	History of Money, Nature of Money, Monetary Policy, Currency, State and sovereign power, technological innovation, payment systems, internet	ECB 2012
RBNZ	Reserve Bank of New Zealand	NZ	PU	Speech	wait-and-see	Politics	payments	payment system	
SBI	Sedlabank Islands / Iceland Central Bank	Iceland	PU	News, warning	Regulatory vacuum, Rejection of competence on the matter, Risks, warning	Bitcoin's politics, regulatory approach	Law enforcement, Risk(Speculation, Fraud, Hacking, Loss of value, Lack of protection)	Law enforcement, Risk(Speculation, Fraud, Hacking, Loss of value, Lack of protection)	

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Acronym	Organization	Country	Type	Genre	Typicality	Neglected	Inter-discourse entanglement	Sub-topics	References
SEC	Securities and Exchanges Commission	USA	PU	Warning, Regulation, Interpretation	Warning, questions and answers, education, explanation, definition and conceptualization	Bitcoin's political element, financial crisis	Law enforcement, fraud, crimes, consumer protection	anonymity Consumer beware fraud increased interest investor alert Law enforcement licensing regulatory apprach RISKS warning	
SFC	Securities and Finance Commission	Hong Kong	PU	Circular	Assertive, regulation, orders, procedures	Bitcoin's politics, definition of money, monetary policy, definiton of virtual currency, virtual currency, currency, proposed regulation	Law enforcement	Money laundering, law enforcement, anti terrorism, consumer protection	IEC
SOCIETAL	CFA Institute Magazine	Worldwide	SO	Interview/Debate	Pros and cons, definitions, comparisons, parallelisms, explanations, exaples, anecdotes, history,			Adoption as key for money altcoins alternative uses of the protocol As an invention, it happened and you can't un-invent it. banking Bitcoin network Bitcoin's political element But how does one slay the Hydra~ central banks crisis currency competition deflation disruption distributed capitalism Distrust of financial institutions Fiat money Financial interconnectedness fringe players gatekeepers innovation innovation as natural Intermediaries international coordination internet lack of trust in intermediaries lack of trust in monetary policy licensing marketplace of ideas parallelism political economy of protocols private money private self regulation Private versus public money protocols taxation Technological innovation third world transnational reach unbanked uncertainty over definition of Bitcoin	
TCH	The Clearing House	Worldwide	PR	Bullettin	anecdotes, facts and figures, data, graphs and charts, comparison, history, parallelisms			Bitcoin's network, Bitcoin's politics, Consumer and Investor protection, Intermediaries, Lack of regulation, money laundering, law enforcement, regulatory approach (licensing), need for global, state-based, coordinated and consistent regulation, prudential regulation, need for further study and research, task forces, technological innovation, trust	CFPB, 2014, FinCEN, 2014, GAO, 2014
WSBI	World Savings and Retail Banking Institute	Worldwide	PR	Working Paper	anecdote future scenarios positive Chart Definitions educating the public history parallelism questions risk assessment			anonymity bitcoin at most as bad as cash Bitcoin network Bitcoin's political element BitLicense Regulations Consumer protection future scenarios innovation Intermediaries INVESTOR PROTECTION IT IT risk Lack of regulation licensing money laundering need for state regulation positive protocols prudential regulation Regulation regulatory apprach Research RISKS study committee task forces techne Technological innovation Trust Adoption as key for money alternative uses of the protocol banking Bitcoin as proxy cash central banks Consumer beware cost of cash difficulty in definition difficulty of impact assessment digital divide disruption do not kill the golden goose Ecosystem educating the public Fiat money financial divide financial inclusion Financial interconnectedness Functions of money history how much to legislate innovation as natural international coordination internet Intrinsic value Law enforcement learning from Bitcoin need for consistency in regulation need for global regulation new regulation vs redressing of existing framework noise and investment may have a cause political economy of protocols regulation arbitrage remittances Risks inherent to understanding Bitcoin Systemic Risk taxation The technology The value chain theft transaction transaction fees transnational reach trusted third-party unbanked virtual currency vs commodity currency virtual currency vs fiat currency virtual economy vs real economy volatility work in progress	CFPB FinCEN GAO CGAP European Banking Authority, EBA FATF FED CHICAGO
OCCUPY	Occupy Network	Worldwide	SO	Position statement					