THE PLACE OF MONEY IN HISTORY[1]

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Abstract

Money is a precarious and abstract embodiment of value, and while there is more money in motion around the globe than ever before, the basic problem has not changed since its earliest use in antiquity. That is, money's value must be actively, and at times forcefully maintained across time and space. The chapter provides a selected overview of the historical geography of money, but it also considers why a historical geographic analysis is crucial to understanding contemporary money and its politics. It argues that throughout history various money forms have been dependent upon political power and the maintenance of territory. While it may be tempting to lean on contemporary concepts such as financialization to explain the power and politics of money, this chapter makes the case that a more historical and geographically sensitive analysis is more fruitful. Without a doubt, there is uniqueness to the political economy of 21st century financial geographies, but the chapter argues that even the most recently developed money form, cryptocurrency, is better understood in a historical geographic context.

Key Words: Money, Finance, Debt, Seigniorage, Cryptocurrency, Bitcoin, Territory

Introduction

How does one store wealth over time? Most answers to this question would include a discussion of money. It is possible to store wealth in other forms—historically the most obvious examples are food and land. Then again, physical objects like these must be protected from among other things, spoilage and plunder. Further, useful objects are limited by their particular qualities, so if in order to realize their value, they are meant to eventually be exchanged, their value is also limited by others' need for those qualities. Simply put, the value of useful objects is unstable. If the goal is to store wealth, it may seem like the obvious solution to these problems is

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to avoid useful objects all together, and instead employ money. But money has the same problems. It is a precarious embodiment of value. And while powerful forces act to preserve that value, there is no escaping the dilemma. Whether in the form of shells, coins, or U.S. Treasury debt, despite the best efforts of people, communities, and states, nothing can guarantee the value or security of money over space and time.

Throughout history, efforts to control the value of money have been part and parcel of territorial struggle, often including violent conflict. Some argue that the mechanisms necessary to maintain the value of money was and is a basic building block of the liberal nation-state (Helliener 1999, Mann 2010, 2013, Vogl 2017). The state sponsored mechanisms involved in this maintenance, what we might call *financial infrastructures* (Mann 2010, Muellerleile 2018), are beginning to attract more attention from human geographers and other social scientists, but there is still much work to be done to understand the necessary relationship between the control over territory and the maintenance of money. If nothing else, contemporary debates over financialization and the long-term inability of liberal democracy to bring financial markets under control would benefit from sustained historical analysis of the relationship between territory and various forms of money.

Contemporary cryptocurrencies like Bitcoin are designed in large part to avoid the problem of the need for a centralized power, or central bank, to maintain the value of money. While it is unclear whether cryptocurrencies will eventually become powerful monetary devices, not least because they tend to fluctuate wildly in value, there is no question that they at least carry the potential to transform existing financial geographies. For instance, if they did achieve popular acceptance, nation-states' capacities to influence interest rates in their own currencies, and thus the value of credit and debt, could be diminished. That sort of development could begin to resemble the vision of Friedrich Hayek, who in 1976 proposed a denationalization of money—where there would be no political-legal restrictions on the creation of money. Presumably, money forms would then be in direct competition with each other to find 'consumers'. In essence, Hayek proposed something similar to that of many Bitcoin proponents—the decoupling of money from political territory. Imagining this possibility in the wake of cryptocurrencies is something social scientists have failed to do in any systematic way. I argue that one reason for this is there is not enough geographic analysis of historical monies to draw upon.

The main focus of this chapter is the changing relationship between money, space, and territory over time, but it culminates with a series of speculations on how we might understand cryptocurrency with the same conceptual grammar often used to make sense of medieval coins

or finance capital. One way I draw these connections is by focusing on the difficulty of separating money, credit, and finance from the formation and function of both pre-capitalist and capitalist states, not least from their territorial reach (Gilbert 2007, Helleiner 1999). This is not to suggest that historically finance fits neatly in national scale boxes. On the contrary, despite continuous efforts at various geographic scales such as the imperial city, the city-state, or the global city, money, banking, and finance have never been captured by political territory. On the contrary, repeatedly through history, monetary and financial actors and devices have 'broken out' of existing geographic scales and contributed directly to the rearrangement of socio-spatial relations (Arrighi 1994). Liquidity, after all, is a basic quality of money, and just like water, money is difficult to contain.

From here the chapter first considers in Section 2 why historical geography is largely bereft of systematic analyses of money. In Section 3 I discuss some of the debates over the basic functions of money in a historical context—most importantly between a means of exchange and a store of value. Section 4 considers money as a commodity, and how states and sovereigns have attempted to employ money to expand or maintain power. Section 5 considers state sponsored money of account, and ponders some of the contradictions of commodity money and debt. Section 6 analyzes the emergence of money and finance as *capital* since the 18th Century, and the importance of the contemporary nation-state and global territory to those developments. Section 7 returns to Bitcoin, and considers whether it is a sustainable money form given its intentional lack of connection to any obvious political 'territory'. Section 8 concludes by returning to the importance of seeing money through a historical geographic lens.

2. Absent histories?

The attention that money and finance have received in geography since the Global Financial Crisis of 2008 is an exception to the rule. Economic geographers began to pay attention to money in the 1990s, particularly in inquiries related to the nature of globalization (cf. Martin 1994, Swyngedouw 1996, Leyshon & Thrift 1997). This said, especially in historical geography, money and finance have never attracted very much direct attention. There are exceptions (Schoenberger 2008, Gilbert 2005, Gilbert and Helleiner 1999, Christophers 2013, Leyshon and Thrift 1997), but rarely is the focus directly on money[2].

[2] Money is not the exclusive focus of any of the following, but it does form a crucial component of the authors' historical-geographic arguments. The importance of banking and credit are an important part of Henderson's examination (1999) the late 19th and early 20th century capitalization of agriculture and nature in the West of the U.S., as they are to Cronon's analysis (1991) of a similar period when the natural environment of the Great West was transformed in symbiosis with the urbanization of Chicago.

Why this lack of focus on money and finance in historical geography? The answer is not entirely clear, but I will offer three possible explanations. First, despite the attention it has received since 2007-2009, money has generally been neglected in the social sciences for at least the past 50 years[3]. Both money and markets have infamously received little attention from those scholars who one might assume to be most concerned with it, neo-classical economists (Ingham 2004). And crucially, within economics, financial economists—those most obviously interested in flows of money and related instruments—were largely ignored by the mainstream until the 1960s, and even into the 1980s were marginalized in the discipline (MacKenzie 2006). In this context, historical geography is not alone in neglecting money.

Second, in contemporary human geography and especially economic geography, analysis of the production of space and uneven development are usually focused on what are considered to be industrial or *productive* sectors of the economy, or those that most obviously produce value (Engelen & Faulconbridge 2009). Along with things like social reproduction and care, money, banking, and finance have typically not been considered productive (Christophers 2013), and as a result their relationships to space and place, both in the past and present, have received less attention. The clear exception would be the relationship between finance and the geography of world or global cities, but the *history* of this relationship has received relatively little attention in geography.

The third reason is perhaps the most important and deserves a longer explanation, although it may better be expressed as a question. That is, to what extent, have widespread arguments proposing a dramatic financialization of the socio-economy since the 1970s distracted historical geographers from examining cases of the importance of past financial geographies? It is often suggested that prior to the 1970s, money and finance served the rest of the economy, or were in other words relatively isolated, even subordinated, to their proper place in society and economy. In comparison, after the end of US Dollar convertibility to gold in 1971, finance has broken out and exerted disproportionate influence on most every aspect of socio-economic life.

Many argue that something *uniquely financial* has happened in the last 40 years, and historical geographers have not adequately scrutinized this assertion. It would be foolish to

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Muellerleile (2015) has analyzed the importance of the agricultural history of the city of Chicago to the expansion of speculative financial instruments in the late 20th Century. Domosh (2013) considered the role of CitiBank in the development of a unique US geoeconomic imperialism at the beginning of the 20th century. Finance capital is an important part of Harvey's various historical expositions, such as the mid-19the century reconstruction of Paris, or the 20th century capitalist transition into and out of a Fordist economy (1990).

[3] Bieri (2017) examines the neglect of money and credit in Regional Science since the 1960s, despite the important early work on money by August Lösch and Walter Isard.

suggest that nothing has changed in money and finance since the 1970s. For instance, there has clearly been a significant increase in both nation-state and individual debt (Graeber 2011), and during the same period the volume of financial market transactions has grown exponentially (Wojcik 2011). Nevertheless, the usefulness of the concept of financialization is limited and the case for financialization is often overstated (Christophers 2013, 2015). Furthermore, financialization is often conflated with other changes in contemporary capitalism such as the spread of market logics and mechanisms (French & Muellerleile 2016). Late 20th century financialization as both a phenomenon and concept has attracted scholarly attention to financial capital, but at the same time may have misled historically minded geographers by cementing the idea that finance became exceptionally important after 1970, rather than encouraging them to look for divergent but no less influential roles for money and finance in the past. For historically minded scholars, it goes without saying that no one should be too distracted by claims that financialization is something entirely new. The point is to make sense of past financial geographies, not least because they improve our understanding of why and how money is exceptionally powerful today.

3. Cryptic monetary geographies

While the complexity of money and finance should not intimidate anyone (Christophers 2009), money's paradoxes are considerable (Gilbert 2005). Among other things, there is little agreement on the nature, functions, or origins of money, not least because they overlap conceptually and historically. Most serious scholars of money readily admit that a complete disentanglement of the various aspects of money is not possible and I will not attempt it here. Nonetheless, I will start with a brief look at the historical functions of money, or *what money does*, but it is important to remember that what money does is different from *what it is*. As Ingham (2004) emphasizes, while exploring the functions and abstract ideas about money are important, attempting to define a singular nature of money, especially as a physical object, is mostly a fruitless exercise (see also Swyngedouw 1996). This said, understanding the different qualities of various money forms is important. The qualities of precious metal coins for instance, is important for understanding both the history of money and the history of territory. Regardless, no matter how 'objectively' valuable a money form, each is dependent upon the socially constructed and abstract value systems through which they circulate. These various standards of value must be considered both independently and in comparison with each other, which helps explain why geographies of money tend to be complex and difficult to generalize.

Adding complexity, multiple money forms often exist at similar places and times, even if they serve slightly different functions. Particularly in capitalism, there is a hierarchy of money forms (cf. Merhling 2017). For instance, the state tends to protect large financial institutions rather than individual consumers in the face of financial failure. Throughout history various money forms have been more, or less protected from devaluation by the state, and some money forms are accepted as a means of payment in more places than others. Who has access to which forms, and which of those are more apt to survive over time and space are questions for geographical political economy.

There are two main perspectives on the historical functions, and by extension historical origins, of money (see Harvey 2006: 239-251) [4]. On one side is a classical economic assumption espoused by Adam Smith, and still widely accepted in economics today. That is, money arose and exists today to ease exchange relations between equal and relatively anonymous individuals. Historically the argument is that money emerged to make barter relations more efficient, and in effect transformed barter into market relations. This is the common origin story for those who argue that money's most important quality is as a *means of exchange or payment*.

On the other side is the argument that money primarily functions to quantify social claims, obligations, and wealth—or in other words that money is a token or tool to account for credit and debt. This is a way to explain money as a *measure or store of value,* although not necessarily capitalist value. It is important to note that for money to serve these 'accounting' functions, it need not manifest in a physical form such as coins. In fact, historically, non-physical or abstract *money of account* was quite common. In many instances, money of account pre-dated and determined the physical form of money that later developed (cf. Ingham 2004, Graeber 2011)[5].

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[4] Another reason that the geographies of money are so difficult to pin down is that both money as a means of exchange and money of account have overlapping geographies that may contradict each other. Put differently, various money forms and functions are objects of socio-political struggle, between clans, classes, institutions, and nation-states to name a few.

[5] For the purposes of this chapter I consider *money of account* and money as a *unit of measurement* to be functionally equivalent. In explaining money of account, Ingham (2004: 48) refers to the German *state theorist* of money Georg Knapp: "Knapp insisted that money is the measure and not the thing measured—that is to say, money is abstract value." To paraphrase Graeber (2011: 46), dollars are no more 'real' than hours or centimeters—they are simply a widely accepted unit of measurement. Graeber goes on to say "What we call 'money' isn't a 'thing' at all, it's a way of comparing things mathematically, as proportions: of saying one of X is equivalent of six of Y. As such, it is probably as old as human thought. The moment we try to get any more specific, we discover that there are any different habits and practices that have converged in the stuff we now call 'money,' and this is precisely the reason why economists, historians, and the rest have found it so difficult to come up with a single definition" (2011: 52).

Another debate is between the public versus private, or social versus commercial, character of money. That is, whether money emerges because states find it politically useful, or rather because private market actors need something to assist commercial activities (see Schoenberger 2008). Another way to ask this question is from where or what does money acquire its value? Does it come from the labor that produces it? Does the state confer it? Or does emerge organically from its use in society?

Attempting to transcend this debate[6], Hart (1986) argues that at least in capitalism, money is always a subject of both state and market, or both public and private relations. He uses the metaphor of two sides of a coin. The 'heads' side of a coin symbolizes the sovereign, state authority, or more generally, a trusted token for relations between people in society. The 'tails' side represents the commodity 'thingness' of money and its quantitative measurement of value, and as such its capacity to facilitate exchangeability between objects of differing qualities. Hart's argument is that money is not exclusively either one of these, but always both.

I will not refute Hart's argument, but a number of caveats should be noted. The tails side, or equivalence function of money need not imply a formal market relationship. Market-like exchanges, enabled in part by the existence of various money forms—or means of exchange—existed for centuries, if not millennia prior to capitalism (Polanyi et al. 1957). While Hart is not guilty of this assumption, it is a mistake to assume that a historical instance of money also implies the existence of formally monetized, let alone capitalist market relations in history. One reason for this is that the heads side, or public character of money also has a long and geographically divergent history. Sovereigns and states have taken many different forms, and cultural norms surrounding the quantification of social obligations also has a long and complicated history (Graeber 2011). The point is that the existence of money-like equivalence and market-like exchange, in antiquity for instance, does not imply that formal commodities and capitalist exchange relations would inevitably emerge. Rather, the emergence of capitalist money and markets must take account of the evolution of both socio-cultural institutions as well as the abstract market logic of capitalist exchange. And just like means of exchange versus money of account, both the socio-political, and the market functions of money have distinct historical geographies.

4. States, Soldiers, and Commodity Money

Yet another argument that deserves attention is whether money, in function or nature, ought to be considered a commodity. I will not dive into capitalist money quite yet, but to

[6] This debate itself has a long and interesting history (see Ingham 2004: 38-58).

understand commodity money it is worth briefly considering Marx's handling of money. For Marx money and finance were vexing—something he was never able to fully integrate into his analysis (Harvey 2006). In other ways, money was quite simple[7]. In Marxist terms, money is "the value-form" of commodities (1990: 197), meaning that money represents the relative quantity of embodied socially necessary labour time in a commodity—or that which makes it comparable and thus exchangeable with all other commodities. In practice Marx suggested that at a given geographic scale, as the division of labor developed and direct exchange of commodities became more prominent, one commodity would emerge as the *universal equivalent*—or the commodity that all others easily compare with[8].

Identifying the various commodities that seemed to become universal in various historical contexts is not central to this chapter, but for Marx, and many classical economists, the best example was gold. Because gold and other precious metals had to be mined by laborers, and because those metals were useful for other purposes, precious metal coins were considered *commodity money,* a quality that most contemporary money forms cannot claim. Not unlike other commodities, in the theory of commodity money, the work necessary to produce money imbues it with value—although not necessarily capitalist socially necessary labor time.

Whether or not all money is a commodity, precious metals are historically unique because they tended to retain their values—albeit not without fluctuation—between social contexts[9]. Put differently, whether or not it embodies human labor time, precious metal money has been a historically good store of value.

This said, like all money forms, even precious metal coins are only valuable to the extent that others will accept them in exchange. In an ancient rural or subsistence economy at a significant distance from a city or trading center, even precious metal may have been of little value. Here it is imperative to remember that all money is a form of social claim or debt in the sense that the holder is dependent upon others, such as their community, society, or state, to

[7] Whilst many would disagree, in a *Contribution to a Critique of Political Economy* Marx says "The principal difficulty in the analysis of money is surmounted as soon as it is understood that the commodity is the origin of money" (quoted (and criticized) in Ingham 2004: 61).

[8] This universality, or capacity to reduce anything imbued with capitalist value to a quantity, forms the basis of the arguments by scholars like Weber, Simmel, and Polanyi, and later Giddens, that money is a sort of social solvent or disembedding force that imposes a logic of market exchangeability on society from the outside (Gilbert 2005). See Konings (2015) for a sustained criticism of this argument (not of Gilbert's argument, per se).

[9] Interestingly for Marx, pre-capitalist money was, at least initially, only necessary at the edges of communities, as tight social groups would have little need for money because they instead relied on something like a qualitative system of reciprocity (see Graeber 2011 for numerous examples). This argument, however, implies that the money object had value that could cross between social contexts. In other words, it implies that money had inherent value independent of its particular 'social' geography. Thus, its universality.

redeem its 'face' value for other commodities. Prized shells, iconic stones, bills of exchange, or virtual money are all precarious embodiments of value, particularly between diverse geographic contexts. *Even commodity money* must overcome this problem, as there is never a guarantee that any commodity will realize its value in exchange, especially over space and time. As such, parties interested in storing significant quantities of value are likely to exert power to create a stable money form. States in particular have historically had a strong interest in a stable money form and the financial infrastructures necessary to back them up. There are a number of reasons, all of which point towards the limits of a vulgar theory of commodity, or private money.

First is *seigniorage*, or the benefits that accrue to the institution that controls the most powerful money form. The technical definition of seigniorage is the difference (usually profit) between the cost of producing money, and its value in exchange. Consider that it costs far less than a penny for the US government to 'produce' each penny, but the government nevertheless 'sells' each penny to the Federal Reserve and on to commercial banks at their face value. The difference is seigniorage, or profit for the government. Another common example is the historical "debasement" of currency by sovereign monarchs. If a sovereign was in need of raising revenue, to fight a war for instance, it could raise taxes. Alternatively, the sovereign could order the treasury to remove some of the precious metal from coins, but recast and recirculate them with the same nominal value, thus accumulating the difference.

Debasing the coinage, or what in contemporary times is often castigated as merely 'printing money', has always carried the risk of devaluation or *inflation*. This devaluation can actually be very useful to a state, especially one that is heavily indebted. As money becomes less valuable, so does debt and thus it is easier to pay off. Not surprisingly, creditors do not like inflation, and may lose confidence in a devalued currency. In the extreme, the everyday users of money as a means of exchange may abandon an inflating currency exacerbating monetary instability, and creating more problems for those holding money wealth. The point here is that central authorities with the capacity to establish the value of money can potentially benefit greatly from manipulating that value, but must also be careful to avoid a general loss of trust in a money form.

A second reason states may have a reason to maintain stable money is to ease the payment of soldiers and armies. When a sovereign sends an army to some distant place, it is of great benefit if that army or individual soldiers are able to purchase goods for money (Schoenberger 2008), even if acceptance of this money in exchange may initially depend upon coercion. A third closely related reason is the efficient collection of taxes. A system of taxation, or tribute in exchange for protection, is much more efficient when all tax must be paid in a

standard money form[10]. But this also means that subjects have an incentive to accept that money in exchange—from soldiers, for instance. In fact, understanding money as the exclusive form through which taxes must be paid is the basis of another theory of money called *chartalism*[11].

But how does all of this relate to geography? One could begin with the Roman Empire, which was heavily dependent upon a functioning system of monetary relations to maintain control over its territories—particularly on its various frontiers. Ingham explains this relationship: "The system depended on the maintenance of three interdependent elements: the control and inflow of bullion, an effective system of collection, and sufficient economic activity (mainly the state's) for the generation of income in coin to meet tax debts" (2004: 100). Disruption of any of these threatened the stability of control over territory, and that is exactly what happened as the Roman Empire withered, although not necessarily in this order. The state was unable to maintain its production of new gold and silver coins, so it began to debase the coinage. Over time this translated into less trust in the value of coins, and those coins began to fall out of favor as a store of value or a means of exchange. Since fewer coins circulated it became more difficult for the Roman state to collect taxes in coin, and falling revenues made it more difficult to mine or pillage the precious metal necessary to mint new coins. All of this also meant it was more difficult to maintain an army and military control of territory (see Hopkins 1980). As the Roman state, or army, retreated from Western Europe in the early Middle Ages, so did the usefulness of coin money. In fact, it appears that following the end of the Empire, debased Roman coins were often just dumped (Ingham 2004: 109).[12]

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[10] See Scott (2017) for an extended discussion of ancient states' efforts to force subjects to cultivate cereal grains, not least because they served as an efficient quasi-money for purposes of tax collection.

[11] *Charta* derives from the Latin for a 'record' or 'legal paper', but also 'token' (Ingham 2004: 48). Ingham suggests that chartalism is a sub-set of slightly broader set of *state theories of money*, all of which typically rely on Knapp's (1924) work—Id. note 6 above. See Ingham 2004: 38-58 for an overview.

[12] Christophers (2013, esp. ppg. 60-61) argues that from the fall of the Roman Empire through the Middle Ages and even through the 19th Century, finance and monetary space was relatively "open". In other words, there were few, if any, restrictions on the flows of money across borders and political boundaries. I do not necessarily disagree with this, but I do want to explain a difference in our arguments. To suggest as Christophers does, a "striking financial openness" (60) implies that it could have been otherwise—namely that it could have been closed in some way. But this assumes that there were clearly defined political, or at least financial, borders that might inhibit the mobility of money, and I am less than certain about this. It is not that money was particularly immobile, but that most everything was immobile relative to contemporary times. Immobility was not, in other words, predominantly a result of "closed" imperial, national or nation-state borders, but other factors related to transportation. As Elden (2013) makes clear in his discussion of ancient territory, borders were rarely definite in the case of the Roman Empire, let alone after its collapse. Rather, during and especially after the Roman Empire, at the edges territory was imprecise and discontinuous. As he says, "The frontier rather than the border predominated" (Elden 2013: 121). Furthermore, whilst coinage or bills of exchange may have been relatively mobile during the Early Modern Age in Europe, mobile foreign monies had to be exchanged or at least made equivalent with local currencies. The conversion of these monies had its own restrictive

In this example there was a disintegration of two related monetary geographies that together translated into a loss of political control over territory. The first was related to money of account and the territorial/military system of control dependent on payments of, and indebtedness in quantified terms of *denarius* and other Roman monetary units. The second was the system of trade and commerce for both public and private transactions that employed Roman money as a means of exchange. If money was generally less useful, social obligations, or debt, was less likely to be quantified in terms of money, which could easily lead to a negative feedback loop of the declining value of money. While there are other factors involved, there was a steady erosion of Roman territory as well as a decline in the capacity of the Roman state to fund basic services and infrastructure, such as the maintenance of public buildings, roads and clean water.

5. Money of Account

Another instability of a monetary system based on a commodity like gold is that the quantity of money available is limited by things like nature, labor, and geographic proximity. Gold coins were for instance, widely accepted as a means of exchange across the mercantile empires and colonies of the 15th to 18th Centuries, but the heavy bullion and coins also had to be transported. This transportation was expensive and perilous, which added costs for anyone who wanted to use money. Furthermore, sovereigns and states were hamstrung by material or political limits on the amount of currency they could create, which often led to debasement of the coinage.

These limitations of precious metal money help explain the usefulness of more easily transferable *monies of account*. As explained above, this is money not constituted by a physical means of exchange, but rather by the form or unit of its accounting. These ranged from things like 'tally sticks' at the English Royal Treasury (Leyshon and Thrift 1997: 11-12) to paper ledgers in Italian merchant banks. Often these units were associated with weight (e.g. of grain or precious metal), as in a 'pound' or a 'lira' or *libra*. Whatever the form, historically the unit used to account for credit or debt, or more generally social obligations, often became an important abstract measurement of value in general.

For an empire or sovereign in whose interest it is to order or control a socio-economic territory, especially if that sovereign power seeks to collect tax, the money of account must be directly linked to a circulating means of exchange or payment. Without this link, monetary

geographies limited by the expertise of money changers and money "fairs" (see below), and urban nodes of localized hybrid public/private power over the value of any given money (see Vogl 2017: 40-66).

relations including tax collection could become extremely complex, and the sovereign could lose the benefits of segniorage (Ingham 2004: 109-133). This was the case during the early Middle Ages in Europe when there was basically no money of account, and to the extent that money was used at all, multiple physical coins circulated, many of them with very little precious metal content. There were no great armies attempting to conquer large swaths of Europe, few centralized authorities attempting to collect money taxes, and money-mediated market exchange was not widespread.[13]

Money of account is a quantitative unit, but it is important to remember that it quantifies *debt*—a ledger of who owes what quantity of money to whom. Consequently, prior to the explosion of circulation in capitalism, money of account was relatively personalized. Even if multiple parties were involved, it was relatively uncommon for quantified debts to be transferred between parties. Transferring debt would have been particularly difficult if there was little to no central authority to legitimize the unit of debt accounting as was the case in many places in Europe throughout the Middle Ages. Quantified social obligations or debt (which *is money* in Graeber's terms) certainly existed, but it was largely localized.

Nonetheless, with the development of powerful states it was only a short step from money of account to formal *credit money*. The main difference between the two is that credit money is depersonalized or transferable. Furthermore, formal credit money is money that is owed and will be immanently collected in the form of commodity money or whatever is the accepted means of payment (see Leyshon and Thrift 1997: 8-29). Bills of exchange are one important historical example of a form of credit money that was crucial for both economic and territorial development in both Europe and the US. While not novel to Europe, the first mature market for bills of exchange emerged in Italian city-states in the 15th century. These were basically transferable promissory notes that could ultimately be exchanged for commodity money at their point of origin—Genoese or Florentine banks, for instance (Braudel 1982: 138-148). This location is not surprising given that at the time, the Italian city-states occupied the central node in Mediterranean, if not global trading networks[14].

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[13] Around 800, Charlemagne established a system of money of account based on *pounds, shillings, and pence*, which was at first closely connected to his political territory, but lasted for centuries even after his coinage largely disappeared (Graeber 2011: 48-50, Ingham 2004: 109-112). Various kings, especially in France, minted higher value coins and attempted to re-establish a formal money of account order, but none of them lasted very long.

[14] Following his general argument about the crucial importance of dominant cities for Renaissance-age, long distance trade, Braudel (1982: 146) emphasises the importance of connections to the major financial centers of the day such as Venice, Florence, and Amsterdam. These were the locations of the tightest banking networks making bills of exchange most easily convertible into commodity money, and the most information about commerce was available, thus reducing financial risks.

In Early Modern Europe, bills of exchange circulated as a means of exchange for large purchases. States and shipping consortia were two common parties to these bills. Especially at a distance from the point of origin, they would typically exchange at a discount from face value since there was always a risk of nonpayment by the debtor. Combined with this discounting, which was negotiable, if a bill of exchange circulated outside the territory of its original currency, there also had to be a calculation of equivalence between two currencies. Needless to say, this was not a simple business. Recurrent money fairs or markets emerged in various locations across Europe during this period where money changers and merchant bankers would gather to trade and settle bills of exchange. These fairs and the related networks of merchant bankers were in effect, proto financial markets constituted by networks of financial expertise. Not unlike today, the repeated comparison of currencies had a significant impact on the value of various monies as well as (necessarily) the power of sovereigns to collect seigniorage since overvalued currencies would be repeatedly discounted by money changers (Vogl 2017: 40-66). Thus, the power to project the strength of value of a currency over space contributed to the capacity to collect revenue.

This circulation of credit money had yet to resemble modern banking, where the issuance of bank credit is driven by the compound recirculation of deposits (Ingham 2004). In other words, the amount of money of account was delimited by the actual means of payment circulating for specific exchanges. With restrictions on usury (LeGoff 1998), bankers could not create their own money without entering into some sort of contract involving an actual exchange, but when that exchange actually happened the goods and money would change hands and the credit-dependent relationship would end. This meant that bankers were curtailed in the amount of political-economic power they could acquire, because it tied money of account directly to the means of payment even though this may have all been subject to conversion of currencies if the bill moved to a foreign land. The latter meant that even through new forms of non-commodity money were moving greater distances, eventually they would have to be converted to the dominant currency or money of account in the place of origin to be settled. This again demonstrates the incentive for a sovereign to maintain a stable and dominant currency within its territory. Amongst other things it allowed the state to issue debt in a currency that it had the power to manipulate even if that power was delimited by the class of money changers, who were constantly establishing market equivalency with other currencies whose sovereigns were attempting similar financial manipulation. The political economic power of early merchant bankers was not great, but their influence over the circulation of credit monies

presaged the emergence of both relatively autonomous modern banking and international finance.

Before moving on, it is important to note how a consideration of monetary 'territory' matters for debates over the nature and functions of money. Questions of commodity money, money of account, money as debt, or state money versus private money can only provide partial answers. None of these theories alone is universal and perfect. What they all lack is a geographic sensibility—a consideration of the movement of different forms of money through and into different geographic contexts and the various forms of political economic power that act upon and through those contexts. Leyshon and Thrift explained this succinctly twenty years ago when they said *money itself* is "a geography" (1997:1).

6. Money as Capital

Prior to the development of mature capitalist production, the most recognizable form of capital was commercial or merchant capital, embodied by the class of traders. Merchants, not producing goods on their own, accumulated wealth by moving commodities through space (Braudel 1982: 403-408). Merchant capital achieved profits not from the direct production of value, but from buying low and selling high usually by moving goods between different value systems (Karatani 2014: 81-103). Not surprisingly then, merchants were also often trafficking in money. In fact the proto-bankers of the late modern and early industrial period were almost always commodity merchants (Christophers 2013: 68-70).

Slowly but surely, by the middle of the 18th Century—money began to take on yet another form, that of *capital*. Money capital emerged when money as either a measurement or carrier of value ceased to serve only as a means for the exchange of use values or what Marx calls "simple circulation", and became both the means *and the ends* of circulation. Put differently, rather than selling a commodity to acquire money to buy another commodity, the true capitalist buys commodities only to sell them for more money. At the same time, capitalism tends to discount idle money, so capitalists must learn to master the circulation of money, or to keep money in motion (Harvey 2006).

To keep these precarious social obligations in circulation, however, required the development of institutions that resemble the modern financial sector such as the stock market in Amsterdam or shipping insurance firms in London. But, the most important institution for the development of the modern financial sector was a political geographic scale—that of the nation-state (Helleiner 1999). State backed central banking began in earnest in the late 17th century with the establishment of the Bank of England in 1694. The emergence of central banks

is important because they issued formal state debt, which in most cases then circulated as a trusted and liquid means of payment for institutional transactions. The systematic issuance of national debt also modernized seigniorage.[15] The state could in-debt itself, but at least for powerful currencies and states, was to some extent in control of the value of that debt even though that power was curtailed by the autonomy of the central bank and the financial markets that traded debt and related monetary instruments. As such, the widespread issuance of state debt engendered the modern interdependence between democratic states and capitalist financial markets. The state was granted a perpetual mode of collecting revenue that was indirectly subject to popular rule, but at the same time, management of the value of money had to be ceded to an autonomous, and fundamentally non-democratic, central bank (Mann 2010, Vogl 2017).

Eventually in 1844, the Bank of England took on the formal role of 'lender of last resort', meaning it would provide liquid money to private banks in times of crisis to prevent the deepening of financial panics. This contributed to the development of the City of London, or *Lombard Street* as Walter Bagehot famously described it in 1873, as the most liquid and sophisticated center of finance in the world. Nowhere else was money capital so easily attainable in the form of credit, and this was directly related to perceived stability of British Sterling as a store of value over time. By the late 19th Century, rather than the state and a small class of monied aristocrats or merchants at risk of a destabilized currency, there was now a formal socio-economic sector, or finance industry, whose interests were dependent upon a stable monetary regime. For the most powerful nation-states, first the U.K. and later the U.S., maintaining trust in the national currency became a source of immense seignioral power, the maintenance of which required global scale imperial, military, and geopolitical dominance (Panitch and Gindin 2012).

It would be a mistake to assume that the post-Westphalian nation-state first emerged, and then became a container inside of which standardized currencies were created and ordered into circulation. On the contrary, the issuance and regulation of currency played an important part in the construction and maintenance of nation-state territory (Leyshon 1996). As Helleiner (1999) argues in the cases of Canada, USA, and Mexico, the elimination of the circulation of

[15] While in this chapter I am relying on Vogl's (2017) looser notion of "seignioral power", Cohen (2013: 162-3) offers a relevant, albeit technical, definition of seigniorage in this context: "Technically defined as the excess of the nominal value of a currency over its cost of production, seigniorage at the international level is generated whenever foreigners acquire and hold significant amounts of domestic money, or financial claims denominated in the domestic money, in exchange for traded goods and services. Cross-border accumulations represent the equivalent of a subsidized or interest-free loan from abroad—an implicit economic transfer that constitutes a real-resource gain for the economy at home. Included as well is the benefit of any reduction of overall interest rates generated by the extra demand for home-country assets."

foreign currencies and counterfeit monies, and the issuance of standardized token (coins and paper script) national currencies between roughly 1850-1920 was a crucial part of North American nation-state building. National money helped produce these states' 'internal' economic territoriality, create direct links between the state and society through taxation and government spending, and finally to engender a sense of national identity. Small denomination, low precious metal content coins served as a sort of economic infrastructure that stabilized economic exchange and helped integrate the poorer classes into the market economy. At the same time, new central banks and a standard currency facilitated macro-economic management to promote industrial growth or full employment, and made tax collection more efficient, but also reduced the complexity of making financial claims on the state.

But just as the 'internal' monetary territory of nation-states became more formalized, so did the international relations between these currencies. During what Polanyi (2001) referred to as the "long 19th century" from the end of the Napoleonic Wars to the beginning of World War I, there was relative peace and prosperity in Europe—at least in comparison to before and after that time. An important factor in the reproduction of the European balance of power and related relative peace was the role of *haute* or "high" finance, or the kind of international banking associated with the tight-knit, often familial networks such as the Rothschilds and Barings. The credits and debts of both states and capital were interwoven through these banking networks, an update of the earlier network of money changers and fairs, and it resulted in a sort of 'peace dividend' where nation-states were disciplined by the availability of international credit that closely related to their capacity to not disrupt economic and thus financial stability with unnecessary warfare.

The key international regulatory device was gold bullion at the top of the hierarchy of money. The price of admission to international systems of trade and credit was that national currencies had to be convertible into gold. As such, gold became the first true 'world money'. One thing the international gold standard did was discourage central banks from creating too much new money to pay off its debts through inflation/devaluation. But this also meant that national financial systems were subject to the vicissitudes of international financial markets. For Polanyi (2001), the resulting (sometimes dramatic) fluctuations in the prices of commodities, including the "fictitious commodity" of labor, threatened the "annihilation" of societies by market forces and international finance. If a country devalued its currency to pay off debt, holders of the currency could demand conversion to gold, and the nation's gold reserves would quickly be depleted meaning that credit would be harder to acquire. Meanwhile, devalued money can slide into a vicious feedback loop of increasing prices for commodities, which demands

more money and so on. Nowhere was this more profound than in the financial punishment of Germany following World War I through the imposition of massive reparation debt. This led to economic devastation, and following Polanyi's "double movement" thesis, German society moved to protect itself with a destructive form of nationalism and eventually fascism.

In the aftermath of World War II, the UK and especially the US attempted to construct an orderly system of international trade and financial relations, but also one where individual nation-states could maintain relative control over their currency. The solution, called the Bretton Woods system fixed the exchange rates of national currencies to the US dollar and limited the flows of goods and capital across national borders. The U.S. dollar was pegged to gold at $35/ounce, and became the international money of account or the new 'world money'. The fixed exchange rates prevented drastic fluctuations in the values of national currencies, and thus allowed nation-states more autonomy to plan and manage their economies. At the same time this system greatly benefited the U.S. as its own national currency became the master money of account for international financial transactions. Because the U.S. dollar was the only currency directly pegged to the gold commodity, it was considered the most stable, and this allowed the U.S. to issue national debt without putting excessive downward pressure on the currency.

It is worth noting, however, that a significant portion of U.S. spending fueled the Cold War arms race, if not global military dominance. Whilst clearly a complex issue, this power was a constant geopolitical reminder that the U.S. dollar was the most dependable international reserve currency and money of account at the global scale. U.S. geopolitical power both protected the relative openness of international trade, but also the global system of intermingled socio-financial obligations, which was ultimately dependent upon the U.S. dollar as a measurement of value. At the same time, both U.S. banks (Christophers 2013) and U.S. corporations (Panitch & Gindin 2012) benefited greatly from the internationalization of the U.S. Dollar.

In the late 1960s and early 1970s, however, convertibility of U.S. dollars to gold came under increasing strain. The combination of U.S. domestic spending and excessive military expenditures in Vietnam fueled by U.S. state debt put downward pressure on the dollar. This contributed to domestic inflation as well as a reduction of U.S. gold reserves as foreign governments began to lose confidence in the stability of the Dollar as a reserve currency, and began converting U.S. dollars to gold, draining U.S. gold reserves and threatening even more devaluation. Finally in 1971, President Nixon ended U.S. Dollar convertibility to gold, which in effect ended the 'commodity' nature of U.S., and in effect all other monies.

While it took a few years for fixed exchange rates between national currencies to completely disappear, since 1971 the relative value of most national currencies is subject to

trading on financial markets. While central banks, especially those responsible for monies at the top of the global hierarchy (see Cohen 2013, Mehrling 2017) such as the U.S. dollar, exerted significant influence on the value of national currencies, this influence was filtered directly through financial markets. Financial markets took over the function of setting exchange rates from the Bretton Woods system. At the same time, global scale financial regulatory institutions such as the International Bank of Settlements grew in importance (Tickell 2000).

The flexible exchange rate system was an important component of a new global 'spatiality', if not territory, of money and finance (see Swyngedouw 1996). It, along with the expanded influence of financial markets, are two of the main causes of the 'financialization' of many aspects of socio-economic life since the 1970s. There is no room here to do justice to the phenomenon or the concept of financialization, but I will briefly discuss three related implications of post-1970 financialization in the context of my broader argument.

First, to a significant extent financial futures—or derivatives—took the 'regulatory' place of the Bretton Woods system of negotiated, but fixed exchange rates (Tickell 2000). While currencies were free to fluctuate in value, beginning in 1972, states, institutions and individuals were able to hedge against changes in value of currencies by entering in to the same sorts of contracts that had facilitated hedging and speculation on grains and other raw materials in Chicago since the 1850s (Muellerleile 2015). This was only the beginning. Since then, most every monetary and financial instrument of any size or significance has developed a derivative market for hedging and speculation. In these developments, the inherently speculative nature of money—its precariousness as a store of value—has been formalized and integrated into the fabric of everyday socio-economic life (Swyngedouw 1996). Money has always been precarious, but in financialized capitalism that precariousness is compressed in time and space, and subject to market calculation, rational management, and profit seeking.

Second, in order for these markets to function, they depend on a network of local to global systems of labor, expertise, government and private sector regulatory systems, central banks, and 'FIRE' and related corporations, all of which tend to be centralized in global cities. Geographers have been researching these urban-global-financial dynamics for decades (Taylor & Derudder 2015). The point I want to make is that while the maintenance of contemporary money forms is highly dependent upon the nation-state, global cities have grown in importance as financial *markets* have become more influential. In fact, to the extent that the continued existence of the nation-state is dependent upon effective money forms (Mann 2013), so it is also dependent upon functioning global cities. There is a long historical relationship between money

and imperial cities, city-states, mercantile cities, and now global cities, and this history carries on and deserves continued research.

Third, since the 1970s, at least in comparison to the middle of the 20th Century, the globally interconnected system of monetary and financial infrastructure has become more vulnerable to crisis and collapse. As a result, to protect the most powerful money forms and infrastructures from destruction, Western states, mainly through their central banks, have taken increasingly extraordinary measures, such as buying up risky assets and experimenting with negative interest rates. For Mann (2013) this constitutes the basic 'state of exception' of contemporary state power. There is no room in contemporary democracy for popular sovereignty over the value or functions of money. Rather "money is necessarily a realm of pure power, normally 'constrained', but the true prerogative of which is laid bare in contemporary crisis" (Mann 2013: 203; see also Vogl 2017). This sort of power, while quite possibly necessary for the reproduction of contemporary capitalism, might help explain the politics of resentment directed toward technocratic expertise and elite power in general since the Global Financial Crisis of 2008. It certainly helps explain the politics behind cryptocurrencies to which I now turn.

7. Crypto-geographies of cyber money

If any contemporary money form threatens to rearrange today's financial geographies, it is cryptocurrency. Recent interest has been fueled by the meteoric rise and fall in the price of the most well-known cryptocurrency called Bitcoin. At the beginning of 2017 one bitcoin was valued below $1,000, but for a few days in December of 2017 it exchanged at close to $20,000. At the time of writing (mid 2018) it is hovering around $6,000. If, as some argue, Bitcoin is nothing more than a speculative investment, this sort of volatility would be exceptional, but not unheard of. But Bitcoin is more than this. For some it is a viable means of exchange, although in this capacity it is mostly used to buy and sell illicit commodities (Popper 2015), or provide anonymous financial support to groups like WikiLeaks. Nevertheless, if only amongst the tech-savvy, Bitcoin is a means for exchanging licit and everyday commodities across the globe[16].

[16] Bjerg (2015: 63) makes the point that even amongst those that do accept Bitcoin, few accept *only* Bitcoin. The defunct 'dark web' marketplace Silk Road, was one of the few that accepted only Bitcoin. Even then, several hedging functions were in place to ensure market participants would not be disadvantaged by the fluctuating value of the currency (Greenberg 2013).

According to several websites, there are over 2,000 Bitcoin "ATMs" where "fiat" currencies can be converted into cryptocurrency[17].

I will only briefly explain how Bitcoin operates[18]. It is a digital-only currency, so it has no manifestation as physical cash. It exists exclusively as digital code.[19] Ownership is demonstrated by providing a 'private key' or password. Every transaction or transfer of ownership is accounted for and recorded on one long chain of code, but the maintenance of this chain is accomplished by the network, not any central authority or individual. New transactions are grouped into 'blocks' of code, and added to the chain, hence the blockchain, which is also known as a distributed ledger. However, because there is no central authority to verify the validity of any transaction, the network of users has to decrypt the keys, and this requires intense computer processing power. This work of decrypting in order to add to the blockchain is called "mining"[20]. This mining becomes more complex and energy dependent over time as the blockchain grows, so one might say the 'work' of mining requires progressively more effort over time. To incentivize this work, the miner who can solve the encryption first is rewarded with *new* bitcoins. This is the only way new bitcoins can be created. As such, the verification of new transactions is accomplished through the same process that reproduces the network by creating new money. Assuming the work of mining costs less than the value of new bitcoins, one might argue that miners accrue *seigniorage*.

Bitcoin is celebrated by different groups for different reasons. Most accounts praise some combination of its autonomy, anonymity, and somewhat ironically, its grounding in material reality compared to the political nature of central banking and the volatility of the value of fiat currencies since the end of the gold standard in 1971 (Maurer et al. 2013). Bitcoin is celebrated for its independence from both the state and corporate power[21], for its capacity to facilitate transactions without revealing the parties involved, and finally for its reliance on "real" work and energy in the form of digital "mining". None of this should imply that Bitcoin transcends the mysteries and contradictions of money. On the contrary, Bitcoin seems to intensify those contradictions (Bjerg 2015).

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[17] Cf. https://coinatmradar.com/

[18] See Golumbia 2016: 26-39 for a longer explanation.

[19] Despite the ubiquitous photos of gold or platinum "Bitcoins", these are merely tokens and do not actually stand in for "real" Bitcoins. One can purchase them, and some of them contain precious metal, but they have no value *as a Bitcoin*.

[20] There are debates about the amount of electricity necessary to "mine" Bitcoins, and some have argued it requires as much as that necessary to power a small nation-state like Portugal or Ireland, but that is likely an exaggeration (Vranken 2017).

[21] Golumbia (2016) emphasizes the anti-statist or 'cyberlibertarian' politics of Bitcoin, but there are also widespread anti-corporatists elements, especially as it relates to rights to privacy (see Swartz 2018).

Swartz (2018) and her collaborators (Maurer et al. 2013) suggest that the "dream" or "promises" of Bitcoin are constituted by two main things, "digital metalism" and "infrastructural mutualism". Digital metalism is a reference to the assumption by some that Bitcoin is fundamentally a commodity money. That is, money that owes its existence and value to private commerce and the work necessary to produce it, or more generally to economic and market relations as opposed to society or the state. This roughly lines up with Hart's (1986) "tails" function of money. Infrastructural mutualism refers to the decentralized peer to peer network upon which Bitcoin and its blockchain relies. The reproduction of this network relies upon what Maurer, et al. (2013: 274) refer to as a collective sense of "trust in the code". Mutualism has little to do with any state, but it does constitute a public or social character (Swartz 2018), which resembles Hart's "heads" function of money.

Bitcoin and the practical and ideological struggles over it resemble some of the same issues that have made money and finance problematic and interesting for as long as they have existed (Bjerg 2015), and most importantly since the formation of capitalism. I will speculate on three of these here, although I am not suggesting there is nothing new with Bitcoin. In fact, the lack of a formal relationship with any sovereign power, and thus political territory is relatively unique for money, and that is where I begin.

First, not unlike most money in history, Bitcoin has a contradictory relationship with the state. For all the reasons mentioned above, states throughout history have benefited from liquid money. At the same time, the circulation of a liquid money encourages private commerce, and the rise of autonomous merchants, bankers, and financiers that challenge the power of sovereigns and democratic states alike. Bitcoin is a bit different. To some extent, it does grease the wheels of digital commerce, but it is difficult to imagine how it directly benefits states in the ways national currencies do, for the obvious reason that bitcoin has no discernable political territory. Further, because of its radically decentralized nature, bitcoin resists the influence of both banks and corporations.

Potentially, cryptocurrencies offer indirect benefits to states. The underlying blockchain technology that drives cryptocurrencies could be employed to improve the efficient management and secure accounting of state money and payment systems (Raskin & Yermack 2016). As banking becomes increasingly dependent upon digital money in general (not cryptocurrency per se), money and banking also become increasingly vulnerable to digital hacking and cyberterrorism. This is one of the reasons cryptocurrencies and blockchain technology is attractive to central banks—because it is relatively difficult to hack, not least because there is no centralized ledger. It is quite possible that distributed ledger technologies will become

increasingly necessary for the maintenance of basic economic infrastructure. Blockchain technology is already at the forefront of the so called FinTech revolution (Hendrikse et al. 2018). Lastly, global scale cryptocurrency could potentially benefit less dominant states in the global hierarchy of currencies, by displacing the current financial hegemon, the U.S. The outgoing governor of the Bank of England, Mark Carney, recently said that he would be in favor of the development of a global scale electronic currency that might displace the U.S. dollar as the international reserve currency, and thus redistribute some of the seigniorial power of the the U.S. (Giles 2019).

This said, cryptocurrencies and distributed ledger technologies are more obviously a threat states. By enabling things like illicit commerce and money laundering, they allow for the evasion of both regulation and taxation. Further, there is no state or centralized power to accumulate seigniorial power by producing or supporting bitcoin. Especially post-2016 there is little reason to suspect that the age of nation-states was waning, and the nation-state continues to be the main regulatory force for money and finance. It is difficult to imagine a state engaging in violent conflict to protect wealth in the form of a global scale cryptocurrency. On the other hand, as the nature of warfare begins to resemble 'cyberterrorism', and territorial power is increasingly relational and a matter of control over digital infrastructure (Warf & Fekete 2015), maybe states and central banks will become attentive to the security of cryptocurrency sooner than later. This is difficult to predict.

Second, one of the main reasons Bitcoin has struggled to establish itself as a widely used means of exchange or payment is that it has failed to establish itself as a money of account. Because of the volatile fluctuation in the value of Bitcoins, there are almost no examples[22] of formal debt or other financial instruments denominated in units of Bitcoin. Just the same, few if any commodities are truly priced in Bitcoin (Greenberg 2013). They are rather, priced in a more stable currency and the Bitcoin price is constantly adjusted as its value fluctuates. Put differently, there is little evidence of a social consensus that Bitcoin is a legitimate method of quantifying social obligations. This suggests that Bitcoin is yet to make the leap from a niche payment system, or just speculative investment, to widely accepted currency.

[22] There is one example of a formal debt instrument in 2017, a 3 year corporate bond issued in Japan for 200 Bitcoins, accessed here on 22 March, 2018:
https://www.bloombergquint.com/technology/2017/08/16/bitcoin-bond-debuted-by-japan-s-fisco-after-cryptocurrency-laws

To imagine this problem geographically, consider a local currency like the "Bristol Pound"[23], one of the most successful local currencies, the value of which is always at parity with the UK Pound. Widely accepted as a means of payment within the city of Bristol, even by the Bristol city council, the explicit aim of the Bristol Pound is to promote local business activity and disincentivize long supply chains—in other words to privilege local over distant economic relations. But like Bitcoin, there is no known system of debt accounting in Bristol Pounds. Further, even though they have an identical value to UK Pounds at the moment of exchange, businesses do not typically advertise their prices in "Bristol Pounds". The point is, like Bitcoin, albeit for deliberately restrictive geographic reasons, Bristol Pounds have not made the jump from a simple means of exchange to money of account[24]. In some ways Bitcoin has the opposite geographic problem but the same monetary challenge—by design it does not obey political borders and as such has no territory or geographic 'home'. Nevertheless, just like the Bristol Pound, its use value is limited to a means of exchange.

Third, Bitcoin appears to have very quickly evolved from a relatively basic means of exchange into an object of casino like gambling or speculation, and finally now into a formal, if not highly unstable, financial instrument. For some, Bitcoin may never have been much more than a speculative Ponzi scheme, but the recent establishment and regulation of numerous derivatives contracts based on Bitcoin signals an important change. That is, Bitcoin appears to be moving toward some level of institutionalization in the financial sector, including regulation by states such as the U.S. and EU. There is then, the potential of a convergence of Bitcoin with more formal and state regulated finance and banking capital. This is not the same as suggesting that Bitcoin is a sustainable money of account, or one with any significant influence in the hierarchy of global monies. Nevertheless, as recent history has shown in the instance of grains (Cronon 1991), home mortgages (Wainwright 2009), and currencies themselves post-1971 (Swyngedouw 1996), derivative markets have the capacity to transform the commercial geography of the assets underlying the derivatives. Contemporary financial markets, despite their recurring tendency to fall apart, also produce a de facto base on top of which more precarious objects of capitalist value can easily be bought and sold, and thus become more reliable stores of value. Just as mortgage derivatives transformed homes from localized and relatively illiquid use values into relatively liquid, transferable, and highly mobile financial assets, the 'financialization'

[23] "Good money, made by the people, for the people of Bristol" from the home page of the Bristol Pound accessed on 22 March 2018: https://bristolpound.org/, see also: https://www.ft.com/content/4fe13c82-31e8-11e5-91ac-a5e17d9b4cff

[24] See Lee (1999) for an elaboration of the autonomous and even counter-hegemonic value systems that may be reproduced by local currencies, as well as the geographic contradictions of local money forms.

of Bitcoin may have the effect of rationalizing its relationship with other commodities and financial instruments, and thus providing some modicum of stability.

8. Conclusion

> The state's monetary authority is contemporary capital's
> invisible infrastructure, the skeleton that keeps it upright when its muscles have failed.
> —Mann (2010: 2)—

One thing I have attempted to do in this chapter is provide a broad overview on the historical-geographic functions of money. I will not explicitly review those functions here other than to say that throughout history maintaining the value of money has been a fundamentally geographic problem. As such, the chapter has also argued that a historical geographic approach to money can and ought to make a stronger contribution to general theories of money and finance. Christophers (2014) has convincingly argued that scholars will never truly make sense of the 2008 crisis without taking account of its many 'pre-histories'. I could not agree more, and I would extend this further.

If throughout history money has been dependent upon political power and its control over territory, why have more historically minded geographers not considered the dependence of territory on the money form? Put another way, can research on the history of money help geographers rethink the very notion of the nation-state, the global city, and other key political-economic spaces? Could the politics of money help geographers rethink the very notion of space? I suspect it can, and at a time when national political-economic power appears to be growing in importance in relation to international or global scale institutions, these questions could not be more prescient. Erica Schoenberger (2008) has created an important opening with her work on historical relationship between markets and the reproduction of ancient and medieval states. It is crucial for geographers to continue to ask similar questions if we are to make sense of tariffs and 'trade wars', the explosion of debt around the world, as well as signs of quickening inflation.

The recent ten-year anniversary of the collapse of Lehman Brothers in September 2008 prompted innumerable predictions of the 'next' financial crisis. There is little question that *it is* only a matter of time. Yet, being prepared to make sense of it when it happens, let alone predicting it, depends not just on a keen sense of the new geographies of household debt, crowd sourced financing, private equity hedge funds, and cryptocurrency derivatives, but how those institutions, instruments and their regulation have evolved over time. Geographers have hardly begun to come to terms with the rearrangement of political-economic space in the wake of the 2008 crisis. A keen sense of history, not least of the ways political power has been employed to

preserve abstract financial value over time and space, will undoubtedly be crucial for making sense of the next crisis.

References

Arrighi, G. (1994) *The Long Twentieth Century*, New York: Verso

Bieri, D. (2017) "Back to the Futures: Lösch, Isard, and the Rolse of Money and Credit in the Space-Economy", included in Jackson, R, and Schaeffer, P. (eds.) *Regional Research Frontiers—Vol. 1*, Springer

Bjerg, O. (2015) "How is Bitcoin Money?", *Theory, Culture & Society*, Vol. 33(1) 53–72

Braudel, F. (1982) *The Wheels of Commerce: Civilization & Capitalism 15th-18th Century*, *Volume 2*, New York: Harper & Row

Christophers, B. (2009) "Complexity, finance, and progress in human geography", *Progress in Human Geography* 33(6): 807–824

Christophers, B (2013) *Banking Across Boundaries: Placing Finance in Capitalism*, Chichester: Wiley-Blackwell

Christophers, B. (2014) "Geographies of finance I: Historical geographies of the crisis-ridden present", *Progress in Human Geography,* vol. 38(2): 285–293

Christophers, B. (2015) "The limits to financialization" *Dialogues in Human Geography*, Volume: 5 issue: 2, page(s): 183-200

Cohen, B. (2013) "Currency and State Power" included in Finnemore, M. and Goldstein, J. (eds.) *Back to Basics: State Power in a Contemporary World*, Oxford: Oxford University Press

Domosh, M. (2013) "Geoeconomic Imaginations and Economic Geography in the Early Twentieth Century", *Annals of the Association of American Geographers*, 103:4, 944-966

Elden, S. (2013) *The Birth of Territory*, Chicago: University of Chicago Press

Engelen, E. and Faulconbridge, J. (2009) "Introduction: financial geographies—the credit crisis as an opportunity to catch economic geography's next boat?", *Journal of Economic Geography*, vol. 9, iss. 5

French, S. and Muellerleile, C. (2016) "Monetization at the Intersection of Financialization and Neoliberalism", paper presented at August 2016 Royal Geographic Society Annual Conference, London, available from authors.

Gilbert, E. (2005) "Common cents: situating money in time and place", *Economy and Society*, 34:3, 357-388

Gilbert, E. (2007) "Money, citizenship, territoriality and the proposals for North American Monetary Union", *Political Geography* 26: 141-158

Gilbert, E. & Helleiner, E., eds. (1999) *Nation-States and Money: The Past, Present and Future of National Currencies*, London: Routledge

Giles, C. (2019) "Mark Carney calls for global monetary system to replace the dollar", *Financial Times* online, 23 August, accessed here on 17 January, 2020: https://www.ft.com/content/a775b55a-c5c2-11e9-a8e9-296ca66511c9

Golumbia, D. (2016) *The Politics of Bitcoin: Software as Right-Wing Extremism*, Minneapolis: University of Minnesota Press

Graeber, D. (2011) *Debt: The First 5,000 Years,* Brooklyn: Melville House

Greenberg, A. (2013) "Founder of drug site Silk Road says Bitcoin booms and busts won't kill his black market", *Forbes* online, April 16, 2013, accessed here on Aug. 15, 2018: see: https://www.forbes.com/sites/andygreenberg/2013/04/16/founder-of-drug-site-silk-road-says-bitcoin-booms-and-busts-wont-kill-his-black-market/#3744e1876c42

Hart, K. (1986) "Heads or Tails? Two sides of the coin", *Man* (New Series), vol. 21, iss. 4

Harvey, D. (2006) *The Limits to Capital*, New York: Verso

Harvey, D. (1990) *The Condition of Postmodernity*, Oxford: Blackwell

Hayek, F. (1976) *Denationalization of money: an analysis of the theory and practice of concurrent currencies* London: Institute of Economic Affairs

Henderson, G. (1999) *California and the Fictions of Capital*, Oxford: Oxford University Press

Hendrikse, R., Bassens, D. and van Meeteren, M. (2018) "The Appleization of finance: Charting incumbent finance's embrace of FinTech", *Finance and Society,* early view available here: http://financeandsocietynetwork.org/new-article-appleization-of-finance

Helleiner, E. (1999) "Historicizing territorial currencies: monetary space and the nation-state in North America", *Political Geography*, vol. 18: 309–339

Hopkins, K. (1980) "Taxes and Trade in the Roman Empire (200 B.C.-A.D. 400)" *The Journal of Roman Studies*, vol. 70: 101-125

Ingham, G. (2004) *The Nature of Money*, Cambridge: Polity

Karatani, K. (2014) *The Structure of World History*, Durham, NC: Duke University Press

Konings, M. (2015) *The Emotional Logic of Capitalism*, Stanford: Stanford University Press

Lee, R. (1999) "Local Money: Geographies of Autonomy and Resistance", included in Martin, R. (ed.) *Money and the Space Economy*, New York: Wiley

LeGoff, J. (1998) *Your Money or Your Life: Economy and Religion in the Middle Ages*, New York: Zone Books

Leyshon, A. (1996) "Dissolving Difference? Money, disembedding and the creation of 'global financial space"', included in Daniels, P.W. and Lever, W.F. (eds.) *The Global Economy in Transition*, Harlow: Longman

Leyshon, A. and Thrift, N. (1997) *Money/Space: Geographies of Monetary Transformation*, London: Routledge

MacKenzie, D. (2006) *An Engine, Not a Camera: How Financial Models Shape Markets*, Cambridge, MA: MIT Press

Mann, G. (2010) "Hobbes' redoubt? Toward a geography of monetary policy", *Progress in Human Geography*, 34(5): 601–25

Mann, G. (2013) "The monetary exception: Labour, distribution and money in capitalism", *Capital & Class*, 37(2) 197–216

Martin, R. (1994) "Stateless Monies, Global Financial Integration and National Economic Autonomy: the End of Geography?", included in Corbridge, S., Martin, R., Thrift, N. (eds.) *Money, Power and Space*, Oxford: Blackwell

Maurer, B., Nelms, T. & Swartz, L. (2013) "'When perhaps the real problem is money itself!': the practical materiality of Bitcoin", *Social Semiotics*, 23:2, 261-277,

Marx, K. (1990) *Capital Volume I*, London: Penguin Classics

Mehrling, P. (2017) "Financialization and its discontents", *Finance and Society*, 3(1): 1-10

Muellerleile, C. (2015) "Speculative boundaries: Chicago and the regulatory history of US financial derivative markets", E*nvironment and Planning A*, volume 47: 1805–1823

Muellerleile, C. (2018) "Calming Speculative Traffic: An Infrastructural Theory of Financial Markets", *Economic Geography,* available online

Panitch, L. & Gindin, S. (2012) *The Making of Global Capitalism*, Brooklyn: Verso

Polanyi, K. (2001) *The Great Transformation*, Boston: Beacon

Polanyi, K., Arensberg, C.M., and Pearson, H.W. eds. (1957) *Trade and Market in the Early Empires: Economies in History and Theory*, Glencoe, IL: The Free Press

Popper, N. (2015) *Digital Gold: The Untold Story of Bitcoin*, Allen Lane

Raskin, M. & Yermack, D. (2016) "Digital Currencies, Decentralized Ledgers, and the Future of Central Banking", National Bureau of Economic Research (NBER) Working Paper No. 22238 May 2016, accessed here on 18 January, 2018: http://www.nber.org/papers/w22238.pdf

Schoenberger, E. (2008) "The Origins of the Market Economy: State Power, Territorial Control, and Modes of War Fighting", *Comparative Studies in Society and History,* 50(3):663–691

Scott, J.C. (2017) *Against the Grain*, New Haven: Yale University Press

Swartz, L. (2018) "What was Bitcoin, what will it be? The Techno-economic imaginaries of a new money technology", *Cultural Studies*, vol. 32, iss. 4

Swyngedouw, E. (1996) "Producing Futures: Global finance as a geographical project", included in Daniels, P.W. & Lever, W.F. (eds.) *The Global Economy in Transition*, London: Addison-Wesley Longman

Taylor, P. & Derudder, B. (2015) *World City Network: A Global Urban Analysis*, London: Routledge

Tickell, A. (2000) "Dangerous derivatives: controlling and creating risks in international money", *Geoforum*, vol. 31

Vogl, J. (2017) *The Ascendancy of Finance*, Cambridge: Polity

Vranken, H. (2017) "Sustainability of bitcoin and blockchains", *Current Opinion in Environmental Sustainability*, vol. 28: 1-9

Wainwright, T. (2009) "Laying the Foundations for a Crisis: Mapping the Historico-Geographical Construction of Residential MortgageBacked Securitization in the UK", *International Journal of Urban and Regional Research*, Vol. 33(2): 372–88

Warf, B. & Fekete, E. (2015) "Relational geographies of cyberterrorism and cyberwar", *Space and Polity*

Wojcik, D. (2011) *The Global Stock Market: Issuers, Investors, and Intermediaries in an Uneven World*, Oxford: Oxford University Press