Lund University
Department of Human Geography
Bachelor of Science in Development Studies

# Re-evaluating Money

## Exploring Conceptual Boundaries

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## Abstract

Since the financial crisis of 2008, actors from a wide variety of backgrounds have stressed the necessity to enhance understanding of basic economic concepts. One core concept – money - has strong implications on issues such as equality, justice, democracy and the environment, performing an essential part in the way societies are constituted around the world. While it should be clear that the change of thinking about money is in no way a golden bullet to all problems, there is good reason to assume that it sheds light on fundamental conditions of society often perceived as invariable. This thesis follows the interdisciplinary research tradition of development studies at Lund University to examine different conceptual understandings of money, and to explore their relevance for the prevailing conceptual paradigm in times of global money. Based on an integrative literature review, the main focus is on publications within the 21st century. Accordingly, the inquiry proceeds from historical and contemporary dimensions, as well as theoretical consideration of ecological economics and complexity economics. Subsequently, a chapter on complementarity explores the relevance of potentially unresolvable tensions between different conceptual understandings of money. Furthermore, the research repeatedly draws connections to development studies to investigate the potential significance of the gained insights.

Keywords: money, development, complementarity, exchange, economic theory

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## Purpose

Money plays a vital part in the organisation of society all over the world. As such, it serves as a tool to connect and disconnect people over time and space. Throughout history, a great deal of effort has been put in the examination of money. What is money? What role does it play for the organisation of society? How does its use affect us and the world around us? It is striking that within as well as beyond our own personal conceptualisation of money, there is really no straightforward answer for any of those questions. Many of us understand the use of money probably as granted, and so we tend to spend little effort to consider the underlying implications of money on our everyday lives. Once we scratch the surface of common knowledge about money, we quickly find ourselves entangled in technical jargon or grand prophecies. In the course of this research, it became clear, that there are various conceptualisations of money, and all of them seem to have distinct relevance. In that sense, it seems like a long due case to enhance the discussion not of what money does, but what it is. Moreover, to explore emerging conceptual tensions, and examine how this re-evaluation of money might influence the discourse on development.

In the aftermath of the latest financial crisis, society at large had been left with a certain element of suspicion and increasing doubts regarding the economic establishment (Klein, 2014). This notion was reinforced as an overwhelming amount of economists seemed to have been either caught by utter surprise or heavily misjudged the fragility and relentless potential of an economy out of control. Following this, the focus of many discourses as well as a broad range of disciplines, have intensified their research on money as central joint of the economy (Harvey, 2006; Hornborg, 2011; Lietaer, et al., 2012). Activists and social movements both in the global north and south are at the forefront of these debates, actively criticising the tendency of economists to simplify their concerns as externalities (Klein, 2014). The persistence of a monistic conceptualisation of money placed at the heart of their struggles, these activists and movements continuously remind us of the urgency for political action and to adopt new perspectives (Gibson-Graham, 2006; Martínez Alier, et al., 2014; Hornborg, 2016). While arguably a reoccurring reaction in times of economic distress, there are various convincing indications that point to the necessity of re-evaluating the predominant understanding of money -- literally and practically. In the globalised world of the 21st century,

it is essential for development studies to recognise these concerns as integral to the conceptual paradigm of money.

Promoting a monetary system based on one or the other conceptualisation of money, comes with particular assumptions that determine the thinking about the economy, too. Holding on to outdated descriptions, contemporary ideas of money not only miss out the potential of exploring new conceptual insights by surpassing the established conceptual limitations but further miss to grasp the complexity of money in the present state. As such, the present conceptual paradigm for example pushes competitive forces disregarding the reciprocal relation of society and nature -- within as well as between countries (Avdjiev and Takáts, 2016; Clark and Hermele, 2013). As the most wide spread indicator for issues like inequality, poverty and/or wealth, the relevance of discussing money from a conceptual perspective has been long overdue in development studies. The fact that money is denominated according to national boundaries, is conflicting with the global expansion of near money constructs as well as the implications of monetary spill-over effects. This provides quite clear evidence of the inherent delusion related to the maintenance of a monistic conceptualisation of money (Avdjiev and Takáts, 2016; Stiglitz, 2012). Additionally, the prevalence of non-economic valuation has frequently been stressed as yet another example for the issue of presuming money as a dispersive all-encompassing concept (Gibson-Graham, 2006; Harvey, 2006). Even within macro-economics, which for the greatest part of the last century featured the most pre-eminent academic discussions on money, there is a profound tendency to stick to an oversimplified conceptualisation. Considering the complexity of global money in the 21st century, mainstream economics insistence to uphold the money paradigm seems to be at odds with both recent academic as well as practical profession related developments. Accordingly, there is increasing recognition of the necessity to incorporate interdisciplinary knowledge in order to do justice to the broad scope and complexity of money (World Development Report, 2015; Kumhof and Jakab, 2016; McLeay, Radia and Thomas, 2014a; 2014b). Peculiarly though, there seems to be little if any research attempting to compile multiple insights into an overarching interdisciplinary approach for the conceptualisation of money.

Exploring the underlying tensions and commonalities of different conceptualisations of money is the main focus of this bachelor thesis. In order to start this endeavour, a descriptive integrative literature review was conducted on the basis of an interdisciplinary inquiry of

academic publications from the 21st century. The first chapter establishes the case of this thesis with regard to the overarching discourse and history of money. Additionally, there is a section clarifying the methodology of this thesis. In the second chapter, predominant understandings of money are described, namely: 'Classical' Function/s of Money, Bullion Theory of Money (Commodity Money), Social Theory of Money (Debt and Credit), Broad Money, Near Money. Moreover the implications of money in the 21st century and for development are outlined. This is supplemented with a description of the current money paradigm and a section on money in development. In the third chapter, the analytical approach is enhanced with theoretical considerations from ecological economics and complexity economics. This allows for a more comprehensive perspective on money in regard to socio-ecology and complexity. In the fifth chapter, some implications for the current status-quo of money in development are outlined. Being left with irresolvable conceptual tensions, the application of complementarity inspired by Niels Bohr provides a framework of discussion that accommodates the co-existence of various ideas about money. Concluding, the findings of the thesis are summarised and supplemented with proposals for further research efforts.

# I. Development of Money and Relevance

## *Introduction*

Controversy around established economic theory and policy have gained traction since the latest financial crisis of 2008. Not able to deliver the predicted outcome of economic policy since then, the conventional conceptualisation of money, and underlying theory and policies, seem to be stumped for an answer (Kumhof and Jakab, 2016). Moreover, there is increasing recognition that while undeniably significant key players, the initial public scapegoat - bankers and governments, have progressively been replaced with an awareness of broader systemic issues (Turner, 2016). Highlighting the critical relevance of money in the society, the New Economics Foundation (2011) has stated that:

> "Money has become a fundamental building block of society – it is not simply a good or a service, but the universally recognised mechanism of exchange which all have to have access to in order to operate and survive. Banks create and control the flow of money; as a result they have significant power over the ability of each individual to trade for both

necessities and luxuries (New Economics Foundation, p. 20, 2011)."

There are two main points of this quote to consider, first, what is this money that they refer? And Second, what are the implications of holding the power to define money? These questions have been stressed most notably through the public and medial repercussions of the "Occupy movement", but also by academics around the globe channeling increased research focus towards the current money paradigm (Klein, 2014).

The historical lessons of development efforts have repeatedly shown the importance of accounting contextual dynamics in relation to more overarching systemic ones (Desai and Potter, 2008). These insights have led to ever new approaches and ideas to development. While economics in general has played a highly influential role in these approaches, the topic of money was relegated to the fringes of the development discourse. Most of the expressed critique was hence from within the existing paradigm, instead of adopting discipline external insights (Desai and Potter, 2008). Accordingly, the conceptualisation of money continues to be dominated by the discipline of economics.

Over the last century until now, economics has changed its outlook on money to quite some extent (Desai and Potter, 2008). From classical, monetarism, neo-classical, liberal and neoliberal economic theory, each of them usually comes with their own presumptions about money (White and Selgin, 2000). Nevertheless this broad scope of assumptions tied to each theory, there seems to be strong reluctance to engage with the conceptualisation of money beyond the respective assigned functions, and further to consider its direct connection to the co-evolution of socio-ecological relations and complexity (Arthur, 2014; Kallis and Norgaard, 2010).

Unprecedented circumstances have created a discussion environment for money, that is fundamentally different from anything experienced before (Klein, 2014). To adhere the status quo highly unconventional policies are implemented all over the world, the results however, are nothing from close to usual economic targets like economic growth or stability (Turner, 2016). Conflicting dimensions of national money legislation are in direct contrast to an international financial market (Avdjiev and Takáts, 2016). This shows the necessity of adopting new approaches not only to the spatial and temporal considerations of money, but also to the workings of human rationality (Harvey, 2006; World Development Report, 2015). Combining the insights of various disciplines allows for more holistic approaches to money. These approaches can lead to more open ended discussions which are not repelled by

potentially irresolvable conceptual tensions arising from interdisciplinarity. As such the potential of transgressing predominant conceptualisations of money might further contribute as guidance for new insights and increased sensitivity for different understandings of money. Utilising interdisciplinary research approaches to economics, not only poses a counterweight to the dominance through one discipline, but opens also the possibility of readdressing protracted issues such as for example inequality, poverty and environmental degradation, from a new perspective (Clark and Hermele, 2013; Harvey, 2006; Hornborg 2016 ).

Money/Currency: While some authors propose certain distinguished characteristics for each concept, in the examined literature they are widely used interchangeably which is why in order to avoid unnecessary confusion, we will be solely using the term 'money'.

### *Research Questions*

- What are the most dominant conceptualisations of money?
- What are underlying issues tied to the conceptualisation of money?
- What lessons can be drawn from these conceptualisations for the discourse of money in development studies?

### *Historical Perspectives*

Whether in regard to norms/institutions, social phenomena or the economic systems, the historical roots of money are still much debated. In practice this means the evolution of money can not be pinned down to a specific origin in time and space, which is why old knowledge or wisdom about money is to large degree as relevant today as ever before (Graeber, 2011; Mehrling, 2000). The issue here seems more based on the assumption of different understandings of money, and begs the question at what point, how and why these understandings diverge. Stressing different aspects of money affects the conceptual framework that is used to make sense of its relation to society and ecology. The most contentious distinction is based on the question if money has either evolved organically from the market, namely from barter, or on the other hand if markets have evolved from the previous use of money (Mellor, 2010a). The separation is then drawn between so called

“Barter Theorists” and those that emphasise the idea of money as form of social relations, 'social theory of money'. Curiously, there is a clear tendency within mainstream economics to favour or assume the assertion of barter as the sole logical historical predecessor of money. Greco (2009) argues for a logical process that changed the reciprocal exchange from simple barter to commodity money (Greco, 2009). Mind the word “simple”, this simplification provides a good example for the necessity of being more sensitive about the language applied to the concept of money or exchange. He (Greco, 2009) argues how the idea of barter theorists, explains the functioning of barter as solving the infamous issue of “double coincidence” of wants and needs. In that sense it is simple for him because the value of the medium within barter exchange, is assumed to be based on a consensual agreement of fully rational agents – highly efficient but lacking resilience (Lietaer, et al., 2012). Moreover, the need of consensus between individual agents, has been a main point of criticism by a broad spectrum of authors with differing disciplinary outlook (Graeber, 2011; Hermele, 2015a; Mellor, 2010b). This issue was underlined for example in the publication of the 2015 World Development Report with title “Mind, Society, and Behaviour”. Applying insights from psychology, and social-psychology as well as complexity science, they presented a much more nuanced and contradicting picture of human rationality, contradictory to the assumption of barter theory as main means of exchange (World Development Report, 2015).

In contrast to the explanation of barter, is the 'social theory of money'. Accordingly, Mellor (2010b) states that,

> “This rejects the barter story, pointing out that money had a variety of early uses such as tribute, wergeld (injury payment) or temple money (offerings). It is also pointed out that money has appeared in many types of society and in many different forms (Mellor, p. 80, 2010b).“

Even though different measurements of value have existed through time and space, the social theory of money stresses the concept of debt as fundamental principal underlying exchange (Dittmer, 2014; Graeber, 2011; Martin, 2014). In his book, “Debt: The First 5,000 Years”, Graeber (2011) provides a condensed description of historical research on the development of debt, money and social organisation. He highlights socio-ecological relations as omnipresent factor of historical societies. Recognising the importance of authority through Chieftainship, Law Codes, transcendental believes, and culture, Graeber goes on to examines the role of debt and value in consideration of power dynamics. According to him social organisation through

debt had served mainly for the avoidance of concrete physical violence. This was reinforced through institutional means of authority such as social norms, religion and codes of conduct. Because exchange on a daily basis did not pose any unusual challenge within a given community, money was mostly used to recognise debts which could not possibly be paid back. In that sense money was not so much used for its inherent value but as a reference framework. As he states on 'primitive money',

> "Often, such currencies are never used to buy and sell anything at all. Instead, they are used to create, maintain, and otherwise reorganize relations between people: to arrange marriages, establish the paternity of children, head off feuds, console mourners at funerals, seek forgiveness in the case of crimes, negotiate treaties, acquire followers—almost anything but trade in yams, shovels, pigs, or jewellery (Graeber, p. 137, 2011)."

Considering this, the idea that money was invented in order to overcome the inconveniences of barter, seems quite unlikely, especially between people within the same community or cultural background. Hence, historical exchange as explained by the barter theory, is based on an oversimplification of the evolution of society. Considering the co-evolution of nature and society, as well as the adaptive emergence of phenomena, highlights the necessity to be cautious of context specific understandings of money (Kallis, 2007). As Hermele (2015b) states,

> "It would be easy – but misleading – to assume that the world's currencies have evolved in a linear fashion, beginning as commodity currencies only to gradually rise to higher forms of sophistication and abstraction with the advent of pure fiat money, money built on trust and convention alone. But the historic record tells a different story: in addition to the fact that money did not emerge to replace barter, money also appears in many different guises over the centuries: see Table 1 (Appendix 1)(Hermele, p. 16, 2015b)."

From this it follows that the conceptualisation of money is not due to a presumed naturally given logic of historical progression. Tied to contextual organisation, money does not follow a linear progression but rather evolves with society and culture in a shared landscape. In some societies money was used as a normative regulator for legal or religious purposes while in other contexts again money was used merely as a way of keeping track of credit accounts and clearings (Martin, 2014). Therefore, it seems more adequate to see money as essentially being a social construct which has co-evolved through contextual reciprocal socio-ecological dynamics.

The story of barter and that of the social theory of money, converge with the increased usage of a standardised commodity money based on legal or political authority. This form of money came in a variety of different shapes - from cowry, to huge boulders or coins, to name but a few (Greco, 2009). Ascribing a somewhat higher social status to the commodity was enabled through the association with a contextual political or religious authority (Graeber, 2011). This could significantly modify its social recognition as means of exchange and thus alter its contextual appliance. On that regard the widespread stamping of coins with a royalties profile, the christian cross or the symbol of a local blacksmith, were commonly used examples (Kilger, 2008).

Through the spread of these kind of commodity moneys, and the introduction of taxes, a new determining power of social change was initiated (Graeber, 2011). The relation of debtor and creditor was factually re-evaluated from a highly informal individualised system to the recognition of a formalised measure of value enforced by an authority. Through this the commodity money could be used to bridge otherwise existing gaps of social trust such as with people from outside the own community. This led to increased recognition of money, and as its influence spread, so did that of the state and the power of private conglomerates of merchants. As Greco (2009) states,

> "Very few people realize that the nature of money has changed profoundly over the past three centuries, or that is has become a political instrument used to centralize power, concentrate wealth, and subvert popular government (Greco, p. 1, 2009)."

Nevertheless, the centrality of the barter theory remained as integral feature to conventional theories on money. Further questions about the role of power in regard to moneys conceptualisation, will be examined in further detail in the chapter on complementarity.

### *The Development of Mainstream Economics*

The underlying understanding of money within mainstream economics has been the product of reciprocal historical developments (Hornborg, 2016). Through intellectual dominance and conservative tendencies related to the favouring of established institutions and norms, the history of macro-economics should be understood as a history of ideas related to institutional change and development (Gibson-Graham, 2006; Foucault, 1983; Mehrling, 2005). This means that there seems to be a logical progression in the evolvement of macro-economics, that are reciprocally

affected by the circumstances. Adam Smith, the proclaimed founding father of economics, has been attributed for evolving the idea of wealth creation from labour (Hornborg, 2016). He distinguished between productive/unproductive activities and used this as starting point for his argument about fair market exchange where optimal allocation of exchange rates benefited all participants and levelled in equilibrium. Mainstream economists have usually understood this as exchange based on behaviour that is led by market signals and incentives to coordinate the exchange mechanism (White, 2012). Smith had early shaped the image of politics as a restrictive force that disturb the natural order of the market, a notion that has played a detrimental role in many of the most famous economic theories to come. Up until the first world war classical economists and most neo-classical economists have supported the theoretical ideas of Smith in that the gold standard as commodity money would regulate the money stock of a nation automatically (White, 2012). The idea of market equilibrium reinforced the increasing importance of quantitative factors such as supply/demand and purchasing power as distinct measurements of exchange. Mainstream economics has since promoted the superiority of mathematical and statistical explanations (Hornborg, 2016).

In July 1944, a common sense of urgency to act brought delegates from 44 nations together at the United Nations Monetary and Financial Conference, better known as Bretton Woods Conference. The motivations for this first international meeting of its kind, were build on shared concerns regarding the Great Depression of the 30s, the collapse of the gold standard, decolonisation, and postwar reconstruction (Potter, 2008). The agreements initiated the establishment of among other things, the World Bank Group (WBG) and the International Monetary Fund (IMF), which were dedicated to ward against competing devaluation of money, and to foster economic growth. Further, the so called Bretton Woods Monetary Management System promoted the first internationally fixed exchange rate. Regulations against currency speculation such as restriction for capital flows were thought to increase international monetary stability. While all other currencies were fixed to the dollar, they continued to have an adjustable rate of exchange in relation to its own value to the global dollar value. This means all other currencies were redeemable in gold, but pegged to the dollar for the exchange rate. The dollar itself was “floating” without any basis to the US gold stock (Hermele, 2015b). What appears to be a form of commodity money system, should is better understood as “hybrid monetary system”. As Hermele (2015b) explains,

“The Bretton Woods era 1945-1971 is usually described as an international monetary

> system tied to gold. This is only partly correct: it is true that the US dollar was tied to gold in one important respect, but Bretton Woods was not a regular gold standard but rather a hybrid monetary system which combined the absence of a commodity anchor for most currencies with a fixed but adjustable rate of exchange vis-à-vis the only currency tied to gold, the US dollar. The dollar in its turn was not based on a gold exchange – that is the emission of dollars was not based on the US gold stock – but it did convert dollars hoarded outside of its territory in gold when called upon to do so by the respective central banks (Hermele, p. 23, 2015b)."

The pegging to gold was abolished under Richard Nixon in 1971, which at the same time initiated the prevailing paradigm of so called "fiat money". This means money that is solely based on the trust of the public (Dittmer, 2014). As consequence, the understanding of money within the Bretton Woods system was undermined, and the idea of commodity money with intrinsic value was abandoned. Choosing the dollar as global reserve currency did and still does have significant influence on monetary policy and development efforts ever since. This has been underlined by Avdjiev and Takáts (2016) from the Bank for International Settlement, who were able to show that,

> "More than three-quarters of global cross-border lending is accounted for by claims denominated in two major currencies: the US dollar and the euro. At end-2014, claims denominated in US dollars alone equalled $13.4 trillion, or 47% of the global total (Avdjiev and Takáts, p. 11, 2016)."

In the progression of the paper they find a direct domination of emerging economies through monetary policy in advanced economies. This is reflected in the strong imposition of the US economy and politics. Further, it shows the inertia of the established economic mechanisms. As Hermele argues,

> "We may conclude, then, that the main deficiency of the current international monetary order does not reside in the absence of a suitable anchor, such as gold, but in the disembodiment of the market forces – including the rules governing the world's major currencies – which has taken place in the following the neoliberal counter-revolution in development thinking (Hermele, p. 37, 2015b)."

The connection of money and development has played a significant role for different development agendas. This notion is still present, most prominently maybe expressed by the General Assembly of the United Nations in the Transforming *our world: the 2030 Agenda for*

*Sustainable Development* adopted in 2015. Here, money is used as indicator highlighted in issues such as poverty eradication (SDG 1), economic growth (SDG 8), reduced inequality (SDG 10) or responsible consumption (SDG 12). Another reoccurring issue is based on the distinction between money and wealth.

Because money is only one of many assets that compile wealth, there is widespread uncertainty and confusion about the distinction of money and assets. As such it is important to consider systemic issues that arise from the predominance of "fiat money". This is particularly critical in a global financial system, with strong systemic divergence of asset valuation, national fiat-money, or risk. As such the monistic conceptualisation of money has reportedly led to disputes on the ground of differing perceptions of value not adequately represented in this concept (Potter, 2008).

## II. Methodological Framework

Authors from diverse disciplines have highlighted various arguments placing money under suspicion of enhancing prevailing issues such as social inequalities, environmental degradation and poverty (Clark and Hermele, 2013; Harvey, 2006; Hornborg 2016). Attempting to extend this scope, the chosen methodological approach is an integrative review of english academic literature published in the 21st century, in order to gain a broad overview of major conceptual understandings of money, and to study their complementarity. Research in form of an integrative literature review poses various challenges for the researcher which range from a high sensitivity for personal biases, and for a persistent self-critical distance. The broad disciplinary background of relevant literature connects with the interdisciplinary tradition of development studies and extends monistic conceptualisations of money into a thick, more holistic approach. Further, this diverts the attention away from the supposed superiority of one or the other discipline. Being able to situate the otherwise comparably narrow descriptions of money in a wider context is enhanced by considerations of ecological economics and complexity economics. Striving for greater methodological transparency and accountability, a brief overview is giving on the development of the final focus of the thesis.

During the first phase of the research, the use of open coding and snowball sampling has been applied in order to arrive at a first sketch of the topic at hand (Bryman, 2012). A prompt emphasis on the methodological process, helped to guide the research and ensured a solid

foundation for the further investigation. The results were constantly reviewed as the research progressed, and evolved the research focus of the study without limitations by a predefined agenda. Giving attention to recurring key ideas through snowballing, was used to highlight connections between different understandings of money (Bryman, 2012). Moreover, it allowed for the contextualisation of individual authors in relation to their own sources, and a broad overview over the greater discourse as well as popular ideas. Outlining the discourse, it was necessary to narrow down on some peculiar issues that seemed to have gotten less coverage. This helped further to entangle the different focal points to extract the relevant information. Specific concepts of money were included whenever a multitude of sources confirmed them. Additionally, critical accounts were examined to further validate each idea in reference to confronting arguments. In this way otherwise incommensurable understandings of money were related to their respective underlying assumptions, which is also why the study of complementarity turned out as particularly suitable (Clark, 1994).

During the second phase, source criticism with additional focus on the research methods and theory, further boiled down the relevant literature (Bryman, 2012). The previously identified key ideas were refined and elaborated, and a thorough understanding of premisses and underlying assumptions was gained. Instead of getting stuck with technical discussions, the focus was set out as a study of conceptual understandings of money.

Phase three is reflective and was used to revise the research as a whole. The idea with this phase was based on enhancing transparency and traceability. In order to identify potential personal biases in the selected literature it was important to get some distance and allow self-critical reflection of the research process hitherto (Bryman, 2012). Through the inclusion of axial coding, it was possible to supplement the previously rather analytical understandings of money and highlight relations between key concepts. This emphasis helped not to get entangled in differences between disciplines, but rather to examine tensions and similarities between the different conceptual understandings of money (Torraco, 2005). However, this study is not designed in order to claim a concluding truth. It should be rather understood as providing an alternative perspective on the way money is understood.

Providing an inquiry into money not from a singular or analytical perspective but rather from a holistic descriptive approach, is especially fitting as most of the literature already promotes particular expert driven insights. Interdisciplinary research, helps than to promote an understanding of money that incorporates various perspectives and their implications on a

conceptual level. It is through this bridging of understanding that the current predominant understanding of money and development essentially come together. However, due to the interdisciplinary base of the study the research process was not only slowed down, but also limited in regard to the coverable literature. To counterweight this issue, the extent of literature was narrowed down to english publications within the 21st century. Another shortcoming is the lacking inclusion of voices outside of academia as well as that of contextualised examples of money or other valuation systems.

## III. Analysis

This chapter is intended to give a broad overview and examine general characteristics of major concepts of money. The chapter is sub-divided as follows: 'Classical' Function/s of Money, Bullion Theory of Money (Commodity Money), Social Theory of Money (Debt and Credit), Broad Money, Near Money. Additionally, some implications of money in the 21st century are outlined in regard to development.

### *'Classical' Functions of Money*

In a widely recognised article on the creation of money in modern economies, published in the Quarterly Bulletin by the Bank of England. Thereby, McLeay, Radia and Thomas (2014a; 2014b) have defined money according to its so called classical functions, hence by what it does. At first, “a store of value”, second, “a unit of account”, and third, “a medium of exchange” (McLeay, Radia and Thomas, 2014a; 2014b). They also hint at the issue of differentiation between money and assets, which will be picked up more in depth when illustrating the case of 'near money' constructs and the chapter on complementarity.

Understanding money as a store of value, means that the ascribed value is to be retained over time and space (McLeay, Radia and Thomas, 2014a; 2014b). As McLeay, Radia and Thomas (2014b) state,

> “The first role of money is to be a store of value - something that is expected to retain its value in a reasonably predictable way over time (McLeay, Radia and Thomas, p. 2, 2014b).”

and further,

> "Money's second role is to be a unit of account — the thing that goods and services are priced in terms of, for example on menus, contracts or price labels. In modern economies the unit of account is usually a currency, for example, the pound in the United Kingdom, but it could be a type of good instead (McLeay, Radia and Thomas, p. 2, 2014b)."

Due to its universal interchangeability, money can be understood not only as a thing in itself, but also as a measurable reference framework (Dittmer, 2014). Similar to the neutrality of weights or length units, this results in a tendency to abstract money as a depoliticised form. Dependent on the context, there can be various different systems of monetary accounting. This is reflected on the discussion of exchange value and use value (Appendix: 1; ). There seems to be underlying dynamical adaption of our conceptualisation of money, and the accounting that emerges from each context. In one situation, it means all the money in the world to get the water, while in others we couldn't care less. As such than, money is used to express dynamics in valuation, that are influenced by the context we are in. This begs the questioning of equality through money as a presumably objective measurement. McLeay, Radia and Thomas (2014b) state on this issue,

> "Third, money must be a medium of exchange — something that people hold because they plan to swap it for something else, rather than because they want the good itself (McLeay, Radia and Thomas, p. 2, 2014b)."

The recognition of money as a general means of payment is therefore dependent on the trust in its usability as medium of exchange (Robertson, 2012). While this conceptualisation is widely spread in mainstream economics, some argue that the definition according to what money does misses the argument about what it is (Lietaer, et al., 2012).

### *Bullion Theory of Money (Commodity Money)*

Commodity money comes in a variety of forms ranging from cowry, to gold or livestock. This kind of money is often described as symbolic money. As such its value is derived from its redeem-ability into a denominated amount of the commodity that it represents (Greco, 2009). In that sense, commodity money can be regarded as essentially consisting of two abstractions of value. These abstractions are on the one hand the value of the medium in itself, and on the other the ascribed value as medium of exchange. Greco (2009) states that,

> "Commodity money carries value in itself and can fulfil all of the classical functions attributed to money. It is at once a payment medium, a measure of value, and a store of value (Greco, p. 90, 2009)."

It should be noted though that the inherent value of the commodity is to some extent also based on social relations. This is because its value as commodity must be recognised in the society at large, in order to be regarded as medium of exchange. It is not entirely clear though if it is the underlying physical commodity which provides greater safety for the monetary value as exchange commodity or its recognition as medium of exchange. Commodity money enables the conversion of different goods and services according to a declared measure. Due to different use value of these commodities, in the case of gold for example as jewellery or religious artefact, choosing the application of the commodity as money does come at the cost of not being able to use it in any other way (McLeay, Radia and Thomas, 2014a; 2014b). While one might assume that commodity money is limited by the availability of the denominated commodity, this can be refuted due to the additional use of it as a reference framework. As such, exchange based on commodity money is even possible during physical absence of the commodity. As long as there is trust in the involved parties to be able to provide the backing commodity on demand, the agreement stays intact.

With the introduction of 'claim notes', denominated pieces of paper that grant the backing through a commodity, social trust and physical measurability of money shifted to a quasi commodity money. As Greco (2009) underlines,

> "The shift from direct exchange of commodities to the exchange of notes or tokens representing claims to the commodities was sort of half-step that prepared the way for the next evolutionary step, from commodity money to credit money (Greco, p. 92, 2009)."

With this kind of credit money the recognition of debt and credit in relation to measurable entities initiated the development of essentially two forms of paper money. One which was issued into circulation as deposit or "claim check" for a certain amount of gold, and the other was based on credit enabled by trust in the service of the debt, the risk of these future obligations was usually compensated with interest (Greco, 2009). Inevitably, this resulted in the problem of simultaneous circulation of two different types of money with significantly different fundamentals, one as symbolic commodity money and the other as social credit money.

*Social Theory of Money (Credit/Debt)*

The consideration of money as a social construct reaches from ancient accounts that can be linked as far back as Aristotle, to modern forms of fiat-money. This understanding of money is centred somehow between an abstracted commodity and a debt-token or IOU (Graeber, 2011). As Mellor (2010a) states on the notion of credit,

> "The social theory of money argues that all money, whatever its form, is credit to the holder and a debt on society (Mellor, p. 24, 2010a)."

Hence, the concept of money is seen as social construct that lacks a general basis in physical reality (Dittmer, 2014). Note, that any social phenomena can not ultimately be decoupled from fundamental socio-ecological relations. This is an issue which is conflicting with the conventional understanding of money as neutral entity (Hornborg, 2011). Accordingly, the institutions which evolved over the centuries still promote a notion of money as universal means of exchange upholding a false assertion of value equality. Debt then is the current imbalance or inequality through credit, and can be set straight again through the cancellation or serving of the respective debt (Hornborg, 2016). As Graeber (2011) states,

> " Exchange encourages a particular way of conceiving human relations. This is because exchange implies equality, but it also implies separation. It's precisely when the money changes hands, when the debt is cancelled, that equality is restored and both parties can walk away and have nothing further to do with each other. Debt is what happens in between: when the two parties cannot yet walk away from each other, because they are not yet equal. But it is carried out in the shadow of eventual equality (Graeber, p. 130, 2011)."

Following this conclusion, debt can be understood as a social phenomena which seems to create both a change in moral or legal relations and an imbalance within social hierarchy (Graeber, 2011). A credit once granted, is then further related to the general trust in the system of "future debt cancellation". On a systemic basis this hierarchy is left to institutionalised arrangements which tend to pose a quite rigid formal framework. Once this trust vanishes, as could be observed during the latest financial crisis, the system tends to collapse and readjusts its value accordingly. Nowadays, the strong emphasis on legal debts merely requires both parties to be of equal legal standing, presuming the circumvention of moral debts which are far less tangible or even measurable (Graeber, 2011).

Money can be understood as debt and/or credit which reflects the promise to honour an agreement of exchange. The etymological descent in latin is the word 'debere' - to owe, and 'credere' – to believe, highlighting the fact that credit money is essentially based on social trust. Depending on the context, its creation is based on formal institutions, such as banks, and on political arrangements or informal institutions such as through local credit circles, family support or so called loan sharks. Therefore, the often promoted idea of money seemingly being created out of nothing is inaccurate (Werner, 2014). As Dittmer (2014) sates in reference to Ingham,

> "The physical perspective that bank money and other forms of credit-money are created 'out of nothing' can be misleading; they are "more accurately, [created] out of the social relation of debt" (Ingham 2004b: 63, italics in original) (Dittmer, p. 18, 2014)."

This provides two further insights, first, credit money is created "out of the social relation of debt", and second, the a connection between the amount of deb and social trust. As such the most significant factor remains the maintenance of trust stability. As Graeber (2011) states on debt,

> "In this sense, the value of a unit of currency is not the measure of the value of an object, but the measure of one's trust in other human beings (Graeber, p. 52, 2011)."

Both of the quotes above support the point of credit as dependent on relations between the individual who is owing the money (debtor) and the ones who are owning/providing the money (creditor).

Needless to say the argument of money as universal value indicates a quite large logical inconsistency (Hermele, 2015a). This is because the universal value of money is relative to context and dependent on human relations which enable its initial working as money. As Hermele (2015a) highlights in reference to Samuelson and Nordhaus (Samuelson and Nordhaus, p. 559, 2001),

> "The long-run neutrality of money is... only a tendency and not a universal law.... Most real-world monetary shifts have left real economic effects in their wake (Hermele, p. 8, 2015a)."

The crux is then to understand money not only as a means of exchange but also as social power which is constantly altered by the contextual dynamics of socio-ecological relations. As Ryan-Collins, et al. (2011) summarise,

> "...all money is credit but not all credit is money (Ryan-Collins, et al., p. 140, 2011)."

This quote reflects the already mentioned essential issue of differentiating money and assets. Accordingly, when considering money based on the creditor/debtor relationship, it is unclear who is really set at what side of the deal as either creditor or debtor.

### *Broad Money*

The idea of so called 'broad money', connects to the current paradigm of fiat-money dominating all over the world (Lietaer, et al., 2012). Here, money comes in form of central bank minted coins and banknotes, or as commercial bank IOU's in form of bank deposits (McLeay, Radia and Thomas, 2014a). As McLeay, Radia and Thomas (2014a) state,

> "This can be thought of as the money that consumers have available for transactions, and comprises: currency (banknotes and coin) — an IOU from the central bank, mostly to consumers in the economy; and bank deposits — an IOU from commercial banks to consumers (McLeay, Radia and Thomas, p. 4, 2014a)."

As such it includes all money which can be used immediately and without any limiting conditions on its usage (like for example time constraints). The confidence of consumers within the IOU's from commercial banks is based on the trust that they are redeemable for governmental banknotes at any time, hence the need to hold capital requirements in order to avoid bank runs. Most importantly though is the position of governments as so called 'lender of last resort' (Turner, 2016; Domanski and Sushko, 2014). As such governments guarantee the fundamental trust in money through their authority. However, as most of the money today is in form of bank deposits, they are created as debt through commercial banks themselves and can not directly be controlled by central banks. This vast amount of commercial credit money is created through lending. Estimates for the case of Britain, set the ratio at ca. 3% of banknotes and ca. 97% of commercial bank money (Robertson, 2012). This is further confirmed by McLeay, Radia and Thomas (2014b) who state in their conclusion that,

> "Most of the money in circulation is created, not by the printing presses of the Bank of England, but by the commercial banks themselves: banks create money whenever they lend to someone in the economy or buy an asset from consumers (McLeay, Radia and Thomas, p.12, 2014b)."

As mentioned, fiat money is highly dependent on a trustworthy authority as lender of last resort, usually a form of government which also proclaims it as legal tender (Domanski and

Sushko, 2014). This means it is created by the trust in the government who is somewhat depended on the future output of society (Mellor, 2010a). Because the value of fiat money is only virtual, it represents an abstracted value that incorporates the contraction of time and space (Harvey, 2006). This can lead to a presumed disintegration from bio-physical constraints which is an indication for the difference between historical forms of debts and those of modern economies. In the former, lending was usually restricted by the factual redeem-ability of physical commodities or personal services (Graeber, 2011). In the latter case, this physical constraint has been virtually but not factually eliminated. While there is theoretically no limit to the amount of money that can be created, it is still dependent on assumptions about contractions of time and space and hence also on future physical constraints (Turner, 2016). This shows a change in risk aversion from the present to the future, and underlines the quite substantial introduction of risk in modern money creation. For commodity money, the risk of loans were connected to what ever happens with the commodity. In a fiat-money system however, the risk and impact is to large degree dispersed into the future. As Graeber (2011) underlines,

> "The reader may have noticed that there is an unresolved debate between those who see money as a commodity and those who see it as an IOU. Which one is it? By now, the answer should be obvious: it's both (Graeber, p. 79, 2011)."

Therefore, it seems more appropriate to think of debt and credit as abstractions of time and space appropriation with strong implications on power relations (Hornborg, 2011).

### *Near Money*

Near money can be described as highly liquid non-cash assets, diverging the conventional conceptions of money and assets (McLeay, Radia and Thomas, 2014a; 2014b). The value of near money is usually measured in reference to liquidity and risk. Liquidity does thereby refer to exchange dynamics, and can be further defined as flows of financial systems or ability of agents to actualise these flows (Nikolaou, 2009). Risk is related to trade-offs between the time of the sale and the price, information asymmetries and incomplete markets (Turner, 2016). In that regard central bank cash money for example is regarded as having high liquidity because it can usually be sold at any time and insubstantial loss of value, besides of course the loss through inflation or trust in the government as lender of last resort (Domanski and Sushko,

2014). Assets with low liquidity are often based on conditions that guarantee them not being sold off at any moment, such as for example term deposits.

Near money constructs gained attention with the rising of the so called shadow banking sector. This usually refers to complicated rather inexplicable financial instruments such as securitisations and derivatives. For the former this refers for example to the bundling of loans or debt and eventual reselling, for the latter the ability of collateralising or hedging of risk. Enabling the trade of these kind of financial instruments does however accordingly tend to lead to less transparency. One usually claimed advantage is supposedly more effective risk management. However, this reasoning has been under high scrutiny especially due to the experience of mortgage backed securities in the latest financial crisis (Turner, 2016).

### *Money in the 21st century*

The transition from individually issuing banks to modern banks, shows how credit and debt has been established as the main means of exchange. This is based on the odd relation of government and private money creation (Mellor, 2010a). Historically the power to issue money was residing in the authority of the state. In need of further resources, the fusing of state authority and wealth of private individuals and/or banks enabled new availability of credit without loss in trustability. The indebtedness of the state to these private stakeholders, was conceived as a security and as sign of trust to these kind of creditors. Further, in order not to lose trust in the state itself, private banks got the permission to create money for the public, too (Greco, 2009). Through this constellation, commercial bank money gained foot as 'legal tender'. This authority is executed among other things by the acceptance of this money to pay taxes, and the legal obligation to honour it as means of payment. Here, so called 'base money' - money comprises credit issued by the central bank, including currencies used by consumers for spending - is important to be mentioned. As legal authority, long-term obligations are monetized by central banks on the open market. Through this the power of central banks to inflate the money supply in addition to the already existing general money supply is highlighted (McLeay, Radia and Thomas, 2014a; 2014b). However, because this is also fiat-money, it is essentially created out of nothing - without the incorporation of additional goods or services - hence it devalues the rest of the money. Furthermore, as so called “high powered money, based on a high level of trust for the government to ultimately settle all debts,

commercial banks add this newly created money through the central bank to their reserve assets and as save basis for further lending (Mellor, 2010a; Greco, 2009).

The idea that banks act as intermediaries and can only lend out money based on deposits, has been shown as a common miss perception (Johanisova and Wolf, 2012; McLeay, Radia and Thomas, 2014a; 2014b; Mellor, 2010a). Most money nowadays is created at will by commercial banks and enters into existence as debt. This debt is conditioned by the need to pay interest and the risk of defaulting the loan (Robertson, 2012). Because of this dynamic, the social theory of money creation reveals that money as debt is rather loans from the creditor to the bank than vis versa. On a practical level, the additional application of interest payments enters everyday exchanges through their inclusion within prices, leading to a transfers of this extra cost of money creation to society at large. As Robertson (2012) states,

> "This is a kind of 'stealth tax'. But it's not a tax we pay to the government as public revenue. Under the present way of providing the money supply, everyone pays it as a subsidy to the banks almost every time we use money in the course of our daily lives. That includes the government's use of money on behalf of society (Robertson, p. 102, 2012)."

Due to fractional-reserve banking, commercial banks are only partially reliant on their deposits in order to loan out money, they only need to hold a fraction of the total money that is lend out. This fraction is based on the equity of a bank. As banks only need to keep a fraction of newly created deposits, they can use the rest of the money as asset to loan out new money, spiralling a chain of extra money created by every single loan made. In conclusion, most of the circulating money nowadays is based on someone else's loan (Johanisova and Wolf, 2012). However, the role of the central bank as regulating authority still only includes the national security and general stability of its own money (Domanski and Sushko, 2014).

## IV. Understanding Money a Question of Theory?

### *Ecological Economics*

Most ecological economists refrain from providing a clear cut definition of the field in one way or the other. However, some have forwarded cautious attempts to identify common motivations. Faber (Faber, p. 5, 2008) for example names shared concerns for: "nature, justice

and time". Underlying these broad tendencies is a self critical reflection on the construction of knowledge and accompanying power relations. As Daly and Farley (2011) state on the approach of ecological economics,

> "Ecological economics seeks to promote truly trans-disciplinary research in which practitioners accept that disciplinary boundaries are academic constructs irrelevant outside of the university and allow the problem being studied to determine the appropriate set of tools, rather than vice versa (Daly and Farley, p. xxiii, 2011)."

We will now briefly look at two concepts of ecological economics that seem particularly useful when trying to understand the concept of money and further for the study of complementarity. First, is the notion of socio-ecological co-evolution, and second the concept of value incommensurability.

Socio-ecological co-evolution recognises the essential relation of time in the development of ecology and society (Farrell, 2007). As such it gives insights into the workings of path-dependency and structural heritage. While there is a certain hierarchy to socio-ecological relations, there is an inherent uncertainty of feedback loops and the dynamic processes of ecology. Accordingly, both contextual cultural motivations as well as universal energy-flows, or global-capital flows for that matter, need to be considered. This changes the outlook of equilibrium states within economics or ecology, and promotes instead that of dynamic non-linear systems, reflecting tendencies of constant adaption and emergent behaviour (Gual and Norgaard, 2010).

The concept of value incommensurability is linked to the notion of valuation language (Martínez Alier, et al., 2010). In line with this, Martínez Alier, et al. (2010) have focused on the impact of values as underlying basis of human communication. This means while the use of language is changing according to context, there is a certain path-dependency to the underlying values of our language. In other words, the context in which language is learned and applied has reciprocal impact on personal perceptions of the world. Focusing on valuation language in various cultures, Martínez Alier, et al., (2010), have demonstrated the imposing and restrictive character of monetary conceptualisations. The notion of conceptual superiority of money, has been under wide scrutiny in the development context, particularly in regard to poverty, equality and wealth (Martínez Alier, et al., 2010; 2014). One example that describes this issue is for example as local actors need to submit to the application of a particular language, such as that of the law or economics, in order to get heard by international

organisations (Martínez Alier, et al., 2010). Hence, the notion of valuation language becomes vital for the contextual understanding of money and further for development studies as academic field examining global power asymmetries. Imposing monistic conceptualisation of money as the only way of measuring value, shows the relation of money and power asymmetries. This kind of valuation is therefore often in direct conflict with other values (Gibson-Graham, 2006; Martínez Alier, et al., 2010). Another issue in that regard is the case of monetary compensation claims or liabilities in regard to environmental degradation.

There seems to be an inherent contradiction arising from money's role as store of value which is, in relative terms, often more stable than that of real commodities. Here the social dimension of money interferes with its working on material-energy flows that stretch through time and space. Using money as interchangeable means of exchange, store of value and universal unit of account creates therefore asymmetries beyond the sole consideration of societal impacts. The resulting feedback-loops of money as a means of exchange are spiralled by global interdependencies between local communities, nations and international relations (McMichael, 2008). The role of money as means of exchange has shaped a picture of money that assumes its legitimacy due to supposed ensurance of equality. Accounting for material-energy flow appropriation through money however reveals the underlying asymmetries in the accumulation of time and space. This issue has been described by Hornborg (2011) within the concept of unequal ecological exchange.

### *Complexity Economics*

Considering money as complex phenomenon can provide relevant insights on the organisation of reciprocal socio-ecological exchange relations (Rammel, Stagl and Wilfing, 2007). The notion of complexity has been around for some time but has gotten increasing attention as research and theoretical approach due to increasing awareness for system dynamics, and the idea of combining insights from different disciplines into overarching coherent frameworks (Arthur, 2014). Complexity economics promotes an understanding of the economy as non-linear system, consisting of agents that show emergent and adaptive behaviour (Arthur, 2014). Accordingly, individuals are seen as neither all-knowing, nor perfectly rational. Constantly changing circumstances leave people with the need to explore strategies and adapt their behaviour according to the relevant context. This notion has recently found its way in more

mainstream publications, much due to the publication of the 2015 World Development Report (World Bank, 2015) on behavioural economics.

Complex systems are complex not necessarily in the sense of being complicated, but rather because their essence can not be deconstructed without losing significant parts of the whole - the sum is more than its parts. This can be understood in the sense that even if one were able to deconstruct a phenomenon in all its detail, it would not be possible to determine the aggregated effects emerging from their working as one entity. Furthermore, analytically verified causal links tend to follow mechanistic linear descriptions, hence the inevitably insufficient abstraction when applying a reductionist analytical logic to understand non-linear complexity (Arthur, 2014).

The focus of complexity economics is directed towards the exploration of approaches that incorporate uncertainty of emerging dynamic processes in non-linear systems (Arthur, 2014). This provides a new approach to the creation of policies, regulation and general sense making. Hence, complexity economics is usually not understood as a theory, but rather as,

> "....a movement in the sciences that studies how the interacting elements in a system create overall patterns, and how these overall patterns in turn cause the interacting element to change or adapt (Arthur, p. 3, 2014)."

Arthur (2014) outlines how various distinguished authors of mainstream economics can be identified as early proponents of complexity economics. With his famous theory of 'the invisible hand', even the proclaimed founding father of economics Adam Smith, is often named as providing an early account of complexity and self-organisation (Heylighen, 2001). Here, Smith illustrated how the reciprocal patterns of aggregated individual behaviour are said to create feedback loops that enable even bigger patterns of behaviour often described as market forces.

One of the insights from complexity economics, is the inherent tendency to challenge the role of money, or to circumvent its defining element (Arthur, 2014; Ryan-Collins, et al., 2011). This was described as Goodhart's Law, which stresses the example of tax evasion and regulation avoidance through the innovation of new financial instruments. Often ascribed as exploitative economic behaviour, this poses a fundamental threat to the idea of equilibrium states and a monistic concept of money. This behaviour can be seen as manipulation of systemic elements (policies or regulation) for unintended purposes, monopolies, behavioural adaption to a narrow set of evaluation criteria, or asymmetric information (Arthur, 2014). As Arthur (2014) states,

> "It is no longer enough to design a policy system and analyse it and even carefully simulate its outcome. We need to see social and economic systems not as a set of behaviours that have no motivation to change, but as a web of incentives that always induce further behaviour, always invite further strategies, always cause the system to change (Arthur, p. 117, 2014)."

This can be for example seen with the upcoming of near money constructs like highly liquid derivative bundles, based on illiquid assets (Ryan-Collins, et al., 2011).

Viewing the economy as organic, is in stark contrast with the rather mechanical assumptions of causality underlying most of the conventional economics teaching (Arthur, 2014; Mehrling, 2005). The relevant issue for complexity economics is not necessarily the idea of finding strategies that work to achieve certain goals, but rather, how these solutions are approached (Gual and Norgaard, 2008). Envisaging conceptualisations of money as part of complexity economics is utilised through interdisciplinary research on human behaviour and non-linear systems. This is in stark contrast to the arguably flawed approach of linear systems and equilibrium states, frequently adopted in conventional economics.

## V. Money and Development

Considering the high diversity and long-lasting historical debate on money, it should not come as surprise that there are various conceptualisations of it (Hornborg, 2016). The common denominator across-the-board seems to be the abstraction of values into commensurable and quantifiable categories. The examination provided throughout this thesis has shown how money is socially constructed, normative, politicised and necessarily related to socio-

ecological relations. As is widely recognised, the economic ideology and particular conceptualisations of money are certainly part of the active agenda of development institutions. At the forefront of development efforts, money is highly significant for decisive formal institutions like the IMF and the World Bank, who continue to determine much of the financial aid, regulation and policies. Moreover, remittances have strong influence on informal development across time and space. Considering the recent expansion of shadow banking, tax havens as well as increasing internationalisation of the financial system, the study of global money has become more relevant than ever. Enhanced by the workings of an international market only vaguely bound to national regulation, and expanded through the creation of near money constructs, the conceptual boundaries of a monistic understanding of money are obsolete. On the one hand private actors and commercial banks are able to transcend the boundaries of national legislation, mostly because of failing regulation. On the other hand, national governments as well as central banks are limited in their authority and subsequently their influence on international legislation. This has been depicted by Raghuram G. Rajan (2016), Governor of the Reserve Bank of India, in a recent talk at the London School of Economics. As he illustrates, central bankers do not need to account for any potential spill over effects that are produced as consequence of national monetary policy. As there is no way of knowing where and how money is going to end up, the aggregated sum of individual actions results in incalculable systemic risk (Turner, 2016). He goes on to highlight how there is an increasing interest gap between the collective risk exposure by commercial and shadow banks, evolving in unimpeachable too-big to fail institutions. As Rajan (2016) states,

> "We don't know wether we've reached the limits of monetary policy domestically. I personally would argue there is more and more evidence that we probably are near that limit. But I also would say that we do know that the adverse spill over effects of aggressive monetary policy, have been there for some time, and are there to measure across the whole world. The fact that policies in some industrial countries affects a sentiment in my markets on a daily basis is something that was not intended by them, does get experienced by me, and is a fact of life, and we need to deal with this because it puts constraints on policy in my country. (Rajan, 2016)."

Utilising his background as Chief Economist and Director of Research at the International Monetary Fund he is able to criticise the issue of global money from inside the mainstream discourse by emphasising internal contradictions. This issue has been also raised by Avdjiev

and Takáts (2016) who have investigated the spill-over effects of currency network in cross-border bank lending. As they state,

> "There is rapidly mounting evidence that monetary policy shocks in advanced economies are transmitted internationally and have a significant impact on global financial conditions (Avdjiev and Takáts, p. 4, 2016)."

With the dollar and euro accounting to more than three-quarters of global cross-border lending, national policy, regulation and changes in liquidity have significant impact on funding around the world. With the complementarity of different forms of money, the conceptual limitations of conventional money are left behind. Accordingly, development as a public project has over the years been redefined as a "private global project" (McMichael, 2008). This shift was arguably emphasised with the introduction of the fiat-money system. Despite the promised prosperity through trickle-down economics, the large benefits of market integration and deregulation has been confined to a comparably small part of the global population. Moreover, through the accompanying power dynamics in the international fiat-money system, substantial risk and interdependencies have been dictated to weaker economies. As Avdjiev and Takáts (2016) state on their findings

> "The above findings have implications for the assessment of financial vulnerabilities. Namely, the results suggest that, when it comes to cross-border bank lending, it is not only the nationality of the lending bank which counts: the currency composition of claims also matters for the transmission of external shocks (Avdjiev and Takáts, p. 29, 2016)."

Another issue often highlighted within development studies is the arguably biased position of the IMF and World Bank. Even though, some claim that this might be counterbalanced through the still quite recent establishment of the New Development Bank by the so called BRIC states (Brazil, Russia, India and China). As Griffith-Jones (2014) have stated in a discussion paper for the United Nations Conference on Trade and Development in 2014,

> "Though the International Monetary Fund (IMF) exists to provide short-term balance of payments financing, such funding is often insufficient, and is often tied to inappropriate conditionality. There is therefore a clear gap for a broad-based Southern-led monetary fund, that can be led by the BRICS, and that builds on the experience of, and complements existing regional Southern institutions (Griffith-Jones, p. 2, 2014)."

How the role of these international institutions will be influenced by the rise of 'new' global economic forces such as China or India, remains to be seen though (Robertson, 2012).

Nevertheless there are still issues connected to the strong leverage of the IMF, which allows the imposition of economic and monetary conditions on indebted countries. The economic agenda of the IMF is hence spread across the worlds countries, converting the context of national money into one of global money and so out of reach for national legislation. This does not only significantly impede the possibility of democratic decision making but also opens for the overtaking of established global market players, a system that favours big business before SME's undermining subsistence revenue generation. Some have argued therefore that the resulting mix of asymmetric power structures enhanced by global institutions like the IMF and World Bank are in direct conflict with the sovereignty of national governments.

While the predominant conceptualisation of money seems to prevail, recent changes in major development institutions might initiate a change of thinking. As a monistic paradigm, global money limits the way international relations are structured, upholding detrimental limits for development efforts in developing countries. Acknowledging the complementarity of money, can provide a deliberative tool to challenge and explore different conceptualisations of money as co-existing. Looking at money does hence pose a new angle for development studies, which allows for new approaches to persistent issues such as poverty or inequality.

## VI. Complementarity

In the course of this chapter, the previous findings are utilised to examine the complementarity of different understandings of money. Complementarity is an approach that can be traced back to Niels Bohr. As Clark (1992) clarifies,

> "...the notion of complementarity says that even if competing theories are mutually exclusive due to incommensurable abstractions, they may both be true and necessary for a thorough description of that which the theories are about (Clark, p. 254, 1992)."

Bohr's account of complementarity exemplifies this in accordance to the disturbances or abstractions that are created through the employment of specific tools of sense making (Clark, 1992). Utilising different research tools to arrive at an explanation, can give rise to contradictory or paradoxical results. It is important though to mention that complementarity is not a way of arriving at one 'truth', in contrary it is rather the idea that different 'truths' can co-exist. The problem is further intensified through constantly changing conditions of

observation in relation to time and space, sometimes referred to as an issue of theory-laden facts (Clark, 1994). Utilised research tools, like methodology, theory or biases, shape the findings and form them accordingly. This can also be seen as cognitive capacity, shifting the conceptualisation of money as social phenomena away from the tools of observation, and into the realm of abstraction. This has been described by Wilczek (2016), who states on the nature of things within complementarity,

> "It's the concept that there can be an underlying reality that you address questions to in different ways that are meaningful and give informative answers but require processing the underlying reality in different ways. So that the ways that you have to do the processing might be mutually incompatible...to understand it physically requires one kind of processing and there's every reason to think that we already have the fundamental physical laws that are adequate to that kind of treatment. But to understand how a person works, how thought processes, moods and so forth add up to a personality in a human actor will require quite different ways of understanding and quite different ways of processing the underlying information structure that are probably incompatible (Wilczek, 2016)."

Bohr's idea of complementarity highlights how tensions in the conceptualisation of money might be irresolvable. In other words, his account can be understood as supplementing dialectics with the idea that some tensions between thesis and antithesis might not resolve within a synthesis. Therefore, complementarity is not something one attempts to arrive at, but something one is left with after struggling to arrive at one singular stringent theory by ruling out of other theories. Bohr argues that this is reality revealed through our cognitive abilities (Clark, 1994). However, this should not be understood as a weakness of theory, but rather as basic ontological condition of all existence.

If trying to conceptualise money, we can see that there are some clear tensions in conceptualising money that arise according to the given emphasis on different characteristics (Ryan-Collins, et al., 2011). Taking for example the function as medium of exchange based on liquidity which could be argued is in juxtaposition with money as store of value. While having high liquidity is wishful for the working as means of exchange, the store of value tends to be more effectively accomplished with less liquid assets less prone to inflation. Accordingly, there is a tension between different assets used as measures of liquidity and the liquidity of money. Furthermore, money does not only facilitate the buying of goods and services, it is in

return goods and services that 'buy' money. Confusing this kind of reciprocity, some mainstream economists promote the assumption that equality in exchange is based on both parties being fully aware of the value that they will receive as well as the one they surrender (Hornborg, 2011). This can be contested not only through the inclusion of power relations, and socio-ecological factors but also through that of bounded rationality. Dependent on the context of interaction, reciprocity should be understood as an emergent and adaptive phenomena (Arthur, 2014). Furthermore, the assumption that money's sole role is exchange rather than economic or political stability, can be challenged. Mellor (2010b) highlights this in regard to money creation and states,

> "The most important aspect of money is not that it circulates to enable economic exchange, but that it has to be created and issued (Mellor, p. 80, 2010b)."

Through this, Mellor stresses the importance of confronting the idea of money creation as part of the financial intermediary theory of banking, which emphasises the notion of banks acting as intermediary between savers and borrowers, with little or no recognition of the fact that commercial banks create money at will (Ryan-Collins, et al., 2011; Mellor, 2010b; McLeay, Radia and Thomas, 2014a; 2014b). This presents another paradox of predominant money, illustrated by the fact that while it is states which grant the value and determine what is to be money, it is commercial banks that are creating the vast amount of money today (Ryan-Collins et al., 2011). Therefore it is also commercial banks which through credit allocation, have significant impact on the way this money is spent. In a strongly deregulated financial world, this poses a fundamental threat to the management of macro-economic developments through democratic institutions.

Under the pretext of convention and presumed intuition, there is a tendency to think of money as an irrevocable given fact of society reinforced through the domination of reciprocal institutional dynamics. As a result we assume money to be value neutral, and driven by a presumed superiority in comparison to other forms of exchange. This is predominantly driven by a monistic conceptualisation of money based on barter as conceptual predecessor. As we have seen, not only is this a historically questionable conclusion but it also denies the multiplicity of different forms of money in use today. Exploring the underlying notions illustrated in the analysis, shows how there is no simple answer to what money is, especially when coordinating the theoretical concept with the practical experience of it. The analysis provided, revealed further that there is an overarching recognition of the normative foundation of money. In this sense, any conceptual definition of money is a product of time and space in

relation to dynamic ever changing circumstances. In an instant one monetary representation of value can be abandoned for another. This does not mean the loss of trust in society or maybe even in politics, it signifies however a loss of trust in the institution of that particular money.

The notion of complementarity is highly significant for the understanding of money because it emphasises the unresolvable tensions of incommensurable values. This can be examined if considering money as based on semiotics - as a communicative signal (Hornborg, 2011). Combining the findings of this thesis, shows how money can be both understood according to its connection to socio-ecological relations and as social phenomenon in connection to power relations. Merely seeing money as a neutral tool of exchange denies these relational feedback processes and the ability of money to transgress through time and space. Monetary exchange does come with a particular trade off as based on the repercussions of its specific valuation language. Therefore, established institutions promote domination through the imposition of monetary values such as for example in case of the law for compensation claims. From this follows that at any particular moment in space and time, money is merely an abstraction of value and not value in itself.

There seems to be an unresolvable tension between human perception and its reconstruction in form of language (Foucault, 1983). As (Foucault, 1983) states,

> “The essential point is that resemblance and affirmation cannot be dissociated (Foucault, p. 34, 1983).”

Applying this notion to our understanding of money is especially relevant when following the argumentative stance of money as semiotic signal or signifier of value. Probably the most self-evident picture of money, is in form of bank notes/bills. This picture like format of money has important parallels with the painting we will be examining next, so the reader might want to hold on to this thought while reading through the next paragraph. In order to illustrate the issue of money as a representation of value, the insights gained from examining the painting “The Treachery of Images” by René Magritte will be outlined next. The painting depicts a representation of a pipe in the centre, and a written text underneath that states “Ceci n'est pas une pipe." (french for "This is not a pipe.") (Foucault, 1983). It directs our attention to the resemblance of the image of a pipe with a factual pipe. This strikes as obvious - of course this is not a pipe, it is only a representation of a pipe. The viewer is reminded of the unwitting association of the two, by the sentence positioned below. Both the image and the sentence relate to the same contradiction as triggered by the false resemblance of our own

understanding of a pipe and the association grounded in the semiotic basis. In consequence then, the sentence and the picture reveal complementarity of meaning as they are at the same time self-contradictory, false and true. As Foucault (1983) states,

> "What misleads us is the inevitability of connecting the text to the drawing (as the demonstrative pronoun, the meaning of the word pipe, and the likeness of the image all invite us to do here)-and the impossibility of defining a perspective that would let us say that the assertion is true, false, or contradictory (Foucault, p. 20, 1983)."

As the title 'The Treachery of Images' suggests, Magritte plays on the subtleness of false resemblance of language systems. It is the seemingly simple structure at first sight, that under more detailed scrutiny invites us to reconsider the construction of language and thought on a broader scale. As Foucault (1983) states,

> “Yet it is exactly from the common sense vantage that, when asked to identify the painting, we reply "It's a pipe"-words we shall choke on the moment we try to light up. Nor is the confusion of words with things merely a minor mix-up , an easily remedied accident of everyday conversation.From antiquity to the present, persistent strains of Western thought have conceived the bond between language and reality as fundamentally mystical, a mutual sharing of essences . (Foucault, p. 5-6, 1983).”

Especially people who are confident in different languages have probably experienced the strange moment of realisation when certain words suddenly reveal themselves to represent a different reality than one was taught. This shows how language is a construct of our inherited socio-ecological relations. Merely stating, “This is not a pipe” as in Magritte's painting, or this is – or is not money, becomes arbitrary. To highlight this Foucault refers to DeSaussure, stating that,

> “Asserting the arbitrariness of the sign that is, the essentially circumstantial, conventional, historical nature of the bond between the signifier (e. g., a word) and the signified (the object or concept represented). In Saussurean linguistics, words do not 'refer' to things themselves. Rather, they have meaning as points within the entire system that is a language-a system, further, conceived as a network of graded differences (Foucault, p. 5, 1983).”

Accordingly, the individual sense making of money refers to our own reality as shadow of our socio-ecological heritage. If money is a representation of what ever it is exchanged for, it might be on the other side confused for the thing itself. As Foucault explains,

> "Into the painting, in theory an exclusively visual production, there creeps a secret, inescapably linguistic element: " This painted image is that thing (Foucault, p. 8, 1983)."

Highlighting this issue Alfred Korzybski's has coined the well known phrase "the map is not the territory". Moreover, this has been pointed out by Environmental Justice Groups, who criticise the valuation language of money as being incomprehensible to their contextual values. It seems more accurate therefore to talk about conceptualising money in resemblance of value. The problem is however not only that money imposes a particular valuation language, this language is also, as we have outlined earlier, tied to particular power relations (Anguelovski and Martínez Alier, 2014). Being aware of the resulting gap in the transformation of language as representation of reality, provides greater awareness for the inherent logic underlying the argument of valuation language. As Bohr hints at with his account on the importance of the 'tools' of observation, the multiplicity of values are compromised by a monistic understanding of money - using only one tool of understanding. Hence, there seems to be an unresolvable tension in the semiotics of money. It is important to note however that semiotic methodology can be criticised because of its tendency for tautological construction (Hornborg, 2011). This is because it can be seen as inwards directed rhetoric. As Hornborg (2011) states in defence of semiotic approaches,

> "When applied to the comprehension of empirical, cultural and ecological processes, however, it may help us reorganize our thinking in ways that permit new perspectives on old problems (Hornborg, p. 136, 2011)."

In light of the predominance by one rather limited conceptual understanding of money, semiotics seem therefore particularly relevant as a tool to explore different understandings of money. It is important to recognise that while value is an important part of the examination of money, there is a tendency to simply assume money to be an adequate representation of value. The point is than to raise awareness about the limited representation of value through money. Value incommensurability is based on individuals experience of the world and the subsequent application of valuation language as tools of understanding, and so communication limits the ability to express values. This can partly be explained in the way individual agents are portrayed, as has been emphasised in the World Development Report from 2015 (World Development Report, 2015),

> "Many development economists and practitioners believe that the "irrational" elements of human decision making are inscrutable or that they cancel each other out when large

> numbers of people interact, as in markets. Yet, we now know this is not the case. Recent research has advanced our understanding of the psychological, social, and cultural influences on decision making and human behaviour and has demonstrated that they have a significant impact on development outcomes (World Development Report , p. xi, 2015)."

While local communities across the globe increase their connectivity they do so most often under the premise of accommodating monetary adjustments according to internationally imposed standards. As we were able to see earlier, the predominating understanding of money tends than to increase the conceptual disconnection from both environmental and social effects.

In order to highlight how the insights of semiotics and socio-ecological coevolution can be combined, Hornborg (2011) has proposed the approach of eco-semiotics. He provides an understanding of money that attempts to transcend Cartesian dichotomies such as "culture/nature, society/nature, mental/material etc." (Hornborg, p.118, 2011). Eco-semiotics takes as starting point that ecosystems are constituted by both flows of signs as well as material-energy flows, and in that sense combines them as mutually interconnected. Following his account of eco-semiotics in regard of money, Hornborg (2011) describes money as fetish and "objectified social relations" (Hornborg, 2011, p. 146, 2011). He goes on to explain how the predominant understanding of money shapes modern societies and their conception of environmental impacts. As he (Hornborg, 2011) states,

> "In part this may simply be because they have not thought about money as an institution about which we even theoretically have a choice, in part because the idea of choosing to abandon it seem utterly naïve. But perhaps transforming our money system is the only chance we have. General-purpose money rewards the dissipation of resources with ever more resources to dissipate, until they are gone, or at least inaccessible (Hornborg, p. 148, 2011)."

He refers to the concept of general-purpose money as used by anthropologists, and defines it as concept of generalised interchangeability of all things. Furthermore, it allows the commensurability of products and services in terms of a single metric, enhancing the potential of unequal exchange and power relations. Upholding an analytical separation of valuation by humans and of physical properties, Hornborg (2011) argues that we can see the "destructive logic" of human behaviour reinforced by the universal interchangeability through money.

However, it should be noted that this account is limited in its regard of money because it requires a direct connection of money with what Hornborg (2011) refers to as "destructive logic of capitalist processes" (Hornborg, p. 18, 2011). In the case of money, value is abstracted in regard to a particular reference framework, accordingly as we've concluded above, it should not be confused as the value itself. Zografos and Howarth (2014) have expressed that,

> "Economic Valuation (EV) entails deriving monetary estimates of the value of natural resources. This approach includes both the estimation of monetary values of goods and services provided by environmental resources and the quantification in economic terms of environmental impacts. In practice, the degradation or loss of environmental resources leads to disappearance of multiple values that sometimes are difficult to measure and translate into economic terms (Zografos and Howarth, p. 22, 2014)."

The prevalence of money hence reinforces and distorts the perception of value, and tends to favour the appropriation of money over natural resources. While the socio-ecological co-evolution of money shows the reciprocal relation of ecology and society, the tensions that arise from the differing cognitive tools that are utilised seem incapable of being ultimately resolved. As González de Molina and Toledo (2014) state,

> "Pretending that ecological laws could explain the dynamics of human societies would be as preposterous as thinking it could be explained without the influence of such laws (González de Molina and Toledo, p. 21, 2014)."

While trading is happening on a global scale, money is still a predominantly national phenomenon (the EU being a special case). This significantly restricts the ability of national or international intervention over monetary or fiscal policy. For example the mandate of central banks does not include the consideration of so called spill over effects to other countries (Rajan, 2016). Strengthened through the emergent actions of individuals, as adaptive and non-linear phenomena, money does not actually concise of value in itself, but becomes valuable through the context in that it is used. While it is possible to deconstruct and examine effects of our usage of money, it is not possible to make definite propositions to its causality. Hence, to think of money in expectation of specific effects, becomes part of a self reinforcing cycle. Turner (2016) has expanded this examination to the realm of private finance. Considering a view beyond the simplistic demonisation of bankers, he points to the systemic risks of aggregated individual behaviour. He argues that it might be completely rational and possibly even with good intentions for an individual agent to pursue a certain action, while the aggregated sum of all these

interactions however, can trigger feedback loops that amplify wide ranging vicious implications on society and ecology (Arthur, 2014; Turner, 2016). In a strongly deregulated global financial world, this blurry interrelation poses a fundamental threat to the democratic management of macro-economic developments through money.

Another unresolved tension in the conceptualisation of money resulting from its acquisition of value through abstraction, is reflected in the issue of distinguishing between assets and money. There seems to be a discrepancy between different conceptual scales of money (Lietaer, et al., 2012). To illustrate this, we will first briefly examine some arising tensions between the ideas of Harvey and Gibson-Graham. While both mainly focus on a discussion of capitalism, there are various relevant perspectival insights for research on money. Harvey has a tendency to devote more weight to dialectical relations inspired by Marxian value theory (Harvey, 2006). He upholds the image of commodified space-time as well as that of money to be the most important tool of power in society. Accordingly, Harvey emphasises the all-embracing penetration of society, overtaking the autonomy of potential alternative perspectives of money and time-space relations. As Sheppard (2006) argues on Harvey,

> "Making good on local imaginations, he argues, requires overcoming local particularism, jumping scale and identifying and building a common identity, presumably based on shared interest (Sheppard, p. 140, 2006)."

Sheppard (2006) highlights that this is often critiqued by post-structuralists for lack of accounting for social theory with a cultural emphasis. Instead of following this tension, he (Sheppard, 2006) argues for the potential of bridging this with reference to Gibson-Graham. In contrast to Harvey, Gibson-Graham highlight the cultural differences in order to show the importance of local valuation languages (Sheppard, 2006). As such they use post structural feminist theory to reveal the tensions that arise through the presumed dualism of household activities in relation to economic activities. As they argue,

> "The language of the diverse economy widens the identity of the economy to include all of those practices excluded or marginalized by the theory and presumption of capitalist hegemony (Gibson-Graham, p. 13, 2006)."

Gibson-Graham (2006) argue hence that either money is understood as a singular all encompassing phenomena, or as plural and multifaceted one. For the former, this would essentially also include all the non-monetary tendencies such as near money constructs, to be

upheld within the general concept of money (Gibson-Graham, 2006). The latter is based on the assumption that money is a plural concept that is highly complex and incorporates only a fraction of our socio-ecological relations. In both cases than there are clear indications which identify compositional short comings in the predominant monistic conceptualisation of money. Both Harvey and Gibson-Graham provide us with arguments attempting to find viable alternative conceptualisations of money. For this, it is necessary to understand the ontological logic of the predominant conceptualisation of money (Harvey, 2006; Gibson-Graham, 2006). Sheppard (2006) underlines the necessity to advance Harvey's theorisation of space and time with a stronger emphasis on the relational perspective. Through this, the privileged position of money as all encompassing concept is dissolved and extended by various co-existing conceptualisations of money. As Sheppard states,

> "Those following Harvey are pushed to make more room for other aspects of difference than class and space, and for other spatio- temporal registers of value than those of money (Sheppard, p. 140, 2006)."

Hence, there is more room to consider contextual perspectives of money, value and socio-ecological relations. Gibson-Graham show how recognising the reciprocal dynamics of the predominant conceptualisation of money, poses the difficulty of breaking free from the structural heritage of money. They further stress the implications of relative power relations in regard to the international money paradigm.

## Conclusions

In the course of this thesis, we have explored some of the most predominant conceptualisations of money. Based on research from various disciplines, this thesis is inspired by the increasing amount of research on money gaining traction since the financial crisis of 2008. Money is fundamental for economic exchange in the 21st century, across the globe. Through the examination of money, the discourse on economic exchange can be traced back from broad economic theory to a comparatively narrow but nevertheless complex concept. As Ryan-Collins et al. (2011) argue,

> "...different conceptions of money are partly driven by the relative importance that people place on the different functions of money at different times....This tension merits further research, because it points to the possibility that no single form of money will perform

all the functions of money equally well (Ryan-Collins et al., p. 139, 2011)."

While their basic argument is certainly supported in this thesis, it is not only about the functioning of what money does, but moreover what money is. Exploring the predominant conceptualisations of money, this research has revealed that there is no definite answer to this question. Moreover, each concept necessarily incorporates additional theoretical assumptions and hence respective conceptual tensions. Insisting on the truthfulness of one particular definition of money, is strongly liked to underlying asymmetric power dynamics. Settling for but one conceptualisation is not only an inaccurate reflection of the contemporary practical application of money, it is also neglecting theoretical tensions arising within each of the concepts analysed. Furthermore, each analytical starting point provides only a limited possibility of conclusions that can be derived and advanced as construct of economic theory.

Throughout the analysis and by extension of theory from ecological and complexity economics, some of the internal short-comings related to monistic conceptualisations of money were highlighted. The tensions between co-existing forms of socio-ecological organisation can lead to so called inverted claims of truth about money. For example, as Gibson-Graham (2006) argues, this tension is most tangible at the point where different conceptual claims clash. Accordingly, the continuous treatment of money based on some superior logic is not only misleading but is also nurturing a conceptual lock in of the economy as a whole (Arthur, 2016).

Researching the present money paradigm poses a need to rethink not only the predominant conceptualisation of money, but also to recognise accompanying systemic implications (Turner, 2016). Analysing the respective implications for development, we have focused on the conceptual establishment of the present money paradigm. Promoted since the 40s through the workings of international development organisations such as the IMF and World Bank established at the Bretton Woods Conference, particular conceptualisations of money imposed a certain set of values and understandings of exchange, as well as socio-ecological relationships. This time period is highly significant as starting point, because this was when foundations for the expansion of global money were established. The imposition of regulation and policies by development institutions as well as through arising international spill-over effects, have promoted a particular economic agenda, based on a monetary system which was since the 40s highly influenced by the predomination of the dollar and a western focal point of power. This was reflected first, within the gold-standard, and these days with

the dollar as the major denominator of international bank claims (Avdjiev and Takáts, 2016; Hermele, 2015b). Adopting more rigorous research approaches to money could be utilised to foster alternative angles on the prevailing doctrine of economic ideas in development. This in turn has the potential to initiate new solutions to many renowned issues regarding poverty, inequality or environmental degradation.

Arriving at complementarity for different concepts of money, tensions between the examined concepts are acknowledged while at the same time establishing a new foundation for a discourse on money that justifies a variety of concepts to co-exist next to each other. Following from this, it is necessary to examine power and authority next to legitimacy and socio-ecological influence. Moreover, complementarity does not argue for different understandings of money being entirely decoupled from another, but rather about the recognition of underlying tensions that remain through co-existence and interrelation. It is nevertheless clear that the monistic understanding of money is obsolete. Different understandings of money are not a result of logical analytics, but rather due to complex hierarchical categorisation of knowledge reflected as socio-ecological abstractions of reality. The interdisciplinary foundation of development studies provides an appropriate background to advance this research accordingly, following in the footsteps of well known notions such as Robert Chambers (1979) "whose knowledge counts?". Instead of making claims of absolute certainty when conceptualising money, this highlights the dynamic emergence and diffusion of conceptualisations of money based on power.

Following this conceptual insight, research with focus on more technical and quantitative aspects of the present money paradigm, could shed further light onto concrete economic implications of particular conceptualisations of money for developing countries. The applicability of different concepts of money could be researched in order to enlarge the tools for development efforts. While new approaches to money should not be seen as silver bullet, it is the consequences of global money based on but one conceptualisation that call for the urgency to bring the academic discourse in development up to date. Further lessons could be learned if considering even earlier historical factors such as colonialism, or in the application of different scales of enquiry such as for particular nations or regions, publications based on other languages. Yet another starting point for further research is to consider implications for development applying alternative conceptualisations of money such as complementary currencies.

Arguably much of the tensions within the field of economics today is based on different idealogical stances. Considering the role of money from the examination put forward in this thesis can be a way of advancing the long due discussion on the role of money in development. This can be utilised as a new starting point beyond standard discussions about for example de-regulation or regulation. Advancing the discourse on money can provide new ground to change the very foundation of economic theory and the way we live our lives based on exchange.

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## Appendix

Appendix 1, "A typology of currency systems." based on Redish (2000) and Eichengreen (2008).

| Currency systems | Characteristics | Examples |
|---|---|---|
| Commodity money | Multiple commodities<br><br>Mixtures of gold, silver and copper | Bimetallism: France, Italy, Switzerland, Netherlands, USA, Latin Monetary Union (Belgium, France, Switzerland, Italy) |
| Commodity money | Single commodity | Silver: German states, Austria- |
| | Gold, silver or copper | Hungary, Scandinavia, Russia, UK prior to 1774<br><br>Gold: UK, Portugal 1854<br><br>Gold standard generalized 1880-1914<br><br>Interwar years, with a maximum of 45 countries on the gold standard 1931<br><br>Dollar/Gold exchange standard 1944-1971 |
| Fiat money | No commodity anchor: fiduciary money, token coins, paper bills | Post Bretton Woods 1971- |

*Sources:* Redish 2000, Eichengreen 2008.