

# Centralised Regulation of Decentralised Money

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A French Regulation School Approach to Differing Policy Positions on Cryptocurrencies from the  
Central Banks of China, Japan and Canada



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“The internet is going to be one of the major forces for reducing the role of government. The one thing that’s missing, but that will soon be developed, is a reliable e-cash: a method whereby on the internet you can transfer funds from A to B without A knowing B or B knowing A – the way in which I can take a \$20 bill and hand it over to you, and there’s no record of where it came from.”

- Milton Friedman, 1999

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## Abbreviations

AML	Anti-Money Laundering
BoC	Bank of Canada
BoJ	Bank of Japan
BRIC	Brazil, Russia, India, China
CBCC	Central Bank Cryptocurrency
CBDC	Central Bank Digital Currency
CDA	Critical Discourse Analysis
CSRC	China Securities Regulatory Commission
DLT	Distributed Ledger Technology
DSR	Debt Service Ratio
E7	Emerging 7
ECB	European Central Bank
FATF	Financial Action Task Force
FDI	Foreign Direct Investment
FED	Federal Reserve
FSA	Financial Services Agency
GDP	Gross Domestic Product
GPE	Global Political Economy
ICO	Initial Coin Offering
IMF	International Monetary Fund
IOU	I Owe You
IR	International Relations
IT	Information Technology
MIIT	Ministry of Industry and Information Technology
MITI	Ministry of International Trade and Industry
NPL	Non-performing loans
OECD	Organisation for Economic Cooperation and Development
OSFI	Office of the Superintendent of Financial Institutions
PBoC	People's Bank of China
PRC	People's Republic of China
RMB	Renminbi
SOE	State-owned Enterprises
UN	United Nations
WEF	World Economic Forum
WTO	World Trade Organization

## **Abstract**

The emergence of cryptocurrencies and the implications of the new technology have posed challenging questions to the institutions that attempt to stabilise our financial system, central banks. While the overarching goals of central banks is the same, that is financial stability, the policy positions with regard to cryptocurrencies differ greatly. A small body of academic literature has focused on the monetary policy implications of cryptocurrencies and a few papers have given an overview of what these policy positions are. However, an in-depth analysis of the political economic factors contributing to the development of these policy positions is lacking. Against the backdrop of central banks developing their policy positions, this thesis seeks to explain why particular policy positions are developed from a critical political economy perspective, applying theoretical concepts derived from Regulation Theory. By analysing the unique development of the accumulation patterns in the cases of interest, the underlying instabilities are derived. Central banks as part of a set of institutions pursuing the goal to mitigate these instabilities, are therefore informed on their policy position by the political economic context in which they are embedded. This thesis argues that this specific historical political economic context informs central banks in their decision-making of whether cryptocurrencies pose a partial solution or risk to the (in)stability of the financial system.

**Key words:** Central Banks, Monetary Policy, Regulation Theory, Cryptocurrency, Bank of Canada, Bank of Japan, People's Bank of China, Regime of Accumulation, Modes of Regulation

## Introduction

It has been nine years since the birth of Bitcoin and CBs all around the world are increasingly recognising the potential of cryptocurrencies (Lam, 2017). While both Bitcoins popularity and its value have risen significantly, hundreds of other cryptocurrencies have followed and entered the market. In less than a decade, cryptocurrencies went from being perceived as an obscure experiment of the so called cypherpunk movement – an activist movement which seek to engineer social, political and economic change through cryptographic techniques enhancing security and privacy (Bunjaku et al., 2017, p.35) – to a plain household name (Bech & Garratt, 2017, p.55). The total market capitalization of cryptocurrencies has been ascending since 2017, but perhaps one of the most characterising aspects of cryptocurrencies is the volatility of their value. In short, cryptocurrencies can be defined as a type of digital currencies which use cryptography in order to secure transactions and the supply of the currency (Farell, 2015, p.4).

The erratically evolvement of the cryptocurrency market poses new challenges and raises important issues regarding how policymakers should respond to this phenomenon. Opposed to state-regulated currencies whose market capitalization is determined by CBs, the amount of cryptocurrencies on the market is often predetermined by the underlying cryptographic protocol (De Filippi, 2014, p.1-4). Due to the rise in popularity and the decentralised control of cryptocurrencies, it seems necessary for CBs to come up with policy for two reasons. On the one hand, cryptocurrencies are perceived as a threat to the conventional payment system, effectiveness of monetary policy and the existing regulatory framework (Dierksmeier & Seele, 2016; Vigna & Casey, 2016). CBs therefore explore the possibilities of gaining control over this emerging economy. On the other hand, CBs recognize the technological and economic advancement these currencies bear within them and explore whether it would be beneficial to issue their own cryptocurrencies as part of their policy. The latter are referred to as CB Cryptocurrencies or CBCCs and CB Digital Currencies or CBDCs (Bech & Garrat, 2017).

Throughout the whole world, CBs dedicate research into how to respond to the emergence of cryptocurrencies. In Prasad's (2018) paper on how technological changes are affecting the practice of central banking, he offers an extensive overview of the different approaches CBs take towards cryptocurrencies. CBs such as the Reserve Bank of Australia and the Bank of England have conducted exploratory researches into the pros and cons of issuing their own digital currencies (Lowe, 2017; Meaning et al., 2018). Other CBs such as the Swedish Riksbank and the Peoples Bank of China have gone a step further and have already been experimenting with their own digital currencies, respectively the e-krona (Swedish Riksbank, 2017) and the DCEP (Knight, 2017).

In addition, CBs dedicate research to the monetary policy implications that non-official cryptocurrencies pose to the existing centralised payment systems backed by CBs. As stated, CBs seem

to be interested in the advantages of issuing their own CBDC. However, when developing regulation for existing cryptocurrencies it becomes more complex. One of the main reasons, apart from how innovative the underlying technology is, for the complexity of regulating non-official cryptocurrencies is that these currencies are treated as both payment methods and an investment opportunity (Barlin, 2017). Turning back to the same CBs that are discussed in the former example, a variety in statements can be identified. During a speech at the Edinburgh University by Mark Carney, the Governor of the Bank of England, he refutes the claim that cryptocurrencies (or crypto-assets as he prefers) would be a serious competitor against fiat currencies. He does, however, acknowledge that the facilitating technology could give direction to the future of money (Carney, 2018). Philip Lowe (2017), being Governor of the Reserve Bank of Australia, labels non-official cryptocurrencies as being more likely to attract criminals than citizens who make transactions and continues by calling it a speculative mania. Cecilia Skingsley, Deputy Governor of Riksbank, has refrained from the idea of treating cryptocurrencies as money and terms them only as assets. Income generated from mining activity – solving cryptographic problems to validate transactions and generate new coins – is subject to income tax and the sale of cryptocurrencies is subject to capital gains tax (Prasad, 2018, p.44; Browne, 2018; Swedish Tax Agency, 2015). The Peoples Bank of China however issued a notice banning all cryptocurrency trading, defining new cryptocurrencies as illegal activities and prohibited all institutions from providing services facilitating cryptocurrency trade (Prasad, 2018). Based on this small assessment, one can already identify different approaches and views on how to respond to and regulate the emerging cryptocurrency market.

The authority and scope of action of CBs depend on the mandate given by the government (Cukierman et al., 1992). However, the common denominators between CBs are maintaining price stability, maintaining financial stability and support the state's financing needs at times of crisis (Goodhart, 2011, p.135). Hence, the aim of this thesis is to make sense of why the People's Bank of China (PBoC), Bank of Japan (BoJ) and Bank of Canada (BoC) developed contradictory modes of regulation, by accounting for the socio-economic and historical context in which these policy positions have been developed. The PBoC decided to ban all cryptocurrency related business since it perceives the technology as destabilising and is therefore attributed the categorisation of '*hostile*'. The BoJ is putting in effort to become a leading cryptocurrency hub, practicing a positive discourse and arguing for integrating cryptocurrencies into the real economy. The BoJ is attributed the categorisation of '*advocate*'. Finally, the BoC's discourse is balanced, however emphasizes the gambling like character of cryptocurrencies. Simultaneously, regulatory institutions in Canada are putting a framework into place allowing cryptocurrency related businesses to settle in their nation. The BoC is however, one of the leading CBs in experimentation and research of issuing their own CBDC. The categorisation attributed to the BoC is therefore '*permissive*', tolerating cryptocurrencies and acknowledging specific



technological advantages but practicing a rather sceptical discourse. Specifically, the following research question is central to this thesis:

*Why did central banks, while pursuing the similar objective of financial stability, develop differing modes of regulation with regard to the emergence of cryptocurrencies since 2010?*

A sizeable body of academic literature has dealt with the question *if* and *how* technological changes, such as cryptocurrencies and the underlying technology, affect the practice of CBs (Iwamura et al., 2014; Prasad, 2018). Furthermore, academic literature has addressed the question of *what* policy outcomes of CBs look like and especially CBDCs, CBCCs and their implications for monetary policy are being discussed extensively (Bech & Garratt, 2017; Danezis & Meiklejohn, 2015; Barrdear & Kumhof, 2016). The research question central to this thesis is part of a broader question, being: what explains the differences in policy of institutions pursuing the same interests? The following discussion of the academic literature therefore focuses on the development and realization of policy of CBs. Most of this literature stems from a rational choice economic approach, meaning that monetary and regulatory policy from CBs is driven merely by economic motives. Such rational choice approaches presume actors' preferences exogenously to the analysis and its motives are assumed a priori, thereby the preferences of the CBs are defined in a static and ahistorical context (Bell, 2002, p.477). This thesis, however, will present a political economic scientific approach allowing to deduct an analysis much broader than merely economic analysis on *how* CBs respond and *what* the implications of these responds are. The broader analysis this thesis offers, will assess the question of *why* CBs develop differing modes of regulation and which historical and socio-economic factors influence the establishment of the modes of regulation. It dives into the agency of CBs and how they behave within the current political economic structures. This thesis does not refrain from the importance of the economic analysis which have been done by the utmost extent of the literature, but it aims at disclosing the politics surrounding the modes of regulation and thereby aims at grasping *why* certain sets of ideas prevail over others when it comes to regulating cryptocurrencies. Before turning to the specific case of CBs' policies regarding cryptocurrencies it is of importance to look into the body of literature concerned with the agency of CBs.

The academic literature became explicit about CB policy in the late nineteenth and the twentieth century. The debate surrounding CB policy and its instruments finds its roots in the economic literature and has been influenced mainly by the schools of John Maynard Keynes, Milton Friedman and Friedrich Hayek. Keynes view on governmental interference in the private economy, as laid out in his work "The General Theory" (1936), has pushed an agenda for focussing on regulating the aggregate demand through fiscal stimulus (Blinder & Solow, 1972). From the second half of the twentieth century

the efficacy of the fiscal stimulus became heavily debated and Milton Friedman asserted that the neoclassical economics work well enough and Keynesian economics were harmful (Friedman, 1953; Krugman, 2009). Friedman countered Keynes with a doctrine named monetarism, which agreed with deliberate stabilization of the market by CBs, but refuted fiscal stimulus and emphasised CBs' role to manage the steady growth of money supply and price stability (Friedman, 1968). Monetarist argue that pushing unemployment leads to inflation and an more unemployment. This gained legitimacy with the stagflation in the 1970s and advanced the anti-Keynesian movement (Krugman, 2009). Ben Bernanke, former chairman of the Federal Reserve (FED), stressed the importance of Friedman's work by stating that contemporary monetary theory is nearly identical to Friedman's monetary framework (Bernanke, 2003). Hayek has been another prominent researcher in the field of business cycles and the influence of CB policies. Hayek pointed out that the business cycle was a result of CBs inflationary credit expansion and that CBs would never be able to have and apply the information rightly to manage the supply of money (Hayek, 1933; 1945). This debate in the academic literature relates to the development of CB policies, however, it treats CBs as independent rational actors isolated out of the context in which they are embedded. Although the former economic analyses of CB policy were understood as antagonistic to politics, politics are increasingly seen as inherent to CBs (Lockwood, 2016). Moreover, technological advances have altered the agency and practices of CBs (Prasad, 2018). Technological innovations have opened up markets and enhanced international investments. Therefore, CBs' "weapons in their policy arsenal" became restricted and less sharp (Frieden, 1991). Frieden found that prevailing interests of social groups in nations account for the variation across states regarding monetary policy and exchange rates. Another, influential study by Grilli et al. researched how and why similar capitalist countries with similar institutional preferences came to different financial policy outcomes (Grilli et al., 1991). By comparing institutional environments across OECD countries, they found that a higher degree of independence of CBs leads to lower inflation. This claim is supported by many other scholars (Bade & Parkin, 1982; Alesina 1988; Alesina & Summers, 1993). Whereas CBs have been put mostly under political control in the early 1990s (Goodman, 1991), in less than a decade CB independence became the dominant standard (McNamara, 2002). This shift has been central to political science literature concerned with comparing CB policies (Lockwood, 2017). The studies in this era brought in the electoral cycle as an explanatory variable for differing policies across differing degrees of independence (Bernard et al., 2002; Schamis & Way, 2003). In all these rationalist explanatory studies for CB independence and variations of policy, domestic political factors are seen as the key independent variables (Lockwood, 2017). Bernhard et al., bring in a distinction in their rationalist explanations for CB independence between CBs that focus on policy makers and policy demanders, of which the latter concurs to Frieden's idea of relative power of social groups' preferences (2002;1991). Even though, political scientist progressed by bringing politics into studies on CB policies,

these studies remain rather reductionist. Reducing the economy to either state or market interest and in addition, underexpose the emergence of the political-economic orders.

Since critical theory became salient in the academic literature, the former dominance of rationalist approaches has been criticised by several authors. A general critique has been that the rationalist explanations merely embed politics in their analyses since it can account for the deviations from rationalist economic expectations (Lockwood, 2017). Krishner argued that the economic evidence for low to moderate levels of inflations being harmful for growth and employment is absent, and therefore questions what accounts for the power of this belief (2002). Furthermore, Grabel argues that CB policy does not derive from merely exogenous, apolitical economic logic, but has to be put within the broader neoliberal project which intends to prefer free markets over other, more democratic processes (2000). Likewise, McNamara argues that CB independence cannot be substantiated by objective functional benefits but is rather 'rational' within a neoliberal cultural context in which it bears importance to legitimising ideas (2002). Based on findings that contradict the justification of independence as the determining variable for CB policy, the critics accuse rationalist analyses of conflating ideological justifications with analytical explanation (Lockwood 2017). The critics of the rationalist analysis argue that democratic politics do not differ in policy outcomes compared to independent CBs, that inflation is not inherently bad and that delegating authority to CBs does not produce lower rates of inflation. Therefore, the explanatory power attributed to independence is "a product of ideas – often backed by powerful state and international actors – that are rooted in reflexive expectations, self-fulfilling prophecies, and a broader social valuation of neoliberal norms" (Lockwood, 2017, p.12). Relating the ideational and material dimension is one of the key characteristics of the critical theory approach and also will be adopted in this thesis.

The features of rationalist literature are ahistorical in nature and disregard the effects of uneven economic development and the inherent contradictions of capital accumulation. Whereas scholars applying these rationalist approaches would argue that such issues are of no interest when analysing the development of CB policy, this thesis challenges that argument. To fully assess why differing policy positions have been developed, the full context of the structure, both material and ideational, should be taken into account. To this end, this thesis adopts a critical political economy perspective. The discussed critical scholars have mainly been concerned with debunking the rationalist analyses of CB policy and arguing that the institutional power of CBs is being used to reinforce the neoliberal agenda. These are critical perspectives since they stand apart from the prevailing social and power relationships and the institutions into which they organised, and question how this prevailing order came into being (Cox, 1981, p.128). However, the argument that CBs' institutional power is being used as means to reinforce the neoliberal agenda would result in homogeneity amongst CB policies.

This thesis is actually interested in the heterogeneity in policies amongst CBs regarding cryptocurrencies.

The critical realist ontology underlying the critical political economy approach adopted in this thesis elucidates the interrelationship between the ideational and the material dimensions (Sayer, 2000, p.25). Critical realism takes into account structure and agency but rejects the idea of unbiased empiricism and the existence of predetermined patterns or regularities exist in the international system (Bhaskar, 1975, p. 248). That is because social relations should be analysed in the historical context in which they came into being. This thesis applies insights from Regulation Theory, which is positioned within the critical realist school. Regulation Theory aims at explaining how regulatory modes, such as financial institutions and economic practices, stabilize capitalist accumulation, despite the inherent contradictions and crises inherent to capitalism (Jessop & Sum, 2006, p.4). Two concepts central to Regulation scholars are the 'accumulation regime' and the 'mode of regulation'. The 'accumulation regime' refers to reproducible patterns of production and consumption (Jessop & Sum 2006, p.301). The 'mode of regulation' is being described as an ensemble of "rules, norms, conventions, patterns of conduct, social networks, organisational forms and institutions which can stabilize an accumulation regime" (Jessop, 1997, p.291). Both concepts will be operationalised since they are of importance analysing how CBs try to stabilize the accumulation regime while the emergence of cryptocurrencies seems to challenge the current regime of accumulation.

In addition to the scientific contribution, the emergence of cryptocurrencies has brought a lot of uncertainty with regard to which direction this new technology will take our deeply financialised societies. This thesis contributes to a better understanding of how monetary institutions cope with disruptive technologies and how the context in which CBs are embedded steers their policy development. This thesis draws upon a wide range of sources with the primary method of data collection being an extensive literature review to explain how the CBs are institutionalised and how the patterns of accumulation have developed throughout the 20<sup>th</sup> century. This data will be enriched with the regulatory modes of CBs on cryptocurrencies based on policy papers, research papers, speeches, news articles and other governmental documents. A discourse analysis of those qualitative sources provides insights to how CBs' policy positions influence the framing of cryptocurrencies and their own institutional legitimacy. This thesis thereby contributes to the existing literature by offering a comprehensive and theoretically informed answer to why CBs develop differing modes of regulation to stabilize similar capitalist accumulation regimes.

The thesis is structured as follows. Chapter 1 discusses the ontologies and shortcomings of rationalist theories, and social constructivism. This is followed by a discussion of the ontological foundations of critical realism and then specified to regulation theory. Chapter 2 discusses the epistemologies concerns of existing theories and offers Regulation Theory as a critique. Furthermore,

the operationalization of the key analytical concepts and explanation of chosen methods will be elaborated. Chapter 3 will consist out of the empirical analysis. Three cases will be analysed, starting with a brief overview of the economic context and CB, followed by an analysis of the regulations in place and the discourse of the CB. Then the regimes of accumulation will be analysed in order to derive the instabilities of those regimes. Lastly, different forms of the overall modes of regulation stabilising the forms of capital are analysed. The chapter ends with an interpretation of the analysis. Finally, chapter 4 will start with a conclusion, followed by a discussion of the shortcomings, and avenues for future research.

## 1. Theoretical Considerations

Since the understanding of cryptocurrencies and its impact on the financial system is not unambiguously, the positions of CBs rely on interpretations of ideas and consciously chosen frames to legitimise their policy. For that reason, the interrelatedness between ideas and the material economic context of a nation contributes to the explanatory power of this thesis. Without falling into straw man arguments, this chapter will concern itself with a discussion of the ontologies of rationalist approaches and social constructivism. It aims at transposing ontological shortcomings into an understanding why adopting these approaches would reduce the explanatory power and comprehensiveness of this thesis.

### 1.1. Ontological Fallacy of Rationalist Theories

Global political economy (GPE) gained significance as a subfield of study of International Relations (IR) in the 1970s, due to the end of the era of Bretton Woods resulting in (Watson, 2014, p.20). GPE seeks to answer the question: Who gets what, when and how (Lawell, 1950)? The field of enquiry of GPE consists out of competing theoretical approaches. Liberal institutionalism has been one of the most profound approaches. Rooted in the classical political economy, the theory builds on the central premise that actors are goal-oriented, utility-maximising and self-interested (Tierney & Weaver, 2004, p.8). It argues that in the international economy actors pursue goals which are in their own interest with the endeavour to maximize profit in the most efficient way (Sterling-Folker, 2000, p.103). This aligns with rational choice theory: the idea that all action is fundamentally 'rational' and based upon costs and benefits analysis (Scott, 2000). It presumes that the interests of agents are determined exogenously and thereby given by the structure (Wendt, 1992, p.391-392). In this structure institutions have the possibility to provide information to actors and thereby limit costs for those actors (Katzenstein et al., 1998, p.662). Institutions can therefore promote cooperation between actors in order to gain efficiency, changing the behaviour of agents but not the interests (Wendt, 1992, p.392; Smith, 2004, p.502). Through liberal institutionalism the focus moved away from the sphere of production towards a focus on all forms of exchange, building a theory covering all market relations (Van der Pijl, 2009, p.32). The focus on market relations is emphasised by one of Smith's – one of the founders of classical political economy – notion of the invisible hand in the *Wealth of Nations* (1776) and the mid-nineteenth-century advocates of the *laissez-faire* economy (Watson, 2014, p.41).

Another theory based on rationalist logic, and profound in the field of GPE, is the realist approach. Where liberal institutionalism is rooted in liberalism with a large emphasis on the economy, realist tradition in IR is mostly concerned with military security and balancing of power. Realism in GPE is a subset of the realist tradition in IR (Watson, 2014, p.33). The theoretical core of realism in IR is

simply transposed to the subject matters that link states in an economic way (ibid.). The underlying assumption of realist work in GPE is that states have particular interests and compete amongst each other in the international system to achieve those goals (Robinson, 2006, p.530). Realism divides the concept of the international economy into distinct national economies that interact with one another (ibid.). The three foundations are: the state, pursuing the national interest, in an environment defined by anarchy (Kirshner, 2009, p.36). The rationale underlying both approaches share similarities. Its distinctness, however, lies in the realist's expectations of human behaviour.

Whereas liberal institutionalist argue that actors are driven by the desire to maximize their interests and their behaviour is best explained by this pursuit, realists' perspective is firstly motivated by politics (ibid., p.37). Realists do not refute the importance of material incentives, but account for those incentives in the context of a mind-set that is primarily informed by fear. The state will therefore always cast a judicious view on international economic relations. Realism turns away from the endeavour of short-term economic benefits since these could lead to a decrease in the power and security of the state (ibid., 36). Since power is dominant in influencing the state's behaviour, realist political economists do not see mutually beneficial cooperation through institutions as a relevant influence. In contrast, the angle of incidence for realists is concerned with how states aim at imposing their national interests on other states, at the costs the other state's interests, thus pursuing relative gains in a zero-sum game (Waltz, 1979, p.195). This contrasts with the liberal institutionalist underlying rationale in which a positive sum game – both actors benefiting absolute gains – can take place through institutionalised cooperation. The state-centricity and the general approach of realists to international politics as a bounded realm (Waltz, 1979, p.116), implicates that states behaviour is rationally determined by the anarchic structure and there is no historical context of influence to it.

Both theoretical approaches share great ontological similarities, which are based on rationalism and both highly reductionist. A criticism addressed to realism is that non-state actors and in particular, transnational actors are ignored or simply considered irrelevant (Ashley, 1984, p.238). Moreover, the rational state actor in realism rejects the idea to organise itself with other states in order to pursue collective goods, while the possibility exists of reaping benefits by free-riding (ibid., p.247). Liberalism on the other hand does not limit the number of actors as severely, but treats all political and social aspects as self-contained, apart from the economy. Therefore, interests of agents are determined exogenously and have no political or social aspect to them. This would limit the analysis in order to answer the research question since different institutional agents, being CBs, argue for contradictory approaches on regulating cryptocurrencies. The ahistorical ontologies of these approaches, stating a continuing present in which they analyse economic power relations (Cox, 1981), limits one to answer a research question of which the aim is to analyse the interrelatedness between the development of norms and ideas, and different institutional agents. Another important criticism is

how these respective approaches treat ideas exogenously to state's interest formation and interaction (Bieler and Morton, 2008, p. 103). The weakness of these theoretical approaches stems from the rationalist ontological fundamentals which holds the assumption of a black-box analysis, thereby circumventing ideational objects and their potential causal effects. Moreover, such approaches are not capable of answering questions of *which* economic interests and believe have the potential to shape interests in IR and *why* certain sets of ideas prevail over others (Woods, 1995, p.161). Since this is exactly the goal of this thesis, the respective approaches have to be perceived as lacking relevant explanatory elements and therefore inappropriate to answer the research question.

## 1.2. Ontological Shortcomings of Social Constructivism

Social constructivism includes the ideational dimension and questions the possibility of positivist causal relationships within a given objective reality (Bieler and Morton, 2008, p.104). Instead of exogenously determined interests, it argues for an interrelatedness between reality, ideas, interests and agents, and therefore might better account for the differing policies of interest. Agents are not a mere product of the international structure but are constructed through ideas and norms. The concept of intersubjectivity of ideas plays an important role. That is, ideas should be interpreted as meanings which are shared among many. The outcome of the production of these shared interpretations and definitions form the 'web of meaning'. Through this web of meaning, agents understand the material world surrounding them. Social constructivism rejects the primacy of material interests and emphasizes the importance of both when analysing IR and GPE, material power and discursive power (Hopf, 1998, p.177). Mainstream theoretical approaches lack the ability of grasping the importance of norms and ideas. According to Klotz (1995, p.15) this is for two reasons. By treating norms as given, mainstream scholars neglect how norms and ideas are important constitutive components when analysing them. Second, rationalist positivist assumptions are "inherently incapable of capturing the crucial intersubjective aspect of norms". Social constructivism argues that agents, their interests and identities are not merely shaped by the international structure but shaped by social constructions through constitutive norms and ideas. This assumption strengthens the ability to analyse how ideas and underlying interests about regulating cryptocurrencies came into existence, and compete among each other, prior to how such interests influence outcomes in the international structures (Ruggie, 1998, p.863).

Social constructivist deserve credit for highlighting the role of ideas as intersubjective meanings rather than merely expressions of interests as conceptualised by positivist rationalist theories. Whereas social constructivists' ability to include the ideational dimension into their theoretical approach enhances the possibility to analyse and explain how ideas contribute to constituting political structures, its vision of the relation between the ideational and material



dimension has been criticised. Reflecting upon different profound authors in the constructivist tradition, Marsh (2009, p.680) argues – while acknowledging the importance of the turn to the ideational dimension – that overemphasising the role of ideas has problematic implications for the theoretical approach. Marsh (ibid.) distinguishes between different stances academics take regarding conceptualising the relationship between the material and ideational. Social constructivists find themselves on the dialectical position that contends that the material and ideational dimension are interactive and iterative (ibid.). This is a visual circle in which there is a context of ideas in which new ideas emerge. Agents use these ideas to interpret and change the material constraints, through which a new context is established in which ideas are developed again. Within that stance is a major division existing out of thin versus thick constructivism in which the former prioritises the material and the latter the ideational dimension. The dualistic view of the ideational and material that social constructivists hold ensures that social constructivism is not able to grasp the complexity of the internal relations between material conditions and ideas (Bieler and Morton, 2008, p.108). Ideas constrain or enable agency and such ideas can change as the result of both individual and collective agency through the development of new intersubjective meanings (ibid., p.104). The theory is able to answer questions of *how* certain ideas might become part of the structure and a dominant discourse, however, it remains unable to answer *why* a certain set of ideas became part of the structure (ibid.). Moreover, social constructivism fails to account for historical and spatial contingencies. Specifically, this approach lacks the ability to perform a multidimensional analysis on the development of certain ideas. Regarding this thesis this implicates that social constructivism would be helpful to the extent of explaining how the competition takes place between sets of ideas about regulating cryptocurrencies. It cannot, however, account for the historical dimension which may influence the constitution of a set of ideas nor geopolitical factors which could be of importance. According to Bieler and Morton (ibid., p.109) the problem is “the disembedding of intersubjective ideas, norms and values from the social relations in which they cohere”, resulting in an always-already separation of the ideational and material. Therefore, three important questions remain unanswered: “*Whose* values and beliefs have constituted or embodied state identities and interests and the relevant constitutional structure of the international society of states? *Which* agents shape the core intersubjective beliefs of underlying social and world orders? *Why* does a particular set of ideas become part of the structure and not another?” (ibid., p.109, emphasis in original). Or as argued by Checkel (1998, p.325) social constructivism lacks a sound theory of agency and thereby it overemphasizes social structures at the expense of agents who develop and influence these structures and norms. This leads to an under-theorised notion of power regarding these social structures. For this thesis, the latter is of the utmost importance. Adopting an ontology which lacks the ability to explain why and through whose influences the idea of pro-actively

regulating cryptocurrencies prevailed in Canada and Japan while the idea of banning it prevailed in China, significantly weakens the explanatory power of this thesis.

The ontological premises of both rationalist approaches and social constructivism are insufficient to fully comprehend the internal relations between the material and the ideational dimension. Those relations, however, are of key analytical interest for understanding how ideas of CBs are constituted and then used to shape the material dimension in terms of regulation. Furthermore, the notion of capitalism is absent in both approaches, while this thesis seeks explanatory power in the specific development of the nations' capitalist organisation. Leaving the specific forms of capitalism, its degree of financialisation and the underlying tensions out of scope eludes the context and therefore comprehensiveness of the explanations offered as to why such differing ideas and policy positions on cryptocurrencies were developed. By seeking an explanation for the discourse of CBs in the material dimension of the capitalist system, this thesis specifically demands an ontology which relates this material dimension with the ideational dimension, which consist out of the interpretations and framing of cryptocurrencies used to translate into policy.

### 1.3. Critical Theory: Critical Realism in GPE

The theoretical approach applied in this thesis draws on the ontological assumptions of critical realism. Critical realism breaks with empirical realism by separating between the transitive dimension and the intransitive dimension to social reality (Bhaskar, 1975, p.21). The intransitive dimension represents the objects that we study and are not ought to be treated as equal to the transitive dimension which consists out of theories and discourses (Sayer, 2000 p.10). A shift in our theories of science does not per se result in a change in the objects we study. The world consists out of both observable atomistic objects but also unobservable qualities such as structures or powers (ibid., p.11). Therefore, critical realism draws on a 'stratified ontology', separating between levels within the social reality. The three levels are the *real*, the *actual* and the *empirical* (Bhaskar, 1975, p.13; see Table 1). The real refers to the structures and powers of the objects we study (ibid., p.11-12). The level of the actual, refers to the generation of phenomena as the outcome of essential structures being activated (ibid., p.12). The level of the empirical, can be defined as the domain of experience. The empirical can both refer to the actual and the real, however it is neither necessary nor impossible to know the real or the actual (ibid.). Unobservable structures do not imply their inexistence, however, observability enhances our confidence about their existence. Therefore, critical realism accepts causality as a criterion as well, meaning that unobservable entities can exist by referring to observable outcomes which can only be the result of the activation of unobservable entities. The activation of structures happens through generative mechanisms (Bhaskar, 1975, p.14). This also implies that powers maybe unexercised at a given moment since there are also other generative mechanisms counterbalancing. A CB can embody

the generative mechanism to reinforce the neoliberal agenda, thereby embracing the liberal aspects of cryptocurrencies. However, this generative mechanism could remain unexercised since other generative mechanisms, such as controlling aspects of governmental policies outweigh the neoliberal agenda which is being pursued by the CB. This ontological foundation can offer insights regarding differing policies and thereby overcomes the fallacy of the rationalist approaches.

Table 1 Separation of the Domains in Critical Realist Ontology

	<i>Domain of Real</i>	<i>Domain of Actual</i>	<i>Domain of Empirical</i>
<i>Mechanisms</i>	✓		
<i>Events</i>	✓	✓	
<i>Experiences</i>	✓	✓	✓

Source: Bhaskar, 1974, p.14

Critical realism thus offers an alternative approach with advantages regarding this thesis. Critical realism takes into account both structure and agency and separates them on an ontological level (Yalvaç, 2010, p.172). In contrast to the positivist understanding of structures which is the existence of empirical regularities in the interactions between states (ibid.), Bhaskar argues for a less one-sided definition and defines structures in terms of different relations. Structures, according to Bhaskar, always depend on social relations and these relations pre-exist individuals and are being (often unconscious) reproduced or transformed by people (Bhaskar, 1979, p.35). Social structures thus pre-exist agency and restrict the scope of acting for those agents. Therefore, the historical context is always of explanatory power when analysing phenomena (Bhaskar, 1998, p.218-219). Since the reproduction, however, depends on the actions of agents, they can act consciously on the level of practices and potentially transform structures (Joseph, 2007, p.357). By taking into account the material and ideational dimension, the influence of agency and structure and the historical context in which phenomena emerge, the ontological base of critical realism allows for an extensive and broad analysis of the development of CB policy regarding cryptocurrencies. A theory embedded in critical realism which specifically allows for an extensive analysis of the historical context of the capitalist structure which restricts the scope of agency of CBs, is Regulation Theory.

### 1.4. Regulation Theory

Regulation Theory has been a leading research paradigm which started at the early 1970s as a revival of institutional and evolutionary economics (Jessop & Sum, 2006, p.1). The approach explores the

interrelatedness of institutions and dynamic regularities in capitalist economies (ibid., p.3). It offers an analysis of capitalism and its transformations, thereby aims at understanding periods of stability and moments of structural change (Boyer, as cited in Natalia, 2010, p.2). The two main currents are the Grenoble School (see de Bernis, 1981; Byé & de Bernis, 1987) and the Parisian School (see Aglietta, 1979; Lipietz, 1982; and Boyer, 1986) of which the latter has had repercussions at a worldwide level (Natalia, 2010). The Parisian School acquired recognition with the analysis of the economic recession in the 1970s by Michel Aglietta (1979) in which he analysed the characteristics of the US economy during the oil crisis. Aglietta (1979) and Boyer and Mistral (1978) identified 'Fordism' as a descriptive term for the capitalist organisation of a 'consumer society' which contributed to the crisis in the 1970s and the rise of the post-Fordist capitalist regimes (Jabko, 2009, p.233). Regulation Theorists refer to regulation as a wide range of economic and extra-economic mechanisms which interact to "normalize the capital relation and guide the conflictual and crisis-mediated course of accumulation" (Jessop & Sum, 2006, p.15). With the term 'regulation' being understood properly, it is of importance to start with a discussion of the claim central to Regulation Theory and moreover, this thesis. That is, capitalism is conflictual in its nature and bears inherent contradictions (Warringo, as cited in Van der Pijl, 2009, p.153), which demand institutions such as central banks to act as stabilising factors.

#### 1.4.1. Inherent Contradiction in the Accumulation of Capital

By laying out three basic features which are present in every capitalist economy, Harvey elaborates on Marx' work on crisis prone capitalism and argues why these accumulation regimes have a tendency towards over accumulation (Harvey, 1989, p.181). The first characteristic is that capitalism is always growth-oriented. Since this characteristic is one of necessity, successful capitalist countries embrace growth as inevitable and good, while lack of growth is defined as a crisis (ibid., p.180). Secondly, growth in real values can only be achieved through the exploitation of labour. Granted, labour gets a piece of the pie but growth can only be achieved by sustaining a gap between what labour produces and what it gets (ibid.). Finally, capitalism in necessity is technologically and organisationally dynamic (ibid.). Besides labour and wage control, growth can also be achieved through technological and organisational changes since they increase the productivity relative to the labour force (Harvey, 2006, p.159). Moreover, the coercive laws of competition push capitalists to innovate in their pursuit for profits, which pushes regulatory institutions to innovate as well. The interdependence of innovation and capitalism as supposed by regulation theorists is of key interest for this thesis. Cryptocurrencies offer innovation, however, simultaneously bearing the potential to bypass the tradition owners of capital. The in-depth analysis of the form of capitalism and its tensions can therefore contribute to make sense of how the policy developers relate this material dimension, to the ideational dimension of what the implications of cryptocurrencies are for the goal of stabilising the accumulation of capital.

The requirement of capitalism for reinvestment of surplus value, can come to a point where both capital and labour will devalue which then results in a crisis. These phases of over accumulation can never be fully eliminated, since they are generated through the necessary conditions of capitalism. Whereas, the cycle of accumulation has been familiar to economists for more than two hundred years, the source of this cyclical form in the inherent contradictions of capitalism is less obvious (Clarke, 1990, p.18). The question remaining is how this tendency towards over accumulation can be contained. Harvey outlined three possible responds to these crises. The first one is devaluation of commodities, productive capacity and money value (1980, p.181). Devaluation, however, comes with a high price for both the capitalist as the workers class. The second possible respond is macro-economic control. Through institutionalization of a regulatory system a period of stable growth can be achieved. However, looking back at extended periods of steady macro-economic growth, it always has been a result of policies directed towards a persistent expression of over accumulation (ibid., p.182). The third option is the “absorption of over accumulation through temporal and spatial displacement [...]”. With this respond capitalist can choose to reinvest their surplus capital in geographical locations in which the capital has not been accumulated. While expanded implementation of capitalist accumulation theoretically offers a long run solution for the accumulation problem, it actually just expands the region in which over accumulation can take place. On the other hand, the temporal solution is focused on switching resources directed at meeting current needs towards exploring future options, or changing the turnover time so that surplus money is invested in projects and therefore stay in circulation (ibid.).

Regulation Theory scholars are concerned with these possible mechanisms which contain the crisis-prone nature of capitalism and in order to achieve a precise analysis of different forms of regulation under capitalism, it is necessary to define more specific concepts. In order to do so, the theory analyses the interplay of capitalist growth patterns (regime of accumulation) and the institutional apparatus (mode of regulation) which enables or hinders the sustainability of this growth. This angle of incidence offers the comprehensiveness to come to an understanding how central banks as institutions develop and frame ideas on cryptocurrencies, since the latter potentially pose a solution or threat to the inherent contradictions of the capitalist growth patterns of the affiliated nations.

#### 1.4.2. Regimes of Accumulation and Modes of Regulation

##### *Regime of Accumulation*

The mode of development of any political-economic system consists out of the combination of the ‘accumulation regime’ and the ‘mode of regulation’ (Hein et al., 2014, p.2). The ‘accumulation regime’ is derived from habits and institutional forms which compel agents to behave in a manner which is not antagonistic to the reproduction of the existing structure (Lipietz & Benko, 1998, p.2). Through this force, economic agents act contradictory to their interests and reproduce structures in spite of their

contradictory behaviour. However, the ‘unity of rules of the game’ varies in time and space, therefore, structures can differ but are characterised by stability between crises. The functioning of such a structure is defined as the ‘accumulation regime’ (ibid.). The regime of accumulation is “a complementary pattern of production and consumption structures and relations which is reproducible over a long period, thus ensuring capital accumulation” (Arvanitidis, 2014, p.27). Regulation scholars are particularly interested in the contradictory nature of such regimes since when they intensify, crises occur. A transition from one ‘regime of accumulation’ to another is always a convulsive one and needs many structural changes and adjustments in economic behaviour and policy before the new regime can blossom (Aglietta & Breton, 2001, p. 434).

The most recent example has been the transition from the Fordist regime which was in place until 1975, towards the current Neoliberal regime, which is being characterised by financialisation (see Table 1). Innovation in information technology (IT) has boosted productivity and opened new opportunities for investment goods. When the demand for such capital goods is present, the price trends to go down and potential growth is being fostered (ibid.). With growth being secured, a new regime of capital accumulation will be established since, as discussed above, growth is a necessary condition for capitalism. This sequence of events is of interest for this thesis since the emergence of cryptocurrencies might have the potential to offer new investment opportunities or, in contrast, destabilise ‘regimes of accumulation’ and this could be of explanatory power when analysing the phenomena of CBs’ difficulty to develop a homogenous policy for regulating this technology.

Table 2 Characteristics of Fordist capitalism and Neoliberal capitalism

	Fordist capitalism 1945 – 1975	Neoliberal capitalism 1980 - 2010
Accumulation regime	<i>Fordism</i>	<i>Financialisation</i>
Technological paradigm	<i>Taylorism</i>	<i>Information technology</i>
Social regulation	<i>Social compromise</i>	<i>Flexibility</i>
International division of labour	<i>Internationalisation</i>	<i>Globalisation</i>

Source: Husson, 2012, p.10

*Axes of Accumulation*

In order to specify the variation of accumulation processes, three typological axes of accumulation are evaluated (Becker et al., 2010, p.227). The first, and most fundamental axis is productive versus financialised accumulation. Productive accumulation represents investment in the productive processes whereas financialised accumulation represents investments in the expansion of financial

assets or in interest bearing capital such as credit (ibid.). For financialised capitalism, cryptocurrencies offer a new opportunity for growth in fictitious capital, a more permissive attitude can stabilise the growth which is essential to capitalism and temporarily suspend a crisis of over accumulation. Productive capitalist nations with rather underdeveloped financial systems are expected to perceive cryptocurrency as a destabilising factor since they pose highly efficient alternatives to the conventional system. Moreover, the stabilising institutions of these nations are also less developed and therefore less able to effectively integrate and regulate this technology. The second axis refers to extensive versus intensive productive accumulation (ibid.). The organisation of the productive sector, however, does not add explanatory power of the analysis of this thesis. The third axis consists out of introverted and extraverted accumulation. Introverted accumulation has a strong focus on the domestic market and extraverted accumulation is strongly outward-oriented regarding trade as well as flows of productive and money capital (Becker et al., 2010, p.227). Between the form of extraverted accumulation one can distinguish between outward-orientation based on export, labelled as active extraversion, and outward-orientation based on import-dependence, labelled as passive extraversion (ibid.; Becker & Jäger, 2012, p.172). The degree of integration with the global economy, and hence openness of the domestic markets, helps understanding the policy positions of CBs on cryptocurrencies. The more integrated a nation is with the global economy the more prone the nation is towards welcoming cryptocurrency related businesses.

A clear understanding of the typological axes provides concrete analytical tools to distinguish between differing national regimes of accumulation in this thesis, and thereby adds explanatory power to the absence of homogenous policy outcomes from CBs. Different national 'regimes of accumulation' bear different contradictions and thus tensions within them.

### *Modes of Regulation*

Besides its focus on the characteristics of the process of accumulation, Regulation Theorists looks at institutional forms that deal with the inherent contradictions of capitalist societies and refers to these institutional forms as a 'mode of regulation' (Becker & Jäger, 2012, p.173). A 'mode of regulation' can be defined as a set of institutions which evolves through class struggles and is related to an historical context which has specific social relations of production (Aglietta as cited in, Becker & Jäger, 2012, p.173). Within Regulation Theory this set of institutions is referred to by the term structural forms (ibid.; Petit, 1999). The 'mode of regulation' should not merely be understood as material institutions but rather as an "emergent ensemble of norms, institutions, organisational forms, social networks and patterns of conduct [...]" (Jessop & Sum, 2006, p.42). Regulation Theory distinguishes between five structural forms which are the state apparatus (institutionalised compromise between capital and labour, forms of state intervention), money (its dominant form and emission, the organisation of

banking and credit systems, the allocation of money capital to production, the circulation and articulation of national money and international currencies, and basic institutional features of monetary systems), international relations (trade, investment, monetary settlements and political arrangements linking nations and economies), the enterprise form (source of profits, forms of competitions, ties among enterprises and banking capital) and the wage relation (labour markets and wage-effort bargaining, individual and social wages, life style) (Petit, 1999, p.266; Jessop & Sum, 2006, p.42). Whereas, the latter is of less relevance for this thesis, it is expected that an institutional organisation in which CBs enjoy relatively high independence, payment systems are highly digitalised and there is a rather competitive market for enterprises, accounts for a more permissive attitude towards cryptocurrency. The influence of the nations 'international relations' will be interpreted by influences coming from institutions such as the World Trade Organization (WTO) and International Monetary Fund (IMF). The IMF, for example, is repetitively urging China to take control over its risky financial sector which is expected to influence its attitude towards allowing cryptocurrencies.

Variance in the organisation of the accumulation process and the supporting structural forms add explanatory power to the differing positions CBs take on cryptocurrencies. Whereas it has been pointed out that 'modes of regulation' are corresponding to the 'regime of accumulation' it is important to state that there is no clear-cut causal relationship between those concepts, hence one specific 'regime of accumulation' does not always and everywhere have the same 'mode of regulation' (Jessop & Sum, 2006, p.313). There are different options for nations to mediate the contradictory characteristics in capitalism and capitalism occurs in a wide variety of forms. In addition, the contradictions apparent in national 'regimes of accumulation' have relative weight attributed to them which also affect the institutional choices a nation makes and both 'regimes of accumulation' and 'modes of regulation' are situated in a specific space and historical context which affect the construction (ibid.). Then the ontological question arises whether the objects pre-exist the 'mode of regulation'? The answer is both yes and no since the incompleteness of the capital relation holds that certain aspects of this relation become more determined when subject to regulation (ibid.). However, these elements will never be fixed under a certain 'mode of regulation' and therefore are dependent on the transformation which the regulation poses on them.

### 1.4.3. Strengths and weaknesses

Regulation Theory, as argued, offers the most applicable analytical tools to explain CBs policy positions through analysis of the organisation of capitalism. However, shortcomings should be addressed. Regulation Theory has, despite its non-reductionist nature, firm roots in economics and also treats the structural form of the state apparatus as means to economic goals. It pays little attention to the interrelatedness of the institutional organisation which for this thesis influences the



agency of the CBs. This thesis aims at accounting for this shortcoming by embedding the agency and practises of the CBs in a historical and political rather than merely economic context. Secondly, Regulation Theory has been accused of structuralist and functionalist characteristics as it explains 'accumulation regimes' in emerging economies as a product of the Eurocentric regimes (Jessop & Sum, 2006, p.157; Clarke, 1998, p.68-69). It overemphasizes how capitalism is sustained and thereby moves away from the argument that accumulation regimes can be transformed rigorously. In that sense, all the 'regimes of accumulation' seem to be a product of the overarching structure of capitalism. Granted, neoliberal institutions such as the WTO influenced the regimes of accumulation in emerging economies, however, this thesis aims at an historical analysis of the regimes which accounts for their uniqueness in which globalisation and Western economies play are influencing factors in the development rather than the determining variables for the current organisation of capitalism and the underlying economic tensions.

This thesis, thus, applies Regulation Theory to explain the differing policy positions of the PBoC, BoJ and BoC on cryptocurrencies. The logic of the central claim is that the unique forms of capitalism in the analysed nations bear unique tensions within them which make the economies prone to crises. In order to stabilise and postpone the crises, a set of institutions is developed of which a CB is a part. In the process of developing policy positions, CBs are expected to weigh the potential influence of cryptocurrencies on the susceptibility of the existing tensions to intensify or diminish when the technology would be adopted. The tensions coming from the risky financial system in China are expected to be heavily regulated. Therefore, cryptocurrencies are likely to be perceived as a threat. For Japan and Canada, cryptocurrencies might offer an economic boost for the economic stagnation of the nations. The consideration on policy positions, however, is not made in isolation since the mode of regulation comprises more institutions than the CB. This institutional environment limits the agency of the CB and is therefore also of influence to the eventual policy position. Policy positions, legislation and discourse coming from these institutions therefore are co-opted in the explanatory analysis. The degree of agency a CB enjoys, hence determines the autonomy under which the CB can develop policy positions. It is then expected that the PBoC's policy position is much more influenced by the views of the surrounding institutional environment than the position of the BoC or BoJ.

## 2. Epistemology, Methods and Operationalisation

The epistemological debate is concerned with the question how we gain knowledge over the world (Patomäki & Wight, 2000, p.223). As discussed in the former chapter, Regulation Theory is rooted in critical realism, which breaks with theories such as liberalism and realism on both an ontological as an epistemological level. This chapter will concern itself with that epistemological debate. The value of the retroductive epistemology will be outlined followed by the methodology applied in this thesis. Lastly, the rather abstract key concepts as discussed in the theoretical chapter will be operationalised to move towards concrete analytical tools.

### 2.1. Critical Realist Epistemology

On an epistemological level, critical realism developed a critique towards positivist and relativist theories and is referred to as post positivist. Positivist theoretical approaches draw upon empiricism and presumes that all scientific knowledge is embedded within empirical regularities (Wight, 2007, p.382,385). While strands compete about what the exact form of these principles are, they concur to one another in the existence and the goal to define them (ibid.). Through observations positivists make law like generalizations with causal mechanisms as its focus. To evaluate these generalisations, positivists mainly adopt a deductive approach. Brian Fay describes the positivist view on social science by noting four elements. Positivism has a deductive-nomological account of explanation, beliefs in neutral observation language as the foundation of knowledge, has a value-free idea of scientific knowledge and argues for methodological unity (Fay as cited in, Keat, 1980, p.1). The belief in the possibility of value-free knowledge and its argument for the ability of scientific solutions to be established for social problems have been rejected by multiple scholars (see: Habermas, 1986; Weber as cited in Ashley & Orenstein, 2005). Opposed to positivisms' empirical realism, critical realism argues that, complementary to the observable reality, there are unobservable structures and generative mechanisms (Joseph, 2007, p. 346). Since this thesis explains policy positions of CBs by diving the historical institutional context in which the agencies of the CBs are embedded, a positivist approach omitting unobservable, however logically arguable, mechanisms weaken the comprehensiveness of the analysis.

The other end of the spectrum is occupied by the relativist epistemological approach. This approach argues that different communities, cultures and networks endorse different epistemic systems for forming beliefs about what is true or false (Goldman, 2010, p.1). This approach reduces social sciences to the mere interpretation of meaning. Critical realism rejects this strain of postmodernism which assumes that due to absence of certainty, regularity and closure, hopes of reliable knowledge claims should be rejected completely (Sayer, 2000, p.3). Critical realism argues

there is a deeply structured reality, of which the ontological assumptions consists out of both observable and unobservable objects and structures. The epistemological assumptions hold that we can acquire knowledge about this reality but not without a bias. However, this does not result in the relativist epistemology rejecting science as a whole (ibid.). By drawing both on unobservable powers such as the historical context and interpretations of cryptocurrencies, and observable factors such as economic variables, this thesis does not decay in the extremes of the spectrum but rather applies an approach that allows for both, positivist features and interpretationist features: critical realism.

Critical realism shifts the emphasis in the philosophy of science from epistemology to ontology (Wight, 2007, p.385). Most of the debates in IR have been concerned with the epistemology rather than ontology (Yalvaç, 2010, p.169). By treating the empirical and the real as being one, the ontological question becomes of less importance. However, one than decays in the 'epistemic fallacy' (Bhaskar, p.16, 30). For this reason, the epistemology differs greatly from the aforementioned approaches in IR. Since the positivist approaches assume that what we can observe is what is reality, their only concern is finding a generalised scientific method. Critical realism acknowledges that all ontological assertions will require some form of epistemological support. However, by putting ontological issues first, the epistemological matters become less dogmatic and allows for a variety of methodologies (Wight, 2007, p.385). By arguing that an explanation only suits a specific explanandum, critical realism moves away from simplified models towards more concrete explanations of phenomena (Jessop & Sum, 2006, p.303). This is referred to as a method of articulation and allows investigation of concrete processes which are not readily identifiable by moving through levels of abstraction and complexity (Jessop, 1982, p.214-215). This allows for three unique analysis resulting in three specific explanations for the policy positions of the PBoC, BoJ and BoC on cryptocurrencies.

## 2.2. Methodology

Regulation theory allows for a deduction of multiple methods in order to offer an explanation which is affiliated with a specific explanandum. In order to assess the causal mechanisms underlying the development of the differing CBs' policies, a methodological approach is needed that accounts for all the factors and forces which are present and of potential influence. Different types of data combined with different methods of analysis allow for an analysis across the domains as proposed by Bhaskar (1975) and levels of abstraction. Downward and Mearman provide two main arguments for justifying triangulation. The first is aimed at increasing the persuasiveness and validity through the triangulation. Second, on a more pragmatic base, is the argument of poor performing methods or data which can be enriched through triangulation (ibid., p.82). In order to enrich the explanatory power of the analysis in this thesis, both data as methodological triangulation will be applied. Combining discourse analysis, in order to offer a detailed comprehension of the three policy positions, with an explanatory narrative of

the evolution of the CBs agency in the context of the historical development of the affiliated economy, allows this thesis to offer an explanation which relates the contemporary acting of CBs on cryptocurrencies to their historical path of decision making. E.g. a CB's legacy of protectionist policy on its currency and markets could add explanatory power to the contemporary policies aiming at criminalising cryptocurrencies and framing them as destabilising.

Firstly, this thesis will deduct a critical discourse analysis (CDA). CDA argues that there is a dialectical relationship between a discursive event and the institutions and social structures in which they are embedded (Fairclough and Wodak, 1997, p.258). The agency and acting of CBs influence the phenomena of the emergence of cryptocurrencies in their economies, however, the emergence of cryptocurrencies also influences the agency of the CBs. CDA is critical since it embeds the data in the social structures and identifies political stances explicitly, aiming at providing critical knowledge in order for people to emancipate (Wodak & Meyer, 2009, p.7). CDA sees discourse as an expression of ideology and can therefore be used to stabilise an accumulation regime (ibid, p.8; Fairclough and Wodak, 1997, p.9-10). This method will be employed through analysing statements and documents from the CBs, focusing on specific language related to risks or opportunities. Framing cryptocurrencies as potential risks does not only influence regulatory positions but is also an attempt to strengthen the authority of a CB. Vice versa, a positivist discourse can be seen as an attempt of the respective CB to gain trust as a progressive institution exploiting technological progress. Specific vocabulary such as the term 'crypto assets' for what in this thesis is referred to as 'cryptocurrencies' are attempts of a CB to frame the emergence of cryptocurrencies, distinguishing the technology from a means of payment. In addition to the CDA, an explanatory narrative will be provided. By tracing back the development of the economies of the nations of the three CBs, explanatory factors will be distilled. This is done both by analysing quantitative sources as qualitative literature on the respective economies and the role of the CB within the economy. Furthermore, CBs' policy legacy is used for explaining the development of its current policy position on cryptocurrencies.

Primary data sources such as policy statements, speeches, governmental documents, IMF reports will be used as qualitative data in order to provide persuasive evidence for the differing policies and attitudes of CBs towards regulating cryptocurrencies. Secondary sources such as academic literature and news articles will be used to assess the independence of the CBs, provide historical contextualization of the political and economic development of the nations and CBs. In order to define the nations' accumulation regimes, the qualitative data will be enriched with quantitative data, coming from the databases of the Organisation for Economic Co-operation and Development (OECD) and The World Bank. By combining these sources, the criticisms towards the dependency of political economic analysis on statistical models will be overcome. Quantitative data can identify trends over time in the process of accumulation while through qualitative data the political characteristics of the regimes can

be identified, allowing for identifying the generative mechanisms which influenced the differing policies.

### 2.3. Operationalisation

Before the analysis of this thesis can be conducted, it is of importance to move from the abstract key concepts of Regulation Theory towards concrete operationalisations. Acknowledging units of measurement to the key concepts enhances transparency and reproducibility of the analysis that will follow. The operationalisation will thus be concerned with the most important concepts for measurement. Those concepts are the regime of accumulation and the mode of regulation as introduced in the theoretical chapter. Furthermore, the attitude and policies of CBs towards cryptocurrencies has to be operationalised as well to provide persuasive evidence for their differences. In order to fill the gap regarding the lack of attention for agency such as social forces the usage of cryptocurrencies the nations of interest will be operationalised as well.

#### *Regime of Accumulation*

The first axis – financialised versus productive accumulation – is determined by the size and strength of the financial market as relative to the whole economy in a nation. Since this thesis uses both qualitative as quantitative data sources, the operationalisation is alike. Measuring the relative size of the financial markets is achieved through economic indicators. One indicator is obtained through the OECD dataset ‘Value added by activity’. This set provides data on the value added by financial and insurance sector as percent of value added in total. The second indicator which will be included is obtained through The World Bank and is the ‘Gross capital formation as a percent of GDP’. This has formerly been labelled as the gross private domestic investment (The World Bank, n.d.) and represents a measure of investment, made by both foreign and domestic investors, in the productive capacity of the economy. Nations with a relative higher gross capital formation as part of their GDP tend to be more on the productive side of the axis. Vice versa, a combination of a decrease in the gross capital formation with an increase in the value added by the financial and insurance sector would indicate movement towards more financialised accumulation. These quantitative indicators can be seen as proxies for justification of the qualitative analysis. The latter will focus on liberalisation programs of the governments regarding the financial markets, thereby opening up for global competitiveness. The underlying reason for such agendas is noted in Regulation Theory as seeking for new opportunities to sustain economic growth and stabilize the accumulation regime.

The second axis – extraverted versus introverted accumulation – will also be measured through data triangulation. The first indicator is Foreign Direct Investment (FDI) and is obtained through The World Bank from the data set ‘Foreign direct investment, net inflows’. Relatively higher FDI net inflows

indicate an accumulation which tends to be more extraverted and vice versa. FDI consists out of “the sum of equity capital, reinvestments of earnings, other long-term capital, and short-term capital” as represented in the balance of payments. Becker et al. also distinguished between passive, import-dependent, and active, export-oriented, extravert accumulation regimes. An indicator which can account for this separation is the ‘External balance on goods and services (% of GDP)’. This data is best described as the export of goods and services minus the import of goods and services (The World Bank, n.d.). Positive figures indicate active extravert accumulation and vice versa. Similar to the first axis, these indicators serve as proxies for justification of the qualitative claims about the accumulation regime. Qualitative sources such as media reports and policy papers of the government provide more contextual insights in trade relations.

### *Modes of Regulation*

The state apparatus is expressed as state interventionism in the economy. Using both quantitative as qualitative studies on CB independence, the influence of the state apparatus on CB policy is measured (see: Klomp & Haan, 2010; Cukierman et al., 1992; Alesina & Summers, 1993; Grilli et al., 1991). The results of the study of Cukierman et al. (1992), who gave scores to CB legal independence ranging from zero (not independent) to one (complete independence), are combined with qualitative research into the independence of the CBs.

Since cryptocurrencies are perceived as an alternative to fiat currencies the current relation of a nation with its currency is analysed. Since cash and cryptocurrency share similar characteristics (Prasad, 2018, p.6), cash usage is analysed through news articles and studies of the CBs. A decline can lead to an opportunity for CBs to embrace a technological advanced version of cash, being cryptocurrencies. Furthermore, CBs’ policies on their national currencies is adopted as well through academic literature. Protectionist policies, for example, indicate a tendency to diminish currency competition and therefore be hostile towards cryptocurrencies.

Drawing upon the first generation of Regulation Theory research, the enterprise form and competition will be indicated based on the degree of liberalisation of competition (Jessop & Sum, 2006, p.218). Academic literature of historical analysis of opening up the financial and domestic markets is used to position the respective nation on the degree of liberalisation and competition.

Lastly, the structural form of international relations is measured by including statements and warnings of the IMF and The World Bank aimed towards the CBs and economies of the nations which are subject to this analysis. The focus is on specific warnings regarding the risks and regulation of the nation’s economy since this potentially influences the agency of CBs. Both news articles reporting on these warnings as primary statements of the two institutions will be analysed.

## 2.4. Case selection

Implications and consequences of the usage of cryptocurrencies is currently heavily researched by monetary institutions and several CBs have not yet issued definitive policy positions (e.g. Belgium, India and Sweden) or have been rather ambiguous (e.g. Cambodia and Colombia) (The Law Library Congress, 2018, p.31,99,55,107,12). For sake of the explanatory power of this thesis, cases have been selected on their outspoken policy positions, availability of interpretable data and unique developments of their accumulation regime.

The first case of interest is China and the PBoC. China is a state with developmental state characteristics and a socialist market economy. While undergoing a far-reaching transition from a communist economy towards a capitalist economy and thereby engaging with the global political economy, political freedom still seems to be a long way off (Breslin, S, 2016, p.1,5; McMillan & Naughton, 1992). According to the World Economic Freedom index, China is ranked 112<sup>th</sup> out of 159 (Gwartney, Lawson & Hall, 2017, p.7). Whereas China is known for its investment in its domestic innovative capacity (Cheung & Ping, 2004, p.42), the innovative potential that cryptocurrencies bear within them has been subjected to an implicit ban (The Law Library Congress, 2018 p.4, 106). Thereby the initial categorisation of this case is *hostile*. The second case which will be analysed is Japan and its BoJ. Japan is widely perceived as the pioneer of the developmental states, meaning it has undergone late industrialisation through far reaching state interventionism, and has a market-oriented economy (Johnson, 1999, p.32). The World Economic Freedom index ranks Japan as 39<sup>th</sup> free economy (Gwartney et al., 2017, p.7). Even though Japan has experienced one of the world's biggest cryptocurrency exchange hacks (Maleta & Stipanovic, 2018, p.593) – roughly 58 billion yen got stolen – it has taken a progressive stance towards regulating cryptocurrencies and aims at pro-actively further embedding the technology in its society through regulation (The Law Library Congress, 2018, p.111). Thereby Japan receives an initial categorisation of *advocate*. The third and final case is Canada and the BoC. Whereas China and Japan, at least partly, have been developmental states with since the late 20<sup>th</sup> century technology as the corner stone of their export-led economies, this thesis will be enriched by adding an early industrialised, Western economy. It is being ranked as 11<sup>th</sup> regarding their free economy (Gwartney et al., 2017, p.7). Canada has an open attitude towards cryptocurrencies and is actively regulating them, however the BoC is practicing a rather sceptical discourse. The initial categorisation of Canada is *permissive*. It is important to note that every case has its specific historical and political context and that the goal of this thesis is not to provide generalizations towards cases with similar political economic characteristics.

### 3. Empirical Analysis

This chapter dives into the specific discourse surrounding the differing policy positions of the PBoC, BoJ and BoC at greater length. By means of the operationalised key concepts of Regulation Theory a historical analysis of the development of the financial systems and institutional environments is conducted to identify the tensions of the three regimes of accumulation. The specific tensions and the institutions committed to stabilise the tensions provide an explanatory narrative for the differing policy positions of the three CBs. Before diving into the cases, a brief historical overview will be given to better comprehend the relation between money and central banking. By doing so, cryptocurrencies can better be plotted on the relation between CB and the conventional forms of money.

#### 3.1. Money and central banking in an historical context

To understand the relation between CBs and cryptocurrencies, one should understand the historical context between CBs and money first. Central banking can be traced back to the 17<sup>th</sup> century as government experienced difficulties with selling people IOUs, since there was a lack of trust in governments (Wray, 2012, p.32). An IOU ('I owe you') is a document acknowledging debt. As a solution to the difficulties that governments experienced, the CB got established (ibid.; Bordo, 2007, p.1). CBs grew into the role of 'lender of last resort' (Bordo, 2007, p.1-2). In addition, CBs became monopolist to issue government backed notes. For a long time, currencies were backed by commodities as silver and gold to enhance their stability. The latest example is the Bretton Woods System. The dollar's value was linked to the value of gold and all the other currencies were linked to the dollar. In 1971 the system ended due to increasing trade deficits of the US that led to fear that the US dollar was over valued (IMF, n.d.). The current system of national fiat currencies, currency without intrinsic value, started to be used globally. Through monetary policy, CBs play a decisive role stabilising the regime of accumulation (Aglietta, 1975, p.329). The three most used monetary policy instruments to manipulate the money supply are open market operations, such as the current quantitative easing programs, influencing the reserve requirements for credit institutions and lending credit institutions liquidity or influencing the discount rate against liquidity can be borrowed. It is through these accommodative monetary policies that the capitalist regimes of accumulation are stabilised by the monetary institutions.

An important aspect of monetary policy is CBs' holding reserves to stabilise then value of their national currency. The US dollar is widely the most held reserve followed by the euro. Thereby, these currencies bear political power within them and relying on its economic dominance has been a key factor for the Western dominance in international politics. The instability and specific aversion of the US dollar dominance has led to several attempts avoiding the Western economic influence and sanctions. Even though, the reserve currency basket of the IMF has been extended with the addition



of the Chinese Yuan in 2015, the US dollar remains the dominant currency. The decentralisation that cryptocurrencies offer seems a promising solution to overcome this Western economic dominance and therefore can alter the contemporary economic power relations. Moreover, theoretically the cryptographic protocol of cryptocurrencies makes the role of a CB obsolete (Lagarde, 2018a). The potential of cryptocurrencies to completely reshape our current fractional banking system with CBs as protagonists, pressures CBs to respond and act in a manner by which they retain their legitimacy.

### 3.2. China: discourse, accumulation regime and mode of regulation

The rise of China is one of the most interesting cases among emerging economies. The large volume of exports and trade surplus, growing trade and investment links with Asia, major imports of intermediate goods and its success in establishing a fair stability in its financial sector contribute to this (Sen, 2010, p.2). Chinese economy grew rapidly three years after the foundation of the People's Republic (PRC) of China in 1949. Under Deng Xiaoping rule, China experienced an unstoppable process of export-led growth (Overbeek, 2015, p.9). China transformed from a socialist towards a new transnational capitalist state (Harris, 2009, p.6). However, this transformation happened in its own historical context and China still practices firm control over its capital and closed financial system (Overbeek, 2015, p.12).

China's economic reforms have also reformed its regulatory institutions. The PBoC is the world's biggest CB and holds the most assets (Yardeni & Mali, 2016, p.8). China's Banking Regulatory Commission (CBRC) and the China Insurance Regulatory Commission (CIRC) will be merged and this is perceived as the biggest government shake-up in years (Bloomberg, 2018). This reorganisation of the monetary institutions is part of the goal of the Communist Party of China (CPC) to strengthen the control over regulatory arbitrage in the financial sector (ibid.).

#### 3.2.1. Cracking down on cryptocurrencies

In the PBoC's policy statements and speeches coming from its former governor Zhou Xiaochuan, refers to cryptocurrencies with the term 'digital currencies'<sup>1</sup> (e.g. China Daily, 2018). By using this term, the scope of regulatory tools will entail more than merely encrypted forms relying on distributed ledger technology (DLT). As early as December 2013, the PBoC, CBRC, CIRC, China Securities Regulation Commission (CSRC) and the Ministry of Industry and IT (MIIT), issued Circular No. 289, the Circular on Preventing Risks from Bitcoin (King & Wood Mallesons, 2017; The Law Library Congress, 2018, p.106). The scope of application is "Bitcoin and related products and transactions", giving the regulators latitude to exercise law. This gets stressed in the determination of the attributes of the

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<sup>1</sup> An additional confirmation of the term *digital* currency can be found by the establishment of the *Digital Currency Research Institute* within the PBOC (數字貨幣研究所).

“coin”. It states that “Bitcoin is not issued by any official monetary authority” and is “not a currency from a legal perspective, and may not be used in the market as a currency”. The implicit ban is found in the implications for financial institutions and payment agencies since the Circular states that is not allowed to (1) “Price goods or services in bitcoin;”, (2) “Purchase or sell bitcoins or as central counterparty;”, (3) “Underwrite any insurance business relating to bitcoin or include bitcoin in any insurance coverage;” and the most thorough one (4) “Directly or indirectly provide clients with other services relating to bitcoin, including providing clients with registration, trading, clearing and settlement services relating to bitcoin; accepting bitcoin or using bitcoin as means of payment or settlement; providing an exchange service between bitcoin and renmibi (RMB)/foreign currencies; carrying out deposit, custody or mortgage business relating to bitcoin; distributing financial products relating to bitcoin, etc.”. Furthermore, “competent authorities” may close all websites “offering registration, trading and other services relating to bitcoin”. (King & Wood Mallesons, 2017). The PBoC makes a clear distinction between legal tender and digital currency. It is interesting that it does not address civilians which has been done in other nations (Bolivia, Bangladesh)<sup>2</sup> who are affiliated with cryptocurrencies, however, it imposes restrictions by barring financial and non-financial institutions within their borders from facilitating any service related to digital currency (The Law Library Congress, 2018, p.2).

China’s ‘crackdown’ on cryptocurrencies further intensified, when the PBoC issued the *Announcement on Preventing Risks from Token Financing*, on September 4<sup>th</sup> 2017 (King & Wood Mallesons, 2017; Chen & Lee, 2017). China was the first nation to officially ban initial coin offerings (ICOs). The state endorsed National Internet Finance Association of China warned that ICOs are perceived as disrupting the social economic order, which in China is a weighty allegation (Bloomberg, 2017). ICOs that have already taken place are obliged to refund the token financialisation (King & Wood Mallesons, 2017). Thereby, China has moved from home to the biggest cryptocurrency market, to increasingly strengthening its grip and criminalising all cryptocurrency related business. Whereas the PBoC does not target individuals, it does inform the public to be on high alert for various illegal financial activities in the name of ‘coin’ (ibid.). The PBoC seems rather protective of its fiat currency the (RMB) and therefore bans all trading between its fiat currency and all other digital currencies.

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<sup>2</sup> In both Bolivia and Bangladesh, news sources reported that cryptocurrency advocates respectively have been or will be arrested.

Bolivia: <https://www.nasdaq.com/g00/article/bolivian-authorities-arrest-60-cryptocurrency-promoters-cm795914?i10c.encReferrer=aHR0cHM6Ly93d3cuZ29vZ2xlM5sLw%3D%3D&i10c.ua=1&i10c.dv=14>

Bangladesh: <https://www.dhakatribune.com/bangladesh/crime/2018/02/19/police-hunt-bitcoin-users-bangladesh/>

During a press conference on the 9<sup>th</sup> of March 2018, PBoC's former governor Zhou argued that digital currencies lack government back up. Zhou stressed that the PBoC does not "currently recognize Bitcoin and other digital currencies as a tool like paper money, coins and credit cards for retail payments" (Reuters, 2018). Zhou added, "The banking system does not accept it." (ibid.). In his narrative Zhou pointed towards the goal of the PBoC to "prevent substantial and irreparable damages" to the domestic economy (Suberg, 2018). Zhou said that "If they spread too rapidly, it may have a big negative impact on consumers. It could also have some unpredictable effects on financial stability and monetary policy transmission" (Reuters, 2018). While maintaining a rather hostile narrative towards cryptocurrencies, simultaneously the PBoC has praised the progress of their research and development into CBDC. Yao Qian, director of the Digital Currency Research Institute, said "it is possible to incorporate digital currency wallet attributes into the existing commercial bank account system" (Reutzel & Rizzo, 2017). However, Qian notes that the decentralised underlying technology is problematic since mistakes are irreversible and centralised management is key to enhance trust (Antonovici, 2018). Zhou stated that the development of digital currency is "technologically inevitable" and in a news article, Fan Yifei, vice governor of the PBoC stated that "A CBDC will also help curb the public's demand for private cryptocurrencies, which will strengthen the role of our sovereign currency" (Chinadaily, 2018; Zhao, 2018). The narrative coming from the PBoC is twofold. The PBoC has a repetitive narrative supported by regulations prohibiting all crypto-related business in name of consumer protection and financial stability. While simultaneously advocating the issuance of its own CBDC. Throughout its discourse it is clear that China aims at taking centralised control of cryptocurrencies, opposed to the libertarian aspirations of the technology (Chen & Grant, 2018).

### 3.2.2. The paradox of open markets with high interventionism

#### *Financialised versus productive accumulation*

China's economy has experienced rather rapid growth since the reforms of 1979 with its GDP growing from 2.3% in 1980 towards 18.2% in 2017, thereby becoming the world's leading emerging economy (IMF, 2018a). The domestic markets opened towards the global economy and this formed the base for the current export-led growth model (Lin, 2011, p.213-214). The financial sector has been reformed since 1979, however, it is still perceived as an underdeveloped, closed financial system (Johansson & Wang, 2014, p.375; Lynch, 1996, p.3). China holds a firm grip on regulating interest rates, state-controlled credit allocation, high and frequently adjusted reserve requirements and tightly controlled capital account (Johansson & Wang, 2014, p.375). Before the reforms, the PBoC was the sole institution authorised to carry out financial transactions and under direct control of the Ministry of Finance it coordinated the entire Chinese banking being both a CB as a commercial bank. China had a planned economy with heavy industry as its main target and the financial system was part of the planned

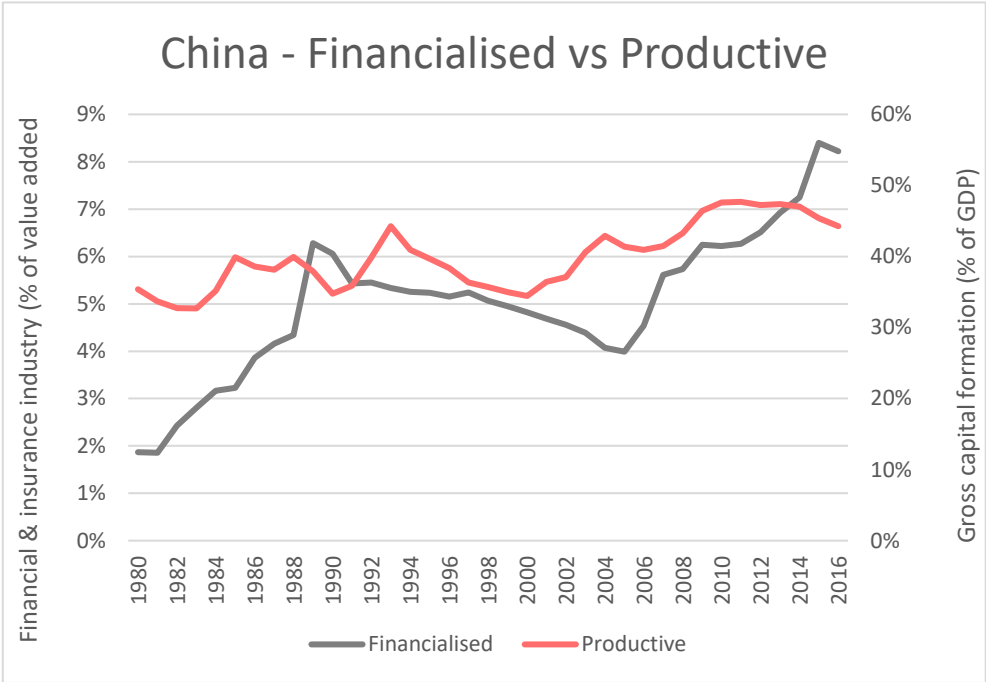
economy (Lin, 2001, p.14). Financial liberalisation was marked by the abolishment of the ban on foreign banks (Yin, 2013, p.2). While the entry of non-state banks has been growing slowly but sure, the financial sector is still being dominated by the four state-owned banks: China Industry and Commerce Bank, China Agricultural Bank, Bank of China, and China Construction Bank (Lin, 2001, p.14). The cautiousness by which China allowed its financial sector to open up is also represented by the Asian Financial Crisis of 1997. While the emerging Asian economies collapsed, the Chinese economy and RMB remained fairly stable (Gurtner, 1999, p.135; Overbeek, 2015, p.12). Both direct and indirect effects were limited since demand in the Western nations hardly suffered. However, the perceived stable position of China was still subject to an inefficient performing financial industry flooded by non-performing loans (NPL). The politicising of the issue of NPL and the absence of a commercial and competitive banking sector are contributors to the instability of NPLs (Shih, 2004, p.931; Gurtner, 1999, p.136).

Probably the most far-reaching policy decision with regard to financial liberalisation is China's accession to the WTO in 2001. China agreed to removing restrictions within five years, thereby allowing foreign banks to engage in the financial industry in all cities (Lin, 2001, p.15). This has boosted the profits coming from the financial industry, while at the same time imposing competition for the first time in China's banking industry (see: Figure 2). Contrary to the Asian Financial Crisis, the Global Crisis of 2008 did impact Chinese economy since its export markets were struck by recession. China's dependence on export had become a vulnerability and its policy response has been a massive stimulus programme (Overbeek, 2015, p.13). The tensions underlying the Chinese regime of accumulation became more visible. The economy appeared to rely on bubbles such as government debt, stock market booms, real estate booms and shadow banking. Attempts to stabilize the economy resulted in worse results of these imbalances such as the 2015 collapse of the stock markets (ibid.).

Simultaneously to the financial system, the productive industries have undergone far-reaching reforms as well. The reforms initiated by Deng Xiaoping are known as the 'Four Modernizations' which aimed at strengthening agriculture, industry, national defence, and science and technology. China is still perceived as one of the biggest manufacturing countries and since the economy opened up for FDI, the inflow has been dominated by the manufacturing sector (Liu & Daly, 2011, p.15). China is a global leader in manufacturing output (Rhodes, 2018). However, within the productive sector the focus has shifted between industries. In 1978, the primary occupation of Chinese labour force was agriculture with 75% (Cheremukhin et al., 2015, p.12). This decreased to 33% in 2012. This decrease was coupled by a firm decrease in value added by agriculture as percentage of GDP, falling from 30% to 5% by 2012 (ibid.). However, the non-agricultural goods experienced an appreciation of 40% in prices from 1980 to 1985 and continued to grow (ibid.). The value added by manufacturing as percentage of value added in China, shows a relatively small decline from 32% in 2010 to 29% in 2016,

whilst manufacturing remains the biggest contribution to the total contribution of labour and capital to production (OECD, n.d.). Turning to the gross capital formation as percentage of GDP in China, it remained relatively stable and experienced a growth of approximately 10% since 1980 (see: Figure 2). This data indicates that while profits from the financial sector have increased, especially since 2004, the levels of investment in the domestic economy did not significantly change. China has moved towards a more financialised regime, but the productive regime remains a significant aspect of China’s economy. The financialised regime is growing rapidly and in 2016 made up for more than 8% of the total value added (OECD, n.d.).

Figure 1: Financial and insurance industry value added and gross capital formation - China

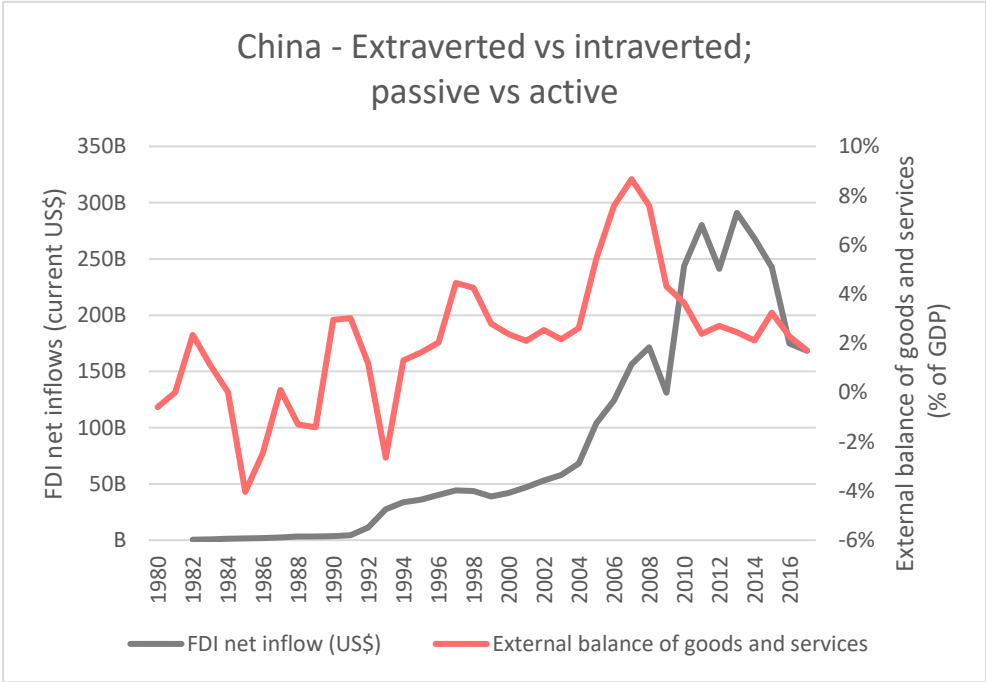


Source: own graph; data from OECD (financialised) and World Bank (productive)

*Introverted versus extraverted accumulation*

As discussed above, China has an export-led model of growth. The first steps towards the more market-based private sector were also rooted in the 1979 reforms. Small-scale agriculture got privatised and private sector activity spread more widely (Palley, 2005, p.71). By appointing Special Economic Zones in 1979, such as Shenzhen, FDI was attracted and the accelerated growth was set in motion (Overbeek, 2015, p.9). The external accumulation regime of China rests on FDI, while internally it still funds its state-owned enterprises (SOEs) through state-controlled credit creation (Palley, 2005, p.71). However, government gave more room for SOEs to become privatised thereby partly retracting their far-reaching market control. FDI boomed during the early 1990s, growing from \$4.366 billion in 1991 to \$33.787 billion in 1994. However, the expectations of investors failed to materialize which slowed the FDI inflows in the late 1990s (Walmsley et al., 2006, p.1). After the accession of China to the WTO, however, FDI growth picked up again and grew to \$47.053 billion in the year of China’s accession to \$104.109 billion 4 years later (see Figure 3). The integration of China with the global economy following the opening up of its economy strengthened its extraverted accumulation regime.

Figure 2: FDI net inflows US\$ and External balance of goods and services % of GDP - China



Source: own graph; data from The World Bank

China's exports exceeding a staggering \$2.000 Billion, represents what Becker et al. (2010) referred to as an active extravert regime (World Economic Forum, 2018). However, besides being the biggest exporting nation of the world, China is also the second biggest importer of the world (World Economic Forum, 2018a). To make a more sophisticated argument for placing China on the axis of active versus passive extraverted regimes, one should take the historical context into account. Looking at the external balance of goods and services as percentage of GDP indicator, China's export appears to be growing as share of the GDP relatively to their import. Figure 3 also shows that the export driven economy took a hit far beyond the predicted forecasts during the global financial crisis in 2008 (Anderlini & Dyer, 2008). Whereas, Chinese policymakers, amongst whom the PBoC, committed themselves to mitigate the effects of the crisis and re-establish stable growth, its export experienced decrease again since 2016 due to increasing competition coming from emerging markets such as Vietnam, and China cedes ground to developed countries such as Japan, South-Korea and Taiwan (Economist, 2018).

#### *Instabilities in China's regime of accumulation*

The instabilities of China's capitalism create the context in which the regulating institutions develop policy aimed at suppressing the tensions. One instability which became obvious in the aftermath of 2008 has been China's dependence on export. Due to the global impact of the crisis, China's export markets' demand decreased. This pushes Chinese policymakers towards new strategies of accumulation. Not only its dependence on export but also its dependence on massive currency reserves are a vulnerability. China financed over half of the US debt, which enhanced the instability during the financial crisis of 2008 (Overbeek, 2015, p.14; Hung, 2008, p.151). The inefficient banking sector and stimulus programmes have also fuelled more instability. Major-state owned banks have encouraged domestic overinvestment in SOEs which resulted in excess capacity (Lu et al., 2005; Hung, 2008, p.159). This enhanced a key problem of the Chinese financial industry, being NPLs. Fiscal stimulus programmes have successfully staved off a recession but appeared to be only deepening the contradictions in its regimes. China's corporate debt is the highest in the world according to the Bank of International Settlements (BIS) and was in 2017 \$18 trillion, or 163% of China's GDP (BIS, 2018). International institutions have warned China several times to tamp down the debt growth and decrease its debt vulnerabilities which have remained high (IMF, 2017, p.42).

An additional reason for the concerns about the instabilities the ever-growing debt in China is bringing forward, is the lack of data due to China's excessive shadow banking industry. According to the PBoC, shadow banking is "credit intermediation involving entities and activities outside the regular banking system", providing "liquidity and credit transformation" and "which could potentially" be a source of "systemic risk or regulatory arbitrage" (PBoC, 2013 as cited in Elliot, Kroeber & Qiao, 2015,

p.4). Since shadow banking activities act outside of the regulatory scope, it does not comply to the liquidity requirements and pose stability risks. The IMF pushing China to tighten its control over this sector, has made mitigating financial risks a top priority for the Chinese leaders. Zhou, former governor of the PBoC, pointed out in an article that latent risks are accumulating and that those risks are “hidden, complex, sudden, contagious and hazardous” (Bloomberg, 2017a). Since cryptocurrencies bear similar characteristics to shadow banking, the PBoCs position on cracking down on cryptocurrencies is in line with its shadow banking policy.

### 3.2.3. China’s far reaching control

As exemplified by the government’s extreme stimulus programme, the state apparatus of China can be characterised as heavily interventionist. This interventionism also contaminates the autonomy of the PBoC. The PBoC lacks legal independence, a characteristic that many of the major CBs do enjoy. As monetary authority, the PBoC is subject to the goals of the Communist Party. A study conducted by Cukierman et al. (1992, p.362) scores the PBoC at 0.29 on a zero (not independent) to one (complete independence) scale regarding independence. The recent appointment of Guo Shaqing as party secretary of the CB represents the control the Communist Party practices (Mitchell & Wildau, 2018). Exemplary for how China’s monetary authority is being restricted is China’s legacy of practicing a fixed exchange rate and its careful liberalisation of capital account (Cappiello & Ferrucci, 2008, p.27). Its control over the outflow of capital drives its strict cryptocurrency regulation since cryptocurrencies potentially add to this outflow.

The institutional form of money in China is therefore rather interesting. Unlike most large currencies which have floating exchange rates, the RMB is pegged to the US dollar (Chang et al., 2013, p.4). Through this strict control currency regime China regulates trading activities and volatile movements of the RMB on the market. Furthermore, China has had a monetary strategy of devaluing the RMB in order to accelerate export growth (Overbeek, 2015, p.12). The RMB is internationalising at a controlled pace which implies more linkage between China’s financial system and those of other countries. The Chinese government and PBoC allow higher volatility through easing of the monetary policy (Asia Times, 2018). China’s recent monetary policies have been somewhat paradoxical. On the one hand the PBoC has aimed to steadily appreciate to restrict the capital from flowing out of China. On the other hand, by devaluing the RMB, as done in 2015 by 2%, China can regain on its export position in the global market. The addition of the RMB to the IMF basket of reserve currencies has been the latest milestone in the internationalisation process of the RMB (Reuters, 2016). China is very protective of its fiat currency and even though it eased its fixing, controlling its currency is still an important tool for its economic and political power.



China is gradually moving towards liberalisation of its market and thereby allowing for foreign companies to enter the market enhancing competition. However, the aftermath of China's legacy of market intervention and preferring SOEs credit allocation is still present. Through enhanced competition the growing income inequality of China can be slowed down (Anwar & Sun, 2012, p.1275). The governor of the PBoC and the president Xi Jinping are known for their pro-market vision. On March 21 2018, the PBoC released a statement in which it said to open their \$27 trillion payments market to foreign players (Bloomberg, 2018a). While the domestic market is still dominated by domestic players, the cross-border payment market is a chance for competition (ibid.). That having said, the criminalising of cryptocurrency related business still shows its tight control over the market.

China's accession to the WTO has pushed to further for further liberalisation programmes, moving more towards its current mixed market economy. The IMF has pushed China towards more transparency regarding its financial sector and tighter control over shadow banking activities, of which cryptocurrency business can be seen as one, and this mantra seems to gain commitment from the PBoC which is getting very serious about the risks in their financial system. The PBoC, however, deviates from the IMF's narrative that cryptocurrencies in itself do not pose any risk to the macroeconomic system (IMF, 2018, p.24-25). Furthermore, the PBoC is part of the South East Asian Central Banks (SAECEN), however this learning hub remained silent about cryptocurrency related policies. It therefore seems that the structural form regarding international relations have impacted China's accumulation regime to become more capitalised thereby pushing its mode of regulation to adapt its policy, however turning to the specific regulatory policy of cryptocurrencies there does not seem to be influence coming from the international monetary system.

#### 3.2.4. China's case summarised

The discourse analysis combined with the analysis of the regulatory steps taken by Chinese governmental institutions, support the initial categorisation of *hostile*. Before completely cracking down, China was home to the biggest mining community and RMB-to-cryptocurrency transactions made up for 90% of all fiat-to-cryptocurrency transactions. Within China's financialised regime of accumulation, its financial system is one full of risks, instabilities and intransparency. The crackdown on cryptocurrencies, hence, happened in the context of the PBoC's commitment to fully mitigate the high risks present in its financial sector due to lack of effective control and the enormous shadow banking industry. Its negative discourse and actions regarding cryptocurrencies are in line with its historical policy to heavily control its currency to influence exports and stop capital outflow. Furthermore, moving early by banning all cryptocurrency related business represents a display of institutional power stressing the PBoC's legitimacy as monetary authority. Cryptocurrency is an empowering tool for the Chinese people, which can bypass intermediary institutions and governmental influence and the

Chinese government does not seem willing to accept such development. Banning ICOs is considered risk management on the surface, but it shows that the PBoC is not letting any room for disruptive development without the institution being in full control. It's positive discourse on a CBDCC emphasises this argument since the PBoC sees this as an opportunity to strengthen its economic influence and curb the demand for private cryptocurrencies.

### 3.3. Japan: discourse, accumulation regime and mode of regulation

Japan's post-World War II economic recovery until the end of the Cold War has been referred to as the Japanese Miracle. The end of World War II left Japan's economy in rags and close to 40% of its capital stock had been destroyed (Henderson, 2002). In the period of 1945 until 1952 the occupation by the allied powers pushed economic reforms (Otsubo, 2007, p.7) After the occupation, the Japanese economy caught up with Western economies (Otsubo, 2007, p.5; Ambramovitz, 1986, p.396). In 1970 Japan experienced its peak of economic growth. However, loose monetary policy of the BoJ, lacking investment opportunities and speculation in financial and real estate markets, fuelled the Japanese bubble economy of the 1980s and triggered the 'Lost Decade'. Japan's economy has since then struggled to gain economic recovery and faces weak growth, deflation and a high level of public sector debt (Harari, 2013).

The BoJ has been established during the Meiji era in 1882, as means to overcome the turmoil caused by multiple payment instruments. The BoJ gained monopoly on controlling the supply of the Yen in 1884. After high inflation at the end of World War II, the BoJ was reorganised under an amendment of the BoJ Act in 1949 (BoJ, n.d.). While meant to enhance the independence through a policy board, it did the opposite by increasing the Ministry of Finance's influence, coining the term "the sleeping board". The BoJ Act of 1997 offered independence from the government (BoJ, n.d.). This happened in the context internationalisation throughout the 1980s and 1990s as a result of Japan's relationship with the US (Shizume, 2018, p.22). The BoJ's mandate is limited to issuing banknotes, carrying out currency and monetary control, and ensuring smooth settlement of funds among financial institutions. The principal regulator is the Financial Services Agency (FSA). The FSA and BoJ work closely together and act as consentient and complementary institutions (BoJ, 2004, p.173). Both the FSA and the BoJ will be analysed as part of Japan's mode of regulation since they both construe the discourse as Japan's monetary authority.

#### 3.3.1. Inviting cryptocurrencies

The BoJ and FSA have been known for its permissive attitude and pro-active regulatory steps towards cryptocurrencies. Japan has tax regulation in place, defining cryptocurrencies as miscellaneous income and the FSA has pushed anti-money-laundering business improvements on the biggest cryptocurrency exchanges (Lewis, 2018). The reference term used in both speeches as in legislation incorporating cryptocurrency related business is 'virtual currencies' (仮想通貨) (BoJ, 2018; FSA, 2017). The hack of the Tokyo based cryptocurrency exchange Mt. Gox in 2014, led the Financial Action Task Force (FATF) to issue its "Guidance for a Risk-based Approach to Virtual Currencies" (FATF, 2015). It recommended to register and licence exchanges so that they are subject to the same scrutiny as other financial services. Japan developed regulation and made an amendment to the Payment

Service Act. It defines virtual currency as “property value that can be used as payment for the purchase or rental of goods or provisions of services by unspecified persons, that can be purchased from or sold to unspecified persons, and that is transferable via an electronic data processing system” or “property value that can be mutually exchangeable for the above property value with unspecified persons and is transferable via an electronic data processing system” (Act No. 59 of 2009 as amended by Act No. 62 of 2016, translated by The Law Library Congress, 2018, p.111). The amended Payment Service Act states that business operators must be registered with competent Local Finance Bureau to be allowed to operate virtual currency exchange services (FSA, 2017, p.1). Both Japanese stock companies and foreign virtual exchange service providers are allowed to enter Japan’s payments market under these stipulations. Japan is paving the way to become a regulatory template regarding cryptocurrencies. By adding virtual currency exchanges to the “designated service provider” under the Act on Prevention of Transfer of Criminal Proceeds, anti-money laundering (AML) and transparency enhancing legislation as know your customer (KYC) have been installed (Masujima, 2018, p.10,22). Whereas almost all cryptocurrency reporting media state that cryptocurrencies are considered legal tender, the official website of the FSA states that “virtual currency is not legal currency”<sup>3</sup> (FSA, 2018). The guidelines on ICOs, issued by the government-backed ICO Business Research Group, have led Japan to become a true global advocate for cryptocurrencies (Hagiwara & Nakamura, 2018).

While the FSA is concerned with the regulatory framework, the BoJ is concerned with the research agenda on cryptocurrencies. The narrative practiced by the governor of the BoJ, Haruhiko Kuroda, has been aimed at risk awareness. At a media conference after a BoJ’s monetary policy meeting in December 2017, he said that “the rise [in virtual currencies] is undoubtedly abnormal” and that virtual currencies are not used “as a means of settlement but rather as pure speculation” (Yuda, 2017). Hiromi Yamaoka, head of the BoJ’s payment and settlement systems department said that the replacement of physical money by virtual currencies “is too far off” and that “it would change the banking system too drastically” during a forum on financial innovation. Regarding a joint experiment of the BoJ and the ECB, Yamaoka stated that “[the underlying technology] is still under construction” and not yet mature enough for replacing the world’s biggest payment systems (Reuters, 2017). However, the BoJ is investing heavily in enhancing education and awareness on cryptocurrencies through its Financial Public Relations Central Committee website. In the elaborate Q&A on virtual currencies a case is being made why Japan should “try it actually in the real world”<sup>4</sup> and the effective

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<sup>3</sup> A translation of the FSAs webpage to inform on virtual currencies shows that they are not considered legal currency (仮想通貨は「法定通貨」ではありません。).

[https://www.fsa.go.jp/policy/virtual\\_currency/index.html](https://www.fsa.go.jp/policy/virtual_currency/index.html)

<sup>4</sup> は、世の中では実際に試してみることが重要ですであり。

on <https://www.shiruporuto.jp/public/document/container/kasotsuka/>

regulatory measures taken by Japan are being emphasised (Financial Public Relations Central Committee, 2018).

The Institute for Monetary and Economic Studies of the BoJ published a discussion paper evaluating the demand for cryptocurrencies and the policy levers through which it can assert “its hegemony over non-governmental digital currencies” (Koichiro, 2017, p.23). The paper argues that both CBDCs as non-governmental variants have “the potential to become a major medium of exchange in time”. CBDCs can “drive out paper and non-governmental currency, though not completely” (ibid., p.25). The analysis also points out “... taxation on CBDC to be easier than on non-governmental currency” (ibid., p.19). The combination of CBDC and the potential of bestowing it with the status of legal tender is being argued as a viable option to develop a more transparent currency system. An interesting argument is that a CBDC “raises the efficacy of negative interest rate policy if introduced in concert with positive tax rates on cash holdings”. This is interesting since the economy of Japan is characterised by high savings and lack of investment.

Despite the foreseen opportunities the BoJ has stated it will not further pursue issuing its CBDC for now. In a speech given by the deputy governor of the BoJ, Masayoshi Amamiya, during the IMF-JFSA-BOJ Conference on Fintech, he elaborated on the impact of cryptocurrencies and DLT as payment settlement on our existing currency systems. Masayoshi stressed that the two-tiered system – CBs acting as stabilising institutions and private banks efficiently create and allocate credit – “reflects the wisdom of human beings in history to achieve both efficiency and stability in the currency system” (2018, p.4). Emphasising the positive sides of the current financial system, Masayoshi, argues that CBDCs for general use “may have a large impact on the aforementioned two-tiered currency system and private banks’ financial intermediation” (ibid.). While omitting normative judgement, Masayoshi stresses the BoJ’s efforts in research and states that “the Bank fully acknowledges the importance of deeply understanding innovative technologies not only for maintaining financial stability but also for seeking the possibility of applying them to central bank infrastructure in the future” (ibid., p.5). Pursuing to become a cryptocurrency hub, the narrative which is practised shows that the BoJ is assessing that the maturity of the technology is not up to standard. A transition towards adopting the technology in Japan’s payment system seems far away. It persists, however, a positive discourse towards both business and public in engaging with the innovative technology, clearly preferring a merge of the real and crypto-economy to the separation of the two.

### 3.3.2. From miracle to liquidity trap

#### *Financialised versus productive accumulation*

Going back to the 19<sup>th</sup> century, Japan has experienced two periods of rapid economic growth and both of these periods Japan opened its economy and ideas for Western societies. The first period began in 1854 until the end of World War II, and the second period characterised by re-establishing its industrial dominance followed from 1945 until the 1990s. During the first period, in 1872 the Japanese government promulgated the National Banking Act which was the start of the formation of the banking system (Yabushita & Inoue, 1993, p.390). Japan's laissez-faire idea of the financial sector rapidly increased the number of banks. Both national banks as private banks were practicing the same business, whereas the so-called quasi-banks were concerned with short-term credit such as financing of working capital. Following the establishment of the BoJ in 1882, a policy of active support for the commercial banking system was exercised and former national banks became private banks (ibid., p.391). The Bank Act of 1900 was loosely defined, lacking restrictions on bank sizes and interest rates in order to enhance a more competitive system. This led to a growth of approximately 200 banks per year of which 30 to 40% disappeared. The peak reached 1867 banks in 1901 (Goto, 1970). In the early 1920s the government came to the insight that too many small banks would create instabilities and policies got directed towards merges and restrictions on loans. Later in 1927 the Japanese economy experienced the largest crisis up to date, the Showa Financial Crisis. This financial panic was fuelled by persistent financial instability due to incomplete restructuring in the business sector and bad loans (Shizume, 2012, p.1). With the promulgation of the new Banking Act in 1927, regulations aimed at the "inappropriate business practices" happening in the loosely regulated banking system got tightened and structural reform took place (Fukai, 1941, p.255). Due to the following Showa Depression, many businesses and small bank collapsed, which left a few of the so-called Zaibatsu houses, being financial conglomerates to dominate the market until the end of World War II.

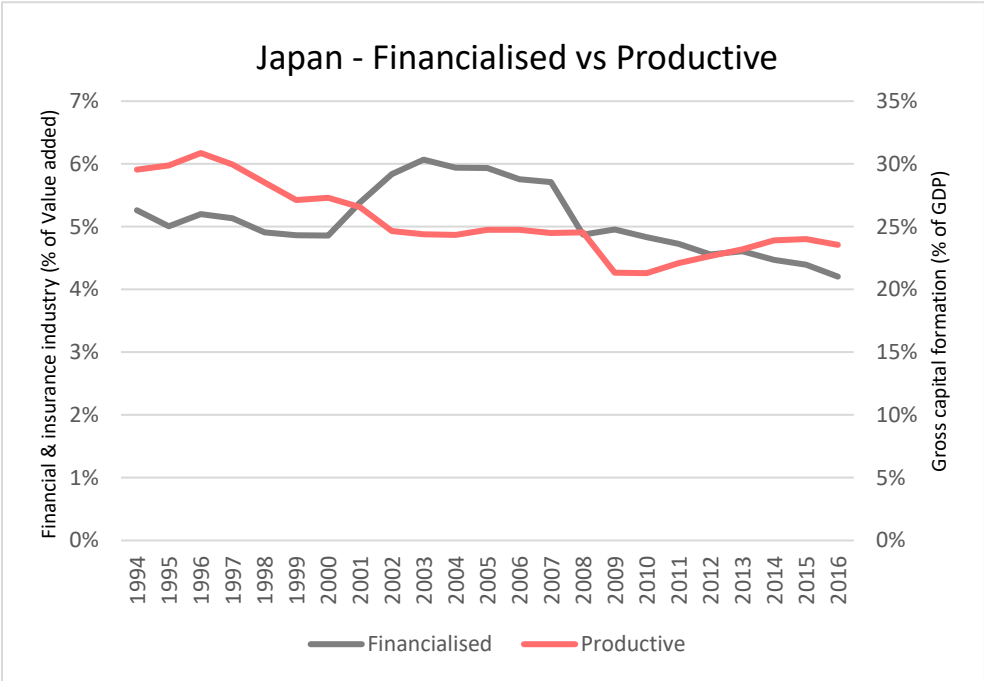
Following World War II, the development of the Japanese financial system can be divided into three phases. In its first period, from 1945 until 1964, Japan was characterised by labour intensive commodities and Japan was a debtor nation. In its pursuit for reconstruction it established centralised control over capital market transactions aimed at expanding export-oriented business (Guttman, 1987, p.1257). During the second phase from 1965 until 1971, the focus shifted towards more capital-intensive commodities coupled by a shift from current account deficits towards surpluses (ibid., p.1256). In order to sustain the export-led growth, the interest rates were kept low, and the internationalisation of the Japanese capital market was limited in order to gain domestic savings (ibid.). The financial system was built up out of separate institutions focused on an affiliated industry in order to decrease competition. This slowed down the development of financial institutions and markets and thereby the further liberalisation of Japan's financial centre (McRae, 1985, p.7). The paradigm shift

took place in the late 1970s. Domestic developments as decreasing income growth, weakening relations between Japanese business and domestic banks and the increasing difficulty of the BoJ monetary management through the control of bank credit led the BoJ to move towards a better developed and open capital market through deregulation in the 1980s (Guttman, 1987, p.1260). The tensions coming from the rapid increasing competition contributed to the asset price bubble in the 1980s, which later showed a massive number of NPLs. Financial liberalisation, however, and deregulation was further pushed, the Japan Offshore Market got established, cross-border capital transactions were liberalised and in 1996 the 'Big Bang Reform' took place (Takahashi & Kobayakawa, 2003, p.7-10). The two lost decades have posed challenges to Japan's current financial system. Profitability of the financial sector is currently low and Japan is facing many challenges (see Figure 4) (IMF, 2017a, p.6-11). The BoJ's unconventional monetary regime both before and after the global financial crisis has limited long term yields and made the financial sector vulnerable (ibid., p.11,13).

The Japanese empire experienced moderate growth first and during the Russo-Japanese War (1904-1905) the economy still heavily relied on agriculture, making up for 38% of the GDP (Dolan & Worden, 1992, p.198). Due to governmental promoting of industrialisation, the composition of the GDP changed and by the time of the late 1920s, manufacturing and mining made up for 23% of GDP and the contribution of agriculture declined towards 21% (ibid.). Whereas the 1930s were characterised by financial depression, manufacturing and mining still grew as relative share to the GDP towards 30%. The effects of World War II forced Japan to start rebuilding. In the 1950s the capacity was at the same level as the pre-war period and in 1965 the manufacturing and mining, construction and infrastructure together made up for 41% of the labour force (ibid.). As discussed, the focus of the industry changed around the same time towards capital intensive industry. The persistent growth of the industry sector is often attributed to interventionism of the Ministry of International Trade and Industry (MITI). MITI was closely linked to the industrial sectors and provided direction towards new markets such as information technology in order to strengthen domestic industry. Japan shifted its focus towards information technology while simultaneously it invested in flexible production resources, starting the shift from a Fordist era towards a post-Fordist regime. Whereas the actual influence of MITI is debated by scholars, the quality and product differentiation of Japanese industry on have definitely fuelled its economic growth until the 1990s (Henderson, 2002). The Asian Development Bank points out that the ongoing sluggish growth since the 1990s until present are due to causes such as the aging population, NPLs, BoJ monetary policy and the high appreciation of the Yen during the 1990s (Yoshino & Taghizadeh Hesary, 2015). Especially, the appreciation of the Yen coupled by wage increases has been a reason for diminishing production industry and the current stagnation (see Figure 4). 'Abenomics', referring to the economic policies of Prime Minister Abe, is the most recent commitment made to re-incentivize Japan's economy. The three-arrow strategy, consisting out of

unprecedented monetary easing, fiscal stimulus and business deregulation, is aimed at higher productivity, increased consumer spending and an increase in export to re-establish Japan's once so dominant role in the global economy. Japan has definitely pushed liberalization of the financial sector and the financial sector has played a very big role in its economy. Both indicators in Figure 4 show declining shares due to the long-lasting crisis. The financialisation of Japan's regime of accumulation has led to a system in which the former influences of the developmental state have been weakened (Lechevalier et al., p.14). Through programs of deregulation aimed at making the financial sector more competitive, the government lost its grip on coordination between firms and the state. Its inability to subordinate finance to its industrial goals indicates a financialised regime, however industry remains an important component of the economy.

Figure 3: Financial and insurance industry value added and gross capital formation - Japan



Source: own graph; data from OECD (financialised) and World Bank (productive)

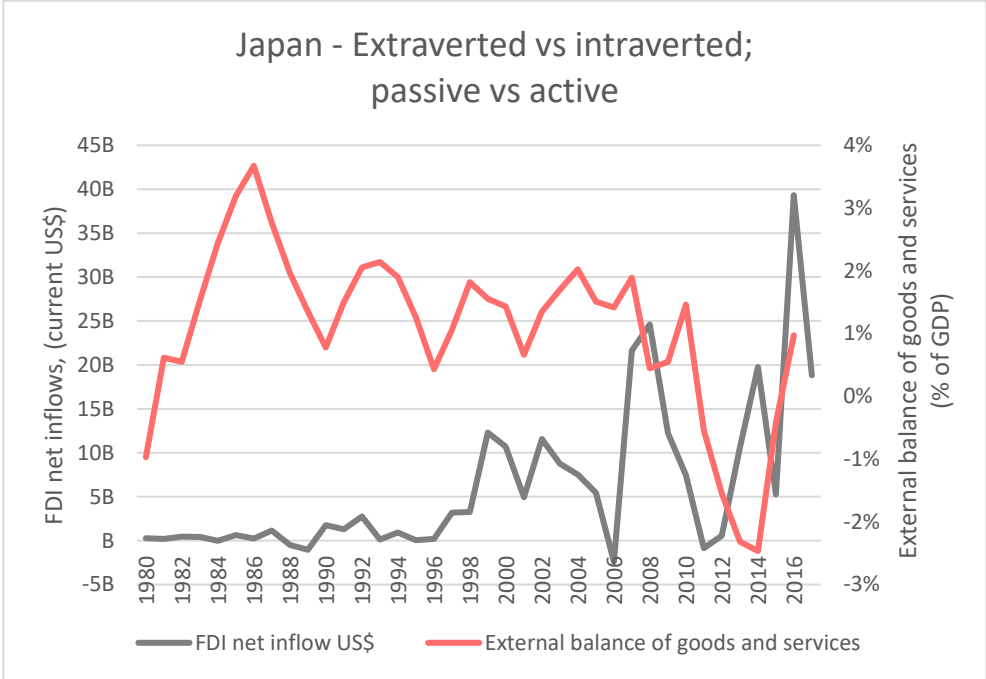
*Introverted vs extraverted accumulation*

The fact that Japan's economy is subject to sluggish growth due to the strength of the Yen and relatively low foreign demand, points towards the current extraverted accumulation regime of Japan. Whereas Western scholars often refer to "Japan Inc.", a single-minded cooperation between business and government, when they try to explain Japan's success, this seems oversimplified. The post-war Japanese economy had a strong focus on domestic markets, restrictive regulation and high tariffs to protect these domestic markets (Lawrence & Krugman, 1987). It was in the late 1970s and the 1980s, under policies of opening the economy, that the export of goods took off. Exports rose from \$384 billion in 1970 towards \$4.297 trillion by 1990 (World Bank, n.d.). As the economy opened up, Japan



did not directly enjoy a high inflow of FDI (see Figure 5). It was only in 2007 that the Japanese Ministry of Economy, Trade and Industry promulgated amendments lining up the domestic regulations with that of other leading countries (Bebenroth, 2015, p.8). Figure 4 shows the success of the specific attention the government spend on attracting more FDI, however, the global financial crisis and difficulty Japan has to overcome its economic stagnation result in a relatively low FDI inflow. FDI is not the exclusive indicator, but the trade orientation and export-led growth of Japan during the 20<sup>th</sup> century indicate a strong movement towards an extraverted regime.

Figure 4: FDI net inflow US\$ and External balance of goods and services - Japan



Source: own graph; data from The World Bank

The strong growth in export since the 1980s indicates an active extravert accumulation regime. Simultaneously to the growth in exports, Japan’s imports increased from \$64.303 billion in 1975 to \$295.832 billion in 1990 (World Bank, n.d.). This has been due to a period in which the government embarked import promotion policy to ease trade friction (Abe, 2017, p.52). While being a relative growth within Japan, this is significantly lower than imports of other leading nations. Since 2002 the imports of Japan took off and in 2012 Japanese import accounted for close to \$1 trillion. Driving forces behind the import are the lack of agricultural capacity due to the mountainous island and the large population. Japan imports raw materials and exports products in which Japan has a comparative advantage which has been research and development-led industrial products. Japan, however, has been losing its position as technological innovator to other Asian countries such as Korea (Economist, 2014). The Japanese manufacturers reallocating its capacity closer to their markets, the diminishing comparative advantage of Japan’s industry and the decrease in demand as a result of the global

financial crisis have negatively impacted the external balance of trade in Japan resulting in trade deficits between 2011 and 2015 (see Figure 5). However, recent numbers have shown that Japan's export seems to gain stable growth, and is expected to regain steadily on its export-led economy (Reuters, 2018a). Although Japan has known periods of more introverted accumulation, its policies to open up to the global economy starting in the 1980s have resulted in a shift towards an active extraverted regime. It should be noted, however, that the lost decades and its difficulty to pick up economic growth through export makes it complex to position Japan's contemporary situation on one clear edge of the axes.

#### *Instabilities in Japan's regime of accumulation*

Since the burst of Japan's 'bubble economy' in the 1980s which incurred accumulated debt for many corporations and banks, the underlying tensions of the accumulation regime have become clearly visible. Japan has been experiencing deflation for over 20 years and despite unconventional monetary policy, the problem remains unsolved. By the mid-1990s the economy experienced debt-deflation which has not been witnessed in the global economy since the Great Depression (Lucarelli, 2015, p.318). Japan's commitment to expand its productive capacity while simultaneously experiencing declining effective demand has triggered a crisis of over accumulation (ibid., p.313). The burst of Japan's speculative bubble also strengthened the effects of the East Asian Financial crisis since the appreciation of the Yen incentivized business to move its production to other Asian economies (Sheng, 2009, p.51-53). This was coupled by the curtailment of the Japan dominated FDI in Asian economies. The then sharp depreciation of the Yen acted as a catalyst for the East Asian Financial crisis.

The economic stagnation, deflation and low interest rates have Japan caught in a 'liquidity trap'. It is despite efforts of the BoJ in accommodative monetary policy, consisting out of low nominal interest rates and an increasing balance sheet, that the economy does not seem to respond in terms of growth (Akran, 2016, p.2). Investors prefer savings over investing in bonds, which then enhances high savings for consumers as well. Since Japan is stuck in its low interest rates, monetary policy does not have any effect. Although the BoJ increases the money supply through unconventional monetary policy, it does not affect the interest rates. This leaves fiscal policy as the remaining tool to get Japan out of its economic stagnation. Fiscal stimulus is in line with the three-arrow strategy of Abenomics. Government is boosting its expenditure, but this however also comes with the trade-off of rebuilding the finances since Japan has the worst debt balance among the OECD members (Nippon, 2015). The third government policy, is aimed at increasing the attractiveness of the investment climate in Japan. After 6 years of Abenomics, some of the intended stimulus towards the economy seem to be achieved. GDP has been growing steadily and exports have picked up slowly coupled by a depreciation of the Yen. However, the most important goal, being the inflation target of 2%, is lagging behind (Economist,

2017a). With the interest rates being close to zero and irresponsible inflation, Japan and the BoJ remain in an economic struggle to sustain price stability.

### 3.3.3. Regulating cryptocurrencies to revitalise Japan's economy

Japan is attributed a score on legal independence worth 0.18 on a scale from zero (minimum legal independence) to one (maximum legal independence) (Cukierman et al., 1992, p.362). The BoJ has not experienced a high degree of independence until the promulgation of the 1997 revision of the BoJ Act. A nine-person board has been installed and is decisive when it comes to monetary policy. The domestic collapsed bubbly economy pointed out that reforms in the financial sector were necessary which contributed to the reform of the BoJ. Simultaneously this reform took place in a context of reforms among CBs in Europe which also strengthened CBs' autonomy (Takahashi, 1997). The significance of the revision is increased autonomy, clarification of objectives, ensuring transparency, enhanced money market operations and clarification of involvement in the banking supervision (ibid.). This only partly diminished government influence. Government representatives can postpone voting, expenditures need to be checked by the government and foreign currency intervention is solely conducted by the government (ibid.). The BoJ committing to the 2% inflation rate and moreover, working closely together with the government of Abe, have been troubling developments with regard to CB independence. The adoption of FinTech (Financial Technology) business as part of the economic plans of Abe, seem closely intertwined with the attitude of the BoJ towards cryptocurrencies (Reuters, 2016a).

Japan is known to be the country in which households love cash more than any other major economy. According to a head of the BoJ FinTech Center, this is the reason the BoJ has turned its back towards issuing a CBDC (Fujioka & Hidaka, 2018). A report from the BIS shows that the value of the circulating cash is worth 20% of Japan's economy in 2016, making it the highest among leading economies (BIS, 2017). This contributes to the risk analyses concluding that the new technology does not pose a threat to the Yen nor the payment system. As Japan is becoming the cryptocurrency hub, the new technology does also enjoy popularity amongst the Japanese society. Furthermore, the liquidity trap has resulted in a lack of investment. Bonds are not attractive anymore since the interest rates are too low. The unconventional monetary policy does not promise more lending nor spending. Cryptocurrencies seem to offer a new economy in Japan which has been struck by a rather unstable currency and mistrusted policies.

It has been argued that the Japanese government has been highly interventionist in both securing domestic industrial capacity and the 1980s deregulating in order to enhance competition. The exogenous pressure to open up the market for competition came from trade tensions between the US and Europe mid-1980s (Abe, 2017, p.50). It was due to this pressure and in this historical context that

Japan shifted from industries in which the competition and mergers were driven by ministries towards a more open market. Major corporations privatised or broke up into different corporations, the capital and foreign exchange markets became deregulated and entry restrictions were lowered. This enhanced the competition in Japan and the FDI therefore increased as well (see Figure 5) (Porter & Sakakibara, 2004, p.46). In addition to the macroeconomic issue which is addressed when discussing the Japanese stagnation, the microeconomic structures of fair competition contribute as well (ibid., 47). The third arrow of Abenomics, however, is committed to increase foreign entry and an attractive economy for investors and business. This movement towards more truly open competition is also in line with the regulatory steps taken to secure Japan as a cryptocurrency hub. The recent establishment of a self-regulatory body for cryptocurrencies resembles the effort to increase the attractiveness of the business climate.

As discussed, the report of the IMF “Monetary Policy in the Digital Age” by deputy director Dong He has summoned CBs to “strive to make fiat currencies better and more stable units of account” (IMF, 2018, p.15). The vision of the BoJ, however, remains that cryptocurrencies are too far from posing a reasonable alternative to the Yen and the existing monetary system. It perceives cryptocurrencies rather as a means to attract new business. The Global Financial Stability Report of the IMF has pointed towards several advantages of a CBDC such as tailoring the level of anonymity, savings by replacing notes and coins and more important CBDCs “might allow central banks to overcome the zero-lower bound, facilitating truly negative interest rates when necessary [...]” (IMF, 2018b). Japan, interestingly with regard to their macroeconomic context, however decided to not continue their issuance of a CBDC due to lack of demand. The BoJ and FSA set an example which is in line with the strategy that IMF chief Christine Lagarde proposes CBs to take. Lagarde urged CBs to “distinguish between real threats and needless fears” and expects much from the technology. “That is why policymakers should keep an open mind and work toward an even-handed regulatory framework that minimizes risks while allowing the creative process to bear fruit”, the Chief of the IMF argued (2018). Apart from the promise of a CBDC, the BoJ and FSA have adopted all guidelines from the IMF and the Financial Action Task Force in order to develop a regulatory template.

#### 3.3.4. Japan’s case summarised

The pro-active regulation, rather positive discourse and the self-regulating body for cryptocurrency business concur to Japan’s initial categorisation of *advocate*. Since the 1990s Japan’s economy has brought to light its instabilities which led to an ongoing crisis of stagnation and deflation. By developing a clear regulatory framework, advocating for the use of cryptocurrencies in the real world and educational policy on cryptocurrencies has led Japan to be one of the leading nations in becoming a cryptocurrency hub. Japan is experiencing high savings by households, lack of investment from and in

the business sector and ineffective monetary policy. This led prime minister Abe to propose its economic policy programme of Abenomics attempting to revitalise Japan's deflated economy. Since the BoJ announced close policy coordination with Abe's government, it handed in a big deal of its independence, forcing the BoJ as a stabilising institution to act in line with the government's outspoken promise to repair Japan's economy. Especially its third arrow of structural reform aimed to regain on Japan's competitiveness seems to be the driving force behind the welcoming environment for cryptocurrency business. Japan has lost much of its comparative advantage with its former technology dependent. By becoming a cryptocurrency hub Japan can regain on this position, attract an innovative business sector which revitalises the economy, and aims at incentivising households to increase consumption and thus capital circulation. In the context of its far-reaching, long-lasting economic instability, Japan and the BoJ see cryptocurrencies as a welcome opportunity to start and pave the way again towards its former economic prosperity.

### 3.4. Canada: discourse, accumulation regime and mode of regulation

Under the Constitution act of 1867 the former British North America, became independent as Canada. The staples theory has been dominant for years in explaining Canada's economic growth. It presumes that the growth was achieved due to the abundance of resources which were traded as commodities (Watkins, 1963, p.141). The assumed late industrialisation was therefore attributed to the over reliance on commodities. However, later research pointed out that Canada's industrialisation started in the second half of the 19<sup>th</sup> century (Belshaw, 2016, p.100). Adopting the industrial wave of Britain and the US, Canada's industry started breaking out in the 1860s. After 1867 a common financial system including a currency and mint were established (ibid.). In the 1890s the second industrial revolution took place under which the industrial sector shifted towards industrial capitalism, and Canada became an exporter for international markets. During World War II, the manufacturing sector of Canada grew significantly which made it in the post-war era leading nation in some industries. Simultaneously its petroleum industry rose. The economy, however, took a hit in the mid-1970s as inflation reached over 10% (OECD, n.d.). Massive monetary restrained followed, debts increased, unemployment grew, commodity prices fell, and economic growth fell to an historically low level (Slater, 1997, p.11). The declining economic growth of Canada has continued and is still facing challenges. The macroeconomic environment with expanding federal deficits, lack of innovation, drops in oil prices are damaging its economy (World Economic Forum, 2018b). Recently the BIS has pointed out that Canada is currently vulnerable to another financial crisis (Aldasaro et al., 2018, p.40).

During the Great Depression, criticism towards the existing banking system intensified and a Royal Commission recommended the establishment of a CB (BoC, n.d.). The BoC got established in 1934 under the Bank of Canada act. The financial system was based on five principal groups: chartered banks, trust and loan companies, co-operative credit movement, life insurance companies, and securities dealers (Freedman, 1988, p.2). Throughout the 20<sup>th</sup> century amendments have been made to the Banking Act mainly aimed at deregulation enhancing competition. Banks were allowed to get involved in more business, eroding the five-pillar based system (ibid., p.7-8). High inflation in the 1970s, followed by high real interest rates also influenced the reforms in the financial sector (Engert, Fung, Nott & Selody, 1999, p.151). Inflation and interest rates influence the investment behaviour of households which creates a variable demand for financial services. The combination of the current credit to GDP gap and the house price gap in Canada is putting serious pressure on its financial system. This vulnerability is problematic for the financial system of Canada, which has been labelled as one of the most stable financial systems of the world in 2008 (IMF, 2008).

### 3.4.1. A sceptical narrative

Underpinning Canada's initial categorisation as global advocate is the regulatory framework which has been put in place. The Financial Consumer Agency webpage states that it is permitted to use cryptocurrencies to buy goods and services and it is also legal to buy and sell them on open exchanges (FCA, 2018). However, the Currency Act of the BoC definition of legal tender omits cryptocurrencies to be of that status. In order to regulate the risks cryptocurrencies pose towards money laundering and terrorism funding, Stephen Poloz, BoC's governor, as early as 2014 issued Bill C-31 broadening the scope of AML and anti-terrorism funding legislation treating cryptocurrencies as "money service business". In a speech by the BoC's deputy governor, she stated that cryptocurrencies do not account for the desired characteristics of money and are perceived "as investment products rather than money", adding that the Canada Revenue Agency also "considers digital currencies as a commodity..." (Wilkins, 2014, p.5). As a commodity, tax legislation treats cryptocurrency transactions as barter transactions. Barter transactions are transactions in which there are goods or services exchanged without using a legal tender. Thereby it is subject to Canada's Income Tax Act and one "... must report any gains or losses from selling or buying digital currencies" (The Law Library Congress, 2018a). When a taxpayer engages in actively trading cryptocurrencies, gains and losses should be perceived as on account of income, whereas taxpayers not engaging in trading should treat gains and losses as on account of capital (Crowling WLG, 2017). Canada has thereby advanced in an early stage on its regulatory framework with regard to the circulation of cryptocurrencies through its economy. Cryptocurrency related companies are required to register with the Financial Transactions and Reports Analysis Centre of Canada which makes them subject to many reporting obligations. The FATF evaluation advised even strengthening the reporting requirements and a KYC threshold is set at transactions of C\$1000 (Canada Gazette, 2018). Canada is thereby amongst the leading nations in its regulatory framework, although experts and advocates are concerned about vagueness of regulations and for stifling innovation (Willms, 2018).

The BoC, however, seems to practise a balanced discourse on cryptocurrencies, but it has engaged in some serious researches and experimentations with FinTech companies to investigate the implications of a CBDC. The deputy governor argues that "E-money is not big enough to pose material risk to financial stability in Canada at this time", however, she acknowledges some benefits since "[t]hey give us more choice about how we make purchases, and can reduce the cost of certain transaction" (Wilkins, 2014, p.5). Furthermore, cryptocurrencies can overcome the problem of high fees for cross border transactions (ibid., p.6). Wilkins then says that cryptocurrencies do have some benefits in certain economies, "especially when cash is not a viable option". The importance and advantages of cash are being emphasised throughout the speech. Regarding anonymity Wilkins argues that "[...] people often overestimate how anonymous Bitcoin really is. It is not as anonymous as cash

[...]” (ibid.). Wilkins rejects the advantage of leaving out the financial mediator since “[...] they still require users to put their trust in numerous private businesses, such as exchanges and Bitcoin wallets. This leaves them exposed to theft, fraud and loss”. Finally, she touches upon the tensions between the mandate of the BoC and the emergence of cryptocurrencies. “In the unlikely situation in which cryptocurrencies were used broadly [...]” the situation “[...] would reduce the Bank’s ability to influence macroeconomic activity through Canadian interest rates. Let me be clear, we are nowhere near this point today” (ibid., p.7). The BoC sees “[...] risks to the economy in a structure that would allow the benefits of money issuance to accrue to the private sector while losses would be borne by the government and taxpayers”. For these reasons, Wilkins concludes, the BoC is helping the government to modernize its oversight and the Bank is also looking into the potential merits of issuing its own CBDC.

Governor Stephen Poloz gave a speech on the “Three things keeping me awake at night”. These three things were cyber threats to Canada’s financial system, high house prices and household debt, and the tough job market for young people (Poloz, 2017). Whereas, these are three obvious risks in the Canadian economy, he added a fourth one: cryptocurrencies (ibid., p.5). Rebuking the term cryptocurrency firstly, he continued by comparing it to gambling and emphasised that the BoC does “not regulate these instruments and their markets [...]”. The narrative of the BoC balances between technological advantages and scepticism. It is mainly focused on consumer risks and systematic risks if acceptance is widespread.

Regarding issuing a CBDC, Wilkins have asked the question to the attendees of a conference in Toronto: Is money a public good? (Financial Post, 2018). This question would be important since if money tends to have more characteristics of a public good than a private good, the argument for the BoC issuing a CBDC would be a strong one. If it is a private good, competition among private firms will shape the future of cryptocurrencies. Wilkins outlined the BoC’s three-line approach for approaching the subject of CBDC: research, experimentation and co-operations (2017). It found that the declining use of cash offers opportunities for alternative payment methods and has experimented with the ‘CADcoin’ and the ‘settlement coin’. The BoC found positive results for the principles of collateral, credit risk, money settlement and liquidity risk (ibid.). A discussion paper of the BoC finds that contestability, is one of the main motivations for issuing a CBDC, and is rather ambiguous or somewhat negative towards all other aspects (Engert & Fung, 2017, p.23). A quantitative follow up working paper based on monetary policy models’ implications, on the other hand, finds that the welfare gains increase with 0.64% for Canada (Davoodalhosseini, 2017, p.1). Furthermore, a CBDC could ensure a higher level of flexibility in adjusting monetary policy (ibid.). The BoC’s narrative for a CBDC is still inconclusive, however based on findings and resources spend it is clear that it is taking rather serious considerations.



### 3.4.2. High debts and a struggle for competitiveness

#### *Financialised versus productive accumulation*

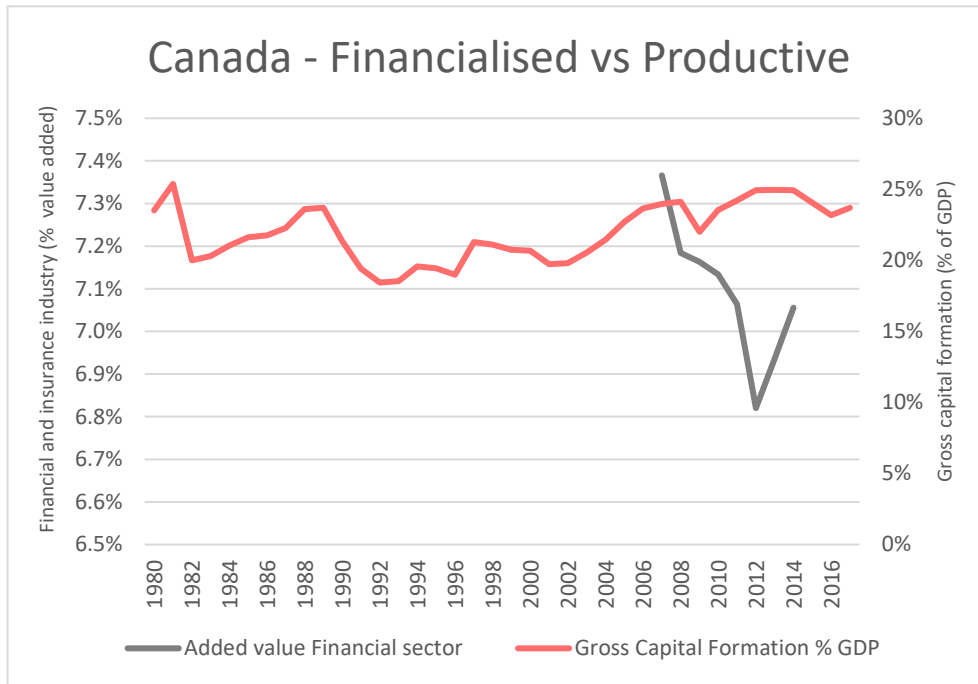
The first Banking Act in Canada was passed in 1871 to form a more uniform operation within the banking sector and legal means to control it (Baum, 1970, p.1128). The federal government was given jurisdiction over both currency and banking, and it allowed chartered banks to issue notes (Powell, 2005, p.28). At that time banks were the major financial institutions and the legislation did not only offer effective control of the industry, but also enhanced a quasi-monopoly to the at that moment present actors in the financial sector (ibid., p.1129). The Bank of Canada Act of 1934 established the first CB of Canada. Canada had abandoned the gold standard, however, the BoC did not fulfil the expected goal, being expansive monetary policy, expansionary fiscal policy and checking the big banks which were held accountable the Great Depression (Bordo et al., 1999, p.22). Chartered banks prior to World War II, which had diminished from 30 in 1870 to 10 by 1930, had been successful in growth, but static in their variety of products (Neufeld, 2001, p.327). The 1954 amendments allowed banks to offer mortgage loans and were the beginning of a series of amendments aimed at making the financial system more competitive through a varied product range. In the 1960s banks engaged with mutual funds and shortly after the emergence of credit cards, individual bank cards and ATMs took place (ibid., 329). The most significant amendments were those of 1987 and 1992, respectively allowing banks to acquire investment dealers and trust companies, thereby enhancing competition across all business in the financial system (Freedman, 1998, p.9-14). The successful expansion of products had been exhausted by the end of the 20<sup>th</sup> century. Simultaneously the process of globalization intensified coupled by global competition. In 2001 Bill C-8 was issued as a framework to reform Canada's financial sector. The bill was drafted in order to promote efficiency and growth, improve the regulatory environment, and enhance customer protection (Daniel, 2003, p.9). While the financial crisis impacted many of the Western financial systems dramatically, the Canadian financial system was found to remain strong and resilient by the IMF (2014). Canadian banks are engaged with significant international operations and are performing well among their peer group since 2008 (ibid.). In addition to the international engagement and maturity of the financial system of Canada, recent studies have argued for the high pace of financialisation in other sectors such as the agri-food sector (Magnan, 2015) and the housing sector (Kasman-Lamb, 2017). While these developments indicate a highly financialised accumulation regime<sup>5</sup>, it is of importance to take the development of its productive industry into account as well.

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<sup>5</sup> Due to the lack of available data the quantitative indicator in Figure 6 does not contribute to the claim based on the qualitative sources.

Trade in raw commodities, has been an integral component of Canada's growing economy under the rule of the British Empire. Whereas economic growth declined during the late 19<sup>th</sup> century, developments in the manufacturing industry between 1900 and 1929 revitalised the economy. Manufacturing GDP accounted for a constant share of 22% throughout the first three decades of the 20<sup>th</sup> century (Statistics Canada, 2011). Simultaneously, the agricultural production experienced a rapid expansion due to the opening of Western nations. The agricultural sector represented more than 30% of employment and accounted for 20% of economic output in the 1920s. In 2017, the sector represents a mere 1,5% of the employment and output, however, Canada remains a significant net exporter of food (Janzen, 2017; Statistics Canada, 2018). While agriculture decreased as relative share of the GDP, manufacturing became an important sector. During the post-war period, the Department of Trade and Commerce got established which aimed at reconstructing the economy and established close linkages between the government and business. The emphasis on economics in government and how this could help business played an important role (Slater, 1997, p.6). The period until the 1970s was characterised by economic growth, however after 1973, economic growth stagnated and overall performance fell sharply. The manufacturing sector productivity growth outpaced that of the business sector during the 1970s until the 1990s (Janzen, 2017, p.2). While the manufacturing industry remains an integral component of Canadian economy, it declined in its output over the last decades. This resembles the same pattern as for the shift from agricultural industry towards manufacturing, since the cause is Canada's expanding service economy (Poloz, 2016, p.2). The share of manufacturing as percentage of the total value added declined from 13.12% in 2007 towards 10.45% in 2014 (OECD, n.d.). The investment in productive capacity as percentage of GDP has experienced slow growth since 2000 (see Figure 6). The composition of manufacturing and exporting has changed significantly. The share of manufactured goods such as cars declined while energy products grew as a relative share (Statistics Canada, 2018a). The recent fall in commodity prices does pose a challenge to the reliance of Canada on its natural resources, which should be compensated by diversifying its economy to ensure growth (Patterson, 2014, p.1).

Figure 5: Financial and insurance industry value added and gross capital formation - Canada

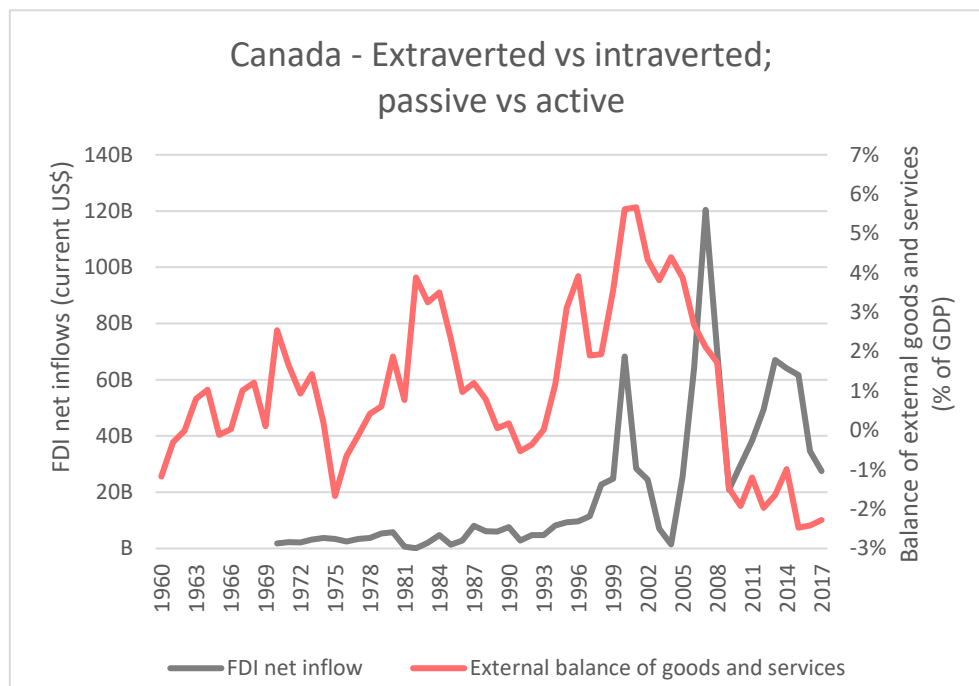


Source: own graph; data from OECD (financialised) and World Bank (productive)

*Introverted vs extraverted accumulation*

International trade has affected Canada’s economy as a catalyst for industrial production, income growth but also as means through which foreign funds, investment goods, technology and other goods and services became accessible (Statistics Canada, 2018a). Canada has particularly gained from international trade through exports which started with staple commodities. In the first half of the 20<sup>th</sup> century this were mainly metals, minerals and processed resource products. Further integration of Canada in the global economy since the 1970s, and the rise of new technologies determined the development of Canada’s export-oriented manufacturing sector. This was being coupled by new cross-border trade legislation between the US and Canada supporting further growth of the manufacturing industry (ibid.). Although declining, the manufacturing industry of Canada has always been and will remain an important part of the economic growth. The relatively high presence of the primary and secondary sectors compared to other highly developed countries made Canada an outward oriented nation in its economic history. Furthermore, the abundance of natural resources played a key role in attracting FDI. The sharp fall of commodity prices however, has negatively influence the FDI inflows (see Figure 7).

Figure 6: FDI net inflows US\$ and External balance of goods and services % of GDP - Canada



Source: own graph; data from The World Bank

Canada's export-led growth model indicates an extraverted active regime of accumulation. While its imports have also increased slowly during globalisation, Canada has the lowest amount of import, being \$548.292 billion in 2017, compared to the cases of interest in this thesis (World Bank, n.d.). However, China's accession to the WTO has not only boosted China's exports, it also diminished exports in manufacturing coming from other WTO members due to China's cheaper production. Whereas manufacturing in Canada declined, the reallocation of the manufacturing industry also resulted in a boom in global commodity demand of which Canada's territory is rich. With China's economy slowing down, the declining demand due to the global financial crisis and partly as a result the falling prices of commodities have led to a widening trade deficit in Canada (see Figure 7). This indicates a trend of Canada becoming a more extraverted passive accumulation regime, however the indicator of Figure 7 does not account for exports in natural resources. But with those prices declining it becomes clear that the underlying tensions in Canada's accumulation regime become more visible and create vulnerabilities.

#### *Instabilities in Canada's regime of accumulation*

Recently, more of the underlying tensions of Canada's model of economic growth are becoming visible such as its competitiveness problem and its recent stagnation of productivity (Rao et al., 2003; World Economic Forum, 2017; Hemsworth, 2017). The output of the working-age population has stagnated for more than a decade (Conesa & Pujolas, 2017). While the stagnation of the productivity growth is

a salient observation in Canadian academics, there has not been one unambiguously causing factor identified. Another discussed instability is the share of the economy which relies on the primary sector. The falling commodity prices have damaged Canadian economy through relative price-shocks. If these prices tend to keep decreasing in the long-run, this could affect the GDP of Canada urging them to restructure the shares of their GDP into balance.

On the question whether a financial crisis is prone to the Canadian economy, the report of the BIS brought forward some important considerations. Canada is the only G7 nation which breached the critical ceiling of the credit-to-GDP gap of the score of 10 by a score of 14.1. The credit-to-GDP gap measures the risk associated with the current credit spread among households and businesses by comparing this with the long-term trend (Aldasoro et al., 2018, p.30). Canada is also flashing red with its economy-wide debt service ratios (DSR). Both of the signals are being reinforced by housing prices according to the BIS (*ibid.*, p.40). The combination of the loose lending for housing, ongoing housing appreciation, and the household debt being among the highest in the world creates a vulnerable situation for the stability of the Canadian economy. The final instability which grows concerns in Canada is their lack of competitiveness as an economy. According to the WEF global competitiveness rankings Canada is ranked 14<sup>th</sup>. Reasons can be found in Canada's macroeconomic environment which has very public debt due to an era of fiscal stimulus (World Economic Forum, 2017). The decreasing levels of FDI as shown in Figure 7 support this weakening investment climate in Canada. In addition to the macroeconomic environment, the rank of the private sector in Canada being judged on technological readiness, business sophistication and innovation paced 23<sup>rd</sup> (World Economic Forum, 2018b). There is no single solution to this competitiveness problem, but it should urge the Canadian government to refine several policy aspects since competitiveness is an important indicator for long-term economic prospects.

### 3.4.3. Interventionism in a quest for competitiveness

In the struggle of overcoming its instabilities, the Canadian government has bet high on the effectiveness of engaging in a fiscal stimulus project. Whereas the Fraser Institute has ranked Canada 11<sup>th</sup> in the World Economic Freedom ratings, it also argued that the increasing government intervention in the economy threatens its economic freedom (McMahon & Eisen, 2016). The government interventionism since 2015 thereby accounts for the drop from the 5<sup>th</sup> place in the former ranking from the data released in 2014, to the 11<sup>th</sup> rank of the last report. The government's budget projected that federal spending increased by approximately 20 percent between 2014-15 and 2017-19 (*ibid.*). Canada's fiscal stimulus is also explained through the lens of lacking monetary policy effectiveness of the BoC, which stated that the low interest rates limit the effectiveness of its policy (Mackrael, 2016). Regarding the relation between the Canadian government and the BoC, the BoC

enjoys considerable legal independence with a score of 0.45 (Cukierman et al., 1992, p.362). There is however the possibility for the Minister of Finance to issue a public directive to the governor of the BoC if parliament disagrees with the BoC's monetary policy. However, this specific possibility has never been utilised and attempts of government influencing monetary policy seems absent in Canada.

Contrary to the situation of Japan, cash is definitely losing importance in the Canadian economy. This decline offers an opportunity, or at least can raise considerations, whether an alternative form of decentralised money should be offered. However, the current amount of cash money circulating in the economy does not make CB money too difficult to access as it does for example in Sweden. Regarding its exchange rate regime, Canada has first experienced a period of fixed exchange rates to later shift towards a floating regime. Whereas the exchange rate policy in Canada is one that is often debated, there are no signs of pegging the Canadian Dollar to another currency. The ongoing appreciation of the Canadian dollar led to shocks in the export-oriented and import-competing industries, but has been the outcome of the BoC moving away from monetary stimulus or quantitative easing (Blitz, 2017). The exchange rate policies, nor the distribution of different forms of money seem to clearly incentivise the Canadian government and BoC to take a permissive stance towards cryptocurrencies. However, a report based on the BoC's research concludes that a CBDC can strengthen the monetary policy transmission mechanism, which can be a valuable gain inasmuch that the low interest rates erode the current effectiveness of the BoC's policy. Interesting is that the BoC's reports find that the advantages of issuing a CBDC are most effective when cash is completely removed from circulation.

The lack of competitive markets in Canada is perceived as problematic to their economic prosperity. Whereas the solution is multifaceted, the causes are too. One of the negative developments regarding the structural form of competition is the issue to move goods and services freely throughout the country. Another factor is the tax reforms coming from the US which pose extra pressure on the attractiveness of Canada's investment climate. Canadian taxes, on the other hand, have risen since 2012 (Financial Post, 2018a). Canada has also announced its creation of 'Invest in Canada', an agency seeking to attract FDI. Canadian government has been criticised heavily by top economists and think tanks. One of this criticism is that "[c]anada has denied investors two of the things they crave most: predictability and competitiveness" (Taylor, 2018). The absence of those two factors damaged the stabilising of the Canadian regime of accumulation. However, its pro-active stance towards cryptocurrencies are a clear step in exactly offering those two factors for cryptocurrency related business.

The final structural form is that of international relations. Even though there have not been any pressures coming from international monetary institutions forcing policy changes regarding cryptocurrencies, the narrative and other pressures potentially have influence. The overall narrative

of the BoC and the IMF on cryptocurrencies resembles similarity in that it does not pose a threat to the financial stability yet. Presumably the most noteworthy resemblance in one another's discourse is the call for global cooperation and alignment (Wilkins, 2017; IMF, 2018). While the influences regarding the cryptocurrencies are rather complementary, there have been other advices and analyses coming from the IMF and WEF that might have contributed to Canada's pro-active regulatory framework. That is, the IMF has been urging Canada to reconsider its corporate taxation among other policies as it is worried about Canada's competitiveness (IMF, 2018c, p.16). These recommendations have also come from the WEF, urging Canada to secure for example the free flow of goods and services in order to remain competitive (World Economic Forum, 2018b, p.31).

#### 3.4.4. Canada's case summarised

While Canadian legislative institutions are pro-actively delivering a regulatory framework, the discourse of the BoC resembles serious scepticism on private cryptocurrencies. BoC representatives practise a narrative filled with weighty warnings, however do not advocate for a ban or criminalising the new technology and affiliated businesses. The described situation therefore is in line with the initial categorisation of the BoC's policy position being *permissive*. While Canada's financial system is considered sound, its economy and especially its lack of competitiveness is a major weakness for its economic prosperity. Its dependence of its primary sector and the uncertainty surrounding that sector, urges Canada to act on recomposing its GDP. Furthermore, through fiscal stimulus programmes of the government, public spending has outpaced private growth which is an unsustainable situation. Canada's effort to attract the growing business sector engaged in cryptocurrencies by offering transparency and predictability, therefore can be seen as a rational move. However, the BoC is the most independent CB of this thesis and this allows the BoC to compose its own, deviating narrative on the assessment of the destabilising risks cryptocurrencies pose to the financial system. That having said, the BoC is one of the most prominent CBs when it comes to engaging in research and experimentation and its rather positive discourse on the improvements a CBDC could bring to the effectiveness of the monetary authority resemble the trust and expectations it has in the new technology. As Canada is forced to once again recompose its GDP, technology, and cryptocurrencies specific, might seem as an opportunity. The cryptocurrency sector is emerging in a time where the Canadian economy is considered highly crisis prone and offers an impulse to its economy which can temporarily stabilise its capital accumulation, supplements tax incomes and can contribute to overcoming its problem of lacking competitiveness. The BoC however, is not concerned with attracting new business and looks from a purely monetary point of view to the opportunities the technology can offer to a CB.

## Conclusion and reflection

The question which has been central to this thesis was: Why did central banks, while pursuing the similar objective of financial stability, develop different modes of regulation with regard to the emergence of cryptocurrencies since 2010? Rather than treating the attitudes and policy proposals coming from CBs as rational decisions of institutional agents, this thesis used the analytical concepts of Regulation Theory to offer an explanation rooted in the political and economic tensions which are the result of the inherent contradictions of the capitalist regimes of accumulation. This thesis proved that the historical and institutional context combined with the specific instabilities of the nation's form of capitalism heavily influence the development of policy positions and attitudes towards cryptocurrencies and thereby account for the variance.

CBs, as presumably independent monetary authorities, compile a set of policies in order to mitigate the tensions coming from these instabilities. The analysis showed that CBs then weigh the potential impact of cryptocurrencies on their policy package which can lead them to ban the technology as in the case of China, or perceive the technology as a partial solution to the economic instabilities, as in Japan. This thesis, however, went beyond accepting merely the instabilities of a nation's capitalism as explanatory variable for the CBs' differing positions. In addition to the capitalist instabilities, this thesis also found that the historical context of CBs' and governmental policies, the soundness of the financial system and the power relations within the institutional context, contribute to the explanation of the phenomenon of monetary authorities developing deviating viewpoints. While cryptocurrencies offer the potential to overcome Japan's and Canada's problematics with competitiveness, tax revenues and the investment climate, the BoJ has a more supportive discourse than the BoC. The BoC as the most independent CB raises weighty warnings regarding the technology since it objectively assesses the impact on the Canadian financial stability. The BoJ on the other hand, handed in its possibility to deviate from the economic policy strategy of the government, thereby strongly advocating for households and business to engage in the new technology. For the PBoC, also influenced by the Communist Party, stabilising its regime of accumulation implies illegalising all cryptocurrency related business as this poses the possibility of added risks to its already risky and ineffectively regulated financial system. Moreover, cryptocurrencies threaten the PBoC's role as the sole legitimate issuer of money thereby eroding its authority. The CBDC therefore offers an outcome reconfirming its monetary authority while rooting out all other cryptocurrencies. Hence, the answer to the research question is that specific economic instabilities and the power relations within the spatiotemporal institutional context, limit the latitude in which CBs can develop policy. Within this framework CBs then develop a policy position which invigorates the policies they are already practicing in pursuit of both stabilising and strengthening the capitalist system and retaining their position as the sole legitimate monetary authority.



That having said, it is of importance to evaluate on the design and limitations of this research. Applying Regulation Theory made it possible to conduct a very comprehensive analysis adopting variables ranging from historical economic development to institutional agency. Thereby this thesis really stretched the existing perspectives on the relation between CBs and cryptocurrencies. However, this broadness of the scope simultaneously increases the superficiality of some aspects of the analysis. For example, the role of cash money in a society and its relation to cryptocurrencies could be the subject of one complete study in contrast to the supporting role it played in this thesis. As the Swedish Riksbank has sought a solution in cryptocurrencies to overcome the decline of cash usage, it would be interesting to further investigate whether there is a relation in cash usage and cryptocurrency legislation. Furthermore, the relation between cryptocurrency legislation and the for many nations unwanted and mistrusted reality of economic power coming from the US dollar and euro as reserve currencies, which has been touched on briefly, could be exploited in much greater length and depth, and would also be an interesting avenue for further research (e.g. Russia, Venezuela). The methodological approach of combining CDA with an historical analysis of the CBs' role in the regimes of accumulation, supported the comprehensive explanatory narrative. However, the lack of available interpretable data due to the limitations in case selection, eroded the robustness of the CDA which has led the discourse analysis to mainly be a tool to confirm or debunk the initial categorisation of the CBs. This in combination with the question whether CBs are the determining agents in shaping the dominant discourse for a nation, made it complex to strongly explicate the presumed differences of the policy positions.

It should be noted that the hype around cryptocurrencies and its underlying technology has posed the complex tasks for monetary and legislative authorities to come to an objective understanding of what the valuable and less valuable characteristics are and then how to respond to the emergence. This process is still underway for CBs, which makes current policy positions and assessments not set in stone. The analysis of this thesis has been conducted on early movers, which are also driven by more symbolic politics of creating a desired appearance of being progressive and remaining relevant. Over time, the specifics of legislation and its nuanced differences are much more significant regarding the environment nation's create for cryptocurrencies. This also holds for the relation to CBs. Per definition decentralised currencies are a threat to the mandate of CBs which forces them to act sceptical and cautious, and differences should therefore be sought in details. The fact that this thesis has been an analysis of initial responses holds that there is a lot of development to be expected and therefore to be further researched.

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