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MONEY AND ITS REGULATION.
A CHALLENGE FOR THE 21ST CENTURY

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The innovative processes that have resulted in the conception of digital media of exchange such as Bitcoins, raise a basic question, which is central to understanding the nature of monetary institutions around the world: Why, within our financial systems, did money and the monetary institutions relating to it have evolved as public, legal financial fictions rather than private institutions? The main reason is that, since the emergence of the modern nation-states after the Peace of Westphalia in 1648, monetary stability is considered a public good and currencies are sovereign key symbols for the consecution of that aim.

Following this diktat, which some authors support with basis on natural law, institutions such as seigniorage and modern central banks emerged. However, although these sovereign elements would appear to be firmly established in all major countries, people around the world and in different times have been far from convinced that these public institutions are necessary, or desirable; consequently, in our “digital-intangible” context, the phrase “digital currency” is commonplace, appearing in the speeches and papers beyond those elaborated by the followers of Friedrich Hayek’s ideas; however, under a legal approach, can we affirm that the term “currency” is synonymous with “money”? Could we explain any difference with basis on different legal traditions? Can we regulate these innovations under that premise?

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1. Introduction

Money has evolved over time. Historically, the “*financialization*” of the world as described by Polanyi-Levitt¹ has put some challenges on traditional regulatory paradigms; particularly, by those associated with different forms of money that individuals periodically structure around free banking models as response to different inducements such as financial crises. This “*financialization*” has been structured around different goods and/or legal fictions, which have evolved according to the oddities of their respective contexts and legal traditions. Naturally, in absence of an act of legislation, the first forms of money were regulated by merchants, (generally by those merchants that practiced long-distance trade and that were, consequently, exposed to a great variety of media of exchange). Thus, these private individuals set the value of the set of commodities used as money, divided money into "special purpose" and "all purpose" money under the anthropological premises of Karl Polanyi² and Viviana Zelizer³, and sanctioned the bad practices relating to its use. However, since the emergence of the modern nation-states after the Peace of Westphalia in 1648, monetary stability is considered a public good and money has been perfected and adapted to the diverse and changing needs of developing trade through government recognition and regulation (Menger 1892; Schlichter 2012; Semenova 2011).

Following the “Westphalian” tradition, financial regulators designed normative structures around rigid laws, but they never expected the rate of innovation that characterizes our financial systems (particularly after the collapse of the Bretton Woods System), and the challenges that it poses on their regulatory paradigms; particularly, through the referred monetary innovations introduced periodically by individuals. Now, after the collapse of Lehman Brothers and the financial crisis related to it, we are witnessing a new wave of financial innovation, and concepts relating to “digital currencies” have risen from obscurity to buzzwords status in just 5 years.

Consequently, the phrase “digital currency” is commonplace, appearing in the speeches and papers elaborated not only by those followers of Friedrich Hayek’s ideas, but also by regulators, media commentators,

¹ POLANYI-LEVITT, *From the Great Transformation to the Great Financialization. On Karl Polanyi and Other Essays*, 2013, New York.

² POLANYI, *The Great Transformation*, 1989, Madrid.

³ ZELIZER, *The Social Meaning of Money: Special Monies*, in the *American Journal of Sociology*, 1989, 95(2), 342-377.

academics and bankers alike, but the lack of a uniform definition adjusted to the spirit of the context has fostered a myriad of interpretations on the nature of these innovations, in occasions, in opposition to the content of most monetary legislations around the world. In some jurisdictions, these innovations have been classed as money, but if we analyse their respective legal definitions of money, we will appreciate that most of these definitions are restricted to the official media of exchange issued by foreign sovereign entities that interact with local currencies. Therefore, despite that the term money can be used to describe these media of exchange in academic contexts, it cannot be used to regulate them with basis on its current legal definition⁴.

2. Definition

Despite the existence of different legal traditions, around the world, currencies have been conceived and defined, under a uniform spirit and through legal transfers, as artificial creatures of the law, and engines of financial innovation, economic growth and global integration. Consequently, private and public institutions around the world such as the French bank Société Générale and the HM Treasury have designed different governance exercises and issued different calls for information introducing different definitions of “currency” for their respective purposes; definitions that were structured around an abuse of language, and as we can see through the different answers to these exercises, there is a lack of mutual intelligibility betwixt the private and the public sectors.

Thus, we can start our analysis on the nature of these innovations in the hierarchy of money with basis on the remnants of an old paradigm: barter. Long time ago, the first trade was conducted via barter by means of which all goods were exchanged directly for all other goods. However it was not a great system; for example, if you wanted to swap your fish for a loaf of bread, but the baker happened to want firewood, you were stuck with the task of traipsing around the market until you could find someone with

⁴ MENGER, *On the Origin of Money*, in the *Economic Journal*, 1892, 2(6), 239-255; SCHLICHTER, *Paper Money Collapse. The Folly of Elastic Money and the Coming Monetary Breakdown*, 2012, New Jersey; SEMENOVA, *The Origins of Money: Evaluating Chartalist and Metallist Theories in the Context of Ancient Greece and Mesopotamia*, Thesis presented in partial fulfilment of the requirement for the degree Doctor of Philosophy, University of Missouri, Kansas City.

firewood who just happened to want fish. Despite its drawbacks societies around the world muddled along with barter exchange for a few hundred thousand years⁵. This problem led to the social invention of money, which gradually was adopted by sovereign entities through regulation.

Consequently, sovereign currencies are a form of sovereign credit in the sense that they are promises to pay a certain amount of a particular commodity with basis on a particular legislation. In theory, if we take a metallic standard as our basic paradigm, a currency may be backed mostly by silver and/or gold, in the sense that the issuer of the currency holds some silver and/or gold in its vaults. Further down the hierarchy, bank deposits are promises to pay currency on demand, so they are twice removed promises to pay the ultimate money, and securities are promises to pay currency over some time horizon in the future, so they are even more attenuated promises to pay⁶.

As we are witnessing in our context, despite the sovereign intervention in the evolution of money, individuals tend to introduce to the system alternative media of exchange that we find at the bottom of the hierarchy in absence of sovereign recognition and/or guarantee. These innovations, as other forms of money, have been created based on some cultural elements; in our particular case, elements relating to the information society and the information technologies that derive from its evolution.

2.1. Digital Media of Exchange

If we analyse the historical evolution of money, we can appreciate its progressive dematerialization. As electronic payments get easier, bills and coins make up only a tiny part of the money in circulation: just 3% in Britain⁷, and through applications such as Swish, in Sweden there is about \$8.8 billion US in circulation, however only about 40 to 60 percent of this value circulates physically⁸. At the end of this dematerialization process, money takes the form of information flows through computer networks either at a bank or at the

⁵ COOPER, *The Origin of Financial Crises. Central Banks, Credit Bubbles, and the Efficient Market Fallacy*, 2008, New York.

⁶ MEHRLING, *The Inherent Hierarchy of Money*, in *Social Fairness and Economics: Economic Essays in the Spirit of Duncan Foley*, 2013, 394-404.

⁷ THE ECONOMIST, *Leaving Dead Presidents in Peace*, in *The Economist*, 2014, 41(8905).

⁸ GIEDROYE, *Swedes turn to Swish as currency*, in *Numismatic News*, 2015, <http://www.numismaticnews.net/article/swedes-turn-to-swish-as-currency>.

central bank⁹. The science of cryptography, which is the science of keeping digital data secure, makes this possible¹⁰. With basis on this, we can define digital media of exchange as unregulated online accounts that measure and record transactions of financial value amongst nodes through the Internet which are designed and controlled by their developers and used by natural or legal persons as means of exchange¹¹. The first ones boomed on the strength of gaming systems, but now these innovations are moving out of virtual gaming systems into the global economy. These media of exchange had begun in the public-interested spirit of open source P2P software and libertarian political philosophy, with references to the work of Friedrich Hayek and the Austrian School of Economics¹².

2.2. “Digital Currencies”. An abuse of language

If we write the word “currency” in the web search engine of our preference, immediately we will find many results relating to “virtual currencies”, “digital coins”, and financial innovations such as Bitcoins, Litecoins, Vens, amongst others. As we can see through these examples, practically all aspects that integrate our modern monetary theory can now be represented, scrutinized, processed, digitized and recorded, circulating amongst the information society in the form of binary digits and algorithms; thus, our context turns the task of distinguishing the Metallist-legal concept of “currency” and the generic “money” under a Chartalist approach. In strict legal terms, we use the term “currency” only to define a sovereign medium of exchange recognized by every Nation through their respective monetary legislations. If we analyse these latter, most of them do not integrate in their content, the innovations that constitute private money and the abuse of language related to it.

⁹ RADAVANOVIC, *Digital Economy, Digital Money and Digital Banking*, in *Economics and Organization*, 2009, 6(2), 153-160; THE ECONOMIST, *Leaving Dead Presidents in Peace*, in *The Economist*, 2014, 41(8905).

¹⁰ NAKAMOTO, *Bitcoin a Peer-to-Peer Electronic Cash System*, Electronic Document, 2009, <http://bitcoin.org/bitcoin.pdf>; KOK, *Singapore Electronic Legal Tender (SELT). A Proposed Concept*, in *OECD The Future of Money*, 2012, 145-152.

¹¹ EBA, *Opinion on ‘Virtual Currencies’*, 2014, London; ECB, *Virtual Currency Schemes*, 2012, Frankfurt; GANDAL-HALABURDA, *Competition in the Cryptocurrency Market*, in *Bank of Canada Working Papers*, 2014, 33, 1-29.

¹² WALLACE, *The Rise and Fall of Bitcoin*, in *Wired Magazine*, 2011, http://www.wired.com/magazine/2011/11/mf_bitcoin/all/1.

However, this abuse of language is not new. If we study contexts relating to this problem such as the nineteenth century of H.D. Macleod (where some enthusiasts tried to include under the term “currency” instruments such as bills of exchange and deposits)¹³, or our particular context where Matt Clinch¹⁴ of CNBC affirmed erroneously, through the popular interpretation of “currency”, that Bitcoin was considered legal tender under the German legislation¹⁵. Against these misinterpretations, Samuel Jones Loyd, Lord Overstone, stated accurately that these innovations do not constitute a currency because this term contemplates only the precious metals converted into coin under a sovereign act, and the notes that, through a legal fiction denominated incorporation¹⁶, represent a particular amount of the former, constituting the currency of a particular country¹⁷.

Just as Macleod¹⁸ explained, this term has its origin in the foundation of the Common Law. This legal tradition established that the property of money passed along with the honest possession of it in every exchange, and from this institutionalized practice, money was said to be current, and from this exceptional property, the expression arose of the currency of money, and gradually it was a common practice to call the money itself currency. If we work with this original definition, certainly we can use the word “currency” to describe digital media of exchange under the Chartalist theory of money’s origin, considering that, in the academic world, the term money is a generic used to describe private innovations and sovereign currencies alike.

However, there is a difference betwixt the original and the current uses derived from the evolution of law and the legal use of the generic money as we can appreciate it through several pieces of monetary legislation in force around the world such as article 105a (2) of the Treaty establishing the European Community, article 8 of the Monetary Law of the United Mexican States, and Title 31 of the U.S. Code, amongst others¹⁹. As result of this abuse, our legislators are not able to communicate effectively with

¹³ MACLEOD, *Theory and Practice of Banking*, 1906, London.

¹⁴ CLINCH, *Bitcoin recognized by Germany as ‘private money’*, CNBC, 2013, <http://cnbc.com/id/100971898>.

¹⁵ CNBC recognized later that this story incorrectly stated that the virtual “currency” was legal tender, confirming the original criteria that defines this innovation only as “private money”.

¹⁶ DAVALOS, *Títulos y operaciones de crédito*, 2005, Mexico City, 85.

¹⁷ MACLEOD, *Theory and Practice of Banking*, 1906, London, 316.

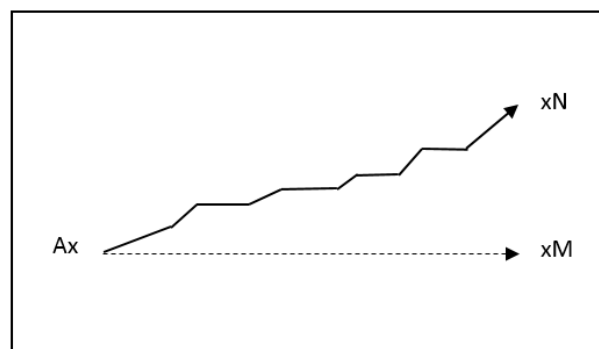
¹⁸ MACLEOD, *Theory and Practice of Banking*, 1906, London, 292.

¹⁹ The spirit of these regulations affirms that the term “money”, under a legal approach, is employed when there is an interaction amongst different currencies issued by different sovereign entities.

innovators and users around the world as we can appreciate through official documents like the cease and desist letter issued on May 30, 2013 by the California Department of Financial Institutions to the Bitcoin Foundation.

3. Sovereign intervention and regulation

Just as classical languages experts, writers and historians do, Robert Shiller²⁰ notes that the word “finance” derives from the classical Latin word *finis*, which is usually translated as *end* or *completion*; therefore, *finis* evolved into the word *finance* since one aspect of finance is the completion, or repayment of debts. However, it is convenient to recall that *finis*, even in ancient times, was also used to mean “goal”: the goals of households, small businesses, corporations, civic institutions, governments, and of society itself. Regulators, under the *Westphalian* tradition, have created an institutional framework to reach those goals. Therefore, legal models, such as those applied to financial regulation, are designed on rigid norms and definitions, and tend to be part of a gradual process of disconnection betwixt the aims of these norms and the social realities that should be regulated by the former; thus, we can represent this process (See Figure 1) as a straight segmented arrow that started its evolution without alteration indefinitely at the time when the respective law came into force. While the innovative nature of our social reality is represented by a solid line, that gradually separates itself from the spirit of the original norm, a process that increase its separation rate during periods of crisis²¹ (Novoa 1980: 33-34).



²⁰ SHILLER, *Finance and the Good Society*, 2012, New Jersey, 27.

²¹ NOVOA, *El derecho como obstáculo al cambio social*, 1980, Mexico City, 33-34.

Figure 1

Representation of the process of separation betwixt a rigid legislative anachronism and the social necessities (Novoa 1980: 33). Explanation: Point A = time when the original law came into force; segmented line A-M = evolution of a rigid law; solid line A-N = evolution of social necessities.

However, digital media of exchange are beginning to produce a bewildering variety of products and services with intrinsic benefits and drawbacks, not all of which would be compatible with each other. A number of such services currently are testing legal, regulatory and ethical boundaries²². Considering this, I am sure that the next Monetary Cambic Explosion will be a digital one, and we will face the necessity to create institutional and legal proposals that could be integral part of a very dynamic interaction betwixt innovation and social change, and legislative reactions, as represented on Figure 2.

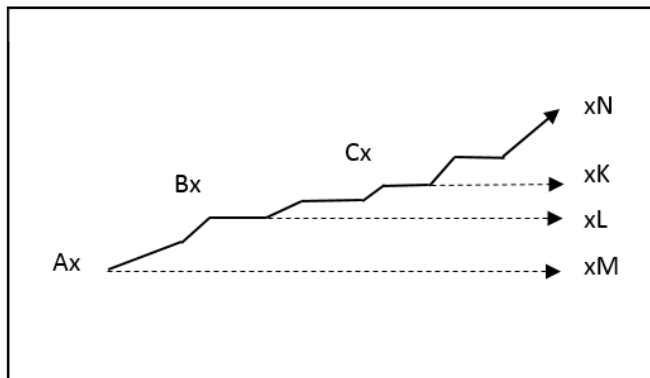


Figure 2

Representation of a law that is modified in different occasions to face several social changes. Explanation: Point A = time when the referred law came into force; Point B = time when the law is modified for the first time; Point C = the second time the referred law is modified; segmented line A-M = evolution of a rigid law; solid line A-N = evolution of social necessities; segmented line B-L = evolution of the first legislative modification; segmented line C-K = evolution of the second legislative modification.

The idea of digital media of exchange has the attractive of being convenient, untraceable, liberated from the oversight of governments and

²² OAK, *The Digital Money Game*, 2014, Bristol.

banks, and has been a hot topic since the birth of the Internet. This idea, with an optimal regulatory and institutional framework, could take advantage of the information-communication technologies to foster the integration of a digital network economy that could enable the integration of a national payments system, and a healthy interaction betwixt the core and the periphery of our Financial World System around a global digital currency.

After all, the sustainable growth of a digital economy will need a new form of money; thus, through a number of innovations in the domain of payment systems, digital media of exchange are developing the infrastructure to reach this social goal, but again, this new kind of money requires sovereign intervention.

Therefore, the next frontier of innovation is the regulatory environment, which affects the different services and providers, and originates from multiple regulators at country, regional and global levels²³; however, regulating the innovation and the use of technology is an inherently difficult task. Society has placed a high value on rapid technological advancement.

Unfortunately, the concomitant development of the law to account for the effects of new technologies frequently occurs very slowly just as we have recognized in documents such as “Virtual Currency Schemes” issued by the European Central Bank²⁴. Consequently, under the same spirit of the Directive 2009/110/EC of the European Parliament and the Council, we have to create flexible, technologically agnostic rules, which in turn will depend critically on clear definitions of “bank” and “currency”. For this purpose, we should first achieve, through uniform definitions, a good understanding of the structure and properties of the existent digital media of exchange. Thus, we could determine whether existing institutions are there for good reason, and how our reforms would interact with these innovations in the short and in the long run, analysing the applicability of the Gresham’s law as result of the gradual dematerialization of money, its impact on the *seignorage* of central banks, and its relevance for monetary legislations around the world in order to study the viability of a reform to empower sovereign entities such as central banks to issue and regulate digital sovereign currencies.

This task sounds relatively easy, but law and economics involve the study of how people, under a rational paradigm, use and allocate finite resources. However, when the analysis goes beyond a particular culture or era, detecting regular relationships becomes more difficult. Changes in technology, institutions and customs alter the circumstances on which

²³ OAK, *The Digital Money Game*, 2014, Bristol.

²⁴ ECB, *Virtual Currency Schemes*, 2012, Frankfurt.

choices are based on, sometimes to such an extent that time honoured truths and rules of thumb no longer apply²⁵.

4. Integrity and quality of money

Concerns about the integrity of money have also seen a fundamental shift since the days of Newton and Talleyrand. While instability and fraud are a concern, the collapse of Lehman Brothers and its effects for the Financial World System has called into question the competence of the central banks that are supposed to manage national currencies²⁶. Hayek²⁷ argues, citing a poor interpretation and application of the Gresham's Law, which does not make sense to assign to the state the monopoly of money creation as individuals could issue media of exchange previously determined and approved by the state so more efficient than the latter. Empirical studies of the periods of free banking in Scotland²⁸ and USA²⁹ seem to confirm this idea. These studies conclude that free banking systems can function reasonably well.

However, regulators are very permissive regarding the establishment of alternatives to traditional intermediaries. Since the collapse of the Bretton Woods system, a financial system has been evolving in the shadows outside the regulatory circle created by the state. In our context where the digital divide is decreasing and where policymakers around the world are working to make the access to Internet a fundamental right, a major concern for our financial regulators shall be the generation of unregulated intermediaries empowered (by omission) to issue excessive quantities of media of exchange that eventually could influence negatively the real economy. In the same way as Friedman³⁰, I consider that this behavior is an important argument against the private issuance of money. In opposition to this

²⁵ WETTERBERG, *Money and Power. From Stockholms Banco 1656 to Sveriges Riksbank Today*, 2009, Stockholm, 11.

²⁶ ALLOWAY, *Virtual Money, From Real Central Bank Mistrust*, in *Financial Times*, <http://ftalphaville.ft.com/blog/2011/06/06/585756/virtual-money-from-real-central-bank-mistrust/>, accessed on June 6, 2011.

²⁷ HAYEK, *Denationalisation of Money, The Argument Refined*, 1978, London, 41.

²⁸ WHITE, *Free Banking in Britain: Theory, Experience and Debate 1800-1845*, 1984, Cambridge.

²⁹ ROLNICK-WEBER, *New Evidence on the Free Banking Era*, in *American Economic Review*, 1983, 73, 1.080-91.

³⁰ FRIEDMAN, *A Program for Monetary Stability*, 1960, New York.

posture, Sargent and Wallace³¹ develop a model in which, in one hand, a banking model based on the *laissez faire* leads to an optimal equilibrium allocation under the premises of Pareto, while, in the other hand, the monopoly of the central banks results in an inefficient disequilibrium. However, this model has four disadvantages: 1) this model is viable only if the state gives its approval and authorization thus providing the media of exchange issued by banks and/or particular with the quality of coins, 2) does not consider financial innovation, 3) is based on the consumer confidence which, after the financial crisis, is virtually nonexistent, 4) most of the issuers of digital media of exchange, are individuals and corporations that works outside the traditional regulatory schemes, within the infamous “shadow banking system.”

Williamson³² developed a model of successive generations model with adverse selection that evidence that a regulated banking is superior to the banking structured around the *laissez faire* model because the State, through its intervention, empowers the agents to have access to enough private information about the quality of the physical capital that they own. In a free banking system, agents can issue private money backed or not by physical capital. However, this latter is susceptible to two types of disequilibria: 1) one that complies with the Gresham’s law where only bad money circulates, and 2) the multi referred fraud, that is, good money and bad money circulate.

In this case, the value of the assets is inversely related to their speed of circulation. However, if private money is regulated or prohibited, we have a unique stationary equilibrium state that dominates, under the premises of Pareto, the others. The reason is that this regulatory scheme destroys the adverse selection problems that characterize the banking systems based on the *laissez faire*.

5. The traditional problem of agency

The orthodox view regarding financial regulation is that financial markets have to be regulated by bureaus that are accountable to legislators. It is believed that there are special features within our Financial World System such as systemic risk in banking and information asymmetries that require

³¹ SARGENT-WALLACE, *The Real Bills Doctrine versus the Quantity Theory. A Reconsideration*, in *The Journal of Political Economy*, 1982, 90, 1212-1236.

³² WILLIAMSON, *Pricing Free Bank Notes, Discussion Paper*, 1992, Philadelphia.

this specialization³³. This explanation views the constitution of specialized regulatory bodies as an inevitable feature of our Financial World System.

Problems are complex; time and other resources scarce; therefore, delegation. Certainly there is some merit in such arguments, but a little analysis suggests that other factors must be important as well³⁴.

One of the problems with this view is that it does not consider the problem of the inducements within the regulatory bodies and amongst legislators. In creating an administrative entity and authorizing it to make decisions within its delegated authority, every Legislature in the world creates for itself a problem of agency; in other words, the regulatory entity may not do what the legislators want it to do; consequently, a conflict may exist betwixt the goals and aspirations of the regulators and preferences of the legislators. With basis on this, we can classify the problems of agency in two main categories: 1) shirking, and 2) slippage³⁵.

Shirking results from a conflict of goals betwixt the regulators and the legislators that, given the great range of contingencies that can occur in regulation, complicates the task of specify the agent's objectives³⁶; thus, regulators and legislators may pursue their own objectives to the detriment of the social *diktat* as result of several factors such as intense political pressure and lobbying. Informational asymmetries betwixt the regulatory entity exacerbate the problem. If the Legislature has incomplete information concerning the activities of the entity and how such activities affect outcomes, then shirking may go partially or entirely unnoticed³⁷. Legislatures around the world can design a great variety of regulatory schemes, and work to ensure their correctly translation into local languages and legislative traditions, but without an appropriate coordination betwixt regulators and legislators they will not meet their respective goals, and the

³³ BOOTH, *Financial Regulation-The Need for a Revolution*, in *Economic Affairs*, 2012, October, 2-3.

³⁴ FIORINA, *Group Concentration and the Delegation of Legislative Authority*, paper originally prepared for the Conference on Social Science and Regulatory Policy, 1982, Virginia.

³⁵ MCCUBBINS, *The Legislative Design of Regulatory Structure*, in *American Journal of Political Science*, 1985, 29(4), 721-748.

³⁶ MASCIANDARO- VEGA PANSINI-QUINTYN, *The Economic Crisis: A Story of Supervisory Failure and Ideas for the Way Forward*, in BALLING-LIERMAN-VAN DEN SPIEGEL- AYANDI-LLEWELLYN (eds), *New Paradigms in Banking, Financial Markets and Regulation?*, 2012, 19-40.

³⁷ MCCUBBINS, *The Legislative Design of Regulatory Structure*, in *American Journal of Political Science*, 1985, 29(4), 721-748.

institutions that constitute our Financial World System will return to the bad habits of the past.

Agency slippage will denote institutionally induced problems. These are problems of design and operation. Although every discourse, conversation, proposal, and academic work emphasizes the necessity of a “universal” regulatory paradigm, in practice we have witnessed many proposals that are structured around a great variety of structures and powers that obey the legal traditions that historically define every Nation. Since Legislatures typically do not respond quickly enough to changing conditions within the information society and since legal systems are inevitable incomplete, ambiguous, and plagued with inconsistencies³⁸, different institutional designs for agency decision making will lead to different outcomes being chosen by regulators³⁹.

Now, if these agency problems are very complex at a national level, try to imagine the execution of any of the current regulatory proposals that look, through delegation, foster and materialize a global regulatory coordination without considering culture and legal traditions. Certainly, we will be working with regulatory schemes characterized by their lack of intelligibility, considering that financial sector regulation and supervision is an area of cooperation amongst nations. Although the institutional forms vary and are evolving, a common trend seems to be assigning this task to the central bank, or for the central bank to play a pivotal role⁴⁰. These measures have a solid logic. If we consider that, since the International Financial Conference at Brussels of 1920, few areas within our Financial World System can claim as long and unanimous a record of agreement on the appropriateness of government intervention and global coordination as central banking. Central banks are institutions designed around national constitutions or constitutional conventions, instruments and practices that represent the materialization of social goals established by every Nation.

³⁸ LEVINE, *Legal Theories of Financial Development*, in *Oxford Review of Economic Policy*, 2001, 17, 438-501.

³⁹ MCCUBBINS, *The Legislative Design of Regulatory Structure*, in *American Journal of Political Science*, 1985, 29(4), 721-748.

⁴⁰ MASCIANDARO - VEGA PANSINI-QUINTYN, *The Economic Crisis: A Story of Supervisory Failure and Ideas for the Way Forward*, in BALLING-LIERMAN-VAN DEN SPIEGEL- AYANDI-LLEWELLYN (eds), *New Paradigms in Banking, Financial Markets and Regulation?*, 2012, 19-40; TROMP, *Central Bank Cooperation. The Experiences of Emerging and Developing Economies*, speech at CEMLA's 60th Anniversary Commemorative Conference: Central Bank Cooperation at the Beginning of the 21st Century, 2012, Mexico City.

Amongst these goals, the main *diktat* established uniformly for every central bank around the globe has remained the same: Stability. Stability has always been the business of central banking⁴¹.

6. Regulating through central banks

An important lesson of the last international financial crisis is that international cooperation and policy coordination are crucial to maintain financial stability. This objective will require a number of steps that could be implemented through every central bank at global and regional level.

Therefore, instead of creating an agency problem, legislatures around the globe could empower their respective central banks to apply national regulations in force which in turn should be broadened to include all activities that pose economy-wide risks. Consequently, probably, a more interesting idea on this sense could be the insertion of common definitions of “bank” and “currency” in legislative instruments that could integrate not only the issuance of digital media of exchange, but also the potential of new developments structured around these monetary fictions. This new definitions would, gradually, allow us integrate innovations to the “arsenal” of products and services of the current institutions. Furthermore, recognizing the fact that a return to a commodity-based monetary standard is unlikely, we may expect that in the future our Financial World System could work around a “digital standard”. Considering this possible scenario, I believe that the Bank of England has the experience and the institutional framework to regulate the “democratic” projects inspired in the work of Hayek in a context of popular aversion against the financial sector, and take advantage of them taking these projects to the next level through a digital pound. This digital project could represent the first step to materialize the spirit of the “*moneta imaginaria*” proposed by Gasparo Scaruffi in 1582; thus, putting the example to the rest of the world who, gradually, could insert itself into a new global paradigm structured around the premises of Immanuel Wallerstein.

In the area of financial supervision, central banks should focus on detecting developments in the financial sector that might lead to a systemic

⁴¹ COOPER, *The Origin of Financial Crises. Central Banks, Credit Bubbles, and the Efficient Market Fallacy*, 2008, New York; ORPHANIDES, *New Paradigms in Central Banking?*, in LLEWELLYN-REID (eds), *Future Risks and Fragilities for Financial Stability*, 2012, 13-28.

crisis⁴². However, we face a challenge relating to this matter. Despite the uniformity existent regarding the core principles of central banking, an area in which there is considerable diversity of practice is in relation to the central banks involvement in financial regulation. About 120 central banks are directly involved in the supervision of banks, and sometimes of other financial intermediaries as well, and in the case of some peripheral elements of our Financial World System, these institutions are the regulators of the entire financial system. However, in around 60 countries central banks are not directly involved⁴³.

So, what can we do? Well, we have to take advantage of the historical bound of central banking to the constitutional mandate regarding financial stability that is common to every member of our Financial World System to uniform strategies at the same time that we can work with the comparative experience that results of the diversity of practices mentioned in precedent lines; thus generating a global regulatory standard implemented through central banks.

With that in mind, the first step to coordinate our global regulatory efforts would be the modification of the legislations that constitute and support the operation of central banks within the Financial World System with the aim to have a common strategy that would be structured around this common institution; hence, legislators could work together through treaties, memoranda of understanding and collaboration agreements that would be the cornerstone for regional and global efforts that could be coordinated through national and regional central banks, these latter constituted in a similar way of the European Central Bank.

What can we expect under this proposal? 1) Coordination amongst common institutions such as central banks, and no amongst regulatory bureaus structured around different legal traditions, would be more efficient, particularly in times of stress; 2) the common mandate of stability and the similarities amongst central banks could help to address issues related to information sharing and regulatory differences; 3) the constitution of regional central banks could represent an important initiative that can help to understand the risk profile provided by regional supervisors and compare them with the supervisory strategies of other countries within the region and

⁴² TROMP, *Central Bank Cooperation. The Experiences of Emerging and Developing Economies*, speech at CEMLA's 60th Anniversary Commemorative Conference: Central Bank Cooperation at the Beginning of the 21st Century, 2012, Mexico City.

⁴³ DAVIES-GREEN, *Banking on the Future. The Fall and Rise of Central Banking*, 2010, New Jersey.

with other regions. In addition, they can help to improve the surveillance techniques and get a better understanding of the global exposures that characterize our Financial World System; 4) finally, through different instruments of International Law, we can create and gradually adopt new international standards of banking regulation⁴⁴, and work with new regional and global institutions, minimizing the problems of agency; therefore, the proposed reform could empower central banks around the world to take the following measures:

- Restrict the issuing of digital money.
- Issue digital money themselves and bound them to a variety of commodities, according to the particular context of every nation according to the premises of Wallerstein.
- Regulate the issuing of digital money and set the rules for the issuers.
- Work in a new definition of “bank” and “currency” that could solve the risk posed by the shadow banking system.

7. Regulating through a governance paradigm

Particularly, the past five decades have seen a destabilization of the traditional governing mechanisms and have been characterized by liberalisation and deregulation under new arrangements of governance.

Consequently, in opposition to the spirit of the proposal mentioned above, people and institutions have been allowed more and more to define and follow their own goals outside traditional regulatory paradigms⁴⁵, despite the fact that some sectors such as banking have always tended to be regulated more than other areas of the economy because of its inherent

⁴⁴ VERGARA, *Global Financial Stability and the Cooperation Among Central Banks: What Have We Learned*, speech at CEMLA’s 60th Anniversary Commemorative Conference: Central Bank Cooperation at the Beginning of the 21st Century, 2012, Mexico City.

⁴⁵ BERNANKE, *The Effects of the Great Recession on Central Bank Doctrine and Practice*, speech at the Federal Reserve Bank of Boston 56th Economic Conference, 2011, Massachusetts; BALLING-GNARR, *The Development of Financial Markets and Financial Theory*, in BALLING-GNAN (eds), 2013, *50 Years of Money and Finance: Lessons and Challenges*, 157-183.

“dangerous” systemic nature, which has been recognized for long⁴⁶. So, one question is what lies ahead?

A good governance paradigm is needed to secure three essential prerequisites of market economies⁴⁷:

1) Security of property rights: In its absence, individuals will lack the inducements to save and invest through these innovations, because they will fear that others, such as in the case of Mt. Gox, will deprive them of the fruits of these activities.

2) Enforcement of contracts: Economic transactions promise gains to all voluntary participants, but each party may lose if the other fails to fulfil its promised role in the transaction, but instead acts opportunistically under a free-rider scheme. Fear of such counterparty cheating may prevent people from entering in agreements involving digital media of exchange. Formally, as Dixit affirms, this is a bad equilibrium in a prisoner’s dilemma.

3) Collective action: Much private interactions depend on an adequate provision of public goods and the control of public “bads”, including not just physical but also institutional and regulatory framework to avoid free-riding.

In our context, public administration and the development of legal frameworks are the subject of several debates betwixt the ordinary citizen and the sovereign institutions. Legislate in the postmodern era means considering ordinary people and the schemes of civil association that foster social manifestations and innovations such as the proliferation of peer-to-peer lending platforms and digital media of exchange. Before, legislative and regulatory acts were designed to face and satisfy massive, rigid and anonym interests, but now our legislators and regulators around the globe are facing challenges that have their origin in the diversity of interests that demand solutions to particular problems.

Current regulatory frameworks lag behind technological developments by some years, and many of them are working with the idea that innovators could be registered as financial institutions with their respective regulatory authorities⁴⁸. Particularly I believe that this point brings a problem of agency

⁴⁶ BALLING-GNARR, *The Development of Financial Markets and Financial Theory*, in BALLING-GNAN (eds), 2013, *50 Years of Money and Finance: Lessons and Challenges*, 157-183.

⁴⁷ DIXIT, *Governance Institutions and Economic Activity*, in *The American Economic Review*, 2009, 99(1), 5.

⁴⁸ ECB, *Virtual Currency Schemes*, 2012, Frankfurt, 45.

to this proposal and, again, works with the developments of a particular context.

8. Conclusions

Historically, the state manages innovations to some degree by coming in to support the private media of exchange through their gradual nationalization. An illustration of this is the Medici banking house, which made its financial mark through the *banchi grossi*⁴⁹ model by dealing merchandise and facilitating money transfers for merchants and traders across renaissance Europe⁵⁰. The system the Medici developed exploited the fact that it was not only extremely cumbersome and dangerous for traders to carry heavy coinage with them to foreign lands, but also incredible expensive to convert such currencies into local equivalents because of foreign money bans or capital controls⁵¹. However, through the Medici system a *prenditore* could deposit his collateral at home, be issued a Medici bill of exchange, then pay for the goods at the destination point via the liquidation of the referred bill at the prevailing local currency rate with basis on gold florin⁵². This, of course, is not different to how digital media of exchange operate: Medici bills became money-like in their own right, bestowing the Medici with the awesome power of *seignorage*. However, the Medici's ability to exploit that power in the modern free banking sense was

⁴⁹ In Florence, in the fifteenth century, there were four different credit intermediaries called banks in Italian: *banchi di pegno*, *banchi a minute*, *banchi in mercato*, and *banchi grossi* (De Roover 1946: 24).

⁵⁰ DE ROOVER, *The Medici Bank Organization and Management*, in *The Journal of Economic History*, 1946, 6(1), 24-52; KAMINSKA, *The Theory of Money Entanglement (Part2)*, in *Financial Times*, 2013, <http://ftalphaville.ft.com/2013/12/19/1728302/the-theory-of-money-entanglement-part-2/>.

⁵¹ COOPER, *The Origin of Financial Crises. Central Banks, Credit Bubbles, and the Efficient Market Fallacy*, 2008, New York; KAMINSKA, *The Theory of Money Entanglement (Part2)*, in *Financial Times*, 2013, <http://ftalphaville.ft.com/2013/12/19/1728302/the-theory-of-money-entanglement-part-2/>.

⁵² DE ROOVER, *The Decline of the Medici Bank*, in *The Journal of Economic History*, 1947, 7(1), 69-82; KAMINSKA, *The Theory of Money Entanglement (Part2)*, in *Financial Times*, 2013, <http://ftalphaville.ft.com/2013/12/19/1728302/the-theory-of-money-entanglement-part-2/>.

constrained by usury laws of the day. Thus, much of it was directed at lending to governments⁵³.

Now, we are facing a similar scenario. Private innovators are introducing digital goods to uniform their interactions in a scheme similar to the barter as result of the absence of a sovereign digital medium of exchange. Legally this is a barter paradigm, but theoretically is a transitional form. Unfortunately, for those enthusiasts of the works of Friedrich Hayek that claim that Bitcoins will be the *moneta imaginaria* of the future, current digital media of exchange will be displaced by sovereign digital currencies that gradually will be introduced as result of two main elements: 1) the dematerialization of money fostered by anti-money laundering regulations, and 2) their assimilation and regulation.

On the first point, regulations around the world on anti-money laundering have as tier the dematerialization of economic transactions using a paradigm of delegated supervision as explained by Freixas and Rochet⁵⁴ limiting cash transactions and empowering financial intermediaries to gather sufficient information about their counterparts and inform to the regulators about the vulnerable activities as described by their respective law and international instruments such as the Financial Action Task Force⁵⁵ (FATF) recommendations. Consequently, regulators are looking to foster electronic transactions to ease the monitoring of illegal activities through this scheme. In addition, according to the recommendations of the FATF, states and financial intermediaries should identify and assess the money laundering risks that may arise in relation to (a) the development of new products and new business practices, including new delivery mechanisms, and (b) the use of new or developing technologies for both new and pre-existing products as we have witnessed with the particular case of the website Silk Road⁵⁶.

To ease this task, the state will have to participate in the legislation and regulation of the existent digital media of exchange and in the constitution of sovereign digital currencies. Some states such as the tiny Channel Island of Alderney is launching a project to become the first jurisdiction to mint physical Bitcoins amid a global race to capitalise on the booming digital

⁵³ KAMINSKA, *The Theory of Money Entanglement (Part2)*, in *Financial Times*, 2013, <http://ftalphaville.ft.com/2013/12/19/1728302/the-theory-of-money-entanglement-part-2/>.

⁵⁴ FREIXAS-ROCHET, *Economía Bancaria*, 1997, Madrid.

⁵⁵ The FATF is an inter-governmental body established in 1989 by the Ministers of its Members jurisdictions to set standards and promote effective implementation of legal regulatory and operational measures for combating money laundering.

⁵⁶ An online marketplace that allowed more than a billion dollars of illegal drugs and illicit services to be bought using Bitcoins.

currency; however, there are other plans related to sovereign intangible currencies such as the Singapore Electronic Legal Tender (SELT) proposed by the Board of Commissioners of Currency of Singapore.

These projects consider that currencies will continue its evolution through the developments of cryptography. The eventual dematerialization from tangible currencies to SELT or others is inevitable; after all, this is not a new process, it began in the early 1990's in Europe in the form of Mondex, Setpurse, and Dammont, but, in that context, people were not ready and these projects were not successful⁵⁷. Now technology is improving rapidly and people are now better educated and certainly we will witness the constitution of digital currencies as result of the fact that the currency issuing authorities benefit from *seignorage*. Under the Austrian School of Economics that is the core of the digital projects such as Bitcoins, the *seignorage* would be lost to private innovators.

In addition, we will have to rewrite and work with new principles and definitions, considering that digital currencies could be defined as tangible and/or intangible goods, and the fractions of these latter that are designed around specific aesthetic elements and operational characteristics chosen by a sovereign issuer to circulate as legal tender for all debts, public charges, taxes, and dues in a particular jurisdiction. We will have a great legislative challenge. The law of Oresme, Copernicus and Gresham⁵⁸ will be anachronistic, and the quality of these digital currencies will depend on the “quality” of its issuer, leaving aside its tangible elements used to evaluate this quality under the traditional doctrines.

⁵⁷ KOK, *Singapore Electronic Legal Tender (SELT). A Proposed Concept*, in OECD *The Future of Money*, 2012, 145-152.

⁵⁸ The Law of Oresme, Copernicus and Gresham, commonly known as the Gresham's Law, dictates that when two currencies or units of exchange of unequal value interact at the same time side by side as currency of a particular jurisdiction, the cheaper or poorer will drive the better from circulation.

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