

Postmoney theory: value function in the domain of postmoney

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Abstract

Purpose – The purpose of this study is to research the latest quantitative and qualitative transformations of money and its interaction with the market economy and societies in terms of their influence on the inner nature of money and its transformation from a simple tool to an aim per se, i.e. postmoney. Transforming the perception of the intrinsic value and “soul” of the money into the postmoney, influenced by the rising longevity and wide expectation for the ability to scientifically prolong the human life, will be discussed. This transformation will be confirmed by analysing the results from a national representative sociological survey (panel study with sample size $n = 1,000$).

Design/methodology/approach – The author uses the following philosophical methodological approaches – comparative-constructive, phenomenological, cognitive and deconstructive analysis.

Findings – The objective and qualitative reasons offered by the postmoney theory (PMT) for the transformation of money into postmoney, are related to the being of temporality, as well as to technologization and the sixth factor of production, scientific exponentiality and mental changes in the human being. A current postmoney survey gives a strong base to believe that the perception of an intrinsic value of postmoney changes the shape of a value function – from logarithmic to linear or even stochastic. This is the reason to believe that increasing of a postmoney quantity will lead to a qualitative transformation and psychological increase of postmoney sensitivity.

Research limitations/implications – The author intends to expand the postmoney survey on the international level so to confirm local findings.

Practical implications – Postmoney survey might be used as a powerful tool in creating and legalizing non-monistic money based on blockchain technologies and philosophical and socio-economic research of the postmoney issue.

Social implications – The future of money is of great importance for the exponentiality of the socio-economic environment and societies. Social impact of the money will be inevitably rising in the domain of postmoney perception.

Originality/value – The author of the current paper coined for the first-time notion of postmoney and now is expanding research developing PMT. As per the best knowledge of the author, shape of the curve of value function was not questioned and believes it might be of help to better understand the money phenomenon.

Keywords Value function, Cryptocurrency, Block barter chain, Future of money, Postmoney theory

Paper type Research paper

Introduction

For centuries, the money paradigm has been frozen in the timeframe of classical economics despite the complex context of socio-economic developments. The standard economic theory and its notable authors, such as Law (2013), William Jevons, Adam Smith (Smith, 2009), John Locke, John Hicks (Hicks, 2001), Joseph Schumpeter, Paul Samuelson (Samuelson and Nordhaus, 2010) and many others, defined money as a medium of exchange, a unit of account and a store of value. Equally, money function is characterized as having “universal acceptability for payment, exchange and measure of value” (Seaford, 2004). Historically and ethnographically, the role of money is much more complex than the

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explanation of the normative theory of classical economics. Money has been used for various purposes – some of them being fundamentally different from purely economic aspects, making it impossible to understand money as a measure of value in the case of “Compensation for people killed; to purchase slaves and sexual services; as a dowry and compensation for the lost labor force in the family of the bride; for the sale of a son or daughter as farmhand laborers and soldiers; for magic spells and sacrificial offerings; to finance bribes and the remission of sins; and to purchase social status and public rank. Today it is also used for drug distribution, to finance of weapons of mass destruction, terrorism, and attempts to upgrade the human body and achieve immortality” (Davies, 2002). That is to say – the concept and origin of money cannot be perceived as solely an economic phenomenon. Even the widely spread and solid beliefs of the academics that money emerged as a result of the development of the barter economy, are successfully questioned by numerous economists, anthropologists, historians and ancient documents, as is described by Martin (2015) and Graeber (2011). Thus, we may agree with Glyn Davies that “Money originated very largely from non-economic causes: from tribute as well as from trade, from blood-money and bride-money as well as from barter, from ceremonial and religious rites as well as from commerce, from ostentatious ornamentation as well as from acting as the common drudge between economic men” (Davies, 2002). Hence, based on the historical evidence, money emergence and existence – in the realm of scarcity of goods and services and its usage as a measure of objective market values – goes far beyond the simple understanding of money as a tool for exchange, storing the universal and intertemporal value.

Philosophical and temporal context and the “money – postmoney” notion

The perception, understanding and experiencing of the money notion, is relevant to be made from the temporal context and perspective of the equivalence of content between object and concept. From the Kantian reasoning and his brilliant ideas in critique of pure reasoning, we can extract the philosophical construct of inequivalence between the *a priori* – *a posteriori* empirical content of experiencing/possessing money and its object-concept relationship:

- *A priori* money: “Thus the actual contains nothing more than the merely possible. A hundred actual dollars do not contain the least bit more than a hundred possible ones”.
- *A posteriori* money: “But in my financial condition there is more with a hundred actual dollars than with the mere concept of them (i.e. their possibility) Thus whatever and however much our concept of an object may contain, we have to go out beyond it to provide it with existence” (Kant, 1998).

Thus, the concept of *Postmoney theory* (PMT) assumes that:

- The inequality and changeability over time, of and between *a priori* – *a posteriori* experiencing of the content of money’s object-concept, is inherent of the money phenomenon and it persistence over time.

That is to say – there is an imminent predisposition of money and its notion to a disparity and changeability between object and concept. This object – concept changeability and disparity varied during historical periods – as the beginning of coinage, approximately 600 BC, until the current, present-day period of dematerialized payments and cryptocurrencies. The world we experience is a mental construct and nowadays we have a qualitatively new *a posteriori* universe of experiencing the content of money and its object-concept interaction in comparison with 100 years ago and more. In the future, *a posteriori* experience of possession of money will be also qualitatively changed in comparison with the current day, by the scientific possibilities to buy more years of healthy life and the cyborgization of human bodies and minds. This new socio-economic environment will break

current limits of money purchasability and a *posteriori* experiencing of the money, to dramatically change the shape of the diminishing curve of psychological value of money based on the prospect theory value function (Kahneman and Tversky, 1979).

Thus, the concept of PMT assumes that:

- Prospect theory value function and its psychological value is changeable over time. Changeability is inherent for the money phenomenon and is influencing the relationship of and between *a priori* – *a posteriori* experiencing of the content of money's object-concept. New relationships explain the emergence of Postmoney.

As per Martin Heidegger, *being* is closely connected and positioned with time and is subordinated with the temporality of *Da-sein*: "Time must be brought to light and genuinely grasped as the horizon of every understanding and interpretation of being. For this to become clear we need an original explication of time as the horizon of the understanding of being, in terms of temporality as the being of *Da-sein* which understands being" (Heidegger, 1996). Perception or experiencing of history as a being, cannot exist with static features and content, on culturological or philosophical grounds. Hereto, money is part of the experiencing of the *Being-Da-sein* – thus, we cannot perceive money as a static category. So, to clarify, money existence is secondary, and it is the result of a temporal scarcity market environment.

Money as a socio-economic and cultural phenomenon is perceived by Georg Simmel in his book *The Philosophy of Money*, as determinant of the socio-cultural processes and life. There is a social and culturological dependability from the ruling role of money and its historical temporality, prevailing a societal, economical and intellectual understanding and form, thus there is temporal dimension and objectification of money. That understanding of the money category and its status quo – as it is – constituted by and constitutes at the same time, socio-economic and cultural paradigms. So, the money paradigm has never been static and has been a subject of change since the time of the primitive forms of exchange around 3000 BC through the times of coinage and consequently the current *Postmoney* status quo.

Thus, the concept of PMT assumes that:

- As money is a socio-economic phenomenon, positioned and existing in a specific time period, money is influencing and is influenced by relation of the *Being – Da-sein*. The money paradigm is changeable objectively – by the qualitative changes in the prevailing economic and societal state/paradigm, as well as subjectively – by the subjective qualitative change of its societal perception.

Technological context and the "money – postmoney" notion

In the past decades, dematerialization of money and the rising role of electronic credit money created by commercial banks, has disembodied money from its material substance. Nowadays, we have a total dominance of the fractional reserve system within the banking sector. It means that commercial banks are creating money through giving loans based on the monetary aggregate M0 (coins and bank notes physically created by the central banks), i.e. material money. The rising role of electronic credit money and decoupling money from its material substance is exemplifiable through comparing the amount of M0 money aggregate \$3674.797bn vs M2 \$13,971.0bn in the USA in May 2018 (Federalreserve.gov, 2018)[1]. The nearly four times larger figure of M2 money aggregate in the USA confirms, that, in the modern banking system, the predominant part of money does not exist outside of the "[...] banks IT system" (Scott, 2013) and a fractional reserve system has disembodied money from its material substance.

Thus, the concept of PMT assumes that:

- Technological advancement and predominant role of electronic money and new forms of electronic payments is changing money perception of the value of money and what goods, services and assets are buyable.

Higher penetration and immediate access to money can buy the abilities of any goods, services and assets through fast mobile and internet forms of payment, therefore enhancing the role of money as it was described a century ago by the Georg Simmel – one of the greatest minds researching money issues: “The greater the role of money becomes in concentrating values—and this occurs not simply through the increase in its quantity, but through an extension of its function to more and more objects and the consolidation of even more diverse values in this form—the less it will need to be tied to a material substance; for the mechanical sameness and rigidity of a substance will become increasingly inadequate compared with the abundance, mutability and variety of values which are projected upon and consolidated in, the concept of money” (Simmel, 2004, pp. 197-198).

Creation of disembodied electronic money and virtualization of money supply, results in supply of virtual financial assets, epidemic consumerism and an emergence of a new class of virtual-internet assets. These processes are making real assets and values decouple from the pricing of real assets. Bank for International Settlement data shows that before the global financial crisis in 2008, there was a \$598tn nominal value of OTC derivatives, versus only a \$178tn total value of global financial assets (securities, public and private debt and bank deposits) (McKinsey Global Institute, 2009). That is to say, electronic money, through the financial synthetics and technologies, is disembodying assets from their real and notional amounts, virtualizing their trading – just like in case of M2 money aggregate vs M0 money aggregate: “This process might be called the growing spiritualization of money, since it is the essence of mental activity to bring unity out of diversity. In the sensible world, things exist side by side; only in the sphere of the mind are they integrated” (Simmel, 2004, p. 198).

Thus, the concept of PMT assumes that:

- Deviant transformation of money is natural for the “postnormal times” (Sardar, 2010). Money has advanced from a simple tool with three functions, to an aim *per se*, i.e. *Postmoney* creating demand and emergence of *Postassets*. As a direct result, the mistrust of humans to the old/current paradigm is rising, causing psychological disorders like the money sickness syndrome (MSS)[2].

Omnipresent wireless internet, global and mobile super connectivity of humans, internet of things (IoT) and sensorification of material life, are creating a fast and quasi-barter environment. In this new environment, monistic money and forms of payment are confronted with multipolarity of control over money creation, exchange, payments, open credit and a system of obligations. Global connectivity and the emerged blockchain technologies can serve as an endless resource for global and real time barter, money creation, credit, accounting and trade agreements.

Thus, the concept of PMT assumes that:

- *Block barter chain* (BBC) is emerging as a megatrend of the global IoT – super connectivity of the people, where the IoT is transformed into the decentralized, inexhaustible, abundant and free to use sixth factor of production (apart from the land, labour, capital, entrepreneurship, knowledge).

This leads to decentralized peer-to-peer (P2P) business models and blockchain technologies: smart contracts and automated escrow accounts. P2P business models are experiencing an all-in-one freedom, based on blockchain and decentralized use of abundant internet resources, disconnected from the content of the paradigm of old centralized business models. P2P models are free, in geographical terms as well as being wireless, with no offices and permanent staff, plus are independent from the intermediaries

and are always available on your computer. It is logical, that this market model needs a reciprocal – decentralized payment model, not based on the central banks money and intermediation of the third party – centralized banking system. The real omnipresence of the internet as the sixth factor of production is contradicting with the fictitious omnipresence of the central bank's money. Thus, the new decentralized P2P model and blockchain technologies, no longer needs the old intermediaries – including intermediation of monistic money and centralized payment systems, e.g. Society for Worldwide Interbank Financial Telecommunication. The role of money and economic needs for exchanging, measuring and storing values objectivized by the socio-economic system, will naturally and inevitably disappear. Furthermore, the technological and qualitative changes of socio-economic values and life in general, together with the emergence of the BBC, will lead to changes in the being of humans. Hence, the role of money, its current status quo and its intertemporal validity and existence, will be altered by the qualitative shift in its creator – the historically prevailing system of socio-economic relations, its values and the societal systemic agreement for the values of that being. "Life in general is determined by the proportion of these two facts: that we need variety and change of content just as we need familiarity; and this general need appears here in the specific form that the value of objects requires, on the one hand, scarcity—that is to say, differentiation and particularity—while on the other hand it needs a certain comprehensiveness, frequency and permanence in order that objects may enter the realm of values" (Simmel, 2004, p. 70).

The centralized payment system and omnipresence of monistic money is fictitious even now under the current state of the market economy paradigm. Present-day Awa people, also known as the Guaja – indigenous tribal group in the Amazon – have no system of money. They live off the land and therefore, have no need for cash at all. Another moneyless example comes from India, where tribes at the Jonbeel Mela live on an entirely barter-based system. So, the cases of self-isolated social groups show that it is possible to live without money. Yet, this is also possible in modern developed societies through the pre-BBC environment, i.e. P2P-model and the use of new forms of money and payment methods. As of mid-January 2018, there are more than 100 cryptocurrencies (Coinmarketcap, 2018) with a total market capitalization of more than \$535bn. This amount is already significant and is indeed bigger than the M2 money supply in Austria. Smart agreements and escrow accounts – part of the blockchain technologies – are erasing many other third parties in trading, enabling local and international business transactions without monistic money. The new P2P abstract models will be increasing their presence and market share, simultaneously with the acceleration of the penetration of global connectivity, IoT and growing "smart phone generations". These new generations are not biased to the old paradigms. Their unbiased individual perception will speed up new market models and development, as well as the usage and creation of new money. The widely cited Kurzweil exponentiality is traceable to the beginning of the past century, when, in the Manifesto of Futurism, Marinetti pronounced in article 4: "We affirm that the world's magnificence has been enriched by a new beauty: the beauty of speed" (Marinetti, 1909). Human mentality is consciously lagging behind general scientific, technologic and socio-economic changes. Adoption of change requires, and is predisposed to, a greater level of aggression between biased and unbiased generations (before and after the adoption of disruptive novelties). In Marinetti's time, poetry was one of the leading trendsetters for future minds, and the poets were facing strong opposition from the old and prevailing culturological paradigm. Thus, it is not by coincidence that Marinetti included in his Manifest article 7, "Except in struggle, here is no more beauty. No work without an aggressive character can be a masterpiece. Poetry must be conceived as a violent attack on unknown forces, to reduce and prostrate them before man" (Marinetti, 1909).

Thus, the concept of PMT assumes that:

- P2P models, local currencies and cryptocurrencies will aggress monistic money's status quo and *Postmoney* will be exchanged with non-monistic *Postmoney* – with no compulsory intertemporal function as a store of value – before to disappear at all.

Qualitative change of the paradigm and the “money – postmoney” notion

The PMT derives from Heidegger's work on “Being and Time”, understanding that technological development is not just a peripheral aspect of the being, but rather it defines our modern way of living. If we delve further into Heidegger's philosophy, we can discuss the technological influence on beings to become not-beings. Technologically, human beings are becoming instrumentalized and dehumanized – by the technologization – which simultaneously grants a soul to money transforming it to an aim *per se* and thus *Postmoney*. Apart from the *a priori* and *a posteriori* experiencing of money, we also have the immanent characteristics of money. Using the Heidegger notions of “ready-to-hand” and “present-to-hand”, given that “ready-to-hand” is “primordial” to the “present-to-hand”, the PMT uses these notions to extend *a priori* and *a posteriori* to the experiencing/perceiving/valuing of money. It must be said that the *Postmoney*, as a category, is not yet fully experienceable, as it is still premature to claim that humans consciously live in the being of *Postmoney*. Hence, people cannot experience yet the full power of *Postmoney* and hence do not perceive its real value.

Thus, the concept of PMT assumes that:

- In this particular moment of time and being we are currently living in, *Postmoney* is referred to in this paper as “pre a posteriori”/“pre present-to-hand Postmoney”.

Objective and qualitative changes to the socio-economic state/paradigm may result in the changing, modification or disappearing of the role of money as a universal store of value and medium of exchange. This may happen in the realm of the economic abundance – eliminated scarcity in terms of basic goods and services. Hence, the disappearing of scarcity as a basis for the market economy, will make redundant the existence of money as an intertemporal store of value. Thus, after such a qualitative socio-economic change, money can objectively become a non-economic phenomenon, without the possibility to objectify it by its primary role as an intertemporal store of value. This intrinsic value and primary function of money (intertemporal store of value) is predetermined by the old existing economic paradigm. A paradigm which is based on scarcity, variable market prices, psychological and subjective satisfaction of possession and preferences of a consumption of certain goods and services, instead of others. In the environment of the abundant economic paradigm, the nature of human decision-making and behaviour will be qualitatively different. Rational intertemporal choice or the standard problem of the trade-off between earlier-later money and earlier-later consumption/satisfaction, will disappear as the intertemporal value of the money, leaving its opportunity costs to no longer exist. Therefore, the *Homo Economicus* basis – rational attempts for maximizing utility (monetary and non-monetary) and profit – will disappear in the abundant socio-economic sectors.

Thus, the concept of PMT assumes that:

- The primary reason for money existence is the scarcity environment, which had existed for thousands of years before the emergence of money. Thus, money is immanently predestined (from its notion constituted at the beginning from the scarcity domain) to end its existence with the changing/expiring of the being of its constitutional base – scarcity; and
- *Postmoney* will end its existence in the environment of abundance.

Postmoney survey

This survey will exemplify the evolving qualitative changes in the individual perception of money as *Postmoney*, involving a national representative survey in Bulgaria, specifically designed and conducted for the purpose of the PMT.

Method of the sample: A national representative survey, based on a random sample ($n = 1,000$) of interviews with adult Bulgarian citizens in 92 localities and 125 cells. The survey is conducted by the leading Bulgarian sociological agency Exacta Research Group, during the period of 5-12 July 2017. The margin of error for the entire sample is ± 3 [3].

Model of the sample: Three level cell with probabilities, proportional to the size of the municipalities. Survey sampling is based on the modified cartographic model of the Leslie Kish. First level – selection of the municipality among all the 265 municipalities in Bulgaria; second level – selection of the cells in the localities; and third level – random selection of the household addresses, where the respondents are selected. The selection process of the adult respondents inside of the households is made as per the modified Leslie Kish method.

Registration method: A face-to-face, semi-standardized interview with the respondents at their homes. Face-to-Face interviewers possess a longstanding experience in making interviews of this kind. They are involved each month in conducting different surveys and have special training for cases with particular interview-questions, including training on how to behave during the interviews.

Question design, content and results: The content and design of the questions are prepared by the author of the paper. For the better understanding and clarity of the questions, they were divided into two steps, as per the suggestions of Exacta Research Group, to achieve a greater understanding by the respondents and thus more reliable results of the national representative survey.

Results of the Postmoney survey: There are statistically significant results for a changed perception in the population of Bulgaria for the value and notion of money, as well as its transformation into *Postmoney*. On the first question (Table I), 35 per cent of the respondents are confident that money will be more valuable. The large percentage of respondents which answered with “I don’t know” (24.1 per cent) may be interpreted as a normal outcome given that it is relatively early for a great part of Bulgarian society to envisage and understand the upcoming scientific achievements. Therefore, there is a non-negligible likelihood that these “undecided” respondents would join the first group in the future.

On the second question (Table II), the prevailing share of the respondents (40.8 per cent) are confident that “Money will be so much more valuable, that it will be more than money”. As per the Exacta Research Group, it will be correct to also add to this number the respondents selecting the statement “Money will be twice as much more valuable” (25.9 per cent). This is because of the point of view of the national folklore in Bulgaria (and so to say neurolinguistically) to consider that the phrase “twice as much” means a lot more than its simple mathematical content. A breakdown of the survey results of question no. 2 is available as Appendix 1.

The analysis of the collected data was made by scaling the power of each question from Table II (without the answers “I don’t know/I cannot answer”) and plotting a function with

Table I Question no. 1 is answered by all the 1,000 respondents

1. Let's assume, that next 15 years the science will guarantee, that it will be possible to buy 30 years of life more (for you/your children). In that case, shall the money be more valuable to you?	Yes	35.0%
	No	40.9%
	I do not know	24.1%
	Total	100%

Table II Question no. 2 is answered only by the respondents (348)* who answered with “Yes” to the question no. 1

2. How much more valuable will the money be?	5-50% more valuable	5.7%
	50-100% more valuable	15.2%
	Money will be twice as much more valuable	25.9%
	Money will be so much more valuable, that it will be more than money	40.8%
	I do not know/I cannot answer	12.4%
	Total	100%
Total number of respondents	348 (34.8%* from the survey sample of 1,000 respondents)	

Note: *Two of the respondents who answered question No. 1 with “Yes” did not answer question No. 2, that is why total percentage (34.8 per cent) of the respondents of the question No. 2 is less than the total, percentage (35.0 per cent) of the respondents who answered “Yes” to question No. 1

best fit. The value of R^2 is examined for the linear, stochastic and logarithmic functions. However, the value of R^2 for all the functions is high and above 0.9 (linear = 0.989; exponential = 0.965; logarithmic = 0.913) the best fit is for the linear shape of the curve ([Appendix N 2 MATLAB](#)).

By calculating statistical tests of the slope coefficients for the linear, stochastic and logarithmic models, with the confidence level of 95 per cent, the following results were derived ([Appendix N 3 MATLAB](#)) ([Tables III-V](#)).

Comparing the best linear fit model with the prospect theory value function, we can argue here that the model of the value function in the realm of *Postmoney* is not diminishing and it

Table III Linear

Estimated coefficients	Estimate	SE	t-stat	p-value
(Intercept)	-0.071	0.024094	-2.9468	0.098444
x1	0.116	0.0087977	13.185	0.0057029

Notes: Number of observations: 4, error degrees of freedom: 2; root mean squared error: 0.0197; *R*-squared: 0.989, adjusted *R*-squared 0.983; *F*-statistic vs constant model: 174, *p*-value = 0.0057

Table IV Logarithmic

Estimated coefficients	Estimate	SE	t-stat	p-value
(Intercept)	0.028827	0.049706	0.57995	0.62058
x1	0.23936	0.052328	4.5742	0.044619

Notes: Number of observations: 4, error degrees of freedom: 2; root mean squared error: 0.0545; *R*-squared: 0.913, adjusted *R*-squared 0.869; *F*-statistic vs constant model: 20.9, *p*-value = 0.0446

Table V Exponential

Estimated Coefficients	Estimate	SE	t-stat	p-value
(Intercept)	-3.3584	0.23889	-14.058	0.0050218
x1	0.64376	0.087232	7.3799	0.01787

Notes: Number of observations: 4, error degrees of freedom: 2; root mean squared error: 0.195; *R*-squared: 0.965, adjusted *R*-squared 0.947; *F*-statistic vs constant model: 54.5, *p*-value = 0.0179

cannot be a logarithmic model. These findings demonstrate that the Value Function and its psychological value are no longer valid because of the changed nature of money into *Postmoney*. Thus, the psychological value of its perception/experience is modified and not anymore in fitting with the diminishing nature of value function of the prospect theory.

Subjective perception of the “money – postmoney” notion

The subjective multidimensional perception of the utility and value, for the purpose of the *PMT*, is summarized as follows:

- utility and value of possessed but not used product and possessed but fully utilized product;
- utility and value of possessed but lost product;
- utility and value of desired-achievable-achieved and desired-unachievable-unachieved product; and
- utility and value of the fictitious universal measure – *Postmoney* – for all of the above-mentioned categories.

The subjective reasons for the transformation of money into *Postmoney* are related to the human difficulty to rationalize and differentiate categories of utility/value. Therefore, to ease the cognitive engagement in making their choices, preferences and understanding of utility and value, humans escape to mental shortcuts (heuristics). That is the leading subjective route from money to *Postmoney* – intercorrelated with temporality of being. Making major heuristics in rationalizing the being leads to primitivization and technologization of life, loading the category of money with *soul* and thus transforming it into an aim *per se*, i.e. *Postmoney*. Humans' monotheistic belief bias helps money transform into *Postmoney* – the only path to all possible, achievable and non-achievable, utilities and values.

The goal of making/possessing *Postmoney* becomes deviant and a universal equalizer for utility/values of possessed-used-lost-desired products. In terms of prolonging the life, it is also entering in the conflict with religious beliefs.

The individual members of society may experience a subjective change of money perception, if the usage, role, model and inner nature of money (as perceived by the individuals) changes and certain groups perceive or use money in a qualitatively new manner. A new understanding of money might emerge within the market economy, leading to a change in money's nature and agreement. Such a change in the individual's perception of money might lead to systemic and future qualitative changes. The virtualization of assets and decoupling between the real financial assets and traded synthetics, as well as the lack of understanding of the financial market processes, fuels people distrust in the agreement of money. This causal chain leads money to become an aim *per se*, i.e. *Postmoney*. The transformation of money from a simple tool into an aim *per se*, results in a desire of groups of people to escape from money agreement and its latest stage – *Postmoney*. Peoples distrust in *Postmoney* leads to an emergence of centrifugal forces, which are fighting with monistic central banks' money and compulsory intermediation of the banking system and banking credit money. The decentralization from monistic money and alternative money concepts (there are more than 300 complementary currency systems across the world), in micro as well as larger local communities, is causing an escape from central regulations and compulsory intermediation by third parties and financial technologization[4]. One of the most successful local currency examples is in the US state of Massachusetts. The so-called “Berkshares” were first issued in 2006 and are now accepted in many communities by hundreds of businesses. These new forms of money are closer to the real values of goods and services, whilst move away from the function of money as a store of value and towards the spiritualization of money, i.e. *Postmoney*. Another centrifugal form of alternative money

is virtual money. Existing communities of internet users of the virtual worlds – like Second Life or Entropia Universe – use virtual currencies for living/playing virtual games. A number of skyrocketing Web-based businesses and P2P business models, are naturally requiring reciprocal payment models and payment tools – with no compulsory third-party intermediaries.

The shift of subjective thinking, from the old mutual agreement for transactable features of money and its function as a “store of value”, directly to goods, services, i.e. real, objective and external for the money store of values, makes obsolete the “store of value” function of money. The internet is an abundant resource and the new sixth abundant factor of labour. Reciprocity for the new market models of P2P and BBC requires new objective market processes to be facilitated with a new type of money – objectified by these market models. For this purpose, money issuance and creation should be non-monopolistic, as money will function merely as a medium of exchange and a measure of value, rather than also as a self-valued substance, i.e. a store of value and aim *per se* (Postmoney). Further, money may even disappear entirely. Once individuals start to consciously perceive that there an abundant factor of labour exists – the internet – this will signal the beginning of the end for the scarcity market economy model. PMT assumes, that after a certain lag there will be a psychological change in the individual perception of the consumption of the still scarce material goods and services. This will lead to a beginning of a non-material mentality and the end of consumerism. This is what the omnipresent internet connectivity will cause to the good old money, i.e. current *Postmoney* stage. Moreover, in the realm of the future abundance, the “store of value” function will objectively disappear by itself not only for *Postmoney* but also for the goods and services.

As money is a socio-economic and cultural phenomenon/construct, its nature might be reshaped and changed to mirror the overall changes of human perception and society: “Money expresses the relationship that exists between economic goods. Money itself remains stable with reference to the changes in relationships, as does a numerical proportion which reflects the relationship between many and changing objects and as does the formula of the law of gravity with reference to material masses and their infinitely varying motion. Just as the general concept in its logical validity is independent of the number and modification of its realizations, indicating, as it were, their lawfulness, so too money—that is, the inner rationale by which the single piece of metal or paper becomes money—is the general concept of objects in so far as they are economic. They do not need to be economic, but if they wish to be, they can do so only by adjusting to the law of valuation that is embodied in money” (Simmel, 2004, p. 517). That is to say, the inner nature of money is predisposed to qualitative changes by the individual’s perception, as it is also in the case of its societal being.

Conclusions

The objective and qualitative reasons offered by the PMT for the transformation of money into *Postmoney*, are related to the being of temporality, as well as to technologization and the sixth factor of production, scientific exponentiality and mental changes in the human being. The value function and prospect theory claim that the increase of money quantity and the status quo shift, lead to a diminishing sensitivity of money gains and losses. Scientific development and the possibility of “buying” more years of life (or even immortality in next 30 years), is changing the perception and psychological evaluation of humans towards money. A current *Postmoney* survey gives a strong base to believe that the perception of money’s intrinsic value changes for the respondents, in the environment of *Postmoney* and possible future scientific achievements in prolonging life. The perceivable future of money belongs to the domain of *Postmoney*. The perception of an intrinsic value of *Postmoney* changes the shape of a value function – from logarithmic to linear or even

stochastic. This is the reason to believe that increasing of a *Postmoney* quantity will lead to a qualitative transformation and psychological increase of a *Postmoney* sensitivity.

That would be the socio-economic environment under the realm of old/currently prevailing economic scarcity paradigm. A paradigm which objectifies market values of different goods and services, making monistic money objectively their universal intermediary and intertemporal store of value. The proposed PMT pretends that next stage, after *Postmoney*, will be the realm of economic abundance where money will lose its primary quality – its intrinsic value and function as an intertemporal and universal store of value. The monistic nature of money and its societal perception, as a universal and intertemporal medium of exchange and unit of account, will become easily replaceable by non-monistic money. Non-monistic money will not have a function as a store of value and will finally disappear. The replaceability of money, by new non-monistic tools and forms of exchange and accountability, plus possession and consumption of goods and services, will be inevitably possible in the realm of economic abundance. The new non-monistic tools and forms of money will only have instrumental values/features for transactability or accountability, measuring abundant consumption and possession. This will lead to usage of non-monopolistic and non-central bank forms and technologies, for exchanging and measuring of consumption in the abundant welfare society.

As the “Money is nothing but the symbol of this relativity, and thus we can understand the fact mentioned earlier, that the need for money is connected with the fluctuation of prices, whereas barter presupposes fixed prices” (Simmel, 2004, p. 124) money, respectively, *Postmoney* can disappear in the environment of BBC or an abundant economy.

Notes

1. M2 consists (M0 + M1 (M0+travelers' checks and demand deposits) + money market shares and savings deposits).
2. A person who constantly worries about money may be afflicted with “Money Sickness Syndrome”. MSS was identified in 2006 by Dr Roger Henderson who is a leading mental health expert in the UK.
3. Available at: <http://exacta.bg/?lang=en>
4. It is estimated by the Complementary Currency Resource Center, http://complementarycurrency.org/ccDatabase/les_public.html, that for the year 2017, there are worldwide over 300 local exchange systems with estimated yearly trade volume of US\$470m and 1,657,466 members.

References

- Coinmarketcap (2018), available at: www.coinmarketcap.com
- Federalreserve.gov (2018), available at: www.federalreserve.gov/releases/h6/current/default.htm
- Davies, G. (2002), *A History of Money from Ancient Times to the Present Day*, University of Wales Press, Cardiff, p. 16.
- Graeber, D. (2011), *Debt: The First 5,000 Years*, Melville House Publishing, Brooklyn, New York, NY, pp. 21-23.
- Heidegger, M. (1996), *Being and Time: A Translation of Sein Und Zeit*, in Stambaugh, J. (Ed.), 7th ed., SUNY Press., Albany, New York, NY, p. 15.
- Hicks, J.R. (2001), *Value and Capital an Inquiry into Some Fundamental Principles of Economic Theory*, and Oxford, University Press, Oxford.
- Kahneman, D. and Tversky, A. (1979), “Prospect theory: an analysis of decision under risk”, *Econometrica*, Vol. 47 No. 2, pp. 277-280.
- Kant, I. (1998), *Critique of Pure Reason*, Cambridge University Press, Cambridge, pp. 567-568.
- Law, J. (2013), “Money and trade considered, with a proposal for supplying the nation with money”, Newton Page.

McKinsey Global Institute (2009), "Global capital markets: entering a new era", September, p. 8.

Marinetti, F.T. (1909), "The founding and manifesto of futurism", *Le Figaro*, Paris, February 20, English-language translation (1973) Thames and Hudson Ltd, London.

Martin, F. (2015), *Money: The Unauthorized Biografi from Coinage to Cryptocurrencies*, First Vintage Books, USA, p. 11-12.

Samuelson, P.A. and Nordhaus, W.D. (2010), *Economics*, McGraw-Hill, New York, NY.

Sardar, Z. (2010), "Welcome to postnormal times", *Futures*, Vol. 42 No. 5, pp. 435-444.

Scott, B. (2013), *The Heretic's Guide to Global Finance: Hacking the Future of Money*, Pluto Press, London.

Seaford, R. (2004), *Money and the Early Greek mind: Homer, Philosophy, Tragedy*, Cambridge University Press, Cambridge, p. 18.

Simmel, G. (2004), *The Philosophy of Money*, third enlarged edition, Routledge Taylor & Francis Group, London and New York, NY, p. 517.

Smith, A. (2009), *Wealth of Nations*, Thrifty Books, Auburn.

Further reading

Ivantchev, B. (2015), *It's not Money until it's Postmoney, The Future of Business: Critical Insights into a Rapidly Changing World from 60 Future Thinkers*, in Talwar, R. (Ed.), FutureScapes, UK, p. 140.

Appendix 1

Table A1 Postmoney survey: break down of the survey results – question no. 2

Postmoney survey 5-12 July 2017	2. How much more valuable money will be?					Total
	5-50% more valuable (%)	50-100% more valuable (%)	Money will be twice as much more valuable (%)	Money will be so much more valuable, that it will be more than money (%)	I do not know/I cannot answer (%)	
Total	5.7	15.2	25.9	40.8	12.4	100
<i>Sex</i>						
Male	5.9	11.2	26.6	43.2	13.0	100
Female	5.6	19.0	25.1	38.5	11.7	100
<i>Age</i>						
18-29 years	7.5	15.0	30.0	37.5	10.0	100
30-39 years	0	12.3	27.7	47.7	12.3	100
40-49 years	8.1	22.6	22.6	35.5	11.3	100
50-59 years	5.6	15.3	29.2	38.9	11.1	100
60 years and older	7.3	12.8	22.9	42.2	14.7	100
<i>Education</i>						
Higher	9.3	18.6	20.6	40.2	11.3	100
Secondary	5.6	10.1	31.1	45.3	7.8	100
Primary	15	25.4	20.9	28.4	23.9	100
Lower	0	0	0	60.0	40.0	100
<i>In what kind of a material conditions you are living?</i>						
Reach	20.0	20.0	20.0	40.0	0	100
No deprivations	9.8	17.6	19.6	41.2	11.8	100
Some deprivations	5.5	13.1	28.7	42.6	10.1	100
Big deprivations	1.9	20.8	20.8	32.1	24.5	100
Misery	0	50.0	0	50.0	0	100
<i>You are</i>						
Bulgarian	6.1	13.6	26.9	42.1	11.3	100
Turk	4.8	23.8	33.3	19.0	19.0	100
Roma	0	37.5	0	37.5	25.0	100
Other	0	30.0	0	50.0	20.0	100
<i>Residence</i>						
Sofia	14.9	25.5	25.5	23.4	10.6	100
Provincial Centre (Town)	1.0	12.4	16.5	55.7	14.4	100
Town	7.6	12.0	25.0	47.8	7.6	100
Village	4.5	16.1	34.8	29.5	15.2	100

Appendix 2

Inputing data

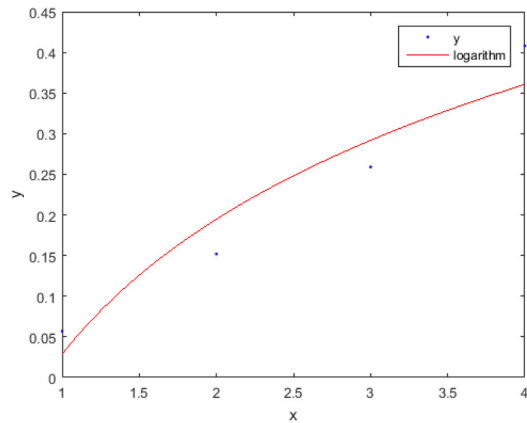
```
x = [1 2 3 4];  
y = [0.0570 0.1520 0.2590 0.4080];
```

model 1

$$y = a + b \log(x)$$

```
logaritm = fitype( {'log(x)', '1'}, 'independent', 'x', 'dependent', 'y', 'coefficients', {'b', 'a'} );  
[logaritm_result, gof_log] = fit( xData, yData, logaritm );  
logaritm_result  
gof_log  
figure( 'Name', 'untitled fit 1' );  
h = plot( logaritm_result, xData, yData );  
legend( h, 'y', 'logaritm', 'Location', 'NorthEast' );  
% Label axes  
xlabel x  
ylabel y
```

```
logaritm_result =  
  
Linear model:  
logaritm_result(x) = b*log(x) + a  
Coefficients (with 95% confidence bounds):  
b = 0.2394 (0.01421, 0.4645)  
a = 0.02883 (-0.185, 0.2427)  
  
gof_log =  
  
sse: 0.0059  
rsquare: 0.9128  
dfe: 2  
adjrsquare: 0.8691  
rmse: 0.0545
```



model 2

$$y = b \exp(x)$$

```
exp = fitype( {'exp(x)', '1'}, 'independent', 'x', 'dependent', 'y', 'coefficients', {'b'} );  
[exp_result, gof_exp] = fit( xData, yData, exp );  
exp_result  
gof_exp  
figure( 'Name', 'untitled fit 1' );  
h = plot( exp_result, xData, yData );  
legend( h, 'y', 'exponential', 'Location', 'NorthEast' );  
% Label axes  
xlabel x  
ylabel y
```

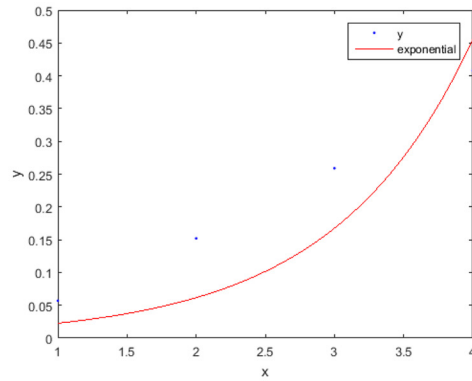
```
exp_result =  
  
Linear model:  
exp_result(x) = b*exp(x)  
Coefficients (with 95% confidence bounds):  
b = 0.008344 (0.003922, 0.01277)
```

(continued)

```

gof_exp =
    sse: 0.0290
    rsquare: 0.7067
    dfe: 3
    adjrsquare: 0.7067
    rmse: 0.0816

```



```
%model 3
```

$$y = a + bx$$

```

linear= fitype( {'x', '1'}, 'independent', 'x', 'dependent', 'y', 'coefficients', {'b', 'a'} );
[lin_result, gof_lin] = fit( xData, yData, lin );
lin_result
gof_lin
figure( 'Name', 'untitled fit 1' );
h = plot( lin_result, xData, yData );
legend( h, 'y', 'linear', 'Location', 'NorthEast' );
% Label axes
xlabel x
ylabel y

```

```

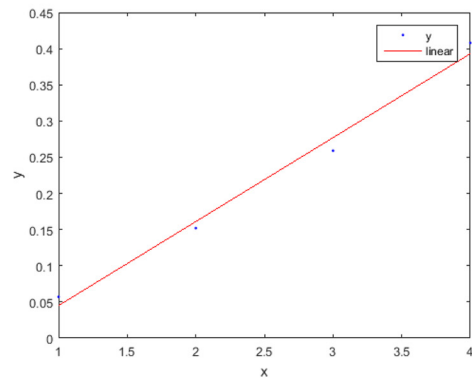
lin_result =
    Linear model:
    lin_result(x) = b*x + a
    Coefficients (with 95% confidence bounds):
    b = 0.116 (0.07815, 0.1539)
    a = -0.071 (-0.1747, 0.03267)

```

```

gof_lin =
    sse: 7.7400e-04
    rsquare: 0.9886
    dfe: 2
    adjrsquare: 0.9829
    rmse: 0.0197

```



Appendix 3

Linear

$$y = a + bx$$

```
fitlm(x,y)
```

```
ans =
```

```
Linear regression model:  
y ~ 1 + x1
```

```
Estimated Coefficients:
```

	Estimate	SE	tStat	pValue
(Intercept)	-0.071	0.024094	-2.9468	0.098444
x1	0.116	0.0087977	13.185	0.0057029

```
Number of observations: 4, Error degrees of freedom: 2  
Root Mean Squared Error: 0.0197  
R-squared: 0.989, Adjusted R-Squared 0.983  
F-statistic vs. constant model: 174, p-value = 0.0057
```

Logarithmic

$$y = a + b \log(x)$$

```
fitlm(log(x),y)
```

```
ans =
```

```
Linear regression model:  
y ~ 1 + x1
```

```
Estimated Coefficients:
```

	Estimate	SE	tStat	pValue
(Intercept)	0.028827	0.049706	0.57995	0.62058
x1	0.23936	0.052328	4.5742	0.044619

```
Number of observations: 4, Error degrees of freedom: 2  
Root Mean Squared Error: 0.0545  
R-squared: 0.913, Adjusted R-Squared 0.869  
F-statistic vs. constant model: 20.9, p-value = 0.0446
```

Exponential

Transforming to get a linear equation

$$y = \exp(a + bx), \text{ take log of both sides of the equation}$$

$$\ln(y) = a + bx$$

and recover the original equation by exponentiating

$$y = \exp(a + bx) = \exp(a) * \exp(bx)$$

```
fitlm(x,log(y))
```

```
ans =
```

```
Linear regression model:  
y ~ 1 + x1
```

```
Estimated Coefficients:
```

	Estimate	SE	tStat	pValue
(Intercept)	-3.3584	0.23889	-14.058	0.0050218
x1	0.64376	0.087232	7.3799	0.01787

```
Number of observations: 4, Error degrees of freedom: 2  
Root Mean Squared Error: 0.195  
R-squared: 0.965, Adjusted R-Squared 0.947  
F-statistic vs. constant model: 54.5, p-value = 0.0179
```

About the author

Dr Boyan Christov Ivantchev has 23 years of experience in the financial markets as FX, stocks, fixed income dealer and asset manager. Currently, he is Deputy Chairman of the Board of Directors in Advance Equity – Private Equity Fund. He is Professor of Behavioural Finance. He is Founder of the research studies in that area and in neuroeconomics in Bulgaria, Co-founder of The Millennium Project – Bulgarian Node. He served as Economic Advisor to the Deputy Prime Minister of Republic of Bulgaria 2005-09. He published original theory using first time the notion of Postmoney – “Money as Taboo and Postmoney” and the first book in Bulgarian language about Behavioural Finance *Anyone Can Invest Successfully: If Will Avoid Illusions and Irrational Behavior* and *History of Bulgarian Capital Markets 1862-1948*. In 2015, he contributed with the chapter “It’s not money until it’s Postmoney” in the bestselling book *The*

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