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"The Nature of Money in Modern Economy – Implications and Consequences"

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The above-mentioned paper is compactly written on the nature of money from the supply side. Thus, a greater portion of the paper interfaces with the theme of money and bank functions in respect of the roles of the government, the monetary authority, and commercial banks. Although some historical information is provided concerning the traditional way of understanding the nature of money and money creation, much of the paper deals with the current versus the older versions of how money is created. Within all such functions of money on the supply side, the paper also invokes the social function of money; and thus, what can constitute good money as Hayek (1999) refers to the contribution of money to economic sustainability.

The paper is worthy in pointing out many of the recent developments in monetary thinking concerning principally the U.S. and the British economies. There are also subtle areas that reflect similarities with an Islamic overview on money and the real economy. But the attention in this respect is cursory and the most rudimentary reference is given for any substance. Consequently, the nature of money and monetary transmission vis-à-vis the relationship between the central bank, the commercial banks, and the real economy along with the underlying monetary transmission interconnecting it with finance and the real economy could not be fully understood, explained. My discussion will focus on this most important issue in the light of the quantity of money rather than on the 'supply' of money. This will be in the context of mobilizing all forms of resources that qualify as social possibilities, and in ways they evolve out of the generic monetary system and monetary transmission in the money, finance, and real economy corresponding to the Islamic worldview.

The paper under discussion addresses some pertinent issues that attempt to explain the social and just function of money in the organization of the political economy of power and acquisition by the accumulation of wealth on the one hand. On the other hand, the paper supports the government control of sovereign money supply to finance social projects and infrastructure.

Two opposite perspectives of money and monetary functions are deduced in the context of the social agenda of a good and stable socio-economic order. These are either that money supply is created by commercial banks via debt/credit creation. Such a predominance of the money supply function causes power and wealth to be cumulatively vested with those who hold the lending power as debt. These are the commercial banks, and the wealthy and powerful shareholders, and the opportunist

class. To such a consequence of power and accumulative animal spirit, adds the monetary system that is capitalized by the fractional reserve requirements system. The power of money is then transferred to the commercial banks. The central bank as the monetary authority loses its regulatory governance over the commercial banks operating on the basis of the fractional reserve system. On the other hand, while advocating the end of the mobilization of money through commercial banks, the paper also recommends an end to the fractional reserve requirements so as to attain social objectives and socio-economic stability of money. Money thereby becomes a legal contract on the use of money as circulatory capital in social projects, which are pronounced to be government activities rather than private sector undertakings.

These two views are upheld by the authors' reference to how recent research in the IMF and the Bank of England, as referred to by the authors in their paper, explains the modern outlook on the creation of money. It is interesting to note whether such alternative approaches for establishing a government authority on monetary transmission can truly attain the social possibilities that the authors think can be better attainable under such alternative schemes.

The authors explain the IMF perspective of the modern monetary approach to the formation of new money through the banking system as follows: "What is clear is that banks cannot make loans until they first *create the money* which they place into the borrower's account". Thereby, if D denotes deposit in a commercial bank that enables the formation of new money M, then the bank creates an equivalent amount as loan in the borrowers' accounts.

Now there are two ways of looking at the accumulation of money supply as new money in respect of deposits that are made to support the creation of the equivalent amount of loanable funds in the borrower's accounts. The question is whether such a modern way of explaining the nature of money supply gets free of interest rates; or do banks do this in order to circulate money around interest rates to earn profits? Conventional banks like any other firm are seen to maximize profits. Hence, the presence of interest rates to accumulate the revenue

from circulating money in any and all kinds of projects, social or otherwise, via commercial banks or the government. The fractional reserve requirement, on the other hand, causes new money to be created as the result of deposits moving through inter-bank lending. Both systems are based on the central role of interest rates either as a profit-making price of the financial instruments that 'circulate' money or as the prime rate of monetary policy to control the quantity of money and maintaining price stability of economic activities.

Deposit and new money accumulation

A cursory examination of the two systems of money creation, keeping in mind their social influence, can be examined: Let D_n denote the nth round of deposits in the commercial bank. This gives rise to nth amount of new money being created in the borrowers' accounts, M_n. Let us assume that deposit changes at a rate of g_n by the end of the nth round of deposits. That is, the change in deposit between the rounds 0 to n is denoted by,

$$D_n - D_0 = (D_n - D_{n-1}) + (D_{n-1} - D_{n-2}) + \ldots (D_1 - D_0) =$$

$$[(D_n - D_{n-1})/D_{n-1}]*D_{n-1} + [(D_{n-1} - D_{n-2})/D_{n-2}]*D_{n-2} + \ldots [(D_1 - D_0)/D_0]*D_0 =$$

$$g_{n-1}*D_{n-1} + g_{n-2}*D_{n-2} + \ldots + g_0*D_0 \qquad (1)$$

Thus, the total change in deposit between the rounds 0 and n including the initial deposit equals,

$$D_0 + \Delta D = D_0 + g_0*D_0 + \ldots + g_{n-1}*D_{n-1} \qquad (2)$$

This deposit quantity equals the change in new money, M,

$$M_0 + \Delta M = M_0 + g_0*M_0 + \ldots + g_{n-1}*M_{n-1} \qquad (3)$$

This quantity equals the amount that is credited to the borrowers' accounts. The bank then uses this total amount to raise its revenue from interest. Since the banks like financial firms in the private sector raise profits using credits as debt through the borrowers' accounts, therefore, the interest rate is applied on this amount to earn the interest revenue R_M. This quantity is denoted by,

$$R_M = i*(M_0 + \Delta M) = i*(D_0 + \Delta D). \qquad (4)$$

In the simplified case of a constant and equal growth rate of deposits and thereby, of new money (g) and interest rate (i), the result is,

$$R_M = i*(M_0 + g\Sigma\Delta M) = i*(D_0 + g\Sigma\Delta D). \qquad (5)$$

Summation applies to continuous rounds of deposits, which are matched by the corresponding creation of new money in the borrowers' accounts. The result then is a large amount of interest revenue raised by banks from the use of bank deposits to create new money.

Deposit multiplier or multiple credit creation of money in a fractional reserve system?

We next compare the above result of the presently noted approach of the banking system in generating new money as the supply of money with the fractional reserve requirement approach.

Money supply = New Money = $\Delta D/r$, r being the reserve ratio of the central bank.

We can write, New Money = $[(\Delta D/D)*D]/r = (g/r)*D = (g/r)*M.$ (6)

The interest revenue raised by using new money at a rate of interest 'i' equals:

1. $[(g/r)*M]*i = g*i*M$, with reserve ratio r =1 in the case of government's 100 percent control of the use of money. This is equivalent also to the case of 100 percent reserve requirement monetary system held by the central bank. This result would be true in the gold standard or otherwise.

2. When $r < 1$, in the case of a fractional reserve requirement, then a higher amount of interest revenue is raised by commercial banks by circulating money at interest cost to users.

The conclusion then is that, in none of the various cases – either in the fractional reserve ratio or the new approach to explaining the nature and formation of the money supply; the operation of the private sector, or the total control of money by the central bank – the interest mechanism can be avoided. Thereby, the goal of establishing a just society without interest is never realized in the existing prescription of the monetary system, as otherwise suggested by the authors in the paper. This result is true in both cases – either by giving the power of monetary control fully to the government to undertake social projects or by circulating money through the commercial banks and thereby deepening the acquisition and control of wealth by the rich and powerful.

The Islamic monetary regime: How is complementarity between the government authority and commercial banks attained in respect of private sector (market economy) and public sector participation?

To base an argument in favor of the Islamic alternative to monetary theory in the light of its social perspectives simply on a casual reference to the works of Chapra (1985) and a solitary statement by Zarqa, and referring to some other Islamic authors in respect of applying gold reserves in a non-fractional reserve requirement monetary system is far from the truth regarding the social design of the true Islamic mechanism in worldly affairs (*muʿāmalāt*). The important matter to note, and which the authors of the paper have pointed out, is to understand the nature of money, the dynamics of money creation, and monetary transmission through the social economy. It is important thereby to explain and examine the nature and function of money through its co-ordinating relationship between money, finance, and the real social economy in the absence and presence of the rate of interest and the presence of tradable instrumentation of the inherent 100 percent reserve requirement monetary system. Such a formal perspective of money and the monetary system needs to be thoroughly explained and understood to relieve money from its social ills and restore its social potential.

A brief reference to the true Islamic methodology in its generality and monetary outlook in particular

We begin to explain and formalize monetary coordination in these directions by noting that the foundational episteme of all and everything that is termed 'Islamic' rests on the episteme of unity of systemic knowledge. This foundational episteme forms the organic unity of systemic interrelations by cause and effect (inter-causality) between the variables and entities that matter. It is the overarching prevalence of the law of unity of knowledge as the derived law of Oneness of God reflected by the organic complementarities between the selected variables and sectors of the social economy that marks the true Islamic reality with its universal and unique appeal (Choudhury, 1987).

In the monetary question, the organic relational unity conveyed by the episteme of unity of knowledge as the reflection of the dynamics of the primal ontology of the oneness of God (*Tawhid*) as law, does not dissociate the functions of the central bank and the commercial banks in the management of money. In fact, the power of a *ribā* (interest)-free economy and its social possibilities by instrumentation with participatory financing instruments and all essential market and institutional relations being in place of extensive systemic unity of organic relations cannot be realized if we do not invoke the rich function of resource mobilization in the market in concert with endogenous institutional relations. This includes endogenous technology.

Islamic understanding of money, finance, and the real economy is thus brought closer to the Austrian theory of money and the economy in the direction of its Thomist approach with money having its deeply related market mobilization function (Yeager, 1997). In the classical Austrian contribution on money and credit and the examination of the equation of exchange, the epistemological content has been induced in the market functioning of money (Von Mises, 1976; Choudhury, 2016a forthcoming).

The Austrian perspective on the nature and role of money in invigorating the social and ethical relevance of the market system is expressed in the following passage from Yeager. Yeager writes in this regard (1997, p. 412): "Government would be banished from any role in the monetary system other than that of defining a unit of account or *numeraire*. We envisage a unit defined by a bundle of goods and services comprehensive enough for the general level of prices quoted in it to be practically steady. Merely by conducting its own accounting and transactions in this Unit – we tentatively so name it, with a capital U – the government would give private parties a strong incentive to adopt the same". Furthermore, Yeager goes on (p. 413): "The Unit would be defined by goods and services having supplies and demand of an entirely non *monetary* character".

Nature of money in Islam

Business ventures and financing of projects in Islam are done on a participatory basis that includes social systemic interrelations. Thus, the deposits in Islamic banks come from stakeholders with regards to specific projects that themselves get interconnected out of the diversification processes of participatory financing. The nature of participatory financing in its extensively interconnected concept is with regards to projects that form microeconomic entities. Hence, the mobilization of money as deposits of stakeholders to finance such projects in their participatory phase forms micro-money (Choudhury and Hoque, 2004). The nature of money in Islam is thereby currency in circulation through deposits in the participatory mode of mobilizing micro-money as currency deposits into participatory projects. The idea of using money as currency deposits to finance projects standing singly by themselves does not qualify as a truly Islamic social economic picture of money mobilized in the real economy to support projects approved by the greater purpose and objective of Islamic Law (Attia, 2008; Ashur, 2013). Such wider field of valuation of projects, and thereby their support by micro-money through participatory financing, is called *maqāṣid* al-Sharīʿah.

Creation of new money in the Islamic economy

In ways similar to the explanation given by the authors of the paper, every deposit results in an equal amount of financing for the project. Thus, as the authors explain in regards to the "*FMC model*, (Financing through *Money Creation*) where the initial step in new money creation is made *by the bank* when it simply credits the borrower's account with the loan amount".

Thereby, by using the quantity equation of money, the exchange equation, we obtain for Islamic money, financing, and real economy relationship, the following result: The equation of exchange is $m_i v_i = p_i.y_i$ for micro-money (m_i) pursuing a specific project (i) with a velocity of money circulation ($v_i \leq 1$). The result then is the utilization of the quantity of money fractionally ($v_i < 1$) or wholly ($v_i = 1$) in the project(s) under financing. The value of the latter equals price (p_i) multiplied by real output (y_i). Thus fractional or 100 percent circulation of money in projects through financing is represented by the interactive aggregation of money as deposits and thus as micro-money now circulating in congeries of participatory projects (the principle of extensive complementarities).

The total of the micro-money pursuing spending in all interrelated projects of the participatory type, approved by *maqāṣid* al-Sharīʿah, as the intrinsic legal precept to reflect the uniqueness of the episteme of unity of knowledge by systemic relations between participating (complementing) entities. Such systemic relations by organic unity of complementing relations are explained by the evolutionary learning process worldview of interacting and integrating micro-money, financing, and real economy (markets of projects as assets approved by *maqāṣid* al-Sharīʿah) social contracts. We write all these together as the value of real assets so financed by micro-money,

$$\lim_{v_i \to 1} [\{m_i v_i\} \Sigma_{i=1}^{n} m_i v_i]$$
$$\approx \cup^{i}_{interactions} \cap^{i}_{integration} [\{p_i, y_i\}; \Sigma_{i=1}^{n} (p_i y_i)] \qquad (7)$$

Such a monetary actualization results from increasing moral suasion in the Islamic social economy at large (Choudhury, 2016b forthcoming). This experience is the result of evolutionary learning in unity of knowledge determined by reflections of the *Tawḥīdi* (monotheism as law) manifestation of choice in *maqāṣid* al-Sharīʿah and thereby in 'everything' (Barrow, 1991). This includes money, finance, and the real economy in their microeconomic interactive, integrative, and evolutionary phases across dimensions of knowledge, the space of goods and services, and over time.

Monetary transmission from an Islamic perspective

This section deals with the relationships that result in the case of the functioning of Islamic money, finance, and real economy relationships, like the case of FSA outlined by the authors in their paper. There is no need for assuming absence of the fractional reserve requirement monetary system or a 100 percent reserve requirement monetary system under the gold standard as it is traditionally under-stood. In the Islamic case, the appropriate kind of monetary regime will result automatically from the goal of inter-sectoral participation by the principal function of Islamic banks, the private sector in coordination with the central bank. That is, to continuously mobilize savings out of disposable income of depositors into participatory projects that thereby make the financiers as stakeholders with the social perspective in their organic relationship of unity of knowledge.

Therefore, if the principal function of Islamic banks is to continuously mobilize savings into projects of *maqāṣid* al-Sharīʿah choices, then the best way this state of resource mobilization can be attained is by utilizing as much as possible of the savings, including the case of full mobilization of savings as money, as deposits into the real economy by participatory financing instruments. The resulting monetary regime must then necessarily be of the type of holding zero reserves with the central bank and full mobilization of resources by comercial banks. This is the case of a 100 percent reserve requirement monetary system altered to the case of central bank holding no reserves except for the power to create money under the requirements of the Islamic banks. With resulting equality between the quantity of money and the projected demand, no fractional reserve requirement can exist. Also, the debt situation of creating money, as in the case of fractional reserve requirement, cannot exist. We now proceed onwards to take exceptional cases.

Say that the quantity of money in circulation is valued by the currency in circulation, which again is the money value of financing. In the first case, we have addressed the ideal case when savings = value of financing = quantity of money value = spending in the *maqāṣid* al-Sharīʿah approved projects.

However, in real-world financial and real economy demand situation of financing, two other cases can occur. Firstly, when mv <py (spending as utilization of micro-money). In such a case, the central bank would create the residual money to offer to the Islamic banks as shareholders. The added amount of money then fulfills the needs of the Islamic banks, but only to be returned to the central banks upon sharing of returns from the real economy and by way of central bank collecting seigniorage from Islamic banks and thereby, from savers. Now the 100 percent reserve requirement of monetary transmission to the real economy through financing is once again fulfilled. When the central bank creates money as deposits to the Islamic banks, there is an equivalent amount of gold stocked to protect the stable value of currency in circulation as money.

Note that the central bank's quantity of minting gold to support the excess demand for money by

Islamic banks is *inversely* related to the economic activity in which the Islamic bank must finally participate fully. Following the coverage of debt outstanding obligation to the central bank by Islamic banks, the state of monetary transmission to the real economy via participatory financing is once again fulfilled. No fractional reserve requirement ever exists in the Islamic monetary transmission.

The third case is when savings = deposits = mv > spending as p*y. There is now un-mobilized savings with Islamic banks. The legislative relationship of the monetary authority cannot allow Islamic banks to hold such excess supply of savings. There are a few reasons underlying the legitimacy of such a regulatory power by the central bank. Firstly, money in any form belongs to the government as sovereign fund. The Islamic bank cannot utilize any such money in savings in its deposits to earn interest, except by being a participant in the sharing of yields that arise from the real productive activities in accordance with the higher ideals of *maqāṣid* al-Sharīʿah. Thus, the fractional reserve requirement leading to multiple credit creation that would otherwise arise by allowing commercial banks to hold the excess savings underutilized is avoided when central bank suctions the excess savings into its reserves. The central bank then creates an equal value of gold stocks to protect the temporary reserve. The net savings now once again meets the demand of the real economy. The 100 percent reserve requirement monetary system is restored.

The last two cases of monetary transmission mechanisms are wherein a certain amount of gold needs to be minted as a commodity of long-run stable value, except when the Bretton Woods was torpedoed by American intentions to save its Fort Knox's scant gold situation. But the amount of gold minted to protect the currency in reserve and to protect the money created to lend to Islamic banks is inversely related to the real economic activity. Besides, such states are temporary until real economic activity stabilizes. But in all conditions, fractional reserve requirements do not exist. The 100 percent reserve requirements monetary system prevails. A small amount of gold backing can support a large amount of productive activity due to the inverse relationship between economic activity

and minted gold in the case of the creation of money and temporary central bank reserves (Meera and Larbani, 2006).

Definition of 100 per cent reserve requirement monetary system with the gold standard

A one hundred percent (100%) reserve requirement monetary system is the state of bestowing full power to Islamic banks to oblige savings as deposits to meet the demand of the real economy with adjustments in the short-run case of central bank's regulation of her reserves. But because of the inverse relationship between the quantity and stock of minted nominal gold value with the resource mobilization between money, finance, and the real economy, a limiting amount of gold is required to shore-up large economic activity. Such a money and monetary system defines a 100 percent reserve requirement monetary system with the gold standard quite differently from the usual case of the relationship between money, credit, debt, and gold. Prices are ultimately determined by the market process; neither by any government intervention nor by the effect of gold in the temporary reserve adjustment of the central bank.

The fact that a small quantity of gold at its given value can support the currencies in circulation can be proved as follows:

$p.x = mv$; yields $pdx + x.dp = mdv + v.dm$; giving $v.G = pdx + x.dp$ upon the assumption that v remains constant and in the limiting case of Islamic monetary transformation, $v \to 1$, a constant. Next vG meets the two cases: (i) when $Mv > p.x$, then G increases with economic activity slowing down temporarily though for rebounding upwards. Now a given volume and value of gold G will support the nominal value of change in economic activity plus the economic value of change in prices. (ii) when $Mv < p.x$, then G decreases with greater demand for money and financial resources in the real economy. A lower volume and value of gold supports a higher level of change in economic activity. In both cases, the volume and value of gold in the central bank supports all of the economic activity. In both of these cases, the value $v.G$ tends to stability with $v \uparrow G \downarrow$; $v \downarrow G \uparrow$.

Conclusion

The paper by the authors is an informative piece on the various developments surrounding the nature of money and money creation with a social edge. The paper is wholly concerned with the supply of money and its social appropriateness by government control of the sovereign monetary aggregates. It denigrates the private sector mechanism of money creation to be socially abhorring, as wealth and acquisition of power are transferred away from the common public to a few who control such artifacts. By devoting overly to the supply of money, the economic function of money is not forthcoming in the paper. Consequently, as well, much of the assertions of the social and contrary influence of money supply under different monetary regimes remains a matter of assertions rather than being analytical.

While the paper has a fairly good coverage of the modern mechanisms of monetary transmission on the supply side and its social consequences and has discussed the gold standard and fractional reserve requirements, it has not gone well enough into understanding the Islamic alternative monetary system. The few quotations used from some Islamic writers on money do not do justice to the otherwise vast understanding of the monetary theory implicit in Islamic economic and financial formalism, and particularly so from a methodological orientation. More references, many of which are in the published citations could have been used. But perhaps this was not the intention of the authors. Yet, as a result by missing out on these deeper formal analytics, the issue of inquiring into new epistemological visions of a reconstructed social orientation of the money, finance, and real economy interrelationship remain untapped in the paper. In the world of learning and search for new conceptual understanding, other perspectives should be well noted.

Last words

Here is a last word in this discussion. We note that the power of the ever-evolving interactive and integrative system of inter-causal organic relations of complementarities between money, finance, and real economy; and thereby institutionally, between the central bank, Islamic banks, and the real economy depends most critically on a continuous resource reproduction. Continuous resource reproduction primarily depends on the continuous flow of knowledge that sustains organic unity.

The two conditions, namely knowledge and resource reproduction are inter-causally related along with their various explanatory variables. Such is the universal feature of Islamic economics in all its forms – monetary, spending, real economy, and techno-logical change all interrelated together *endogenously* by the force of the episteme of unity of knowledge and its reproduction through the inter-causal synergies between the named activities.

Interest rates are then logically phased out in such a dynamic system and are replaced by participatory instruments promoting resource mobilization into inter-causal economic and social possibilities that are recommended by *maqāṣid* al-Sharīʿah.

On the other hand, resource reproduction comes to an end at the optimal, steady-state points on the indifference curves, production possibility curves, welfare surfaces and the like. New resources would then have to be injected into the system *exogenously* by the external effects of technology, government spending, borrowing and the like. There is no way of explaining how one optimal and steady-state point of resource allocation evolves into a new one over time endogenously, for the synergy between alternatives has ended on any given optimal and steady-state curve.

Thus at the end, the time-dependent evolution of resources must revert to endogenously continuous reproduction of resources by knowledge continuity. Only in such a case conventional money, finance, and real economy interrelations can merge together. Thereby, all the ills of monetary regimes can be avoided.

But such an analysis and formalism requires a comprehensive study of money and monetary transmission interactively integrating with the 'supply' side and the 'demand' sides of money with finance and the real economy. The authors' paper has not looked into this critical issue to provide an analytical and comprehensive understanding of the nature of money and monetary transmission to explain how money works in actualizing a moral and ethical social economy.

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