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alternative to financial engineering issues'**

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Masudul Alam Choudhury

**ISLAMIC CRITIQUE AND ALTERNATIVE TO
FINANCIAL ENGINEERING ISSUES**

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1. Introduction

Financial engineering is fast becoming popular not only in business management schools but also as a specialty in higher level institutes of technology. In essence, it applies economic principles to the dynamics of financial securities comprising of the instruments used in the money and capital markets. Financial engineers educate us on utilizing securities and other materials with a view to erecting the risk-return trade-offs with reference to the pricing of securities, hedging, trading or portfolio management. The techniques they use cover areas which broadly include investment banking, securities' valuation and trading, information systems management, corporate strategic planning, swaps and derivative transactions.

Spurred by imitative instinct, Islamic economists too are not lagging behind: writings on financial engineering tend to proliferate in the Islamic domain also. The fear of being left behind or look less modern does not even spare a pause to think if Islamic finance - given its character and developmental level - is really in need of financial engineering along the *same* lines as it operates in conventional interest and speculation laden concepts and techniques. Are derivatives, options, and futures entirely or always in line with the Islamic norms? Is it that Islamic finance cannot survive without them and so we must search for form and justification to somehow use mainstream methods and procedures? In fact, these are *the* issues that merit serious attention but Masudul Alam Choudhury thought it fit to bypass them. He picked up, rather timorously, to evaluate from an Islamic viewpoint the same issues as dominate the mainstream discussions.

Financial engineering aims at creating new instruments or restructure the old ones to generate desirable cash flows from investments – new or existing. It may tackle a problem such as determining how to allocate funds to various uses in order to maximize investment returns. Techniques that are commonly used include optimization models based on linear or curvilinear programming. The subject is thus attracting computer science graduates with a sound mathematical background; economists and mathematicians are coming into financial engineering teams.

2. On Using Mathematics

The last point brings us face to face with a major observation in Choudhury. Presumably, in response to some referral he defends his extensive use of mathematics on the plea that “the logical and analytical language precision is conveyed by mathematics as one of mankind’s great gifts, the worldly understanding of [the] Signs of Allah” (p 25). The accuracy, clarity and explanatory power of mathematical statements one need not question but mathematics is just a tool and a support for argumentation; it is not and cannot by itself be the argument. Also, short symbolic language often makes long reading; it cannot be every body’s cup of tea. In social sciences mathematical formulations have to be taken with a grain of salt for they all rest on the implicit assumptions of temporal homogeneity, measurability, continuity and infinitesimal divisibility of the variables they handle. Choudhry is carrying for most part of his paper ‘empty boxes’ on his shoulders.

Figures in most cases fail to seize upon the intricacies of social phenomena. In a boxed comment in one of the UNDP Reports, A. K. Sen wondered how much of the complexity of human development the program’s index, a simple single figure, could really capture for a country. Alfred Marshall raised economics to levels of mathematical precision but he did not want it to overshadow economics and thus making the subject irrelevant to the layman. He thought that mathematics could be used as shorthand language, rather than as an engine of inquiry. Samuelson believed that one could make his mark as an economist without knowing mathematics if he were only a bit more intelligent. Ibn Khuldun, Adam Smith, Karl Marx, J.A Schumpeter and many other intellectuals - economists and philosophers - flew high in the skies without the wings of algebra or calculus.

However, all this is not meant to be a denial of the usefulness and place of mathematics in economics, even in abstract model building; questioned is the assertion of its unavoidability in explaining complexities of dynamic situations, especially in an area where morals, beliefs and perceptions play a major role.

Islamic economics is still in a nascent stage and the thought process of the readers is yet to be educated and gain maturity. The point calls for a closer examination of modeling in the paper.

3. Philosophical Treatment of Issues

Those who are familiar with the works of Choudhury would recall that philosophy of economics is one of his major academic interests where he often indulges in the interfacing of mainstream and Islamic positions with frequent overlaps. Here too he drags the financial engineering issues on to his favorite mat. The result is, we shall see, confusion *par excellence*.

As a preliminary, one must note that philosophy of economics is a very equivocal and controversial subject even in mainstream body of knowledge. Its terminology is not quite clear to even many professional economists. For these and other reasons philosophy of economics has been transferred in many universities the world over from departments of economics to those of philosophy. Thus, concepts like *Tawhidi* worldview, epistemology, ontology, epistemic paradigm, recursive process, schema, unity of knowledge, and the list is long, may look awesome to many of the readers of the paper, more so because not a few of the notions wear the appearance the author has painted on their faces. It would have been helpful had the author spelled out in each case the distinction between his *tawhidi* formulation on the one hand and its counterpart in the mainstream and Islamic economics on the other.

Even in his fond terrain one find Choudhury unclear on several fronts. To begin with, in the philosophical parlance a distinction is made between the methodology and methods of a science including economics. This point is missed sometimes in mainstream writings too but has been a bane of most Islamic economics literature. The formulation 'epistemological methodology' (p.6) in Choudhury is illustrative of the confusion. Methodology is a major part of epistemology itself and in the case of a particular discipline lays down rules and procedures to evaluate its performance with reference to its goals. The task of philosophy is to oversee the subject standing essentially *outside* the subject. On the contrary, methods help a subject erect theories, build models and test them for their validity: they are *internal* to it.

Choudhury seems oblivious to this distinction. He takes methodology and methods as synonyms and switches from one to the other without notice. Let me sample some evidence from the paper. The author aims at examining the mainstream financial engineering *methods* and argumentation on asset valuation *methodology* with a view to showing that adoption of both is flawed in Islamic

finance (p.2). The terms put in italics are palpably used interchangeably. Part 1 provides towards the close a thumbnail sketch of the principal instruments used in mainstream finance. Instead of commenting on their efficacy for use in Islamic banking, that one would have logically expected, the author chooses to move down to Part 2 to make out of place and confusing epistemological observations. Also, the paper says (p.28) that *Tawhidi* methodology is derived from the Qur’anic verse (92:13). One is not in fact sure if the author were referring here to method or methodology of Islamic economics. Note that the verse under reference says: “And truly unto Us (belong) the last (Hereafter) and the first (this world)”. To my mind, this alone was not sufficient - if not irrelevant – for Choudhury to erect the *Tawhidi* paraphernalia of his predilection. The foundation of his presumptive argument is too thin and shaky. The following section draws attention to the divertive elements in some of his interpretations of the Qur’anic verses in the paper.

4. Pairing Complementarities

An important notion appearing in the paper is that of ‘pervasive complementarities between good things of life, which the author employs to compare and contrast the resolution of financial engineering issues in the two sorts of epistemological sets: mainstream and Islamic. One comes across little comprehensible explanation of the idea except that it is inspired, we are told, by the pairing principle of the Qur’an (p.12). A number of verses at different places are indicated as supportive of complementarities. Most of them I checked but could not see any having an apparent connection with the concept. Choudhury does not provide documentation save his own writings on the point all of which I have not read. If a scholarly writing must have a minimum self-sufficiency for making its argumentation understandable the present one certainly does not. On evidence for his ‘pairing principle’ the author refers to the verse (36:36) in two places (p. 8 and p. 29). The verse says:

Glory be to Him Who has created all the pair of that which the earth produces as well as of their own (human) kind (male and female) and of that which they know not”(36:36)

Now, here the Qur’an is referring to living beings – humans, animals and vegetation – they are created in pairs for continuity of life and growth on the planet. That one can deduce from the verse, as Choudhury does, a generic principle of pairing applicable to ‘everything’ (p.29) is too stretchy, if not pure nonsense. He does not care to demonstrate how what is said for living organisms can be extended to cover the chits of paper that financial instruments

are, nay to anything else? The other verse that he quotes on the same point (p.8) is even farther away from relevance.

(Say) eat of the tayyibat (good lawful things) that we have provided you with, and commit no transgression or oppression therein lest My Anger should justly descend on you. And he on whom My Anger descends he is indeed perished” (20:81).

Evidently, all that rests in the argument on the principle of pairing complementarities must be expelled from the paper including the TSR; most of Part 2 may presumably be deleted with advantage. It otherwise also is digressive, confusing and patchy.

5. Risk-return Analysis

Another proposition worth considering in Choudhary relates to his risk-return analysis. To him “there are two competing sectors of the economy. One is the financial sector where risk abounds; the other is the real sector where return abounds (p.3). Competition forces a trade-off – implicitly unwelcome to the author - between the sectors with reference to the allocation of resources (p. 6). In Islam, the mainstream competitive structure is replaced, he says, with the pairing complementarities wherein ethical and social considerations would bring about asset evaluation that must resolve satisfactorily the resource allocation problem of the economy (p.3).

The first point one may like to raise here is that the division of the sectors on the basis of one carrying all risk and the other generating all returns is untenable. The fact is that risk-return combination is common to both the financial and the real sectors of an economy; only the characteristics of assets bought and sold in the financial and real markets differ. Second, it is also wrong to premise that there is competition between the two sectors for allocation of resources which would be absent because of ‘pairing complementarities’ in the Islamic system. Islam put emphasis on cooperation and unity for social cohesion and purposive unity but to read in that an antagonism to competition is misplaced. Islam rather encourages individuals to engage in honest and fair competition for excelling in every walk of life: in doing good deeds, in the promotion of general well-being, in the race to meet sufficiency demands (*fard kifayah*). Ethical-based competition promotes efficiency. Finally, it is not clear whether the author is talking of resource allocation within or between sectors or whether the resources under reference are real or financial.

6. Diagrammatic Faux Pas

Figure 1 and 2 of the paper (pp. 5 and 9) are drawn to compare the role of epistemology that underlies the financial engineering assumptions in economics: mainstream and Islamic. The arrows in these figures are directional; they lead us nowhere and the explanations provided of the differences in the text leave much to be desired. To illustrate, the top three layers in the two figures – institutional agency, socioeconomics and preferences – are identical. Does it not convey that the three are same in both of the disciplines? The fourth layer – assumptions of economic rationality in mainstream Figure 1 gives way to the principle of pervasive complementarities in Figure 2. While full information, scarcity, competition, equilibrium and substitution at the bottom of Figure 1 the arrow carries to the rationality assumption box, in figure 2 ten numbers replace them due to probably lack of space; explanations for 5 are provided in the text.

The point to note is that while in the first case the list contains *conditions* in the second it mentions financial *instruments* that do not follow from but move into the complementarities' box as the arrow shows. How can conditions equal instruments and how can the form and character of the upper layers in the Figures remain identical is beyond all logic.

7. The Scarcity Puzzle

Mainstream economics sees the source of economic activity in the scarcity of resources relative to human wants. Relativity is an internal attribute of scarcity. Much confusion prevails in Islamic economics around the notion; the dominant opinion being that the endorsement of the notion would be a denial of God's benevolence. Choudhary does not take a clear stand on the issue but he endorses it by default (pp. 29-30).

God has stored the earth and heavens with inexhaustible resources, not only for mankind but for other creatures as well. The Qur'an informs us: "And there is not a thing, but with Us are the stores thereof. And We send it not down except in a known measure (15:21)". He created resources also in a mold that they would readily submit to human will. He has indeed been infinitely benevolent in his provisions, not niggardly as Robbins once lamented. Resources are, however, scarce in the sense of their *availability* to mankind from the store. Availability depends on our knowledge that God releases to us bit by bit about the location of resources and methods of obtaining them. The history of mankind is largely the history of conquering nature and pushing outward the frontiers of scarcity through continual explorations, inventions, and innovations. We must avoid wastage in using resources because it adds to their scarcity.

Making resources available to mankind on the basis of knowledge, search and effort is part of divine scheme for the promotion of civil society and test men in matters of endurance and tolerance. Without the notion and fact of resource scarcity no economic problem will ever arise: poverty and inequities will be nonexistent and the possession of wealth won't be a trial.

8. Concluding Remarks

This paper is a potpourri of numerous diverse, vague and author generated unrecognized ideas; there is no literature review in the paper. It lacks focus and direction; it is marred by long irrelevant digressions. The paper mixes up the issues of methods with those of methodology and is awfully deficient in explanations; it assumes too much on the part of readers. Many threads are left untied, dangling all over in the argument. The use of mathematical jargon makes it all the more a difficult reading.