

An Islamic Critique of the Capital Adequacy Requirement in Basle II as a Neo-Liberal Agency Underlying Capitalist Globalization

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Abstract: Basle II is one of such sister organizations of the international financial system. In this new financial architecture fired by the neo-liberal paradigm there is no fresh demand to change the structure of power, hegemony and policy enactment with interest rate and interest-based transactions being the central instrument in these. Contrarily, without first invoking the various terminologies of the Islamic vintage the point is established that a new financial architecture emerges for human well being that is premised on the epistemology of unity of knowledge. Later on, this paper points out that this epistemology is *Tawhīd* (the Oneness of Allah) in the Qur'ān, which marks the unique and universal worldview for all world-systems by its superb logical formalism, clarity of explanation and application forming integrative and permanently evolving learning world-systems. Thus, in this paper the explanation of Qur'ānic philosophy is merged with the relation of money, finance, economy, institutionalism and supervision to point out the powerful contradistinction to Basle II.

I. Introduction

The contemporary international banking regulatory agenda of Basle II in respect to the goals of attaining market related discipline, effective risk

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management, supervisory effectiveness, and thereby, minimum capital requirement in the Capital Adequacy Accord are discussed. The liberal political economy and its view on economic and social differentiation for the sake of segmented optimization of economic efficiency (growth) are shown to underlie the deepening conception and action of the international development organization in the new financial architecture.

The Basle II Capital Adequacy Requirement involves interaction among three of its principal regulatory conditions, which Basle II surmizes would be required to establish financial stability under a new global financial architecture. These conditions are (1) minimum capital requirements, (2) risk management and (3) supervisory management to ascertain that the financial intermediaries, particularly banks, are being regulated in their asset valuation by requisite formulas.

Evaluation of banking risk is done by the method of Value at Risk (*VaR*), a method that uses the internal risk assessment method (see Basle Committee Report, 2005). In brief, *VaR* is a measure of estimating the capital requirement in terms of the correlation factor that depends on the probability of default, which principally determines the credit risk.

II. The Liberal Paradigm Underlying Basle II

The epistemology of Basle in respect of financial stabilization and supervision stems from a neo-liberal background of institutionalism and social contract that emerges from the same emotion as was found during the emergence of the Bretton Woods institutions and its sister organizations over time. The most important recent development of the latter kind is the World Trade Organization. The motives, policies and worldview of a social contract for global governance by the Occidental mind-set are further deepened by its epistemology from which the means of spreading globalization is being realized.

Consequently, the ontology of the modern world-system with its political economy and political philosophy of capitalist globalization has become the artifact of global governance (Wallerstein, 1974). This process of global convergence by means of the politico-economic mechanism and its ultimate convergence to global capitalism shaped the impelling political philosophy of writers like Fukuyama (1992), Dunning (2003) and Huntington (1993). Likewise, the idealism of neo-liberalism has shaped the thinking of every political philosopher in the West for a long time now. Notably in this group are Rawls (1971), Nozick (1974), Hayek (1967), North

(1981) and others (this point has been elaborated upon by Choudhury, 2004a).

In classical scholastic times the rise of liberalism was central to the philosophy of Hegel (1956). He claimed the invincibility of rationalism in every human design and referred to this element as the World Spirit, which Hegel claimed that the world is being incessantly driven towards. Keynes (see O'Donnell, 1989) constructed his liberal economic model on the basis of individualism and rationalism. These coloured Keynes' understanding of the power of economics through institutional forces. Knight (1947:65) was a champion of liberalism, in his words: "The theory is that the individual is, in general ... the best judge of his own ends and of the procedure to be used in promoting them". Friedman and Friedman (1962) dwelt on the theme of liberalism as their core argument supporting the need for the prevalence of freedom and democracy in every world-system.

In the context of a theory of global political economy, Ruggie (1998:72-73) writes: "This was the essence of the embedded liberalism compromise: unlike the economic nationalism of the thirties, it would be multilateral in character; unlike the liberalism of the gold standard and free trade, its multilateralism would be predicated upon domestic interventionism".

Minoque (1963) explains that the liberal paradigm is centred on political, cultural, social and economic individualism. Liberalism is seen to survive on a self-reinforcing interaction between a particular way in which individual preferences are formed under self-seeking motives and are guided and expanded across economic, institutional and social domains by the same rule of preference aggregation that results in the formation of these latter artifacts of man.

Buchanan (1954) is a champion of this idea of global methodological individualism. The entire preference and social contractarian philosophy of liberal social, political, global and institutional order is developed upon this perspective of methodological individualism. Thus, when the International Monetary Fund (IMF, 1995) propounds its global ethics, such ethics are moulded in the crucible of an occidental worldview. Take the case of the prevalence of interest rates as the central element in all the policies of market transformation, policy instruments and globalization within which the poor are surmised for amelioration of their welfare. The Bretton Woods institutions that emanated from the Keynesian thinking of a global macroeconomics premised all the theory of economic policy on the dynamics of the IS-LM analysis and the income multiplier. These methods

were inseparably premised on interest rate, income, fiscal, monetary and trade relations (Rogoff, internet version undated).

The principle of competition in the substantive sense of economic and social theory, which also centres on methodological individualism (Buchanan and Tullock, 1954) is upheld while promoting poverty alleviation by global ethics. The growth paradigm is targeted universally as the efficiency goal of the economy without a change in the neoclassical principle of opportunity cost in such a concept of economic growth, global ethics and distribution. The result is that the twin social and economic goals, such as economic growth and distributive equity, respectively, exist in perpetual tradeoff. This kind of social tradeoff is found to prevail both at the macroeconomic and microeconomic levels (Choudhury *et al*, 2002). The assumption of resource scarcity, in turn, became the consequence of a socially constricted attitude toward sharing (Polanyi, 1957) and defined the technological limits in the ability for continuously generating resources for human well being. Both of these assumptions are pursued thoroughly in economic and social theory to back up the assumptions of scarcity, rationality, competition and marginalism (Choudhury, 2000).

III. The Treatment of Ethics in the Liberal Economic and Social Worldview

The subject of ethics in economic theory and policy-making exists as an exogenous human preference. Most ethicists have upheld this view. Contrarily, the search for a theory of endogenous ethicality is only now emerging but remains in the shadows (Zsolnai, 2002). The mainstream economic ethical viewpoint is upheld, despite the utilitarian analysis of an ethical family behaviour by Becker (1981) as a contract between family members as preferences premised on competition for a scarce household resource (time) in concert with individual market choices (market goods). Family preference behaviour in individual ethics formed in concert with individual market choices despite being endogenous in nature, deepens the assumption of scarcity by household competition for scarce economic resources. The neoclassical principle of the marginal rate of substitution between time and goods, and thus between family members, prevails thoroughly in this and likewise all social and economic choices.

The idea of endogenous ethics within the marginalist doctrine is advanced by Hammond (1989). In this case the institutional altruist who establishes a social contract is found to pursue a social choice function with

ethics as a part of the decision-making vector of variables. Yet at the end of the maximization problem of the underlying social welfare function, the altruistic choice vector is found to fall apart as an exogenous set that prevails over the other choice vectors. The social contract formulation is then relegated to the ethical social choice set, which by its exogenous existence, becomes an externally imposed criterion for social action and its institutional enforcement. The idea of deriving and evolving social preferences interactively with the social and economic environment is thereby left to hegemonic governance by institutional control. The determination of altruistic decision-making remains oblivious to any historical background of interactive preference formation in social choices formed by interactive co-evolution of preferences with institutional change.

In conclusion, we note that liberalism is premised on an exogenous treatment of ethics in social and institutional choices, a condition that is entrenched in all social and economic understandings of the occidental world-system, by virtue of the key assumptions of scarcity, competition, rationality and individual power. Within this kind of world-system there prevail those instruments, rules and preferences that in turn deepen the methodological individualism of the occidental world-system. Some such key instruments underlying a differentiated view of self and society, economy and the social order (Holton, 1992) are interest rates, competing individuals and institutions, exogenously developed policies and enforcements that remain foreign or opposed to participatory choices (Maurer, 1999). The clamour for social and economic cooperation and social participation in the liberal philosophy is simply exogenously upheld rather than assimilated with inherent laws, rules and guidance upon which a new social contract can be premised.

IV. The Nature of the Ethico-Economic Question in the Neo-liberalism of Basle II

Basle II is yet another institutional carrier of the neo-liberal ideas towards an economically ethical idea of resource management that is premised on the established belief of interest rate at the heart of the global policy and resource management agenda. The Basle II outlook and understanding of the interrelationship between scarcity, technology and global social sharing of resources, and thereby the construction of institutions as social organizations (Choudhury, 1994) are distanced from the holism of humanly integrated sociology of precepts and their realization.

Take the central ideas of Basle II, interrelating market discipline as measured in terms of risk management with the supervisory role undertaken jointly by bank managers and overseers including international regulatory agencies like the IMF, and public disclosures of risk management under a system of minimum capital requirements by the financial authority (Basle II, 2003). The joint realization of these goals reveal the central role of interest rate in securing funds, that is the capital adequacy for financial institutions, followed by the unequal distribution of risk and capital adequacy between small and large financial institutions. This in turn results in regulations and policing by international consensus on such policy measures and institutional disciplines that leave the small enterprises and the developing economies adversely poised against the de-stabilizing effects of the combination between risk, capital adequacy and institutional supervision emanating from foreign sources.

V. Risk Management in the Market Perspective Under Basle II

It has been pointed out that the minimum capital requirements by national financial institutions would adversely affect small enterprises while giving undue benefit to the larger ones in facing the uncertainty of capital market volatility. Consequently, in the face of the dual adversity caused firstly by lower credit barriers to large corporations, and secondly, by a lower exigency for funds to large corporations to face the market risk, the direction of foreign capital reacting to market risk in various countries will be directed proportionately more into the multinationals as opposed to the smaller enterprises. Thereafter, the developing countries that need to develop their own enterprises will face competition for survival and stability against the giant multinationals. The world share of resources of foreign capital will then be held by multinationals at the expense of the indigenous development of nations, whose best protection comes from home grown enterprises and financial lenders of such enterprises. Developing countries are thereby pitted against market risk in a cycle of development dependency to the foreign multinationals and foreign supervision. The political economy of such development dependency is well known. Such adverse consequences have come to be known in the literature as the modern-times imperialism (Tisdell, 1989), eurocentricity (Amin, 1989) and capitalist globalization (Mehmet, 2001).

In the face of such de-stabilizing and unequal sharing of global development resources two consequences naturally arise. The ability to

diversify and manage market generated financial and economic risk will be reduced. The state of inadequate and unstable financial risk management by small enterprises following the stricture of minimum capital requirements, while the multinationals benefiting from this condition, will drive risk-averse investors and producers to the joint ventures of multinationals. The resulting disappearance of risk diversification (lumpiness of risk exposure at the multinationals) will also limit the scope for product diversification by the decline in joint ventures. Consequently, the developmental and participatory potential of the developing economies in their development planning will be curtailed.

Along with the loss in risk and product diversifications the consequential adverse effects will be felt on the social front. Loss of project participation resulting from constrained product and risk diversifications will cause resource scarcity for shared resources. Social participation, on which the society must depend for its sustainable progress towards poverty alleviation, empowerment and employment generation (World Bank, 2000; UNDP HDI Reports, 1997 to 2000; Choudhury and Umar, 2003), will also be lost.

To arrest the resulting adversity of the Basle II clause on capital adequacy, the proposed stringent measures on risk measurement and management will have to be raised. This will adversely affect the smaller enterprises and financial institutions because of their limited capital market penetration capability. On the risk measurement side specific models will be prescribed. One of these is the VaR (Internal Value at Risk) model, which measures risk at source in the following way. The risk ratings as Internal Rating Based (IRB) weights are assigned to financial organizations by supervisors external to a bank's financial management. These supervisors will be assigned by the IMF and OECD or approved credit rating institutions such as Standards and Poor, and Moody.

VI. Some Questions Relating to Minimum Capital Requirements

Consider now the minimum capital requirements formula under the capital ratio:

$$\text{CapitalRatio} = \frac{\text{Capital}}{\text{CreditRisk} + \text{MarketRisk} + \text{OperationalRisk}} \geq 8\%$$

That is,

$$\text{Capital Requirement} \geq 8\%(\text{CreditRisk} + \text{MarketRisk} + \text{OperationalRisk})$$

$$\text{TotalRiskFactor} = \text{CreditRisk} + \text{MarketRisk} + \text{OperationalRisk}$$

In the interest-based credit and financial system the total risk factor depends positively on increasing short-term interest rates, which are found to be volatile in terms of their term structure. Even today, in a regime of low commercial interest rates, short-term interest rates in terms of their term structure remain buoyant and unstable for creditors.

Besides, the total risk factor is either positively or negatively related to income level depending upon the degree of risk aversion. But a risk aversion factor linked with lower risk and higher returns will also mean a negative relationship between interest rate and income level in the sense of resource mobilization into the real economy (Choudhury and Hoque, 2004). With such movements of funds we can infer that changes in capital requirements will depend on the competition for financial resources between the real economy and financial savings in reference to the growth of income and the attitude of creditors towards risk aversion or risk preference. See Appendix for a formal proof.

This is the same as saying that the direction of financial resource (capital formation) into the financial sector by 'marginal substitution' of the financial economy for the real economy will determine the direction of risk level. In case there is more reliance on the financial sector, now made to substitute the real economy, then risk will increase and the capital requirements at 8% capital ratio will demand a higher amount of capital to offset risk.

In the case of capital formation in the real economy, risk will remain low as productivity is enhanced. The pressure on minimum capital requirements is consequently reduced. We will return to this risk and real economy dynamics in relation to the monetary-real economy interrelationship in the Islamic economic and financial system.

VII. Supervisory Role

With the picture on risk-return marginalist tradeoff, caused by the financial and real economy activities in relation to the capitalization of risk in Basle II minimum risk requirements measure, we now additionally examine the theme of tradeoff between economic efficiency and distributive equity as well. The external supervisors of risk management in Basle II are selected from the IMF, OECD and preferred financial giants such as Standards and Poor, and Moody. These agencies have very stringent measures for gauging economic and financial efficiency that do not auger well with the social priorities neither in the industrialized countries (*e.g.* the employment-price

level tradeoff) nor in the developing countries (*e.g.* the prescription for growth-led socioeconomic development, structural adjustment and IMF conditionalities on guarantees of multilateral financial resources).

The history of the supervisory role as evinced in the WTO and now felt in Basle II has shown closed supervisory decisions among the principal agents. Consequently, industrial democracy (Ellerman, 1991) and participation between various groups in society have never been the extended social objective of these supervisory groups. The overly fixed focus on economic and financial efficiency for preserving solely the shareholders wealth and property rights overshadowed the social context of property and property rights, which is a collective development concept.

The precept of methodological individualism among shareholders is found here to culminate into the institutional social choice of Basle II and in its perspective of the financial intermediaries to preserve the property and property rights of shareholders alone. The development picture of the future that so emerges is one of a skewed distribution of wealth and power, and thereby, the enactment and application of policies in favour of the wealthy segment of society (Korten, 1995). Social goals such as participation, international cooperation, empowerment, poverty alleviation and sustainability with overall human development, which are often slogans of international development organizations, remain defeated as exogenous policy and programme related measures in the face of a general theory and preferences based on marginalist tradeoff between the social and economic goals and between the competing sectors within these sectors, such as between the financial sector and the real economy. Buchanan (1999) revels in favour of such a marginalist orientation in his neo-liberal constitutional economics.

VIII. What Ought to be Considered in the Risk Management and Supervisory Role?

Like the Bretton Woods Institutions, Basle and WTO are sister organizations that aim at patterning the global political economy according to the specific models and goals of the neo-liberal vintage but without regard to alternative paradigms of integrated socioeconomic transformation. This reflects the hegemony of contested cultures and worldviews about which some have written (Murden, 2002). The central attributes of the neo-liberal worldview governing capital formation, ownership, economic growth and social distribution, competition and participation, ethics and morals in terms of

laws that are endogenously realized in human experience, are washed by the central assumption of the marginalist tradeoff. The latter is an Occidental socio-scientific axiom that exists conjointly with competition, scarcity and differentiation of the economy from the social contract and constitutional agenda. The segmented view of the socio-scientific worldview in liberalism is constructed on such a differentiated view of its epistemology, the resulting methodology and analytical methods used for experiential measurements, institutionalism and policy development. New institutionalist contributions in this area bring out this essence of marginalist substitution in social choice theory quite emphatically (Feiwel, 1987).

Therefore, not much can be expected from Basle II beyond the stringent measures enacted by measurement and institutionally closed supervisory rules to put in place instruments for the safeguard of shareholders' wealth. The economy and society are viewed in their differentiated contexts as being driven by the dominant preferences and role of the preferred shareholders in the interest of economic efficiency and growth. Economic theory, individual and institutional preferences and the resulting policies governing such social contracts are all instruments of this same set of goals. Global political economy is essentially the outcome of the attenuating complex of marginalist tradeoff relationships in favour of global capitalist designs of ownership and power and the attenuating methodological enactments (Thurow, 1996).

Nitzan and Bichler (2000: 67) write in regard to the central role of marginalist tradeoff in mainstream political economy:

And so from Smith onward, it became increasingly customary to separate human actions into two distinct spheres, 'vertical' and 'horizontal'. The vertical dimension revolves around power, authority, command, manipulation and dissonance. Academically, it belongs to the realm of politics. The horizontal axis centers around well-being, free choice, exchange and equilibrium – the academic preoccupation of economists. The consequence of this duality was to make modern political economy an impossible patchwork: its practitioners try to remarry power and well-being, but having accepted them as distinct spheres of activity to begin with, the marriage is inherently shaky.

Thus at the end, the theme of capital formation and its control and distribution, enters centre stage in understanding, criticizing and alternatively improvising an ethical and moral sustainable worldview of financial architecture that Basle II cannot offer within its neo-liberal

premises. We turn to this primary worldview now in respect to designing a new financial and economic architecture for a sustainable human future.

IX. The Islamic Worldview of a New Financial Architecture – Ummatic Calling.

9.1. The model of unity of knowledge in the Islamic world-system

In contradistinction to liberal political, social, institutional and economic philosophy, Islam has a distinctive worldview to offer for a unique and universal financial architecture. We will present this new design here in a way that will be based on a generalized formalism of systemic structure. It will not be inhibited by cultural and religious specificity.

The liberal order leaves us universally in the grips of the neoclassical type methodology of marginalist tradeoff in everything. This is caused by the assumptions of methodological individualism, which causally breeds on scarcity, competition, economic rationality, steady-state equilibrium and optimization consequences of the objective criterion. All these are methodically realized by the mathematical mechanism of opportunity cost representing the marginal rate of substitution in production.

Contrarily, the assumptions of the new worldview are based on systemic learning and are perpetually evolving. Also in all of these dynamics the preferences of the decision maker and their qualifying ethics remain exogenous or endogenously enhance the attributes of neoclassicism, as in Becker's theory of preference formation. Institutions, policies and preferences in the individual and aggregative sense are prescribed. Basle II was found to project its agenda in this same framework into the competition and alienating relationship between the real economy and the financial sector. This became the cause and reinforcing effect of an uncertain and differentiated system contested between society and economy. Over this differentiated system, Basle II, in concert with the other international development financial and development organizations, will govern (Batra, 2005).

The contrary worldview of the new financial architecture is premised on an epistemology of systemic unity of knowledge that a learning system gains from continuous and pervasive participatory dynamics. Such a systems-oriented participatory nature also establishes the essence of pervasive complementarities between the variables and relations of the systems and these, in concert with the dynamically learning preferences of human agents, institutions and policies of an embedded global, social and economic system. The principle of unity of knowledge by virtue of

the pervasively participatory or complementary nature of learning systems signifies the epistemology of oneness of the systems-based formalism (Choudhury, 2004b).

Next, the law of morality (the fundamental epistemology of unity of knowledge) from which the context of ethics is derived establishes all structures and actions according to and progressively moved towards the attainment of such systemic oneness between the good things of life. The determination of the good things of life is done on the basis of the moral law that guides, rules, activates and develops preferences in the midst of the moral guidance. Thirdly, the application of the moral guidance carrying the moral law and the material realization of the good things in life, which the Qur'an calls *ḥayat ṭayyibah*, is done by means of specific instruments of policy, programmes and actions. Upon these, moral guidance is simulated by the continuous presence of discourse, which can be informal but necessarily institutional of various kinds. The interaction enabled by discourse encompasses both the set of variables and their relations and the learning dynamics of participants in it.

Institutionalism, upon which the social contract is established, now reflects the interactively defined consensus of unifying preferences under the dynamics of systemic learning. Such consensus formation, because of their widest meaning spanning both abstraction and institutional participation by complementarities, can be called systemic integration. Thereby, interactions lead to systemic integration.

Lastly, from the integration so formed a post-evaluation of the simulated wellbeing criterion occurs. The wellbeing function is defined as the criterion evaluating the degree of systemic unity earned between variables, their relations and the participatory agents according to the moral guidance and its rules in light of the moral law. The measurement of simulated levels of social well being projects into more learning at further simulated levels of learning, action and continuation of the same kinds of processes. This is the evolutionary phase of the total learning process under the dynamic concept of systemic learning.

We have now defined the complete process of pervasive and continuous learning across systems in respect to their variables, relations, policies, preferences and agencies (institutional supervision). Such a complete process that simulates itself indefinitely in continuum until the moment of completion of certain knowledge may be captioned as the IIE-process. It must prevail until the Hereafter, for divine knowledge (hence, the

unity of knowledge) is never completed in the human world. The Qur'ān says that the doors of progressive learning along the divine path, never ends in life, until all things return back to Allah through the progress of knowledge formation into its ultimate culmination. The pervasively and continuously participatory IIE-process of learning in unity of knowledge is also referred to in the Qur'an as the totality of the *shūrā* (consultative medium) combined with *taṣbīḥ* (submission to divine unity through human abstraction of reality as enabled by the divine law and knowledge). In the end, we have constructed a world-system that is the combination of the following components, which together establish the creative order fully spanned by the Signs of God (*Āyāt Allāh*).

The brief formalization below explains the phases of knowledge formation in terms of unity of knowledge (*tawḥīd* = Oneness of Allah = unity of knowledge) that continue on the repeated IIE-processes.

1. → {*Tawḥīd* (Divine Oneness = Unity of Divine Knowledge = Epistemology carried through by the Qur'ān and the Sunnah) = *Epistemological Level*.

2. → {Derivation of worldly knowledge flows through the action of the *shūrā-taṣbīḥ* effort (*ijtihād*) in the medium of systemic participation} = *Ontological Level*.

3. → {Determination of the world-system by the pairing of entities and structures in terms of the knowledge flows $\{\theta\}$ and their induced forms $\{X(\theta)\}$, i.e. $\{\theta, X(\theta)\}$ } = *Multidimensional Evidential Level or the Ontic World-System* formed in the midst of unity of knowledge from the moral law and its description in the discursive world-system.

4. → {*Post-Evaluation of the Social Wellbeing Criterion* in terms of $\{\theta, X(\theta)\}$ to indicate the degree of systemic unification of knowledge.

5. → {*Continuity of the above IIE-process across expanding and multidimensional symbiotic systems in space-time until the event of Ākhirah* = Completion of knowledge = Return to *Tawḥīd*.

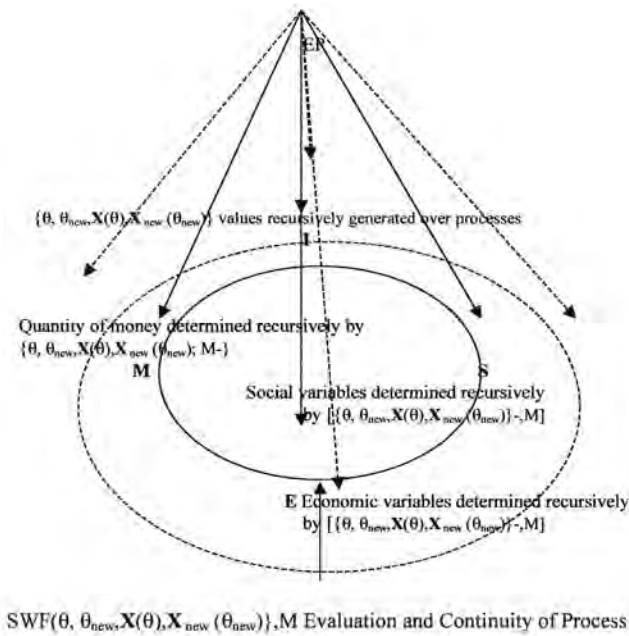
9.2. Applying the model of unity of knowledge to the economic and financial world-system

In the context of the methodology of the systemic unity of knowledge as summarized above we will now invoke the issues of money, finance, real economy (markets), technology and institutional supervision in the sense of

endogenous circular causation between these goals to establish a generalized equilibrium picture of networking within the unified systems perspective. In the case of financial sector regulation, which is Basle II, we note that endogenous interrelationships between the above-mentioned items entail the principle of pervasive complementarities between and among them. This is the first step to be explained in order to then formulate policy directions and supervisory capability in that system.

In attempting to derive money-real economy social interrelations in the IIE-Process, in the case of money, finance and real economy the following formalization can be noted (abridged from Choudhury and Hoque, 2004).

Figure 1: Epistemological Induction in the Money-Real Economy Social Interrelations



The epistemological model explained above is now used to formulate the money-real economy circular causation social interrelations. We depict this in Figure 1, which can be explained as follows:

EP is the epistemology of unity of knowledge at the *IS* level. *M* denotes the quantity of money and is recursively determined in the sense of complementarities between $\{\theta^*, Q(\theta^*), p(\theta^*), (r(\theta^*)/i(\theta^*)), T(\theta^*), E(\theta^*), M(\theta^*)\}_t$ where *t* denotes the lagged recursion of θ^* -values and its induced variables, beginning with the first process when *t* = 0.

For simplicity, we have subsumed the knowledge flow vector in the symbol θ^* .

$Q(\theta^*)$ denotes θ^* -induced output. $p(\theta^*)$ denotes the θ^* -induced price level. $r(\theta^*)$ denotes the θ^* -induced rate of return on equities; $i(\theta^*)$ denotes the θ^* -induced reduction in interest rates.

Thus $(r(\theta^*)/i(\theta^*))$ is a relative price of two mutually exclusive financial policy variables in the interest-free money-economy relationship.

$T(\theta^*)$ denotes the knowledge-induced total balance of payments (current accounts + capital accounts).

$E(\theta^*)$ denotes the employment variable as a social indicator; $M(\theta^*)$ denotes the knowledge-induced quantity of the money variable.

The variables shown are circularly interrelated according to the IIE framework of unity of knowledge. Therefore, the normative target is to derive and guide this system of circular causation interrelations into positive relationships between the variables, while evaluating the degree to which such progressive complementarities in the recursively evaluated social wellbeing function:

$$SWF(\{\theta^*, Q(\theta^*), p(\theta^*), (r(\theta^*)/i(\theta^*)), T(\theta^*), E(\theta^*), M(\theta^*)\})_t \quad (1)$$

Consequently, in a positive direction of the money-real economy social transformation we ought to be looking for progressively enhancing positive values of the elasticity coefficients between the variables interrelated and recursively estimated in circular causation interrelationships.

What does this formalism mean? According to money-real economy social interrelations, as explained earlier, the quantity of money equals the spending in goods, financial assets and services determined by policy guidance and preference changes in the light of knowledge induction. Vice-versa in the cyclical round of processes, the lagged monetary, financial, real economy and social variables determine the new matching quantity of money. The indeterminacy of the money-price-output relationship of various versions of the quantity theory is thus removed by the lagged determination of the variables in the circular causation process. Money is thus fully endogenous in terms of the other variables and the lagged ones in the IIE process.

Now, since the return on money is predetermined by the productive returns of the real economy, which is productive and social in spending according to the policy and preference choices, therefore, the accumulation

of capital and the growth of the economy is determined by an inverse relationship between r and i in accordance with the degree of impact of recursive θ^* -values. Consequently, the IS and MES are now made to recursively respond to each other along the path of sustainability of the following expected relationship of the normatively guided direction of money-real economy social transformation.

$\theta^* \uparrow \rightarrow \{p(\theta^*).Q(\theta^*)=spending\} \uparrow \rightarrow r(\theta^*) \uparrow \rightarrow i(\theta^*) \downarrow \rightarrow T(\theta^*) \uparrow \rightarrow e=\text{exchange rate stabilizes} \uparrow \rightarrow E(\theta^*) \uparrow \rightarrow M \uparrow \rightarrow \dots SWF \uparrow \rightarrow$ repeated by sustainability of the IS-MES complementarities referring to the episteme of unity of knowledge and the policies, instruments and preferences so evolved (note that: \uparrow denotes increase; \downarrow denotes decrease; \rightarrow denotes implication). (2)

Because of the productive and socially guided nature of spending matching with the quantity of money in a progressively eroding interest rate regime, the rate of growth of the quantity of money exceeds the rate of growth of prices, thereby causing a supply-side economics to emerge. From the Irving Fisher version of the quantity theory we note that the rate of growth of real money (M/p) equals the rate of growth of output. Consequently, the rate of growth of the price level is zero. Inflationary pressure is arrested by the money-real economy social conditions of the equation of exchange. Such a relationship is thereby a harbinger of social and economic progress and economic stabilization in a general social equilibrium framework.

Because of circular causation in the IIE-processes the strict order of the money-real economy social relationships may not be necessary, as money-real economy social relations become reinforced and sustained.

X. Policy Implication: Money-Real Economy Social Relations are Realized by the 100% Reserve Requirement Monetary System with the Gold Standard.

We define the 100% reserve requirement monetary system in the light of endogenous money-real economy social interrelations as both the 100 per cent mobilization of bank deposits in commercial banks into productive assets, goods and services in exchange and also the holding of 100 per cent of un-mobilized funds of depositors with the Central Bank. Consequently, the commercial bank has no scope to direct funds into interest-bearing

savings and the return on money between the commercial bank and the real economy is perfectly shared between the depositors, the commercial bank and a diversified number of shareholders of the outlet into which funds are mobilized. Hence, the rate of return on money equals the rate of return on assets and exchangeables of the real economy in accordance with the effect of θ -values in the system of causal interrelationships.

The accumulated amount of excess funds after resource mobilization by the commercial banks is held at the central bank where it is supported by a stock of gold. But, since such residual funds would be marginal in a vibrant money-real economy social interrelationship with r increasing along with socially productive spending, therefore, only a proportionate quantity of gold stock would be required to assign denomination to the currency held. But, since two currencies can not exist within the same economy, the denomination of held funds in terms of the proportionate stock of gold would be applied to all the money in circulation in the real economy.

The seigniorage from the cost of production of a proportionate amount of gold to back up the residual un-mobilized funds forms a percentage charge on the residual reserve held with the central bank. The central bank collects this seigniorage from the commercial bank. The seigniorage cost overwrites the cost of managing the funds by the commercial banks. The client is protected from devaluation of the currency value by its gold backing. In this way, the client benefits in two ways. Firstly, he is a shareholder with a proportionate profit share of his mobilized funds into socially productive spending through commercial banks. Secondly, his un-mobilized funds are protected from devaluation by the gold backing. In both of these cases money now becomes asset-backed money with the gold numeraire for valuation of the stock of money in circulation and held at the central bank. The commercial bank can at any time draw out of the accumulated reserves with the central bank to finance projects in tandem with the socially productive transformation of the real economy.

In the 100% *RRMS* commercial banks lose their ability to affect multiple credit creation and thereby accumulate large volumes of interest payments from inter-bank lending and other lending. Money is created out of nothing in the fractional reserve requirement system to the benefit of large savers, banks and corporations (Shakespeare, 2003). Besides this, commercial banks can also borrow from their reserves with the central bank to generate new loans and thus earn profits from the interest spread between the prime rate and the commercial rate.

In the 100% *RRMS* the absence of savings in liquid funds in commercial banks turns all inter-bank capital flows to be of the profit-sharing type in venture capital, trade financing and equity participation. Consequently, the quantity of money in circulation matches with the existing project and spending value. Speculation is avoided by such a matching formula and volatility as well as uncertainty is avoided by the stability of relative prices in complementary money and financial and real goods and services. There exists no incentive to save in liquidity in such a financial system. Indeed Keynes (1930) considered savings as a lure for money to be a withdrawal from productive economic activity when savings did not equal expected investment in the short run. The 100% *RRMS* is thus a monetary system that by its complementary systemic nature discourages savings and encourages and enhances resource mobilization. These are opposite activities between the financial and real sectors, respectively.¹

XI. The Role of Technology in the Money-Real Economy Endogenous Relationship

How do we understand technology in the context of the endogenous relationship of the epistemological model introduced above?

Technology is an instrument, such as human resource development artefacts denoted by various kinds of skill formation and formal training along with the enabling equipment that brings about progressive adaptation between such training and the existing level of human resource. The perspective is not of driving the existing manpower towards a targeted technology. That would be disruptive in terms of alienation between technology and the existing level of human power. Rather it is to adapt a particular vintage of technology to the available skills, and thereafter, to graduate such technology with the coterminous advancement of skills linked with such progressive technology, both mutually adapting. In this way, the endogenous (adaptive by man-machine interaction) unifying (complementary) interrelationship is progressively (evolutionary) adapted in the labour market.

In the venue of money-real economy circular causation the role of endogenous technology according to the model of unity of knowledge enters as an enabling instrument for mobilizing the human, economic, financial and social resources in the direction of enhancing the money-real economy linkage. The policy for this kind of economic and social embedding was pointed out in the case of the 100 per cent reserve

requirement monetary system (100% RRMS). Thus, technology is enabled by cooperative mechanisms on all fronts (e.g. *muḍārabah*, *mushārah*, trade financing and their offshoots). In this way, the economic goal of efficiency (growth), attained by technological diffusion through labour market-technology adaptation, is complemented with social productivity, generated by empowerment, entitlement and participation in extensively discourse oriented networking.

Large corporations are welcome through their institutional policies to open up production and human resource development lines to microenterprises. Corporations now become truly community-based entities in which the community comprises stakeholders while ownership is progressively and proportionately transferred to shareholders in the community at large (Choudhury, 2002). Such a model of networking for gaining unity of knowledge by circular causation between technology, money, real economy and resource mobilization is reflected today in the Scandinavian sustainability model of development by social democracy (Novak, 1982).

Now technology enters as an artefact in the continuing and expanding circular causation interrelationship between itself, money, real economy, total resource mobilization and additionally by the choice of ethical goods (expanding effect of *MES* in Figure 1). The totality of these elements enhances social wellbeing in the light of the moral law. To determine this kind of unifying causality between the entities mentioned here all of the following – market process, preferences transformation and a medium of discursive guidance determined by foundational laws and their simulated understanding in the experiential world-system - are required. In Figure 1, technology as defined above, enters as an additional knowledge-induced variable (represented say by expenditure in appropriate technological change). Now the expanded multidimensional systemic pairs, (knowledge flows, knowledge-induced forms) across diverse systems become the interrelating circular causation variables for the simulation of the social wellbeing criterion.

XII. Technological Networking Policy Interaction: Institutional Supervision

In Figure 1, every limiting knowledge flow, θ -value, derived out of a large set of discursive knowledge flow values that emanate during the process of institutional discourse, is institutionally determined as an ordinal value

that is monotonically recursive along with the knowledge-induced variables ($X(\theta)$). Technology (expressed as expenditure in appropriate technology) is an entry in the vector of the knowledge-induced variables. The other variables are quantity of money, real-economy indicators, for example, rates of return replacing or at least having price relative variables with a phased out interest rate (term structure). Besides, there are prices and quantities of goods and services recommended under the moral law in the fundamental epistemology; its understanding through institutional discourse (ontology), which are driven in concert with market realities and existing forms of preference responses caused by policy induction (evidential = lagged knowledge-induced ontic forms).

In all of these kinds of expanding interaction leading to integration and evolutionary dynamics (*IIE*-process) in a continuum of simulative processes across regimes of new knowledge flows following post-evaluation of the social wellbeing function in search of systemic unity of knowledge, the institutional discursive medium remains indispensable. Such an institutional supervisory medium is defined at various levels. At the level of household preference formation that actually underlies the emanation of new knowledge flows from the previously attained ones, and which thereby affects the market and institutional transformations in the endogenous sense of circular causation, family is a primal institution of conscious moral decision-making for social wellbeing. In this sense, if a person banks with interest-free banking, the conscious social preference formation of family members through their micro-level discourse on the issue, looks into the benefit of that resource mobilization for the communal wellbeing as well as one's own interest. In this way, social goods replace purely self-seeking private goods and costly public goods that become publicly imposed and often wasteful (e.g. a costly civil service).

Rawls (1971) (see also Sen, 1989) calls ethical goods social primaries. In the technological, market and money circular interrelations such primary goods are mutually embedded in multi-dimensional systemic unity by their unifying networking. Networking in the institutional case takes the form of supervision according to the moral law and its progressive understanding through a discourse mechanism.

Higher supervisory levels take the form of regulation by guidance under moral laws in the light of the epistemology of the unity of systemic knowledge. An example is of development planning (Choudhury and

Hossain, 2005). Now the banking sector is once again advanced in the direction of mobilizing resources in the good things of life by adopting participatory instruments of socially productive returns complemented with economic efficiency, economic stabilization and the sustainability of stakeholders' wealth as ownership. The moral law that guides the supervisory capacity in this case recommends a discursive way of determining project feasibility, implementation of participatory instruments replacing the interest-bearing assets, and bringing the marginal groups into the discursive process to determine collective choices and the diffusion of human resource development at the grassroots.

Islamic banks are a good example of the goal that ought to be mobilization of community, national and global resources through trade and cooperative mechanisms for interconnecting with markets that produce exchange and trade in ethical goods according to the moral law. Examples here are ecological goods, interest-free transactions, technological diffusion for the uplift of the grassroots and choices of social goods (e.g. housing, health, human resource development, the development of capital goods, the processing of primary goods, common funds and the like).

XIII. Risk Management

In the networked complementary learning system of interrelations as explained above, technology has a special role to play in simulating the knowledge flows continuously and pervasively in such a system of causal relations. Technology essentially generates a continuous flow of new possibilities through the process of systemic participation, symbiosis and discourse that belong to both the worlds of abstraction (*tasbīḥ*) and of human participation (*shūrā*). The speed of evolution of such possibilities, as by the IIE-methodology of the epistemology of unity of knowledge brings about a perpetual mobilization of resources, production by diversity and complementary linkages (joint production menus). This results in complementarities between production diversification and risk diversification. Such a complementary process is now found to be the endogenous result of a circular causation relationship between technology, money, real economy and institutional guidance and supervision that form participatory networking as mentioned above.

Risk management is now seen as a function of the extent to which a 100% RRMS can mobilize the resources into the real economy and thus establish complementarities between the real economy and the financial

sector. This causes the excess reserve requirement of the commercial banks to be minimal, except by the cash-in-vault transaction requirement of the client. The faster is the financial resource mobilization through the commercial banks and of human and other resources through the productive channel into the real economy, the lower is the excess reserve requirement. Consequently, the residual reserve that still remains is backed up by its deposit in equivalence to a residual quantity of gold in the central bank. Money in this sense of diminishing excess reserve belongs only to the central bank.

The consequential stabilization of the socially embedded economic system by the growing absence of arbitrage and speculation caused by the holding of financial papers is reduced, and is replaced by productive financial mobilization in terms of currency being backed by a small amount of the gold stock in the central bank.

Prices remain stable, for the rate of increase in the quantity of money matches the rate of productivity gains. The commodification of money is thus replaced by the definition of spending of a quantity of currency as monetary stock ready for spending in the real economy on goods and services as recommended by the moral law. The de-commodification of money by the value of spending at a time and intertemporally according to the overlapping intergenerational model is contrary to the theory of monetary commodification found in the *M-C-M* theory of capitalism (Heilbroner, 1985).

The above kinds of participatory networking in the 100% *RRMS* cause cost-effective corporate governance of banks by supervision (Choudhury and Hoque, 2004). The absence of speculation and the regime of productive activities with participation generate self-engineered disclosure procedure as profits and risks are shared between shareholders (Harahap and Basri, 2005).

In the 100% *RRMS* supervision for both post-evaluation of bank assets as well as for guided supervision of banks in the participatory agenda expands the participation of such supervision and risk and product diversification between the central bank, the commercial bank and the clientele. External supervision is replaced by indigenous ones of home-based, individually tailored, tripartite relationships between the central bank, commercial bank and clientele. Foreign intervention becomes unnecessary.

The extension of such domesticated experience in risk management can be expanded by further institutional participation between different

countries' central banks, commercial banks and markets. In this kind of extension, methodological and policy questions of economic stabilization by means of the integration of the financial and real economy through trade relations, become important.

XIV. The Evaluation Criterion of Capital Requirements

We have now seen that capital formation in knowledge-induced participatory money and real economy networking is contrary to the liberal economic idea of savings pursuing interest rates as the basis of capital formation. The saving motive is replaced by the resource mobilization motive in the good things of life as recommended by the moral law, and subsequently, induced into social preference transformation of self, others and institutions.

Likewise, the positive endogenous effect of money and real economy circular causation involving the risk and product diversification relationship, automatically phases out interest rates in favour of rates of return from productive spending. Consequently, the capital requirements ratio of the interest-free banking system perpetually declines. This ratio is now subject to constant resetting downwards by supervision and participatory decision-making as explained above. The capital ratio is not simulated upwards, as is found to be the case with Basle II.

Besides, the capital requirement itself establishes a declining relation with total risk. That is because each of the components of total risk, namely, credit risk, market risk and operational risk being tied to the same participatory networking system in terms of resource mobilizing instruments and institutional participation, has a downward trend.

Market risk is the only indicator to be cautiously monitored, for equity markets can be volatile in global markets because of short-term interest volatility that prevail in such extraneous financial markets (Johnson, 2002). For this reason it is necessary to promote trade across Islamic segmented markets with their own rules of trade and resource mobilization. A common market premised on such an agenda of action could be a panacea.

On the other hand, operational risk is expected to be of a lesser problem in the 100% *RRMS* because of the joint monitoring of projects by the central bank and the commercial bank acting in concert with each other and involving management consultancy firms to manage individual investor risk. An example is Islamic Insurance (*takāful*).

Credit risk is a lesser problem because the probability of default is managed better in joint ventures and equity participation. Failing such

effective risk management, mutual cessation of shareholder prospects from the portfolio can result.

In the end, the management of market risk dominates the management of all other risk factors due to the fact that market discipline by interrelating money and the real economy causes productivity returns to rise and adequate resource mobilization to sustain this, without savings being held up as excess reserve causing speculative and arbitrage lending as in a fractional reserve requirement. Economic stabilization as the principal function of the central bank is supported by the money-real economy function of resource mobilization by commercial banks. Indeed, the principal functions of the Islamic bank are to mobilize resources into directions recommended by the moral law and establish networking for social wellbeing within the development perspective of the community, nation and the *ummah* in this order.

Besides the above risk management implications in the networked endogenous relations between money and real economy with financial and other linkages, insurance companies can also be closely involved in diversifying risk. Insurance and re-insurance companies in this respect serve as non-banking financial firms linked with the same process of endogenous networking relations that heighten the function of money-real economy circular causation.

Basle II legitimates its minimum credit requirement and prescribed formulas of risk measurements on banks. These indicators are based on the concept of capital formation by means of savings chasing interest rates. The underlying formulas of capital costing are based principally on the probability of default. This, in turn, is a direct offshoot of credit risk, which we have argued would be a lesser problem given the dynamics of 100% *RRMS*. Consequently, Basle II prescriptions would not work for Islamic banks. An alternative method based on the methodology of the unity of systemic knowledge is needed and is presented here.

XV. Analytical Formulas for Capitalizing Risk and Capital for Islamic Banking

Because we have abandoned all kinds of discounting formulas for capital valuation in the case of an interest-free financial system, the alternative now is to select a forward overlapping intergenerational model. In it, every decision-making node which in turn corresponds to the IIE-processes over knowledge, time and multi-dimensional systems of interaction, yields a

terminal value of assets at that node. The capital requirement of an interest-free banking system with effective risk and product diversification in the 100% RRMS is now defined by such nodal terminal value of capitalized assets. Initial capital investment is the capital investment of participating partners in ventures. The number of assets can be many and their mix diverse.

With this capital constraint the social wellbeing function is simulated with the relevant variables that are common to both of the relations. For example, in the capital constraint the variables are ‘expected spending’ and ‘expected rate of return’ induced by knowledge flows emanating from a progressive supervisory and participatory decision-making process. In the case of an imperfect but guided transformation into an interest-free state we can accept the variable, rate of return relative to interest rates as relative financial price. In the social well being criterion the same knowledge-induced variables appear. Corresponding to the 100% RRMS the expected value of total spending equals the quantity of money in circulation. The knowledge-induced rates of return are assigned or calculated in the real economy case by the existing ratios and returns on risk-sharing at a particular decision-making node, and so on.

Now capital requirement equals the quantity of financial resources (M) that Islamic banks can mobilize into the real economy ($GDP = Y$) as expected spending (Sp) under the effect of participatory financial instruments (m) and supervision (θ). Hence,

$$\text{Capital Requirement} = M_j \geq Sp_j (r_j, Y_j, m_j) [\theta_j], \quad (3)$$

at a node j and thereafter, $j = 1, 2, \dots, N$

Across nodes, $\theta_{j+1} = f(\theta_j)$ in generating recursive supervisory knowledge flows.

Multi-systemic extension can be done in the case of multiple inter-linked portfolios of investment and other forms of spending.

Note that M would be minimal as the central bank will only hold a residual amount of unspent financial resources in the real economy.

The definition of risk in the knowledge-induced learning system now follows:

$$\text{Risk} = \sum [Sp_j (r_j, Y_j, m_j) [\theta_j] - Sp_j^* (r_j^*, Y_j^*, m_j^*) [\theta_j^*]]^2 \quad (4)$$

$j = 1, 2, \dots, N$

This indicator is calculated over all possible contingencies or states of nature of the economy wherein different values of $Sp_j (r_j, Y_j, m_j) [\theta_j]$ along with r_j, Y_j, m_j and θ_j - values will prevail at any particular decision-making node, and thus over multiple nodes and onwards with the continuation of the IIE-process.

Variables with asterisks in expression (4) denote the ideal states of risk and product diversifications when information about the financial and economic environment is fully realized by the supervisory body and transmitted to the agents of change. This case however is never realizable because of incompleteness of knowledge-flows at any given time and the state of the system comprising everything. Thus the above-mentioned order of risk is simply simulated under supervision along with its recommended directions according to the progressive understanding of the moral law and its implementation in society at large. In this case the progressive simulation of expression (4) comes about by institutional supervision vis-à-vis the money-real economy interrelations along with all other variables mentioned in this paper.

XVI. Conclusion

It is noted in this paper that there was no special need to explicitly invoke the detailed Islamic terminology for explaining mundane matters of Islamic banking regulation contra Basle II. The wide applicability of the epistemology of unity of knowledge (*tawhid* in the Qur'ān) is particularized here to financial matters in an interest-free banking environment with its monetary, financial and economic implications embedded in the social and ethical totality of the moral law. This kind of generalization of the *tawhīdī* episteme to world-systems issues is due to the uniqueness, universality and clarity of the divine law as the moral law to all facets of the socio-scientific world-systems. Its formal logic and methodology is powerfully driven by analytical conception, formalism and application.

The generalization of the conception and application of the *tawhīdī* episteme is accomplished in all fields. It is particularized in the present case to the circular causation between money, finance, markets, risk, technology, banking management and institutionalism (supervisory role). Upon this generalization the Islamic scholar and practitioner can insert various terminologies that are deemed necessary. Some of these for example will be to introduce *muḍārabah*, *mushārahah*, *murābahah* in the details of the participatory financial and development instruments that were mentioned

in respect to resource mobilization. Money can be given the term *nuqūd*; interest rate as *ribā*; the participatory process methodology spanning abstraction and human relationalism as *tasbīḥ* and *shūrā*; the world-system as *‘Ālamīn* and the like.

In the end, we find that the arguments of the paper confirm our introductory arguments. That is, Islam and liberalism are, in everyway, polar worldviews of human thought, practice and existence. Basle II is the career of the neo-liberal germ into capitalist globalization for the benefit of the large and powerful financiers and countries. Contrarily, the Islamic worldview premised consciously on *tawḥīd* and activated by means of this worldview into action and transformation is distinct. Yet, its logical conception, formalism and application makes the *tawḥīdī* worldview equally applicable to the Muslim and non-Muslim worlds alike. That is because of the explanatory power of *tawḥīd* over all things where both Occidental theological philosophy and liberal thought have constricted the wellbeing of the human species by the groundwork of social alienation.

In the end, the new financial architecture for the *ummah* will have to be constructed upon the *tawḥīdī* episteme for its definition, conception, organization and identity, if it is to rise once again into the pedestal of its own universal superiority. At present, the imitative replication and submission by Muslims to liberal economic, social, institutional and global doctrines and practices do not project the *Ummatic* future.

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Appendix: On the Futility of the Saving Paradigm

	t=0	t=1	t=2	t=3
Output Returns on Savings	Q_0	$Q_1 = Q_0(1-s)(1+i)$	$Q_2 = Q_0(1-s)^2(1+i)^2$	$Q_n = Q_0(1-s)^n(1+i)^n$
Savings	$Q_0(1-s)$	$Q_1(1-s) = Q_0(1-s)^2(1+i)$	$Q_2 = Q_1(1-s)^2(1+i)$	$Q_n = Q_0(1-s)^n(1+i)^{n-1}$
Output Returns on Spending	Q_0	$Q_1' = Q_0(1+r)$	$Q_2' = Q_0(1+r)^2$	$Q_n' = Q_0(1+r)^n$

Note: 's' denotes the constant savings rate

If all of the savings are mobilized into spending at any given point of time then the above two results will be the same. There is no savings deduction in the latter case because resource mobilization at any point of time enters the GDP accounting and forms aggregate output.

Now consider the following results:

At $t = n$,

$Q_n' > Q_n$, because of the withdrawal by way of savings, provided,
 $(1+r)^{n-1} > (1-s)^n(1+i)^{n-1}$

That is,

$$1 + r > (1-s)^{n/(n-1)}(1 + i)$$

or,

$$1 + r > 1 - s + r, \text{ to a linear approximation;}$$

or

$$r > i - s$$

where r is the leverage of rate of return over the net interest rate after savings, proving that savings, which depend upon interest rates, is always a withdrawal irrespective of the accumulation of funds over time.