Survival of the Interest Rate Based Debt Financing System

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and

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Abstract

Evidence has been mounting (over the centuries) that the interest based debt financing regime is under ever increasing distress. All of the earlier crises whatever label they carried− exchange rate crisis or banking crisis – have been debt crises in essence. At the present, empirical research suggests that the debt-to-GDP ratio of the richest members of the G-20 threatens to touch 120% mark by 2014 while by 2020; the U.S and the other major European centers would amass a ratio of at least 150%, with Japan and U.K going to 300% and 200% respectively. Even more disconcerting is the projected interest rate paths on their debts which would increase from now almost 5% to 10% in all cases, and as high as 27% in U.K. Moreover there is also evidence that out of securities worth $200 trillion in the global economy, no less than three-fourth represent interest based debt. It is difficult to see how this massive debt volume can be validated by the underlying productive capacity of the global economy. This picture becomes more alarming when it is realized that the growth of the global economy is anaemic at best while the

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interest rate on debt is sure to exceed the rate of growth of global GDP for the foreseeable future. Hence, a more serious financial crisis may be in the offing and a general collapse of asset prices may occur. This paper argues that the survival of the interest based debt regime is becoming less tenable, as is the process of financialization that has accompanied the growth of global finance over the last four decades. It further argues that Islamic finance, with its core characteristic of risk sharing, may well be a viable alternative to the present interest based debt financing regime.

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JEL Classification*: E42, E45, G21, G24, G32*

1. Introduction

At a time when the global economy is suffering from a crisis of confidence, structural imbalances, and subdued growth prospects, a growing sense of uncertainty prevailing world over is palpable. Fiscal austerity measures taken as remedial response are further weakening growth and employment prospects, making fiscal adjustment and the repair of financial sector balance sheets all the more challenging. With still rapidly building debt, excessive fiscal deficits, massive unemployment, and falling real-incomes uncertainty has increased regarding how economies, capital markets, and international trade and finance will evolve. Likely scenarios of hyperinflation or prolonged stagflation cannot be discarded easily. Policies appear to be locked into the same regimes that led to the economic and financial collapse earlier. Monumental fiscal deficits and quantitative easings (QEs) have only deepened distortions and heightened uncertainty. Thousands of people have taken to the streets of US cities, and thousands of others in Europe, demanding a fair distribution system. In Europe, concerns and uncertainty about the institutional integrity of the eurozone ˚ key to the architecture of modern Europe ˚ continue to mount.

The World Bank in its latest report on Global Economic Prospects, 2012 suggests that Banking-sector deleveraging is cutting into growth and developing country capital flows, faced with rising funding costs, increased counter-party risk assessments, deteriorating bank-asset-quality, and growing concerns over the adequacy of capitalization. Even if the threat of a full-blown crisis is somehow averted, elevated fiscal deficits and debts and the very loose monetary policies being pursued in the high-income world, proposes that for the next several years the external environment for both developed and developing economies is likely to remain characterized by volatile capital flows and unsettled business sentiment. As a result, it is becoming harder to gauge the impact of the constant surge in financial market turmoil on the real sector of the economy, but it is almost certain to be negative. How negative is extremely uncertain .This uncertainty extends to the stability and sustainability of the international economic and financial system.

These developments and the fragility of the global financial setup signal the presence and growing sense of a *regime uncertainty"*; uncertainty regarding the benefits and costs as well as the sustainability of the regime of interest rate based debt finance. The search is on for a paradigm shift towards a less volatile and more resilient system. The purpose of this paper is to suggest that Islamic finance provides such an alternative to the present crises-ridden conventional finance.

Before exploring the possibility of such a paradigm or regime shift, it is important to know what is meant by *regime uncertainty*. To this understanding of risk, uncertainty and ambiguity is helpful; the subject of following section. Before focusing on the concept of regime uncertainty, section three will highlight further the present debt over hang that is creating debilitating fears of contagion and recurrence of full-fledged global crisis. These fears are exacerbated by the complexity of the conventional finance. Section three will discuss the concept of complexity and the need for a shift towards a different financing regime. Explanation of the notion of regime uncertainty will comprise section four. The paper argues that the new regime will need to be based on the idea of risk sharing; the essence of Islamic finance. The last sections will focus on risk sharing and how such a system can create stability and resilience in the global financial system, thus, reduce the frequency and severity of crises that have plagued the global economy.

2. Risk, Uncertainty and Ambiguity

Frank Knight explained that, at times, decisions are made based on available probability distribution of expected events. This is decision making under risk. Unlike risk however, uncertainty describes a situation where a known probability distribution is not available but it is still possible to make decisions with some subjective estimates of probability of outcomes of actions or decisions (Knight, 1921). In the 1960s this view was modified to cover circumstances under which human cognitive ability and information availability are so constrained that even subjective assessment of outcomes was not possible. Ambiguity arises under such circumstances (Ellsberg, 1961;

Erbas and Mirakhor, 2007) where the intensity of ignorance can create paralysis in the decision making.

3. Complexity of the Interest Rate Based Debt Finance

To understand the dynamics that have generated the present uncertainty about the interest rate based financing regime, it would also be helpful to first note what is meant by a system and indicate differences between simple, complicated and complex systems. A system is defined as set of elements standing in interrelations to one another (Von Bertalanffy, 1969 Revised Edition, p. 38). Or as Meadows (2000, p. 2) elaborates A system is a set of things˘ people, cells, molecules, or whatever˘ interconnected in such a way that they produce their own pattern of behavior over time . How predictable that own pattern of behavior over time may be, depends on the nature of the system in terms of the degree of simplicity or complexity of the rules governing the interrelationship among its elements. A simple system is quite predictable because of the simplicity of its operational rules. For example, old cars had simple starting operations: placing keys in the ignition to start the engine, a simple and predictable system. Complicated systems contain subsets of simple systems but are not reducible to them. Their complicated nature is often related not only to the scale but also to issues of coordination of specialized expertise. Complicated systems are also predictable (Holland, 1995). In contrast to the old cars, newer and more technically advanced automobiles represent complicated systems. Instead of a key in the ignition, push button remotes are used to start the engine. Despite considerably more complicated technologies, modern automobiles are still predictable systems (Mirakhor et al, 2012).

Complex systems contain both complicated and simple subsidiary parts, but are not reducible to either (Goodwin, 1994) since they too have special requirements, including an understanding of unique local conditions (Stacey, 1992). Interdependency and interconnectedness of all the heterogeneous elements that build up such a system, where each part is doing its own thing, carry ability to create emergent phenomenon (crowding effect) with scaling, criticality and self-organization capacity; all in the absence of any central

controller or coordinator (Johnson, 2007). These systems are operated, ruled and governed by *feedback loops*. Such arrangements are all characterized by bifurcation points at which system can either move to more stability and order or to chaos (Prigogine, 1997). There has to be zero defect policy for the system to work in an ordered way. In such a system a small marginal change is capable of creating large impact on the global behavior of the system (Holland, 1995). They are unpredictable and uncontrollable with the added attribute of non-linearity (Lorenz, 1993). Unavoidably, complex systems innately carry with them large elements of uncertainty and ambiguity (Wheatley, 1992). It is impossible for the system to have a stable equilibrium (Buchanan, 2002).

The financial sector is now being increasingly thought of as a system governed by feedback processes or knock-on effects (Johnson, 2007). It means that the system is influenced by past events, nullifying any random walk phenomenon (Mandelbrot and Hudson, 2004 and Peters, 1996). The system corresponds to critical state phenomena in which the long-range dependence between the elements can affect massive systemic changes due to small changes in certain parameter another important feature that assures the complexity of the system (Bookstaber, 2011). It needs a zero error policy for it to function well because when a system is complex it can reach bifurcation points at any time, making the system so sensitive that it can further amplify small changes into large feedbacks. The recent U.S. subprime crisis, as well as the financial crises in Greece and now in elsewhere, can be clearly referred as to as those small marginal changes that have affected the dynamics of the whole system. The system reached a critical state or a perpetually unstable organization of the critical state, where the system became so unstable and unsustainable that it reached to a point of bifurcation: a moment of truth where the system had to implode as in the recent bust of the U.S. housing bubble or explode like in the 1990s Asian crisis and now in the present financial crisis. This also explains why the present system has become so sensitive to events that produce black swan events (events with very low probability of occurrence but with large impacts).

In early 1940s, a British mathematician, Alan Turing, was perhaps the first modern scientist to formulate complexity. The hallmark of his contribution was a paper he wrote about the growth of biological system in which he put forward the idea of morphogenesis (Turing, 1952). He showed that a biological system described by two simple equations with feedback loops among the variables was capable of behaving in totally unpredictable, complex patterned behavior. A decade later, an American meteorologist, Edward Lorenz, had developed models with feedback loops to increase the accuracy of weather forecast (Lorenz, 1963). His models showed two things: unpredictability of weather systems and the significantly large impact of small, marginal changes in local individual element s behavior on the global behavior of the system. This last point was covered in a talk he gave in 1961 titled *"Does the flap of a butterfly wing in Brazil set off a tornado in Texas"*[1]. This talk made famous *"The Butterfly Effect"*.

The third prominent intellect that made significant contribution to the notion of complexity is Benoit Mandelbrot who is also the inventor of Fractal Geometry (Mandelbrot, 1982). He too showed how a system described by a simple equation (rule) with feedback interaction, is capable of producing unpredictable, infinitely complex patterns. While patterns were easy to generate via computers, describing the patterned behavior of such system mathematically was exceedingly difficult. Whereas Alan Turing had used two simple equations with feedback interaction to describe the growth of biological system, Mandelbrot used only one such equation that generated similar unpredictable, infinitely complex patterns.

Mandelbrot also made an equally significant contribution to finance where he argued that all the theories in finance were wrong because they relied on Gaussian (normal) probability distributions and the Brownian motion, both of which assume regularities. He pointed out that nearly all economic and financial variables, particularly stock prices and commodity prices, behaved irregularly. Their behavior, Mandelbrot argued, was better described by Fractal Geometry and mathematics than by Gaussian

1. Edward Lorenz's talk for the 139th meeting of the American Association for the Advancement of Science in 1972.

distribution and Brownian motion (Mandelbrot and Hudson, 2004) as they are instead characterized, Mandelbrot suggested, by jumps rather than smooth motion. He pointed out that nearly all speculative financial variables, particularly stock prices and commodity prices, behaved irregularly.[1] Since finance theories were wrong so would be their predictions; the recent financial crises has vindicated his claims.

Peters (1996) argued the need for a new way of looking at markets behavior. He claimed (similar to Mandelbrot) that the assumptions of efficient markets and rational investors in mainstream theories are a fallacy. On the basis of chaos theory he showed that in fact markets are non-linear dynamic systems: with feedback effects, criticality levels as well as fractal in nature. He further argued that such a system is always far from equilibrium. Ilya Prigogine (1980, 1989 and 1997) suggested that for a complex system, there is a point of bifurcation a moment of truth, for the system to choose which path it follows. Chaos Theory suggests that a complex system approaching a bifurcation point becomes so sensitive that it can amplify small changes into large feedbacks. Decisions made at such a point lead the system either toward greater chaos or toward higher order (Mirakhor and Hamid, 2009, p. 231). It appears that the point of bifurcation has been operating to increase regime uncertainty. At every bifurcation point reached, policy makers seem to have made decisions that have rendered the system more unstable.

Finally, Nassim Nicholas Taleb argues (2007/2010) that there are events with very low probability of occurrence but with significantly large impact; quite reminiscent of the Butterfly effect . These events he termed as *'Black Swans'* due to their rare appearance. Recently, the global system has experienced events that would have been thought of as low probability events not long ago. These include, inter alia, the down grading of U.S from its AAA rating, the looming collapse of the much hailed Eurozone, the effort

1. Louis Bachelier (1900), in his thesis, the theory of speculation, developed the notions of stochastic process characterizing financial variables. Two main stochastic processes have become known in finance: the random walk and the martingale processes. A more encompassing approach to uncertainty uses Levy processes that allow for both jumps and smooth motion.

by Switzerland to convince the world that Swiss franc is not a safe haven, the Brazilian suggestion of bailout of advanced economy by emerging markets and China s contemplation of buying Italy s debt. The list can go on.

Looming in the back ground of the present uncertainties in the global economy there is a potential event, termed as *"the mother of all black swans",* the effects of which may be chaotic global economy: contagion-riddled events of sovereign default. It can be stated, by way of summary that: (i) In a complex system, elements are independent, adaptive and interactive; there is a feedback process at work; (ii) The system can reach criticality and unexpected bifurcation points . (iii) Such systems are characterized by an unpredictable, infinitely complex patterned behavior; (iv) Small, marginal changes have significantly large impact on such system s behavior; and (v) There is a limitation to the cognitive ability of human mind to understand, describe, predict and control such system s behavior.

The global financial crisis of 2007/2008 and its continuing adverse economic and social consequence, as well as the failure of significant policy actions to elicit the desired response, seem to provide evidence that the global financial system displays the characteristics of a complex system. Added to the shock of occurrence of *fat tail* events, increased poverty and worsening distribution of income and wealth in individual and collective economies have intensified regime uncertainty. Such doubts about the sustainability of a system based on the interest rate debt financing had been expressed as early as 1930s by John Maynard Keynes. Focusing on the interest rate mechanism, Keynes argued in his book, *The General Theory of Employment, Interest and Money* (1936) that market capitalism, left to it-self, would create two major problems which, if not addressed, would cause system failure. These are (i) poor income and wealth distribution and (ii) the fact that this system is incapable of creating full employment. A major cause of these problems, Keynes asserted, was the interest rate mechanism which constituted *the* villain of piece (Mirakhor and Krichene, 2009). Keynes solution was the *euthanasia of entire* by socializing investment through which financial capital would be provided for investment without the intermediation of the

rent seeking class of the money lenders. The failure of socialism in the 20th century, however, has made this solution unpopular.

A fact that can be discerned from the historical analyses of nearly all financial crises is the potential destabilizing role of the interest rate mechanism in the debt-growth dynamics of the economies. In the 1920s a young mathematician/philosopher, Frank Ramsey, had published a paper about analyzing the interaction between interest rate and growth rate (Ramsey, 1928), a work that was ignored by economists until the 1960s. He used the interaction of the rate of population growth, the growth of interest rate and the growth of economy to deduce the following: if the rate of economic growth exceeded both the other rates i.e. the rate of interest and the rate of population growth, the economy would grow. A steady state was when all the three rates were in equilibrium; however where ever the interest rate growth surpassed the growth of the economy and the growth of population, economic activity would begin a downward spiral. This seems to be the debt dynamics at work in the global economy presently. Question arises as to whether there is alternative to the present dominant global finance system. Perhaps a more practical alternative would be to step back from targeting the interest rate mechanism and focus on the incentive structure that has rendered the interest rate based debt financing such a destabilizing force in the global system. This can be accomplished by reorienting the system from relying on risk transfer and risk shifting to risk sharing.

4. The Regime Uncertainty

The idea of "regime uncertainty" (Robert Higgs, 1997) argues that a major cause of the intensity and duration of the Great Depression was the depth of the uncertainty (ambiguity) surrounding the policy regime of the time and its economic and financial consequences. This type of uncertainty can arise from many sources, ranging from simple tax-rate increases to the imposition of new kinds of taxes to outright confiscation of private property. It can also arise from various sorts of regulation, for instance, of securities markets, labor markets, and product markets. The security of private property rights rests not so much on the letter of the law as on the character of the

government that enforces, or threatens, presumptive rights. Henry Morgenthau the Treasury secretary in President Roosevelt administration in the 1930s encapsulated the wide ranging uncertainty as follows:

> *…"Uncertainty rules the tax situation, the labor situation, the monetary situation, and practically every legal conditions under which industry must operate. Are taxes to go higher, lower or stay where they are? We don't know. Is labor to be union or non-union? . . . Are we to have inflation or deflation, more government spending or less? . . . Are new restrictions to be placed on capital, new limits on profits? . . . It is impossible to even guess at the answers". (qtd. in Higgs, Depression, War, and Cold War, p. 16)*

The most serious problem facing the global economy today is *the situation of debt over hang* which has made the present system to reach a point of criticality and bifurcation; *creating debilitating fears of contagion and recurrence of full-fledged global crisis.* Krugman (1988) coined the term debt overhang and asserted it as a situation in which *A country has a debt over-hang problem when the expected present value of potential future resource transfers is less than the debt"*. With high debts, interest payments also increase, thus increasing both the burden and servicing of debt. Rising debt is a drag on macro-economic stability, growth and development. Large part of theoretical and the empirical analysis have focused on the effects of debt accumulation and its impact on overall economic growth. Contributions by Buchanan (1958) and Meade (1958); Pattillo et al. (2002, 2004); Chowdhury, (2004); Clements et al. (2003); Presbitero (2005); Cohen (1993); Elbadawi et al. (1999); Cordella et al. (2005); Imbs et al, (2005) and Checherita and Rother (2010), all point to a negative and a non-linear relationship between excessive debt and economic growth trends.

The 2007/2008 global financial crisis has been studied and analyzed extensively by now and a variety of causes have been suggested. By far the most expansive study has been by Reinhart and Rogoff (2009) which contends that all financial crises, whether currency or banking crisis, are at root debt crises, including the Asian Crisis in the late 90 s. In another paper

(Reinhart and Rogoff, 2010) the authors studied the period of 200 years for 44 countries for which data was available. An important insight of this study is that the growth of the economy is adversely affected as the ratio of debt-to-GDP goes beyond 30 percent and nears 100 percent, eventually creating a situation where the GDP is only able to service the interest payments. The IMF reached similar conclusions in its post-mortem of the Asian financial crisis in the late 90s and recommended a safe level of government debt-to-GDP of no more than 25 percent. They further advised avoidance of debt-creating flows; an advice that was not taken by the advanced economies. Rogoff (2011) suggests that there are now $200 trillion of financial paper in the global economy, of which nearly 75 percent or US$150 trillion is in interest-bearing debt. The global GDP in 2011 is estimated optimistically at US$65 trillion. The question is how the underlying real global economy, growing at rates below the growth of global debt, will be able to validate this debt?

According to recent IMF Fiscal Monitor, the average debt per working age person in advance economies will increase from $27,600 in 2007 to $62,000 in 2016 and from $1,500 to $2,200 in emerging markets. In 2009, the IMF estimated that gross general government debt in high-income advanced G-20 economies is expected to grow from 78 percent of their GDP in 2007 to 120 percent in 2014, an increase of 40 percent over a 7 year period. These countries suffer from high unemployment, fiscal instability, low capacity utilization and high debt and leverage. The stress and strain on the international trade and financial system and its associated arrangements did not suddenly become apparent after the 2007/2008 global crisis; in the 1990s Japan, Russia, Argentina, Brazil, and Mexico were sending distress signals (Mirakhor, 2002). Neither the signals nor the lessons of these crises made any noteworthy impact on the way the world economic system and its policies were being steered. Andrew Sheng (2009) suggests that the crisis would have been evaded had the system learned the lessons of the Asian crisis:

> *"Whilst the emerging economies learned the lessons of 1997/98 crises, put their macroeconomic policy house in order, reduced their exposure to sudden stops, and accumulated reserves, most advanced economies went in the opposite direction. They reduced their savings,*

increased consumption, ran fiscal deficits and accumulated large debts. Observers suggest that Ireland, Portugal and Greece are only the tip of the axiomatic iceberg and that there is a heightened risk of the emergence of an even more serious global debt crisis".

The lessons had been distilled most effectively by the IMF, from the post-mortem analyses of the Asian, Brazilian, Argentinian, Russian, Mexican crises of the late 90s and early 2000s. Reforms and remedies were suggested but were only implemented, most strongly, in case of emerging and developing countries. The advanced countries perceived their economies immune to the forces of instability. Growing vulnerabilities, however, built up the pressures that proved dramatically the folly of such perceptions.

John Mauldin and Jonathan Tepper in their latest book titled *"The End Game"* have described the present situation as a debt *super cycle'*; referring essentially to the decades-long growth of debt from small and manageable levels, to a point where bond markets rebel, (translating into an *'effective default'*) and the debt has to be restructured or reduced if not formally defaulted . They refer to the current situation as an *End game*, where the end of the global debt super cycle is inevitable as it is no more sustainable. They state very clearly:

"The debt laden situation is going to cause a lot of pain. It is not a question of pain or no pain; it is just when and how we decide (or are forced) to take it. There are no easy paths, but some bad choices are less bad than others". ... "We have shifted the crisis from homebuyers to banks and then finally to government. There is no one else to step in. We are at the End game, a point of criticality in the system.

Uncertainties, ambiguities and complexities governing the present architecture and configuration of policies, seem to exacerbate the perception that the present financing regime is unable to mitigate effectively the risks to the global economy. Hence, there is a palpable anxiety and growing concern leading to the search for an alternative to the present interest-based debt financing regime.

4. Islamic Approach to Money and Finance

Islamic finance is based on Quran and Sunnah. It prohibits interest rate based debt contracts, although free-of-interest lending, called *qard hassan*, is permitted. Islamic finance can be envisioned as a two-tier financial system:

- A 100 percent reserve depository and safekeeping banking system for domestic and international payments.
- A risk-sharing investment banking that places real saving directly in private or public projects or indirectly via the stock market. Investors are shareholders.

The first sub system keeps money deposits in trust and settles payments via clearing, withdrawals, and other forms of payments. The second part of the system receives savings, which it invests in productive projects or in more liquid investment such as mutual funds or stocks. Depositors receive transferable or marketable shares that enable them to liquidate their investment if they chose to do so. They share in profits and losses as well as in capital gains and losses. Islamic capital markets intermediate between saving units and investing units through risk sharing. They would include investment banking, stock markets, mutual funds, exchange-trading funds, and other forms of intermediary risk-sharing institutions.

The objective of Islamic finance is to promote sustained growth and full employment thus contribute positively to poverty alleviation, and, ultimately, to economic and social justice. Growth cannot be achieved without capital accumulation. Investing in capital is the only way for achieving growth and employment. Islamic finance, being based on sharing the risk of an activity rather than on interest rate driven debt contracts, contributes efficiently to capital accumulation and is immune to financial instability and speculation. It is based on growth solely and allows no wealth redistribution via interest rate based debt contracts; it insulates an economy against banking failure and stock market crashes that have had a constant presence in the conventional system (for the proof of existence of an stable non-inflationary economy operating in a non-interest rate environment see Mirakhor 1990/1993).

It can be argued that Islamic finance precludes capital markets volatility because in this system the close relationship between the real and financial

sectors pre-empts misalignment of rates of return to finance, the rates of real growth of the economy and net rate of profit. It is based on risk taking and risk sharing.

5. Risk Sharing[1]: a Rule-Based System

Investors or portfolio managers in general face two kinds of risks. The first is systematic and the other idiosyncratic. The former refers to risks that are macro-economic in nature and are posed by overall economic settings. These risks are un-diversifiable hence uninsurable. Only effective macro-economic policies and international economic and financial coordination can mitigate such risks. Unsystematic or idiosyncratic risk, on the other hand, relates to risks that are individuals or firms specific, emanating from risk of shocks to a firm or an individual income. Such risks are diversifiable, therefore, insurable. High correlation between consumption and income creates vulnerabilities to income shocks. However these can be mitigated through risk-sharing arrangements that lessen reliance on only one source of income. Therefore, risk sharing reduces the correlation between income and consumption that, in turn, leads to consumption smoothing (Mirakhor, 2011b).

Risk sharing -the essence of Islamic finance- serves one of the most important desiderata of Islam i.e. the unity of mankind. Islam is a rules-based system in which a network of prescribed rules governs the socio-economic-political life of the society. Compliance with these rules renders the society a union of mutual support by requiring humans to share the risks of life (Mirakhor, 2011c).The epistemological roots of risk sharing as an organizing principle of Islamic financial system is discernible from the verse 275 of chapter 2 of the Quran. This verse, in part, decrees that all economic and financial transactions are conducted via contracts of exchange (al-Bay) and not through interest-based debt contracts (al-Riba). Since in the Verse the contract of exchange appears first and no-riba thereafter, it can be argued that

1. For a more detailed vision of the Islamic alternative financial system see, H. Askari, et. Al, (2012), *Risk Sharing in Finance: the Islamic alternative",* John Wiley.

requiring contracts to be based on exchange constitutes a necessary condition and no-riba the sufficient condition of existence of an Islamic financial system. Together, these conditions constitute the organizing principle of that system. The necessary condition (al-Bay) and sufficient condition (no riba) must be met for a contract to be considered Islamic (Mirakhor, 2011c). Classical Arabic Lexicons of the Qur an define contracts of exchange (al-Bay) as contracts involving exchange of property rights claims in which there are expectations of gains and probability of losses[1] (Mirakhor, 2010; Mirakhor, 2011b). By entering into contracts of exchange, parties improve their welfare by exchanging the risks of economic undertakings, thus allowing division of labour and specialization.

The understanding of al-Bay , the exchange of one set of property rights' claim for another, as the necessary and no-riba as the sufficient condition have important implications. Exchange requires the freedom to contract for the parties involved and this implies freedom to produce, which then calls for well protected property rights to allow and facilitate production. For exchange to take place, there is a need for markets and then for rules that govern behavior of market participants. Rules need enforcement and regulation to keep the flow of information smooth thus reducing transaction costs. These rules of market behavior include: trust, faithfulness to the terms and conditions of contracts, good governance, honesty and transparency in social dealings, rules of property rights and market behavior, contract enforcement, distribution and re-distribution. It can be argued that full compliance with these rules reduces the informational problems and transaction costs thus rendering the system efficient (Askari, et al., 2010).

Risk and uncertainty are undeniable facts of life. As was discussed earlier, uncertainty stems from not only the lack of information but also from ignorance of knowing the response and behavior of others under such conditions. Question arises as to why risk and uncertainty exist. This question becomes more acute for those who believe in the supreme Creator who

1. See also, for example, Al-Tahquiq Fi Kalamat Al-Quran Al-Karim; Lisan Al-Arab; Mufradat Alfaz Al Quran, Arabic Lexicon, among others. These sources define al-bay as mubadalati al-maali bi al-maal In English this can be rendered as the exchange of one set of property rights claim for another.

creates all things. Since it is believed that existence of risk and uncertainty is a source of difficulty for humans, a Creator-centric question also arises: why create risk and uncertainty for humans? Bartholoemu, (2008) argues that a plausible argument for the necessity of risk is that it serves as an important ingredient in the recipe of full human development. It provides the fertility and diversity of experience to develop our skills and personalities (p.230). The Qur an, on the other hand, provides a more compelling explanation: humans are subjected to tests throughout their lives to allow them a sense of the degree to which they, individually and collectively, are rule compliant (see for example verse 155: chapter 2, 2:76, 2:29, 126:9, and also verse 7: chapter 11). Without risk and uncertainty, testing would not be possible (Mirakhor, 2009). To ease the intensity of anxiety in dealing with tests and, therefore, reduce uncertainty and demand on humans cognitive ability, the Qur an prescribes rules of behavior. Principle among these rules is that of risk sharing ordained by the Qur an.

It can be argued that a financial system based on risk sharing would be more stable than the conventional dominant system which is based on risk transfer and, more and more, on risk shifting. The sources of this stability are the operational characteristics that remove major sources of volatility and instability. Among these characteristics are the following:

- transparency, trust and faithfulness to terms and conditions of contracts;
- close relationship between finance and the real sector activities such that the rate of return to the latter determines that of the former;
- asset/liability risk matching;
- coordinated asset/liability maturity structure;
- asset/liability value matching such that the value of both sides of the balance sheet move simultaneously and in the same direction in response to changes in asset prices; and
- limitations on credit expansion and leverage, naturally arising from the need for credit growth that is tied closely to the expected rate of growth of the real economy.

It has been shown that a system based on these operational characteristics, would be stable and capable of producing employment, income and output growth (Askari, et al., 2010). The full range of instruments of such a financial system would be expected to run the gamut of the spectrum of instruments from short-term, liquid, and low-risk financing of trade contracts to long-term financing of real sector investment. The lower end of the spectrum would provide financing of sales and purchases of products already produced to allow greater production, thus, greater employment of resources. At the higher end, it would provide financing for planned production in the future; all financing taking place through risk-sharing contracts (Mirakhor, 2010). In such a system there would be no opportunity for pure financial transactions, those that have no relation to the real sector of the economy (Mirakhor, 2011a).

6. Global Risk Sharing

One of the most vital arguments put forward in favor of globalization was that of improved risk sharing that would result from intensified human interaction across the world. On theoretical ground, this would mean expecting much greater degree of risk sharing between and among economies - resulting from greater freedom of movement of resources, and hence, providing as a major source of consumption smoothing in the world economy. These developments were expected to lead to progress toward market completion ˚ a condition of optimal risk sharing posited in Arrow s conception (Arrow, 1971). Or, at least, progress could have been expected toward the design and use of Arrow Securities, with pay offs contingent on the performance of the underlying asset, for example, equity-based securities with close links to the real sector of the economy (Mirakhor, 2011a).

Theoretical Research has demonstrated sizeable potential welfare benefits of risk sharing[1]. However, empirical studies have shown only marginal gains in risk sharing from globalization. For example, a study by Kim, et al. (2005) showed that even in the fast growing East Asia-10 countries, the size of the

1. See for example, van Wincoop, 1999; Kim, S., et.al. 2005; Lee Imbs, 2006 and Shin, 2008.

coefficient of risk-sharing was very small and some were negative (Indonesia and Malaysia). Analyses of the pre-crises data shows a fast growing, debt-creating process in the global financial system with increasingly tenuous links with the growth of the real economy. Increased debt-creating flows, a characteristic of financial globalization in the run up of 2007/2008 crises, does not improve risk-sharing, as they either transfer or shift risk. More importantly, risk-shifting or risk-transfer financial transactions led global finance toward decoupling from real sector activities with the growth of the former outpacing that of the latter by double-digit multiples, intensifying the risk of "sudden stops" (Mirakhor, 2011a).

The contribution of Islamic finance to the growth of the real sector has so far fallen well short of expectations. Perhaps the main reason has been the fact that, growing within the conventional finance framework, the practitioners and financial engineers of this new asset class had to design instruments that resembled those prevalent in the host system without violating the "ne-riba" sufficient condition. This meant creating instrument with tenuous relationship to the real sector to weaken the risk perception of Islamic finance held by market players. Hence, Islamic financial industry focused on portfolio behavior with strategy of asset concentration in short-term maturities, and real estate in the medium-to-long-term maturities, thus creating vulnerabilities. Aside from these problems, there is a risk of path dependency: the risk that the industry will continue following the same pattern of behavior because it has proven profitable thus far. This growing complacency and doing "business as usual", runs the risk that path dependency will render deviations from a truly Islamic finance irreversible. This would mean continued development of debt-like instruments that are low risk and are devoid of risk-sharing elements. After all, finance is well aware of the theory of "spanning" -where one basic asset can span into an infinite number of derivative instruments. This theory served as the basis for the rapid development of debt-based derivative markets world-wide which eventually undermined the stability of global finance.

In their defence, the industry players argue that "our clients" are not interested in placing their funds at risk thus discourage us from risk sharing.

Apparently, this argument is unaware that, conceptually, there is a difference between risk taking and risk sharing. The former is prior to the latter. The risk of a given project in the real sector is determined in that sector before the financial sector seeking finance. It is at the point of financing where the decision regarding the modality of financing risks sharing, transfer or shifting ˚ is made. The nature and magnitude of risk taken remains the same and immutable as it enters the financial sector seeking funds. Industry players display a further dimension of inertia in resisting risk sharing. This relates to the conceptual *"framing"* of Islamic finance.

Framing refers to the fact that people s response to risky situation depends on how they form their perception of a given situation and that depends on how an event is formulated. People react differently to the same situation when it is framed in alternative formulation. Framing is closely related to the idea of *"prospect"* which refers to perception of gains or losses attached to decisions. The way prospects are framed can lead to inconsistent behavior; if the same objective outcome is framed differently in terms of gains and losses, people respond differently. Since losses, are given greater weight than corresponding gains, people are in general loss averse. If the outcome is framed either as a gain or loss, people prefer to choose gain. For example, the prospects of 10 percent loss and 90 percent gain can be framed focusing either on the probability of the loss or the expectation of the gain. It can be argued that a major reason for the inertia in the industry for resistance to progress toward risk sharing is due to the inability of the stake holders and practitioners to first understand and then frame risk sharing prepositions correctly and effectively.

While the disappointments with the present performance of Islamic finance industry is understandable, it should be noted that the industry has a short history in which it nevertheless has demonstrated remarkable growth. Perhaps it is this performance that has triggered evidence of growing interest in non-interest rate based finance. Indications are that emerging markets and developing economies are actively considering adoption of instruments of Islamic finance. Few are leveraging the ifst-mover status of Malaysia in education, manpower training and instrument innovation in Islamic finance to

introduce their own brand of risk-sharing method of financing. If these efforts succeed, perhaps even the benefits of emerging multiple growth centers in the global economy will be further enhanced with greater stability and resilience in the supporting financial transactions through risk sharing (Mirakhor, 2011c). Governments, particularly in Malaysia, have been a major source of support for the growth of Islamic finance. The same support can extend risk sharing to government finance. Instead of issuing a debt based bond to raise funding, governments can use equity participation securities for such funding. These instruments can be issued in low denominations and traded in the secondary markets. This would allow ordinary consumers and investors to participate in the process of owning a share of their government s activities. These instruments with the incentive for wide participation of the population could well enhance social solidarity and, perhaps, even an incentive structure for strengthened governance. Such alternative methods of financing government expenditures would be viable particularly in the Asian economies with high saving ratios.

Risk-sharing could also be an effective alternative to the debt-based ways and means of helping European countries facing sovereign debt crises. For example, Eurozone could issue long-term securities with pay offs based on the GDP performance in these countries. Similarly, China could buy Italian GDP-based securities rather than the consideration reportedly being given to purchase of Italian debt. This type of risk-sharing instruments has been proposed by analysts for some time now. Shriller (2003), the first to suggest this type of macro-market instruments, believes that the benefits of risk sharing are substantial but have yet not materialized due to the limited availability of appropriate instruments. The present regime uncertainty has created a valuable opportunity for risk sharing based finance as a viable alternative to the interest rate based debt financing.

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