



The financial Tower of Babel: roots of crisis

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Abstract

Purpose – The aim of this paper is to explore and discuss the causative factors of the current financial crisis from an Islamic perspective. This paper also examines Islamic finance as an alternative financial system and a potential long-term solution to financial instability.

Design/methodology/approach – The paper provides descriptive, analytical and comparative analyses.

Findings – The paper offers insights into the causes of the current international financial crisis. It highlights an alternative and a solution to this dilemma in the form of Islamic finance and stresses the stability of the Islamic finance system.

Practical implications – The findings presented in this paper can be used by policy makers, regulators and practitioners in both the Islamic and conventional financial sector as they provides insights into factors that can insulate the market from future crisis. However, to expect a wholesale transformation to an Islamic financial system is idealistic.

Originality/value – This paper contributes to the understanding of Islamic finance principles and its value as a solution to the current and any future financial crises. A highly original conceptual idea is used in the metaphorical comparison to the Tower of Babel. The findings of this research will be of interest to western and Islamic financial practitioners, policy makers and academicians.

Keywords Islam, Finance, Economic depression, World economy, Capitalist systems

Paper type Conceptual paper

In the story of the Tower of Babel, Babylonians tried to create a consumerist Tower that reached right up into the Heavens. The project failed as the Tower crumbled and the people ceased to be able to communicate.

I. Introduction

Why speak of a Financial Tower of Babel? In the Qur'an and the Bible, people began to create a tower (Plate 1) that was to be a materialist ladder to Heaven[1]. The tower crumbled when the communication mechanisms of finance were lost. In the last 20 years, the global economy has undergone enormous economic growth[2]. Europe and North America, created a consumer based, materialist tower Babel made of debt and excessive leverage. This tower collapsed as confidence in the language of the financial world (debt, securitization, leverage and antidotes trust, liquidity and interbank lending) collapsed[3]. The extent of the aftershock is still an open question.

The discourses of Islamic and conventional finance differ. According to the principles of Islamic finance, there is no separation of the spiritual and the secular. Islamic finance is explicitly concerned with spiritual values and social justice, in contrast to conventional finance, which is based on the maximisation of individual utility, welfare





Plate 1.
Tower of Babel
by Pieter Bruegel

and choice, as expressed for example in the shareholder value model. A basic principle of Islamic finance is the prohibition of *riba* (usury). The most prevalent method of risk management is risk sharing by *Mudarabah* profit and loss sharing: compensation to lenders is in accord with an agreed ratio of the profit/loss outcome of an investment project. The discourse of Islam involves:

- equity rather than debt;
- financing in strict relation to assets rather than leverage;
- transparency and information sharing between investor and the manager; and
- diversification of risk by risk sharing.

In contrast, the discourse of Financial Tower of Babel failed and the Tower collapsed as a result of:

- too much debt;
- overleveraging of assets;
- excessive securitization and creation of new assets that were neither transparent nor understood; and
- diversification of risk, based on unreal models; all leading to massive systemic risk, the too big to fail (TBTF) problem and the need for bailouts.

Bailouts contributed to government deficits and borrowing, increased risk of defaults at the level of sovereign states, especially in the so-called (Portugal, Ireland, Italy, Greece and Spain) PIIGS; problems currently haunting the global economy.

At first glance, the principles of Islamic finance would appear to insulate it from the crises of conventional finance. In practice, this cannot be the case[4]. The global economy is too interdependent: linkages between financial institutions prevent the de-coupling of the two systems. Also the secondary effects of the collapse of the Financial Tower of Babel are upon growth, employment, trade and equities. Islamic finance can only be insulated, if institutions under conventional finance adopt a regulatory system that insists effectively on:

- increasing the asset base of banks;
- reducing leverage;
- relating it to investment risk; and
- greater transparency.

These measures will align the two discourses, moving conventional finance closer to the principles of Islam. In a sense these requirements are merely cosmetic. Nor are we confident that a sufficient degree of co-operation exists for regulatory reform. The discourse of conventional finance has been incredibly robust in spite of the severity of this crisis and the frequency of past crises. A more fundamental requirement, a precondition for real change, is to heal the separation of the spiritual and the secular, reduce the emphasis of both business and finance upon individual and organizational profit and increase emphasis upon social justice.

The intention of this paper is to provide an overview of the crisis and its implications. Later, we present the Islamic finance as a revolutionary departure from the current financial orthodoxy as a way of avoiding the next crisis. As financial regulation has lapsed, crises have multiplied: more than 100 such crises have occurred in the last 30 years (Stiglitz, 2010a, b).

II. The nature of the financial crisis

Over the last 30 years, governments in mature economies have placed excessive emphasis on maximisation of corporate profit and attachment to material wants. More and yet more emphasis on consumer choice and consumption have become primary goals. This has led to living beyond means in the public, household and government sectors. Consequently, there has been a phenomenal rise in debt. Even the USA, the richest country in the world, has become the most indebted. If we add the indebtedness of the public sector, which includes the federal government, the states and the municipalities, as well as that of corporations, businesses and individuals, the total US debt comes to about \$37 trillion or \$128,560 per person[5].

The revolution in finance had a number of aspects originating in the 1970s. Figure 1 illustrates the positive feedback effects upwards (upward self reinforcing mechanism) between finance, technology and global demand, which, in 2007 deteriorated into a downward effect in 2007/2008. Upward motion included:

- introduction of flexible exchange rates;
- deregulation of financial markets enabling many new financial assets (often unregulated) to be created[7];
- development of new pricing models, allowing complex assets and bundles of assets to be priced[8];

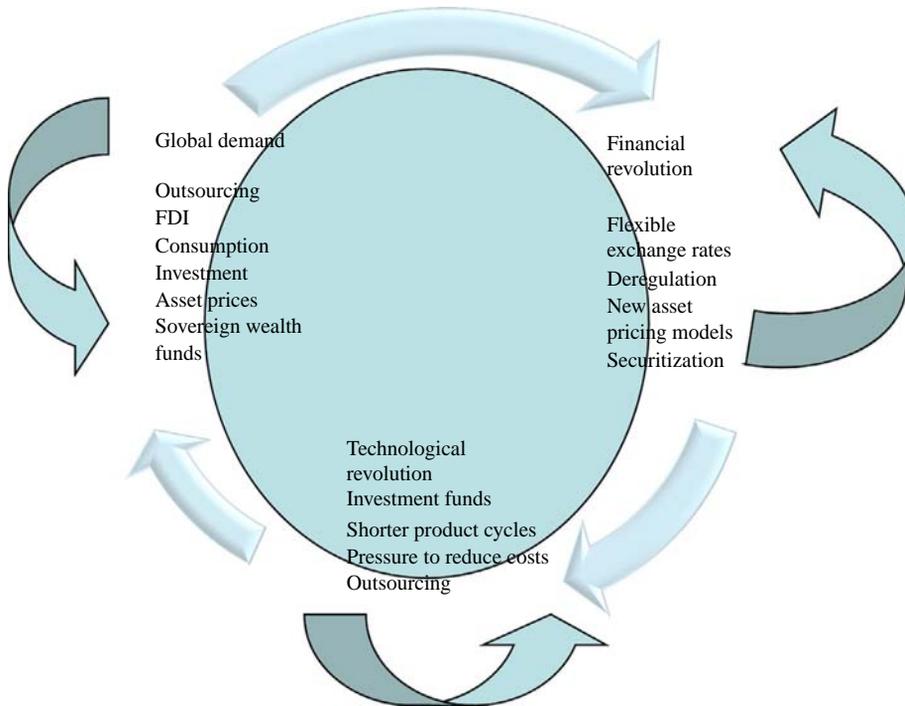


Figure 1.
Upward self-reinforcing mechanism[6]

- an information revolution, enabling market information about asset prices to be fed continuously into models; and
- originate and distribute banking and excessive debt accumulation[9].

The current phase of globalization emerged from positive feedbacks in final 25 years of the twentieth century between finance, technology and globalization. Deregulated finance, funded technology and innovation and resulted in increased output and productivity and shorter product cycles. Firms needed global demand to absorb their increased output and global finance to fund innovation and the purchasing power plus cheap labour, supplied globally, to be cost competitive.

The Financial Tower of Babel was built on building blocks of symbolic assets; symbolic in that they had speculative value, rather than real value based on their ability to create wealth. The building blocks had value only so long as, the builders of the Tower, continued to deceive the public that the assets it was built upon had value. It was bound to collapse at some time; the critical point occurring when the language of communication broke down. The builders, suppliers and managers of the Tower eventually ceased to communicate because the language of finance, assets, debt, leverage and liquidity began quite suddenly to signify only empty promises. The Financial Tower of Babel collapsed in on its own foundations; assets, within assets, within assets; illusions, within illusions, within illusions; in other words, securitization. Trichet (2010), President of the European Central Bank, has rightly pointed out that “a bubble is more likely to develop when investors can leverage their positions by investing borrowed funds”.

III. Chicago[10] versus Islamic economics

In this section, we begin by comparing two discourses and then outline how the ideology of the conventional discourse of finance has changed in practice, although policy makers are largely in denial of the change.

a. Comparisons

Although the latest crisis appears to originate in the financial sector, the origins are much deeper. Capitalism and the relentless search for competitive advantage has resulted in huge volumes and variety of goods and services. Demand has to keep pace with supply, which marketers seem to understand, but economists have ignored. Over the last 20 years, the manic search by firms for competitive advantage has been most marked in the speculative mentality of the financial sector, creating Towers of debt based on speculation. At the most general level, the contrasting feature of the discourses is that, what we have classified as Chicago economics, is essentially anthropomorphic, people centred: whilst the tenet, central to Islam, is that God is the creator and ultimate owner of wealth, and people are vicegerents, who should use the gift of wealth, only as his trustees (*Quran* 20:6).

Globally there is both a liquidity crisis (a credit crunch or what Keynes called a liquidity trap), and more seriously an insolvency crisis. Many of the assumptions or conventional wisdom about business and economics, treated over the last 25 years as self evident truths have been falsified, but obstinately remain dominant in the discourse. Falsified Chicago propositions are given as follows:

- P1.* That markets are efficient.
- P2.* That capitalism can be deregulated effectively.
- P3.* That government intervention is inefficient.
- P4.* That the goal of firms is to seek competitive advantage.
- P5.* That it is supply rather than demand that matters.
- P6.* That decisions are rational.
- P7.* That reliance on monetary policy can cure depressions.
- P8.* That the probability of extreme events can be ignored.
- P9.* That aggregate risk can be diversified away.
- P10.* That the financial sector creates wealth.
- P11.* That the concern of globalization should be growth not distribution.
- P12.* That world growth rates years are sustainable indefinitely.
- P13.* That debt can exceed the discounted value of future gross national product.

The main propositions of the Chicago School that have been so influential since the 1950s are described in *P1-P13*. Markets for goods, services and factors of production are said to be efficient in that they maximise all possible benefits from trade and free exchange (Pareto optimality). Stock markets are efficient in that stock prices incorporate all relevant information (information efficiency) about a firm, so that stock prices follow a random walk. *P2* and *P3* follow from 1 and lead to the textbook supply

and demand: that if prices (including wages and interest rates) are flexible, there should be full employment. In fact markets are not efficient informationally and often lead to persistent unemployment. *P4* follows from the judgement that the role of firms is to maximise shareholder value. *P5* is embedded in supply side explanations of economic growth. *P6*, decision theory based on rational expectations assumes that:

- individuals, acting rationally, use all the information they have to maximise their utility; and
- that everyone has access to the same information.

In fact:

- irrationality is apparent in markets everywhere: in mortgages, in securitization, derivatives and banking generally (even self styled wizards, behave stupidly); and
- individuals had access to different information.

P6 strengthens the earlier propositions and leads to the *P7* that the role of governments, via the central bank, should be limited to keeping money supply growth in line with real growth of the economy[11]. The credit crunch is a liquidity trap in which monetary policy does not work. Increases in the money supply (quantitative easing) are either hoarded or lent at usurious rates; stimulating erratic asset price fluctuations.

P8 more or less rules out extreme events in financial markets:

- by assuming that, in aggregate, financial market prices follow a normal (Gaussian) distribution, with limited variance;
- constructing the price of complex assets on models that used too little data; and
- relying on recent data that reflected (in an upswing of the cycle) that usually reflected rising prices[12].

Contrary to *P9*, the current crisis demonstrates that risk is a public rather than a private good. The financial sector is a complex networks of obligations that feedback on one another. The diagram in finance texts that pictures individual risk as being diversifiable as opposed to market risk, ignores the interdependence between financial institutions and the TBTF problem: failure that would cause the collapse of the Financial Tower of Babel to spread much deeper depression than actually occurred, as the Lehman Brothers collapse threatened to do and as the PIIGS crisis still threatens to do. Interestingly and supportive of the Islamic distrust of debt, bailouts are ultimately financed out of taxes (fiscal policy) and resultant government deficits too will, in the future, be met largely out of taxes and expenditure cuts, and further wealth transfers to financial institutions will result from subsequent interest rate rises. Perhaps surprisingly, states have not come to terms with the fact that they now own large segments of their economies.

On *P10*, value created by the financial sector has, in our view, been vastly exaggerated by its own discourse. Basic roles are to redistribute savings and consumption over time, channel investment to high return uses, hedge risk and organize liquidity. Apart these functions, it operates as a casino, making the notion of market efficiency rather ridiculous. Remuneration systems in banks provided incentives to take too much risk, and obscure reflection on flaws in their models. Poor regulation and greed

explain the abusive lending practices that were so large a part of this crisis, of past crises and will be a large part of future crises[13].

P11 and *P12* recall the contrast between the discourse of conventional finance which separates the secular and the spiritual and the principles of Islamic finance, one of whose purposes is to moderate differences in income and wealth: and another purpose is that people may pursue wealth but as trustees of God (*Quran* 20:6)[14].

Our comments are reflections on the practicality of the Islamic principle, that of itself, money, without appropriate effort, does not create wealth (no pain no gain). Markets are central to Islam, but one role of the Islamic State, is that of protection, which includes necessary regulation. Ethical behaviour is a requirement of secular or business activity; the *Qu'ran* requires obedience to God, His Prophet and their rulers in that order (4:59): as noted above, contradicting the anthropo-centrism of Chicago economics.

The effect of the liquidity trap (credit crunch) on interest rate spreads has another dimension. In western Europe and north America, as unsold stocks of goods and unemployment builds up, asset deflation emerges. However, much central banks reduce base rates (or federal fund rates), real rates of interest rise (long and short rates), rise because real rates of interest are nominal (money) rates minus the rate of inflation. Liquidity fails to reach businesses (especially small and medium enterprises) because:

- of unwillingness of financial institutions to share business risk;
- risk aversion of banks with respect to business risk; and
- their habit of Ponzi financing (Section 4): quantitative easing has found its way into driving up the prices of financial assets, equities and debt (Figure 2).

Global depression deepens as debtors become even more indebted, as real rates of interest rise and as the burden of debt rises. This is shown in Figure 4; insolvency, stagnation, deflation and liquidity trap, a positive feedback system to mirror that

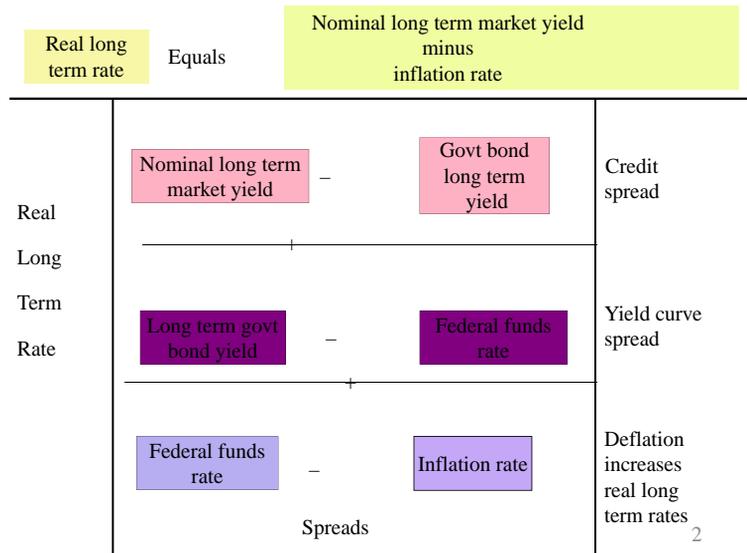


Figure 2.
Real long-term rate

in Figure 1, but in Figure 5, a positive feedback system that takes the global economy downwards.

IV. Securitization and leverage

A process of layering took place in the years before the crisis. Portfolios of assets were combined and securitized into new assets, which in turn were combined into portfolios and securitized into new assets building layers of portfolios within portfolios: see the list “Layering: the crumbling bricks and mortar of the tower” and Figure 3. Layering, illustrates the force of the Islamic precept that money of itself is not capital, and does not create wealth, unless it is used to finance enterprise; enterprise being a combination of risk taking and knowledge or entrepreneurship. Portfolios of pyramids of leveraged assets was symbolic assets; assets that were liquid in that they could be leveraged into the creation of other layers of assets: not wealth creation, but merely a transfer of property rights in Ponzi type transactions, in which gains occurred if and only if the layered portfolios of symbolic assets continued to rise in price: a speculative process that is technically *haram*, or forbidden (2: 219 and 5: 94). We are describing the kind of process envisaged by Minsky: that can continue if and only if asset prices continue to rise[15]. When the Tower collapsed, the burden was externalised as follows:

- creating moral hazard, furthering the tradition of financing by government bailouts of institutions that were TBTF or (TITF) too interconnected to fail;
- corporate defaults;
- contributing to government debt, with ripple effects that spread to sovereign states (the PIIGS nations and possibly others); and

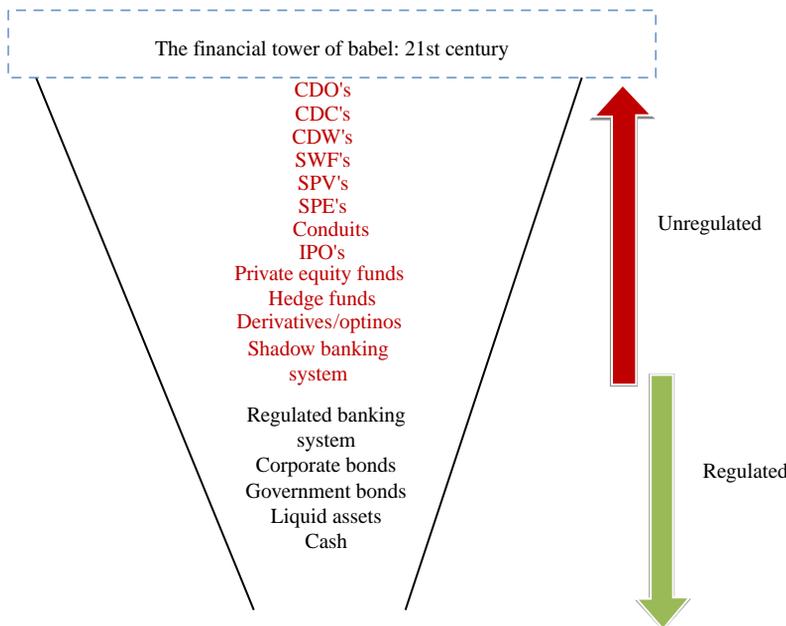


Figure 3. The financial Tower of Babel twenty-first century[17]

- declines in world gross domestic product (GDP) and employment and deterioration in other economic and social indicators.

One of the proximate causes of the crisis was inadequate margins of safety by the Banks. Credit ratings in the originate and distribute model systematically underestimated risk. Originate and distribute was legitimized by deregulation. For example, the Basel Capital Adequacy Accord (1988) and the Gramm Leach Bliley Act (1999), allowed banks to extend their leverage, by creating off balance sheet structures (special purpose vehicle, SPVs[16]), illustrated in the upper part of Figure 3, and make profits by:

- (1) originating assets, distributing (or transferring) them to SPV's, then;
- (2) managing SPV assets;
- (3) collecting fees from underwriting and servicing:
 - originated assets; and
 - further securitization, the distribution of further assets collateralized upon the original assets.

The price of symbolic assets, since many were exchanged on a counter party basis, was determined by the models designed to price them. The models become the reality and the portfolios were illusory wealth. Deregulation allowed credit risk apparently to be transferred from the (regulated) bank to the (unregulated) SPV, which created new assets (debts). Risk apparently rested with investors who financed the SPV by buying its liabilities and further collateralized them by providing credit enhancements or guarantees to their buyers. Hence, banks were not concerned with risk since both interest and principal on debts originated would (if all went well), be repaid to the final buyers of the collateralized assets. The bank is only interested in its ability to sell the asset, it has originated and to make profits from originated assets and further securitization. The list "Layering: the crumbling bricks and mortar of the tower" describes the steps in building the Financial Tower of Babel creating symbolic assets:

- (1) Form diversified portfolios (including mortgages and other loans, government and corporate bonds and receivables from credit cards).
- (2) Divide them into collateralized debt obligations (CDO's); that is, groups (tranches) of different risk: the least risky groups have low interest rates (senior tranches) have an AAA rating; the most risky (toxic waste) have high interest rates and a lower rating, but will be redeemed last.
- (3) These different portfolios are legally transferred to a SPV or conduit which is off balance sheet as far as the bank is concerned.
- (4) SPV's are part of the shadow banking system.
- (5) The SPV or conduit sells them.
- (6) Buyers can protect themselves by holding credit default swaps (CDS).
- (7) Portfolios of CDS (called CDX in the USA or *iTraxx* in Europe) are formed and perhaps combined with CDO's, and sold.
- (8) How are they paid for? By selling short-term asset backed securities (ABX): that is assets backed by the CDS and CDO's.

- (9) If a funding gap appears between the CDX and the ABX, then this can be funded by short-term repurchase agreements (*repos*); that is by selling a CDO or CDX today and promising to repurchase it later (overnight financing).
- (10) Banks agree to provide a reputational credit line (liquidity backstop) to the shadow banking system. Thus, banks which are regulated are infected by the unregulated shadow banking system.
- (11) Normally the Basel 1 Accord, an international agreement requires banks to hold capital (mainly share capital and other physical assets) valued at 8 per cent of loan assets (called a capital charge) on their balance sheets; reputational credit lines to SIV's are exempt from the capital charge.
- (12) Other institutional investors, hedge funds, private equity funds, pension funds, insurance companies and other firms some of whom were only allowed to hold AAA rated securities can now hold tranches of AAA rated securities composed of portfolios of BBB (higher return but higher risk) securities because of the existence of the liquidity backstop.
- (13) At each stage sellers, fund managers receive commissions, related to the value of the deal and therefore have the incentive to create as many deals and illusory assets as possible.
- (14) Statistical ratings organizations (SROs) assess the default risks. They include Moody's, Standard & Poor, Japan Ratings Agency, Russ Ratings, European Ratings Association, Fitch.
- (15) SRO's make no secret about accepting data provided by sellers and financial arrangers at face value without investigation and their fees are paid by the sellers of CDO's.
- (16) There is a global market for all these assets, which includes the sovereign wealth funds (SWFs) of various nations.

a. Risk and the shadow of default

One of the misconceptions of conventional finance is that risk, in the aggregate, can be diversified away. On the contrary risk, in aggregate, cannot be reduced. It can only be shared. Modern financial institutions are interdependent: this has always been the case, but in the global economy and as a result of the originate and distribute model, it is even more so. All risk is systemic, and a public good[18], arising from the nature of time and uncertainty. In what sense is it a public good? It is a public good as a result of defaults, bailouts by governments on behalf of taxpayers: plus secondary effects on output, employment globally through deflation and stagflation: (Figure 4).

Rather than risk sharing in the years leading to the latest crisis, a process of risk layering (referred in the list "Layering: the crumbling bricks and mortar of the Tower") took place. First layer assets, mortgages (and to a lesser extent, credit card and automobile loans), were bundled with traditional first layer financial assets (government and commercial debt) to create a second layer of assets (bundles of first layer assets) and guaranteed by an insurer or the originating bank. Thus, the SPV was in fact linked to the originating bank. Second layer assets were purchased using term debt, to finance the purchase; profits being generated by interest rate spreads, that is, differences between the longer term rates on the bundled assets and the short term borrowing rates. Then second

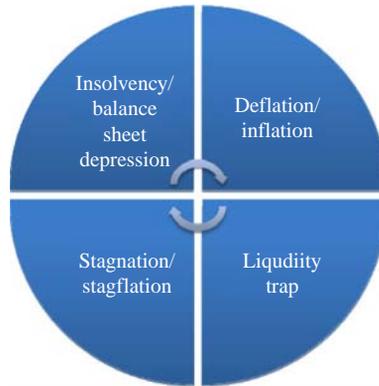


Figure 4.
Global diffusion of risk

layer assets were bundled into third layer assets. The third layer of leverage sprang from the increasing use of borrowed money to fund the leveraged investors (hedge funds for example), who bought investments that were already leveraged. The triple-layered leverage pyramid is only as strong as its weakest link. The first link to break was sub prime mortgages.

The value of securitized assets depends on confidence and trust. Confidence is not an emotional state of a single individual, but “a view of other people’s confidence and of other people’s perceptions of other people’s confidence” (Schiller and Akerloff, 2009, p. 55). When speculative confidence fails, as it must, the market price of these complex assets falls. They lose their value. People do not want to hold them: they want to sell, not to buy. A balance sheet depression arises[19]. The assets of private sector firms, banks and as well as consumers fall in value and they have to deleverage, reduce debt in order to improve balance sheets. Bank deleveraging especially reduces the effect of Keynesian stimulus.

Problems appeared first in the subprime market; in mortgage-based securities. Then the flood gate opened with bailouts or nationalizations, protectionism and bankruptcies of the following household names; Bear Stearns (USA), Northern Rock (UK), Dillon Read (an internal hedge fund of UBS), IKB (Germany), American Home Mortgage Corporation, BNP Paribus (France), Fannie Mae, Freddie Mac, IndyMac, Lehman Brothers, Merrill Lynch, AIG (insurance), automobile manufacturers everywhere[20].

The problem becomes global because the financial sector is global. It spreads throughout the financial sector, via options, SPV’s and conduits, and via CDS’s, and CDO’s into insurance, then via hedge funds and initial public offering’s into the corporate sector; the automobile sector and the manufacturing sector worldwide. And, it spreads to the oil sector and the consumer credit markets. Demand generally falls. Inventories build up. Recession and economic depression follows as institutions try to rectify their balance sheets. Further deleveraging is now taking place in government sectors, not only in the PIIGS economies, but in Europe and North America, threatening a W shaped recovery (that is a further, balance sheet recession rather than recovery) rather than a quicker (V shaped) recovery.

b. Interest rate spreads

The effect of the liquidity trap (credit crunch) on interest rate spreads has another dimension. In Western Europe and North America, as unsold stocks of goods and

unemployment builds up, asset deflation emerges. Global depression deepens as debtors become even more indebted as real rates of interest rise and the burden of debt rises[21]. However, much central banks reduce base rates (or federal fund rates), real rates of interest rise (long and short rates) because real rates of interest are nominal (money) rates minus the rate of inflation. Global depression deepens as debtors become even more indebted as real rates of interest rise and the burden of debt rises. This is shown in Figure 4; insolvency, stagnation, deflation and liquidity trap, a positive feedback system to mirror that in Figure 1, but in Figure 3, a positive feedback system that takes the global economy downwards.

V. Conventional and Islamic finance demonstrate

Figure 5 is a simplification, used to illustrate some differences between Islamic and conventional finance as well as some of the propositions in the paper. It is an aggregate picture, measured on log scales. In the diagram, the horizontal axis shows the value of assets currently $A(T)$; the vertical axis shows their value in a growing economy at some time in the future $A(T + N)$, given an exponential rate of sustainable growth K , represented by the slope of the line XY [22]. Growth rate K is assumed, for the moment, to be a long-term average, with a stochastic element, that sums over time to zero.

At time T , sustainable growth can be achieved by sustainable leverage, given by the line XZ . Sustainable leverage, **ab** in Figure 5, a multiple of the tangible asset (TA) base, is determined by the entrepreneurial/enterprise capabilities which include the appetite for risk taking and innovation. Other capabilities the TA base, broadly defined to include the stock of knowledge and physical and human capital, are assumed to be given and measured with respect to the horizontal axis, by the line segment $A(T) \leftrightarrow a$. Call capabilities collectively, **A**. Sustainable leverage, **ab** results in asset growth **bc**,

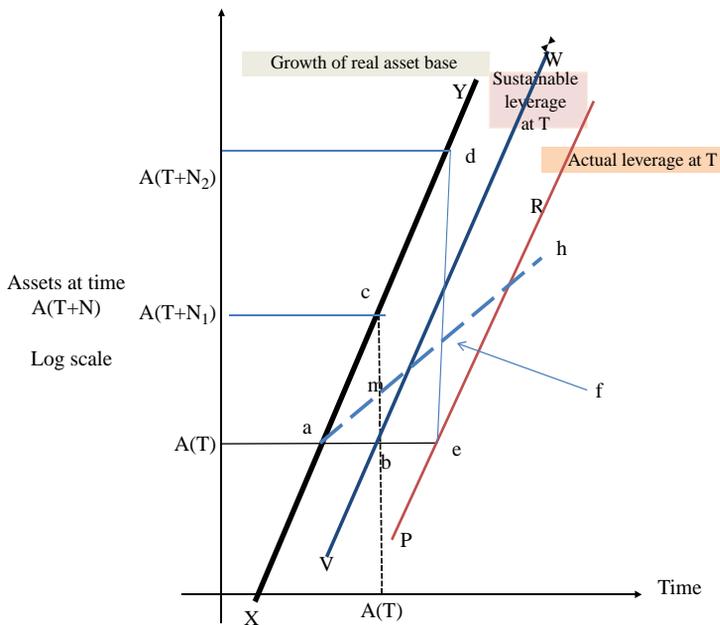


Figure 5.
Asset at time T log scale

in the time interval $T \leftrightarrow T + N1$. Generally sustainable leverage will be a multiple of the TA base: in Islamic finance the multiple will depend on the value of enterprise[23]. In a non Islamic setting sustainable leverage should be no different (but we qualify this in a moment).

Now suppose that growth is not a stochastic event, normally distributed, with limited variance over a trend rate K . Assume instead that events in financial markets are fat tailed, with crisis events, being as they are in our experience, recurrent features; the evidence seems to be that people do not learn from the experience of previous crises (Minsky, 1982, 2008a, b; Reinhart and Rogoff, 2009). If crises have a permanent impact, the slope of the sustainable growth line will slow to K^* permanently ($K^* < K$). Now we have an insolvency crisis, measured by the distance **fd**: a deficiency of assets (in foreseeable time), in the face of leverage **ae**. Balance sheet depression follows, as firms in all sectors attempt to deleverage and a sequence of events follows, such as we have described earlier in the paper.

VI. Concluding remarks

The real roots of the financial crisis are in the attempt to construct a Tower of Babel, a materialist heaven, in denial of limitation and mortality that are the realities of living in time and space. The promise was unbounded exponential growth, extending infinitely to a paradise of consumption.

Then capitalism entered a downturn of recession and deflation even more severe than that of the 1930s because it is a global construction. The recent Tower of Babel, like the archetypal one, was built on illusory foundations of symbols, or building blocks of assets that had value only so long as people continued to deceive themselves that they had value. It was bound to collapse at some time; the critical point occurring when the language of communication broke down. The builders, suppliers and managers of the Tower eventually ceased to communicate because they no longer believed the assets of their trade, debt and liquidity have any real value.

Recent increases in wealth are founded on the necessary split, at that time, in the sixteenth century between languages of science and the spirit: between the language of science and the language of mysticism. One outcome, in addition to wealth itself, has been the confusion of spirituality and mysticism with superstition. In an era when many cognitive functions can be performed by machines or with the help of machines, real questions arise about the nature of being. The possibility, understood by mystics for centuries, of many dimensions of existence, has become part of the language of modern (scientific) imagination. Perhaps understanding the collapse of the modern Financial Tower of Babel as signalling a critical point, opening up the possible emergence of new languages and new understanding of dimensions of being that include, as well as the necessary game of increasing wealth (and as Keynes pointed out in relation to the depression of the 1930s, the game need not be played for such high stakes, and with such inequity, as in the building of the Financial Tower of Babel), dimensions of soul and spirit.

Would Mudarabah profit and loss sharing, if adopted universally, avoid such sequences of events? The answer is probably: yes[24]. The financial authorities in the USA and the UK are not forthcoming about how they have computed stress tests, using the ratio (tangible common equity/TA) TCE/TA. A 4 per cent ratio is equivalent to 25 times leverage of assets (holding of business and other debt as a proportion of bank equity). Immediate pre-crisis levels of leverage were very often more than twice

this level. Equity-based profit and loss sharing based on TA would clearly more than meet this criterion, on reasonable assumptions about the contribution of enterprise. Equity would provide the buffer against failure. Overoptimistic estimates of the value of enterprise would be problematic though, and Islam has not developed bankruptcy laws, so failure could be diffused and not confined to the original investment partners. A situation could arise, as at point *f*, in Figure 4, where the entire system is bankrupt, but this is unlikely, at least on a scale comparable to that of conventional finance.

Could a system of Islamic, equity-based profit and loss sharing co-exist alongside a conventional system? We think not. The reason being the interdependence of the global economy precludes de-coupling of one segment from another, either from primary or secondary effects. Secondary effects on Islamic countries have been both economic and social. Primary effects, we think, would arise from the independence of banks and their products. Through insurance and CDS instruments, the shadow and regulated banking sectors are interconnected. We hardly think that Sharia compliant windows in western banks would insulate Islamic funds.

Positive effects may be dormant within the complexity of the global financial network within the TBTF and TITF phenomena. They arise from its complexity and independence. Perhaps we have reached a critical point where change on all scales is possible? Perhaps the change could be recognition that co-operation should be substitutes for competition, the search for competitive advantage and acquisitiveness? Perhaps new ways of being in the world will emerge: recognition of interdependence is a step towards realising the need, at a practical as well as a spiritual level for compassion. We could cite a number of Quranic messages: that “God does not change the condition of a people until they change their own inner selves” (*Quran* 13:11); tha Mankind was created as one nation, but they became divided because of differences among them” (*Quran* 19-10). We are reminded of *Al-Fatiha* and *ar-Ramani –r-Alamin*, the Merciful the Compassionate: *Inshallah*, if God wills (*Quran* 18:24-25). Let’s see.

Notes

1. See Genesis (11:1-9) and the Torah. The Tower of Babel is not mentioned by name in the Qur’an but, a similar story of a tower is set in the Egypt of Moses. There is a reference to humanity being one community, “but then they differed” (10:20). Other references are to building a high tower. The Pharoah, wanting to see the God of Moses, orders Haman to build a Tower, aiming to reach heaven (28:38; 40:36f). The location of the tower is in the area of Mesopotamia (Kramer, 1967). All imply two things; the breakdown of common language and vainly reaching for heaven through materialism.
2. IMF data show that world economic growth has averaged more than 4 per cent per annum over the period 2000-2008: China averaging around 10 per cent and the mature Eurozone closer to 3 per cent. See www.imf.org
3. There are many analyses of the crisis. Of the most popular, the best are Tett (2009), Peston (2009) and Gasparino (2009). Stiglitz (2010a, b) has an ex-post analysis. More formal accounts are referred to below, but by far the most insightful and is the work of Minsky (1982, 2008a, b); Keynes (1936); and Skidelsky (2009).
4. Nakheel, owned by Dubai World, is trying to restructure its \$980 million *sukuk*. Investment Dar, the Kuwaiti Islamic investment firm, defaulted on its \$100 million *sukuk* and Nakheel, the real-estate subsidiary of Dubai World, was bailed out on its \$3.5 billion *sukuk* by Abu Dhabi.

5. Figures are extrapolated from various editions of the IMF World Economic Outlook from 2008 to 2010.
6. For further explanation of the analysis underlying this diagram see Matthews (2006) and Stiglitz (2003).
7. In the USA, deregulation began in the Presidency of Ronald Reagan and culminated in the informal dismantling of the Glass-Steagall Act (1933) that had been designed to prevent commercial banks from underwriting securities. Alan Greenspan as an disciple of the Libertarian philosopher Ayn Rand was an enthusiastic deregulator; though, he had warned of irrational exuberance at The American Enterprise Institute for Public Policy Research, in Washington (December 1996). Deregulation began in the UK under Prime Minister Margaret Thatcher and continued under successive administrations.
8. Major breakthroughs began with the publication of the Black Scholes option pricing model (1973). It continued with further mathematical and statistical developments including the Gaussian Copula model of Meng (2010) that provided a statistical measure relating asset correlation and default probabilities of CDO's. Later developments were founded on earlier models; the efficient markets hypothesis (Fama and Miller, 1972; Fama, 1991), based on the limited variance, assuming away independence of events in financial markets that led to many extreme events, including the collapse of LTCM in 1998 and the current TBTF problem. For a critique of conventional wisdom in finance, see Taleb (2007) and Mandelbrot (2004).
9. Debt manifests itself under capitalism in many forms. In the first decade of this century, it was current account deficits in high consumption (low saving economies such as the USA and the UK and current account surplus in high saving (low consumption) economies, China and Russia who accumulated SWFs in the USA in particular. Debt also took the form of high household debt in high consumption economies and government deficits especially in the USA under President Bush. Currently, the focus is on PIIGS economies (Portugal, Italy, Ireland, Greece and Spain) that threaten the stability of the Euroland.
10. Reder (1991) divides the history of the Chicago School into three periods. The Chicago approach to economics is extraordinarily coherent and that is the root of both its attraction and its deception. Brilliant extensions of Alfred Marshall's economics are contained in Stigler's, *The Theory of Price* (1966) and Friedman's *Price Theory* (2009). The arguments of both of these texts are hedged by careful assumptions that rarely apply completely to actual situations; but these assumptions are too easily passed over by students looking for facile, unambiguous solutions to complex problems.
11. The classic statement is by Friedman and Schwartz (1963).
12. See Taleb (2007); Mandelbrot and Hudson (2008). They identify financial markets with fat tailed distributions thus, embracing (rather than ignoring) the fact that extreme events occur with great frequency. Wolf (2010, p. 32), for example, drawing on secondary data, notes that there were 117 systemic banking crises in 93 countries between 1970 and 2003: 27 of which involved an increase in public debt of more than 10 per cent of the countries GDP. Taleb (2007) also demonstrates that to pick up the fact of extreme events, by definition, requires large amounts of data: much larger than is usually the case. Minsky (2008a, b) makes the same points. In a fat tailed distribution the tail approaches zero more slowly than exponentially; $\Pr[X > x] \sim x^{-(1+\alpha)}, x \rightarrow \infty, \alpha > 0 \sim x^{-(1+\alpha)}, x \rightarrow \infty, \alpha > 0$; for a thin tail distribution.
13. Minsky (1982, 2008a, b), Reinhart and Rogoff (2009) chart the long history of repetitive financial crises.
14. *PI2* has yet to be fully tested: the spectacular of world GDP and population growth in the medium or long term, against the entropy law and the low but significant probability that

- global warming, partly of human origin that may utterly change the conditions of life: see Weitzman (2008).
15. The possibility of doing this depends on confidence and as Greenspan put it irrational exuberance. We agree with Minsky (1982, 2008a, b), that this is not a remote occurrence, but an essential property of capitalism in an upswing.
 16. We use SPV, SPE (special purpose vehicles/entities, conduits) equivalently, to denote off balance sheet entities in the unregulated sector; the major sources of symbolic assets. Note that the separation between the regulated and the unregulated sector is somewhat arbitrary, since commercial banks in the regulated sector were linked, via their holding of CDS, to the unregulated sector: discussion below.
 17. Peston (2009) and Tett (2009) have good explanations of terms in figure 4.
 18. A public (as opposed to a private) good is non excludable and non rival. Non excludable because everyone is affected by it; non rival because one persons experience of it does not reduce the experience of others. Hence risk can only be diversified or shared, not reduced.
 19. A process described by Koo (2009).
 20. For the history of the crisis see Gasparino (2009) and Brunnermeier *et al.* (2009).
 21. "Layering: the crumbling bricks and mortar of the tower" in Section IV was compiled from a number of sources including www.roubini.com and www.imf.org
 22. $\log A(T + N) = \log A_0 + K \log A(T)$.
 23. If we assume that sustainable leverage is a constant proportion of assets, in value terms, it will increase as assets grow, but at the current asset value it will pass through a 45° line from the origin. The 45°, with assets A(T) line is omitted in the diagram.
 24. Chapra (2008) emphasises that since the current architecture of the conventional financial system has existed for a long time, radical structural reform of the kind that the Islamic financial system is unlikely. He suggests some movement in that direction may be possible but does not discuss inertial factors which we think are likely to be overwhelming in the near future. Current discourse is dominated by what we have called Chicago thinking: the lure of bonuses and the political power of the financial sector is immense and destructive.

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