Islamic finance: an alternative financial system for stability, equity, and growth

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1. Introduction

Today, a number of poor countries suffer from slow economic growth with unproductive industrial and manufacturing sectors. A principal explanation lies in their unsupportive financial sector – low investment, shallow and fragile capital markets, and banks focused on short-term loans to the few corporations that have marketable collateral. Moreover, many of these countries are heavily indebted and face recurrent debt crises. The conventional financial system has not served them well. The advanced countries have been plagued by recurring financial crises. Minsky (1986) maintained that conventional finance was inherently unstable in the developed world. Periods of prosperity alternated with periods of depression and massive unemployment (Siegfried, 1906) and inevitable vicious cycles of periodic debt crises that push the economy into a recession or depression and wipe out much of the real income gains achieved prior to the crisis. Significant wealth is redistributed to debtors who have defaulted on their loans. Moreover, it is inflationary and, therefore, again inequitable. Prominent politicians have been critical of conventional finance.[1] Eminent economists during the 19th and 20th

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1 The third president of the United States, Thomas Jefferson, stated: "I believe that banking institutions are more dangerous to our liberties than standing armies. If the American people ever allow private banks to control the issue of their currency, first by inflation, then by deflation, the banks and corporations that will grow up around [the banks] will deprive the people of all property until their children wake-up homeless on the continent their fathers conquered. The issuing power should be taken from the banks and

centuries,[2] witnessing financial crises occurring during their lifetime, proposed reforms that establish 100% reserve commercial banking and an investment banking system that channels investments on a pass-through basis. Some reforms called for abolishing interest-based credit and its replacement with equity-based investment. 100% reserve deposit banking was painstakingly described in the Chicago Reform Plan of 1933 (Phillips, 1994). However, financial institutions see fractional reserve banking and leveraging as important factors for their profitability and are opposed to such reforms.

The basic principles of financial stability advocated by many of these authors happen to be similar to those of Islamic finance. Islamic finance draws its precepts from the Quran and Sunnah. Basically, Islamic finance has two pillars: (i) a 100% reserve banking system and equity-based investment banking, and (ii) prohibition of interest and interest-bearing debt. Thus the only significant difference between the recommendations of these authors and Islamic finance is that all interest bearing debt is prohibited in Islam. In the Islamic system, credit plays a negligible role; there are no borrowers or lenders; there is no conflict between borrowers and creditors.[3] There are only equity-holders. There is no creation of money out of thin air or through the credit multiplier. Money injection does not multiply through the banking system, as banks do not lend deposits. Investment banks cannot cause a financial crisis as they invest their clients' money only on a pass-through basis and thus systemic risk is minimised. As a result, Islamic finance is inherently stable. A number of giants in the profession, including Fisher (1936), Simons (1948) and Allais (1999), have advocated banking systems with characteristics that are similar

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restored to the people, to whom it properly belongs." With respect to inflation, US senator Daniel Webster (1782-1852) noted: "We have suffered more from this cause than from every cause or calamity. It has killed more men, pervaded and corrupted the choicest interests of our country more, and done more injustice than even arms and artifices of our enemy."

[2] We can cite: Allais (1999), Bastiat (1877), Carroll (1965), de Soto (2012), Fisher (1936), Rothbard (1994; 2008), Paul (2009), Raguet (1840), Walker (1873), and von Mises (1952).

[3] We define credit as a loan of cash, which is to be reimbursed in cash. We exclude commodity transactions that are settled according to a time schedule.

to the Islamic financial system and developed in the "Chicago Plan" as the only stable system conducive to sustained growth and full-employment.

The volume of sanctioned Islamic financial products has grown rapidly since the 1970s with important centres established in the Persian Gulf, Malaysia and the United Kingdom (where a major initiative to cement London as an important centre for Islamic finance was announced by the Prime Minister, David Cameron, in 2013). In this paper, we advocate for Islamic finance as an alternative financial system for financial intermediation to support economic growth. In the process, we define the notion of capital and how monetary and credit policies affect capital markets. Monetary and fiscal policies may lead to a destruction (i.e. consumption) of capital and cripple economic growth (Hayek, 1931). Real capital has a cost in terms of production cost as well as abstinence by savers. Once invested, it has a marginal productivity insofar it enhances economic growth (Bohm-Bawerk, 1888; Fisher, 1930). Without capital, there can be no economic growth. We describe the relationship between real capital and money capital and the meaning of a financial crisis for real capital. We discuss the nature of Islamic finance as a risk-sharing financial system (Askari *et al*., 2012); the role of a vibrant stock market in Islamic finance; the shortcomings of conventional stock markets; and the theoretical stability of an Islamic stock market. We propose that governments may opt for equity financing of infrastructure projects in the form of public-private partnerships (PPP). We advocate for Islamic finance as being an efficient alternative to overcome many poor countries' inability to marshal resources for development as well as to address the excessive public debt of advanced countries. We conclude by encouraging countries that seek to avert the shortcomings of conventional finance and attain sustained growth to seriously consider a financial system that embraces risk sharing and 100% reserve banking, as advocated by Islamic finance, the "Chicago Plan" or in so-called Limited Purpose Banking (Kotlikoff, 2010).

2. Basic notions of capital markets: definition of capital and equilibrium rates of return

2.1. Definition of capital

Real capital cannot be created out of thin air; monetary capital and real capital are not one and the same; central bank policies can misallocate and erode capital and financial crises have a detrimental effect on the formation of real capital. When the US Federal Reserve prints trillions of dollars of money capital out of thin air, it does not increase the quantity of real capital; it does not create even one drop of oil or one gram of wheat. It does, however, redistribute real wealth in favour of borrowers (Allais, 1999; Bastiat, 1877; Carroll, 1965),[4] and to the extent that it destroys real capital, it cripples economic growth. Real capital is determined by savings and is necessary for economic growth. Undistorted capital markets allocate capital according to its most efficient uses through intermediation between surplus units and investors. A financial crisis emerges if there is a severe shortage of real capital or there is a significant loss of real capital by the creditors (Walker, 1878; von Mises, 1953).

Authors in the 19th century defined real circulating capital as a fund of consumer goods necessary to sustain workers in investment activities, i.e. in the capital goods sector. Ricardo (1817) defined capital as that part

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[4] Allais (1999) wrote: "In essence, the present creation of money, out of nothing, by the banking system is, I do not hesitate to say it in order to make people clearly realise what is at stake here, similar to the creation of money by counterfeiters, so rightly condemned by law. In concrete terms, it leads to the same results." Bastiat (1877) deplored the redistributive injustice of paper money inflation. It steals wealth from losers and showers it for free on the gainers. He wrote: "I must inform you that this depreciation, which, with paper, might go on till it came to nothing, is affected by continually making dupes; and of these, poor people, simple persons, workmen and countrymen are the chief. Sharp men, brokers, and men of business, will not suffer by it; for it is their trade to watch the fluctuations of prices, to observe the cause, and even to speculate upon it. But little tradesmen, countrymen, and workmen will bear the whole weight of it." In the same vein, Carroll (1965) severely condemned the redistributive power of fictive money and credit; he noted "[…] of all the contrivances for cheating mankind, none has been more effectual than that which deludes them with paper money. This is the most effectual of inventions to fertilise the rich man's field with the sweat of the poor man's brow."

of the wealth of a country that is employed in production, i.e. that consists of food, clothing, tools, raw materials and machinery as the means to enhance the contribution of labour. Hence, according to Ricardo, the notion of capital is intimately related to his labour theory of value, which considers labour as the foundation for the value of commodities. Capital may increase in quantity by additions to food and necessities. The notion of capital as a wage fund, namely food and necessities to sustain labour in the production process, dominated early Classical capital theory. In particular, the notion of saving was identified with availability of food and necessities for sustaining workers in investment activities. For instance, labour engaged in building roads would require food surplus made available by farmers over and above that required for their own use. If the labour employed in consumer goods production absorbs its entire product, then there is no saving that can be used to free labour from the primary agriculture sector and redeploy it in investment activities. Saving is transformed through the production processes into fixed capital, i.e. capital goods, and leads to capital accumulation.

Böhm-Bawerk (1888) reviewed many definitions of capital in his classic treatise *The Positive Theory of Capital*. Although he opted for a definition of capital as a subsistence fund that encompasses the Ricardian wage fund, he also saw capital as supporting landlords and money capitalists. Böhm-Bawerk formalised Ricardo's idea in a simple model. He considered an imaginary economy of two men secluded on a remote island: Mr. Robinson Crusoe and his companion Friday. Recognising that capital has a positive marginal product and increases future consumption, Robinson and Friday decided to construct a net and a canoe. Robinson remains in the consumer goods sector, in charge of catching fish; Friday is diverted to the capital goods sector where he collects raw materials such as wood, fibre, and iron, which he uses for manufacturing the canoe and the net. Evidently, Robinson has to save part of his fish catch to feed Friday. By denoting Robinson's output during a time period t by Y_t, and his fish consumption by C_t, his saving is $S_t = Y_t - C_t$; it serves to maintain Friday in the capital goods sector. The output of Friday per

period of time is I_t. It is equal to S_t. Total output in this economy is $Y_t = C_t + I_t$.

Jevons (1871) had a similar view of capital to Ricardo. He regarded capital as the aggregate of those commodities that are required for sustaining labourers of any kind, or class, engaged in work. A stock of food is the main element of capital, but supplies of clothes, furniture, and all the other articles in common daily use are also necessary parts of capital. The current means of sustenance constitute capital in its free or un-invested form. The single and all-important function of capital is to enable workers to await the result of any long-lasting work, to put an interval between the beginning and the end of an enterprise. It is self-evident that when men make their livelihood from the soil, with output only once a year, their subsistence needs for the whole year must be provided for in advance. The first and most obvious setting where capital is directly used as an input in industry is to enable types of production that require considerable time before their results come to fruition. A man, when supported by capital, can afford to remain at his work until it is finished and is not compelled to leave it unfinished as he searches for the necessary means of subsistence. If there were no accumulated fund to support the labourer, no man could remain for a single day exclusively engaged in any occupation other than that which would supply his primary needs. Capital allows the employment of labour before that labour's output is produced.

Jevons believed that the definition of capital and the explanation of capital theory must rely on the distinction between free (working) and invested capital. Working capital was defined as the wages of labour, either in its transitory form of money, or in its real form of food and other necessities of life. The ordinary sustenance required to support labourers of all ranks so that they may be engaged in their work is the true form of capital. To invest capital is to spend money, or the food and maintenance that money purchases, upon the completion of some work. Capital remains invested or is 'sunk' capital until the work has returned a profit, equivalent to the input or sunk capital cost plus interest. Accordingly, a railway would not be viewed as fixed capital, but instead thought of as capital fixed in the railway. The capital is not the railway, but the food of

those who made the railway. Abundance of free capital in a country means that there are copious stocks of food, clothing, and every article which people insist upon having – in short, that everything is so arranged that abundant sustenance and conveniences of every kind are forthcoming without the labour of the country being taxed to provide them. Under such circumstances, it is possible that some of the labour force may be employed in production activities that will only yield output in the distant future, while no one experiences scarcity at the present.

In a classic paper, Marcel Labordère (1908) presented a lucid analysis of real and apparent working capital and the genesis of financial crises. The economy may run into a crisis when the amount of real capital is insufficient to finance investment projects, leading to the suspension or loss of the projects. Real capital consists of subsistence products such as food, clothing, medicine, and other necessities that maintain labour in the investment sector; real capital is to be transformed into fixed capital such as capital goods, tools, railways, ships, commercial and residential buildings, etc. Labordère stated that money capital might be multiplied by banks at the stroke of pen in form of bank credit with no direct link to real capital, resulting in price inflation and misallocation of resources. Labordère distinguished between three types of account: consumption, saving, and investment accounts. The consumption accounts record the consumption of consumer goods or subsistence goods, the saving accounts record the consumer goods that are not consumed and are to be transferred to the investment account; the investment accounts record the output of capital goods. He defined over-production as a disproportionate increase in raw materials and unfinished investment projects caused by under-production of real working capital. Simply stated, over-production means the excess of investment over saving.[5]

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[5] Unbacked credit that does not correspond to real saving creates high demand in some sectors. For instance, large car loans create high demand for the car industry that is paid for by forced real saving. When forced saving becomes too small and cannot finance the higher output of the car industry, a financial crisis erupts – there will be overproduction and excess capacity in the car industry and underproduction in the food sector.

2.2. *A model of capital as a subsistence fund*

The notion of capital as a wage or subsistence fund is of paramount importance to understanding the nature of capital and some concepts such as forced saving, the cost of capital and the consequences of fiscal, monetary and credit policy on saving and investment. To show the interplay of saving and investment and the effect on consumer prices, we consider a two-factor (capital and labour), two-sector economy; one sector produces consumer goods and the other produces investment (capital goods); i.e. production of raw materials and machinery as illustrated in figure 1. Each sector uses labour and capital.

Figure 1 – *Capital as a subsistence fund: a two-sector economy*
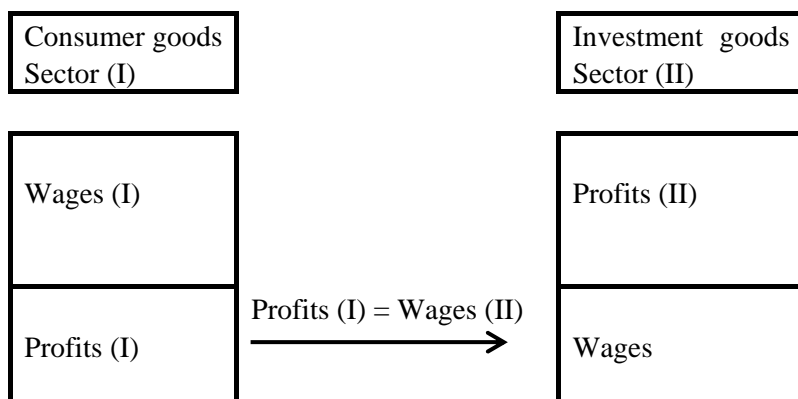
Wages reward labour and profits reward capital. We assume that workers who produce consumer goods and those who produce investment goods spend their wages on consumer goods. We assume that no profit income is spent on consumption goods. Profit income in each sector is spent only on investment goods. Under the assumption that all of the wage income is spent on consumption goods and no profit income is spent in this way, the sum of realised markups (profits in a very gross

sense) on the technologically determined direct labour and material costs of producing and distributing consumption goods equals the wage bill for investment goods production. As shown in figure 1, we have:

Profit in consumer goods sector = Wage bill in investment goods sector (1)

Total profit equals the investment that takes place in both sectors. The simple equation 'profits equal investment' is a fundamental relation for macroeconomics, used to determine the behaviour through time of a capitalist economy with a sophisticated, complex financial structure.

Let us write P_C as the price and Q_C as the quantity of a representative consumer good; then, $P_C Q_C$ summed over all goods equals consumption. We also write W_C as the money wage rate in the production of consumer goods and W_I as the money wage rate in the production of investment goods. Employment is N_C in the consumption goods sector and N_I in the investment goods sector; $W_C N_C$ is the wage bill in the consumption goods and $W_I N_I$ is the wage bill in investment goods. Let us assume that there are only workers whose labour is directly related to the production of consumer and investment goods, and profit receivers. Because of the assumption that workers spend all their income on consumption goods and those who receive profit spend none of theirs, it holds that the demand for consumption goods is the wage bill for the whole economy; by assumption, profit income does not yield a demand for consumer goods; it instead yields a demand for investment goods.

If only consumption goods were produced and no investment took place, the total wage bill would be $W_C N_C$, so that:

$$P_C Q_C = W_C N_C \qquad (2)$$

Which gives us:

$$\pi_C = P_C Q_C - W_C N_C = 0 \qquad (3)$$

π_C is profit in the sense of gross capital income. If investment goods are produced, then $W_I N_I$ is the wage bill in the production of investment goods, and we have:[6]

$$P_C Q_C = W_C N_C + W_I N_I \tag{4}$$

$$\pi_C = P_C Q_C - W_C N_C = W_I N_I \tag{5}$$

Thus profit in the consumer goods sector equals wages in the investment goods sector. We denote profits in the investment goods sector with π_I. Total production in the investment goods sector can be expressed as:

$$I = P_I Q_I = W_I N_I + \pi_I \tag{6}$$

We have:

$$I = \pi_C + \pi_I = \pi \tag{7}$$

Here π_C is the value of investment in the consumption sector and π_I is the value of investment in the capital goods sector. This proposition states a powerful truth: in an investing economy, prices and income distribution are such that resources are made available for investment. The workers who produce investment goods have to be fed, and this is achieved by not allowing the workers who produce consumer goods to eat all that they produce. This truth expresses the notion of capital as a wage fund. In the economy, the less than total consumption of the goods produced in the consumption sector by its own workers is enforced by the price and wage system. Given the assumptions, the result is obvious, realised investment equals the realised surplus, and profits are the form that the surplus takes. Furthermore, financed investment determines aggregate income, its distribution between wages, profits and aggregate

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[6] In the Robinson Crusoe model, $W_C N_C$ is the consumption of Robinson and $W_I N_I$ is the consumption of Friday.

markups that are realised. Investment that is financed forces the surplus by affecting prices.

The profit equation of this simple model leads to a view of how prices are formed. From:

$$P_C Q_C = W_C N_C + W_I N_I \tag{8}$$

We get, by employing simple algebra:

$$P_C = \frac{W_C N_C}{Q_C}\left(1 + \frac{W_I N_I}{W_C N_C}\right) \tag{9}$$

Furthermore, $A_C = \frac{Q_C}{N_C}$ is the average productivity of labor in the production of consumer goods. As a result, we have:

$$P_C = \frac{W_C}{A_C}\left(1 + \frac{W_I N_I}{W_C N_C}\right) \tag{10}$$

If we assume $W_C = W_I$, this becomes:

$$P_C = \frac{W_C}{A_C}\left(1 + \frac{N_I}{N_C}\right) \tag{11}$$

We see that the price level of consumer goods is positively related to the money wage rate W_C and the ratio of labour employed in the production of investment goods to those employed in the consumer goods sector, that is $\frac{N_I}{N_C}$, and inversely related to the average productivity of labor in the production of consumer goods A_C. Thus, if wages and employment in investment goods industries rise relative to wages and employment in consumption goods industries, the price level rises, and as the average productivity increases, the price level falls.

This model for the determination of the price of consumer goods has a number of applications. If an expansionary credit policy contributes towards increasing demand for investment goods, then the size of investment in relation to saving increases and labour may be diverted to the investment goods sector from the consumer goods sector. For a given

wage level in the consumer goods sector, the price level of consumer goods rises and this reduces real wages in terms of wage goods. There is forced saving through consumer goods price inflation. We can extend the model to include government deficit. If the deficit is financed by money printing and creates an additional demand for consumer goods, denoted by $Deficit_C$, we may reformulate the price relation as:

$$P_C = \frac{W_C N_C}{Q_C}\left(1 + \frac{W_I N_I}{W_C N_C} + \frac{Deficit_C}{W_C N_C}\right) \tag{12}$$

A higher deficit exerts pressure on consumer goods prices, extracts real surplus from the consumer goods workers and may also reduce any real surplus available for workers in the investment goods industry.[7] In fact, if consumption absorbs most of the output of the consumer goods sector, unemployment will develop in the investment goods sector. Because of very low interest rates and expansion of credit in the industrial countries, prices of necessities, mainly food and energy prices, were rising rapidly during the period 2002-2012. Crude oil prices, for instance, rose from $18/barrel to about $147/barrel; likewise, prices of meat, cooking oil, bread, sugar, coffee, milk and most other consumer products doubled, tripled, or even quadrupled during the same period. Since nominal wages did not rise, there was a forced cut in workers' real consumption of food and energy products. The acceleration of the consumer price level inflation could be considered a sign of a shortage of subsistence capital, contributing to higher capital cost that may decelerate economic growth and employment, with over-production and excess capacity in the capital goods sector when forced saving reduces.[8]

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[7] The fiscal theory of the price level establishes that the price level is influenced directly by government deficit and government debt. Higher deficits and debt contribute to higher inflation of consumer prices.

[8] Hayek (1939) provided an excellent historical description of the forced savings doctrine. Arthur Lewis (1954) analysed forced saving in development financing. If forced savings contribute to productive capital, then inflation may recede when there is a substantial increment in output. However if it is used to finance unproductive expenditures, then capital consumption takes place, inflation worsens and labour suffers a decline in real income and consumption.

2.3. Real capital versus monetary capital

Capital is also a fund of money or a financial asset. Financial intermediation and banking use the notion of capital as a fund of money and not as a set of physical goods or objects. Financial transactions such as the purchase or sale of shares are accomplished with money. Money can be gold, any other commodity that is accepted as a medium of exchange, or fiat money. Besides being a medium of exchange, money serves as both a standard of value and a store of value. Money as a medium of exchange allows the circulation of goods. Money is an asset, held along with other financial assets such as securities and real assets such as land, buildings, machinery, etc. Money is held in the form of cash, such as gold and currency, or deposited in the banking system. It is called money capital to the extent it has a purchasing power over commodities and financial and real assets. A holder of money capital may convert, at some transaction cost, his cash into securities or real assets. An increase in money capital may translate to an increase in real capital and may turn out to be inflationary, as stated by Labordère (1908). Setting interest rates at near zero does not necessarily increase real capital, but it may lead to the depletion and misallocation of real capital.

Firms raise money capital for their investment projects. Banks mobilise saving and receive deposits in money. Banks purchase securities or disburse loans in money. Similarly, capitalists own funds of money and purchase securities or loan money capital to borrowers. Borrowers borrow money not to keep it idle, but to turn it into real assets that they need. They pay interest for the service of these real assets. Money funds change in value as financial assets change in price or valuation. Financial stability could be undermined when banks issue more money claims than are backed by real savings or when there is misalignment between money interest rates and real returns on capital. When financial capital multiplies independently of real capital, there will be a shortage of real circulating capital; inflation is ignited and speculative bubbles in stocks, housing and commodities accelerate. All bubbles eventually burst. They lead to financial instability, real economic recession and a forced and unjust redistribution of wealth from creditors to debtors and speculators.

2.4. The credit multiplier in conventional finance

The ability of banks to issue unbacked credit has long been recognised. Thornton (1802) showed that banks were able to issue fictitious credit simply by issuing loans that are not backed by deposits. Table 1 illustrates a typical balance sheet of conventional banking:
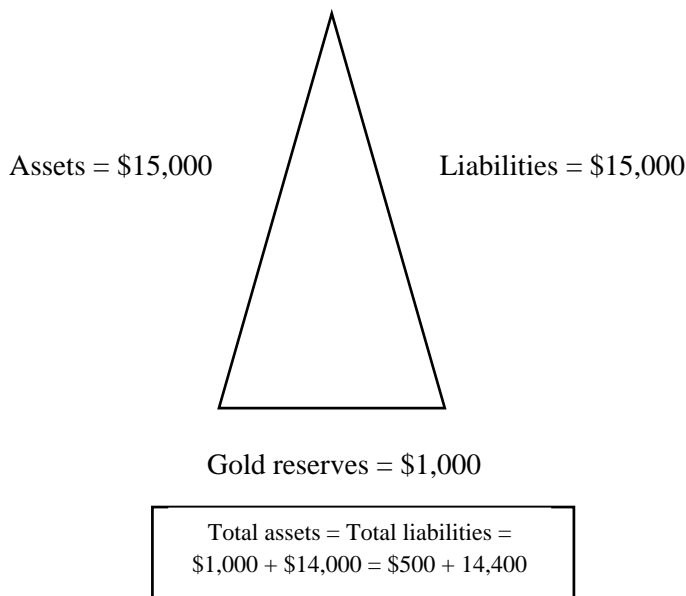
Table 1 – *Balance sheet of conventional depository banking*

Assets		Liabilities	
Gold	$1,000	Currency in circulation outside banks	$500
Loans and	$14,000	Deposits (inside money)	$14,500
Total	*$15,000*	*Total*	*$15,000*

We observe that on the basis of reserves equal to $1,000, the banking system is able to expand money supply to $15,000 through loans at the stroke of the pen. Holden (1907) maintained that credit is the source of deposits and not the opposite. He likened the credit multiplication to an isosceles triangle (figure 2); the base of the triangle represents gold reserves; the two sides of the triangle are equal, with one side representing assets and the other side liabilities. Holden showed that banks could issue loans, payable in gold, in multiples of their gold reserves. If there is a run on the bank, there will be insolvency of banks. There will necessarily be a contraction of money to the true gold reserve base and price deflation will ensue since the price structure has been artificially inflationary thanks to credit. Conventional finance, based on interest and interest-based banking, and money creation through the credit multiplier, redistributes wealth to borrowers and undermines the economy's capacity to produce capital for economic growth, employment and paying off loans. Unlimited money creation inflates prices continuously. The economy reaches a crisis point when credit is corrupted and the economy cannot produce enough real capital. Conventional finance has proved dangerously unstable, marked by frequent financial and economic crises and general bankruptcies.

Countries are embroiled in an inevitable vicious circle of cycles. Much of the economic growth achieved during a recovery phase of the cycle is wiped out by the downturn cycle. Advanced countries have seen their economies collapsing into severe recessions, mass-unemployment and impoverishment, as happened during the Great Depression. Poor countries have failed to establish sustained growth or graduate from heavy dependence on foreign aid. Under conventional finance, the gold standard as well as the Bretton Woods system of fixed exchange rates collapsed and the banking system cannot survive without monumental bailouts by the government. Every economy strives to grow and create employment, however, much of any real growth has been eroded with the financial system acting as a drag on the economy. In 2013, a number of developed countries have real per capita incomes that are lower than levels achieved in 1989.

Figure 2 – *Fractional banking: the credit triangle (unit in ounces of gold)*

Assets = $15,000   Liabilities = $15,000

Gold reserves = $1,000

Total assets = Total liabilities =
$1,000 + $14,000 = $500 + 14,400

2.5. The equilibrium pricing of capital and the Hayek-Sraffa debate

The determination of an equilibrium rate of return is an essential aspect of capital markets. An equilibrium rate of return leads to an efficient allocation of resources and optimal economic growth. The rate of return of capital involves a time dimension and is studied in an intertemporal setting (figure 3). There is both abstinence, i.e. saving, and investment in the present time. There is expected positive return and expected higher consumption in the future. Böhm-Bawerk (1888) noted that the rate of return is determined by time-preference and productivity of capital. Irving Fisher (1930) formalised an optimisation framework that embeds Böhm-Bawerk's theory. We assume that the community has a preference function that involves present and future consumption of the form:

$$u = u(c_0, c_2) \tag{13}$$

where c_0 is present consumption and c_1 is future consumption. The marginal rate of substitution between present and future consumption is defined as:

$$\frac{dc_1}{dc_0} = -\frac{\partial u}{\partial c_0} \bigg/ \frac{\partial u}{\partial c_1} \tag{14}$$

We assume the community has an intertemporal production possibility set that transforms present investment q_0 into a future output q_1 of the form:
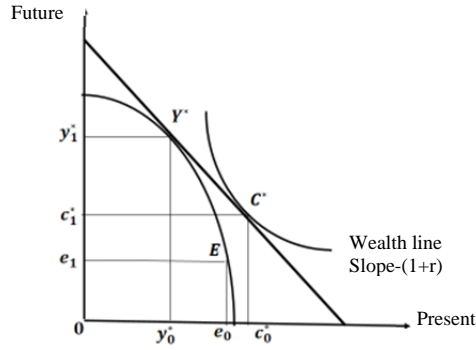
$$q_1 = f(q_0) \text{ with } f' > 0 \text{ and } f'' < 0 \tag{15}$$

The marginal rate of transformation is:

$$\frac{dq_1}{dq_0} = f' \tag{16}$$

Figure 3 – *Time preference and capital productivity*

The community has an intertemporal endowment $E(e_1, e_2)$, which represents the flow of goods it produces in the absence of any investment activity. For a given rate of return r, we draw a wealth line whose slope is $-(1+r)$. The community faces a double optimisation problem. First, it maximises its intertemporal wealth by producing at $Y^*(y_0^*, y_1^*)$, where the marginal rate of transformation is equal to $(1+r)$. This implies the community invests $q_0 = e_0 - y_0^*$ and gains an additional output of $q_1 = y_1^* - e_1$.

Second, the community maximises intertemporal utility by choosing a consumption point where the indifference curve is tangential to the wealth line. It consumes $C^*(c_0^*, c_1^*)$. The inter-temporal optimum output and consumption implies a resource deficit today equal to $c_0^* - y_0^*$ and a resource surplus in the future equal to $y_1^* - c_1^*$. This deficit is financed through loans or by issuing shares; the latter form of financing, i.e. equity financing, is commonly adopted in foreign direct investment between countries. It is offset in the next period in the form of export of capital as acquisition of equity shares.

In an Islamic financial system, there are only equity shares. The surplus units demand shares; the deficit units are firms who supply equity shares to finance their productive investment projects. There are no

consumer loans via the banking system. From the intertemporal time preference, we may derive a savings function:

$$S = S(r); S_r = \frac{dS}{dr} > 0 \tag{17}$$

Savings may be assumed as an increasing function of the rate of return on capital r. The investment function, or equivalently, the supply of new shares of capital, may be assumed to be a decreasing function of the rate of return for two reasons: first, the marginal efficiency of capital is technically a decreasing function of the investment. Second, the rate of return is a cost for the investing firm; it is the return that has to be paid to stockholders. The higher the rate of return, the higher the dividends to be paid and the lower the demand for investment is. Hence:

$$I = I(r); I_r = \frac{dI}{dr} < 0 \tag{18}$$

Figure 4 – *Partial equilibrium of capital and money markets*

Panel a. Real rate of return   Panel b. Interest rate
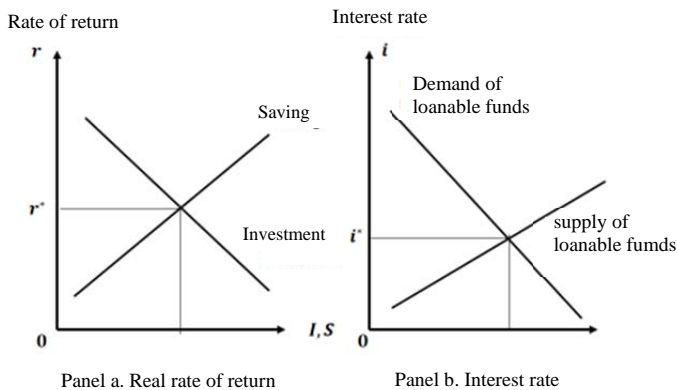
The partial equilibrium in the capital market, *ceteris paribus*, is obtained at the intersection of the savings and investment schedules, where $I(r) = S(r)$ (figure 4, left-hand side). The equilibrium rate r^* that equates investment and savings is called the natural rate of return (Hayek, 1931). It is a datum toward which the capital market rates of return tend to converge. This rate is determined by real forces. It is to be contrasted with the money rate of interest, i, which is determined in the money market by the demand and supply of loanable funds (Hayek, 1931), see figure 4, right-hand side. The rates in the equity markets and those in the money markets may differ substantially. The theory of two interest rates was developed by Thornton (1802) and Wicksell (1898) and was used by Hayek (1931) in his theory of trade cycles. These writers argued that banks may expand credit beyond real savings causing the money rate to be substantially below the natural rate, an economic boom and a cumulative inflationary process of the prices of commodities and assets. The credit boom is eventually doomed to collapse into financial dislocation and bankruptcies leading to a deflationary process of prices and economic recession (Siegfried, 1906; Fisher, 1933).

Sraffa (1932) criticised Hayek's notion of natural interest rates; he contended that in a non-money economy there is a natural rate (i.e. equilibrium rate) for each commodity. Hence, Hayek's maxim that banks ought to set the money rate at the natural rate level is not feasible since there is no unique natural rate. Metzler (1951) reconciled the dichotomy of the money and natural interest rates. He showed that an equity capital market may have a rate of return that satisfies both the ex ante savings and investment equilibrium and the portfolio equilibrium condition.

3. The structure of Islamic banking

Islamic finance is based on the Quran and Sunnah. It strictly prohibits interest (*riba*), positive or negative. No economic entity, be it an individual, enterprise, state, bank or central bank, is allowed to contract interest-based debt. Free-of-interest lending, known as *qard-hassan*, is permitted. However, since this form of lending has no pecuniary reward

for investors, it can be assumed to be negligible. Therefore, in contrast to conventional finance, interest-based credit plays no role in Islamic finance. Because credit is almost absent in Islamic finance, there is no credit expansion or contraction, no fixing or targeting of interest rates by the state, and no conflict between borrowers and creditors. Islamic finance can be defined as a two-tier financial system: a 100% reserve depository and safekeeping banking system for domestic and international payments; and a profit-loss sharing investment banking system that places real savings (domestic or foreign) directly in private or public projects (domestic or foreign) or indirectly via the stock market for domestic or foreign shareholders.

The first banking entity keeps money deposits (e.g. cash, gold, silver, etc.) and settles payments via clearing, withdrawals and other forms of payment. Banks cannot breach the deposit contract by lending these deposits. Banks charge fees for keeping deposits and settling payments. The payment of fees will induce depositors to hold financial and real assets instead of keeping idle deposits. The investment banking entity has no monetary role and no impact on money aggregates. It receives domestic and foreign 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 on secondary markets. The nominal value of equity shares is not guaranteed. Depositors share in profits and losses as well as in capital gains and losses. Islamic capital markets only intermediate between savings units and investing units (domestic and foreign) in a way that precludes interest. They do not issue money or debt. They include investment banking, stock markets, mutual funds, exchange-traded funds, and other forms of intermediary risk-sharing institutions. Interest-based credit in the form of money against money plus interest in money, or wheat against wheat plus interest in wheat cannot exist in Islamic finance. In conventional finance, credit plays a major role in commerce, production and investment; it is self-liquidating. For instance, cotton is financed through loans, from the cultivation of land to crop collection, export, manufacturing, its sale to clothiers, even to consumers who wish to purchase the finished cloth on

credit. The receipts at the end of each step pay the bank loan and interests contracted at the beginning of the step. Hence, farmers pay for the bank loan and interest they contracted prior to seeding from the proceeds of cotton sales. The exporter issues a bill to the foreign manufacturer, which he rediscounts with a local or foreign bank and in turn uses the proceeds to pay the cotton farmers. The manufacturer settles the bill when the cotton textile is delivered to the clothier. The clothier borrows money from the bank to buy cotton textile from the manufacturer. The owner of the dress shop buys cotton cloth with the assistance of a loan that he uses to pay the clothier.

In Islamic finance, this type of self-liquidating credit chain cannot exist. No money is exchanged against money plus interest. It is replaced by the Islamic financing modes of *bai salam*, *istisna*, *murabaha*, *mudaraba*, or risk-sharing financing. There is cash-in-advance at the beginning of each step and delivery of a commodity at the end of the step. In *bai salam*, farmers sell the future cotton crop against immediate payment and delivery upon cotton harvesting. In a risk-sharing scheme, the bank and the farmers are partners in a risk-sharing venture. Farmers own land and labour and the bank owns the working capital. Farmers and the bank share in the profits and losses of cotton operations from seeding to the export of the cotton. Farmers owe no debt to the banks.

In Islamic finance, money cannot be expanded through credit. Credit has zero influence on money. There is no banking institution that emits interest-based credit; hence money is outside money. Tables 2 and 3 describe the balance sheet of Islamic depository and investment banking, respectively.

Table 2 – *Balance sheet of Islamic depository banking*

Assets		Liabilities	
Gold reserves	$1,000	Currency in circulation outside banks	$300
		Deposits	$700
Total	*$1,000*	*Total*	*$1,000*

Table 3 – *Balance sheet of Islamic investment banking*

Assets		Liabilities	
Reserves in cash	$30	Saving deposits (investment accounts)	$5,000
Reserves in deposits at depository banks	$70		
Investment: equities, *Sukuk*, *Bai Salam*, *Istisna*, *Murabaha*, *Mudaraba* and other risk-sharing modes	$4,900		
Total	*$5,000*	*Total*	*$5,000*

In table 2, the total money supply is $1,000, with $700 in the depository system and $300 in circulation. In table 3, we observe that the cash reserves of the investment banking sector ($30) are part of the money in circulation, implying that $270 = ($300 – $30) in cash are held by the non-financial private sector. In table 3, the reserves in deposits are part of the deposits held at the depository banks. These cash and deposit reserves are working balances that emanate from the closing of some operations and serve to finance new operations such as a cotton campaign. The depositors in the investment banking sector are investors. They share state-contingent profits or losses. Their deposits are not secured in nominal terms and are marked-to-market. They may be withdrawn according to an agreed maturity or may be liquidated in a secondary market if they are in the form of equity shares, *sukuk*, or shares in funds.[9] Assuming that the investment banks acquire foreign equities for $70, which they pay out of their deposits at banks, the operation creates a balance of payments deficit of $70. The money supply is reduced by the same amount. Gold reserves are depleted by the same amount too. The balance of payments adjustment operates according to the traditional price-specie flow mechanism. Prices of goods and shares decline in the deficit country; they rise in the surplus country. Exports of the deficit country rise; its shares have higher yields; the combination of

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[9] Mirakhor (1993) studied the real demand for money and financial assets in an Islamic economy in the context of both a closed and open economy. Saving rises with the rate of return. He showed the existence of an equilibrium rate of return that establishes equilibrium in money and asset markets as well as in the goods markets.

higher exports and foreign direct investment reduces or eliminates the balance of payments deficit and re-establishes the initial amount of money in the country.[10]

A major property of Islamic finance is that it is tightly linked to the real economy; it operates according to Say's law of markets, namely, supply creates its demand. Demand is generated by incomes to the economy and not from fictitious credit. Investment cannot exceed saving and no price inflation appears. There is no credit expansion as in the fractional depository system, and no over-and-under production.

The basic pillars of Islamic finance are not a novelty. Simons (1948), one of the authors of the Chicago Plan (1933), proposed that nothing would be circulated but 'pure assets' and 'pure money', rather than 'near moneys' and other precarious forms of short-term instruments that were responsible for financial crises. Simons, a supporter of the gold standard, advocated non interest-bearing debt and opposed the issuance of short-term debt for financing public or corporate obligations. He also opposed the payment of interest on money, demand deposits and savings. Simons envisioned private banks that would play a substantially different role in society than they do currently. Rather than controlling the money supply through the issuance of debt, Simons' banks would be more akin to 'investment trusts' than anything else.[11]

3.1. The foundation of Islamic finance – risk-taking and risk sharing

In the Quran, many verses explicitly condemn interest and interest-based transactions. Likewise, many sayings of the Prophet severely condemn interest-based dealings. For instance, Verse 2:275 states that

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[10] The money in an Islamic finance system is gold and silver with paper money convertible into these two metals. Money creation out of thin air or through interest-bearing debt is not permitted.

[11] The Glass-Steagall Act (the U.S. Banking Act of 1933) limited commercial banks' securities activity and affiliations between commercial banks and securities firms. However, the legislation did not embrace a key Chicago Plan recommendation, namely 100% reserve banking. The Gramm-Leach-Bliley Act repealed part of the Glass-Steagall Act in 1999.

"[…] they say that indeed *al-Bay'* [trade] is like *al-Riba* [interest-based debt contract]. But Allah has permitted *al-Bay'* and has forbidden *al-Riba*". This verse may be considered the cornerstone of the Quran's conception of an economy, since from this verse flows major implications of how an economy should be organised. Islamic finance precludes any form of interest-based debt. A creditor cannot make interest-based loans. A creditor has to invest his money directly and bear the risk of his enterprise. He is the direct owner of the assets of his enterprise. A borrower cannot generate wealth on the basis of borrowed money. He cannot contract interest-based debt and use it either for consumption or investment. In Islamic finance, the borrower-creditor conflict is absent. Entrepreneurs individually or jointly participate directly in an enterprise with their material and human wealth and share the risk of their enterprise. We define this form of organisation as risk taking and risk sharing (Askari *et al.*, 2012). In a loan contract, the creditor assumes no enterprise risk; the latter is borne by the borrower. If the investment fails, the borrower is still legally bound to reimburse the loan. In fact, in the Quran the repayment of debt is an overriding obligation. No wealth can be inherited prior to the discharge of every debt.

Risk sharing has been an integral part of human activity long before the formation of modern day corporations, banks and other financial institutions. It has been a naturally occurring activity whereby parties find it profitable to pool resources, be they financial, entrepreneurial, technical or other forms of resources, as opposed to operating individually. The sharing of risk is undertaken with the expectation that the combination of numerous participants (investors, entrepreneurs, scientists and those from many other professions and walks of life), larger resources and diversified skills and technologies would result in greater output and larger profits than operating individually; and in some instances, projects that for a variety of reasons would not have been undertaken may be developed and pursued. Partners in business ventures have contractual arrangements that define the contribution expected of each party, including financing, managerial and technical contributions as well as any contingencies that may arise, and the distribution of the fruits of their undertaking. Risk-sharing enterprises have evolved over the centuries

into the modern corporate structures that have diversified equity ownership and are the dominant source of economic output and employment in most advanced economies. Brouwer (2005) traced the evolution of the modern day corporation in Europe. She described how the equity-based *commenda* organisations supported trade in medieval Europe. The *commenda* organisation, which was especially popular in Pisa and Venice, has over the centuries evolved into the limited liability corporation of today. The *commenda* was based on equity financing as opposed to debt financing, and became the most popular organisational form for maritime ventures in medieval Italy. Weber (1889) has described the evolution of these organisations into limited liability companies with autonomous management, then into corporations with many investors and a managing partner, which then grow further and enjoy widely held share ownership and become prominent corporations.

3.2. Risk sharing and vibrant capital markets

Investment banks ought to invest directly in projects in agriculture, industry and trade. Nonetheless, a stock market was a historic necessity in financial intermediation and an important element for promoting risk. The key features of a stock market are: the pooling of savings, relaxing financing constraints for firms, distributing risk among a large number of owners and diversifying risk, and providing liquidity for shareholders. Specifically, Islamic finance would achieve its objectives of promoting risk sharing through efficient stock markets. Many developing countries have a banking system but do not have a stock market. One reason could be the very limited entrepreneurial capacity to create productive projects and also the limited amount of real savings devoted to investment. Moreover, many of these markets suffer from informational problems and governance issues that lead to high transaction costs. Developing a stock market could be a major channel for mobilising savings into productive investment. Conventional banking and bond markets are debt markets; stock markets are risk-sharing equity markets. The primary objective of the stock market is to enhance financial intermediation through a non-banking channel, primarily stock exchanges and over-the-counter markets.

Stock markets were a historical necessity for mobilising capital resources – venture and equity capital – and enhancing asset liquidity. Equity capital was the normal source of funding for business enterprises in all countries throughout history, with the equity owned individually or by business associates. Investors in stocks could be the initial founders of the enterprise. Their aim is not speculative or short-term. Their purpose is to establish a productive firm that would produce real goods and services, provide employment, and would be expected to stay in business indefinitely, commonly referred to as a 'going concern'. Investors may be individuals or entities looking for long-term and profitable investments, they may be institutional investors, such as pension funds and endowment funds, or in fact they could be anyone looking for viable investments that entail risk sharing. Stock markets have been instrumental in the development of most industrial countries.

In the natural development of a successful firm, growth requires increasingly diversified sources of capital that may have to be shared by a larger number of stakeholders. For instance, it may turn into a joint stock company with its capital divided into shares owned by shareholders. Some firms may become public and allow their shares to be traded on the stock market. Going public affords the company access to a wider and more diversified pool of capital and gives its shareholders enhanced liquidity. The importance of a stock market depends on many factors, including: the general business climate and the quality of institutions, economic size, the availability of entrepreneurial talent, the size of the savings pool and the number of listed firms. As an economy grows, develops and creates shareholding companies, the stock market becomes more important as the instrument for financing projects and corporate operations, which in turn is intimately connected to the real economy – the production of goods and services demanded by consumers, institutions and governments.

Besides long-term capital for firms, stock markets provide liquidity for stockholders. Workers may constitute a retirement fund by buying shares during their active years and enjoy the dividends in their retirement. Idiosyncratic risks impact the liquidity of shareholders when they materialise. While some individual idiosyncratic risks can be

mitigated through the purchase of insurance policies such as health, life and accident, there are potentially a large number of unforeseen, therefore unpredictable, personal or family risks that are not insurable as of yet and for which no insurance policy can be purchased, e.g. risks to a person's livelihood. An individual can create a buffer against uninsurable risks by buying shares of stocks in good times and selling them when, and if, a liquidity shock is experienced. Similarly, stock markets can be used to diversify the risk of shock to asset returns. Firms can also reduce their liquidity risk through active participation in the stock market. They can also reduce the risk associated with the rate of return on their own operation – such as productivity risk – by holding a well-diversified portfolio of shares of stocks. Thus, incentives are created for investment in more long-term productive projects. Moreover, an active and vibrant stock market creates strong incentives for higher degrees of technological specialisation, in turn increasing the overall productivity of the economy. This happens because without sufficiently strong risk sharing in the financial system through the stock market firms avoid deeper specialisation, fearing risks associated with sectoral demand shocks (Saint-Paul, 1992).

The reason stock markets are such an effective tool for risk sharing is because each share represents a contingent residual equity claim. Particularly in the case of open corporations, their common stocks are "proportionate claims on the payoffs of all future states" (Fama and Jensen, 1983). These returns are contingent on future outcomes. Stock markets that are well organised, regulated and supervised are efficient from an economic point of view because they allocate risks according to the risk-bearing ability of the participants. The Arrow-Debreu model of competitive equilibrium (1964) provides a solution to the problem of how best to allocate the risks in an economy; efficient risk sharing requires that economic risks be allocated among participants in accordance to their "respective degree of risk tolerance". Thus the first-best instrument of risk sharing is a stock market, "which is arguably the most sophisticated market-based risk-sharing mechanism" (Brav *et al*., 2002). Developing an efficient stock market can effectively complement and supplement the existing and to-be-developed array of other Islamic financial instruments. It

would provide the means for business and industry to raise long-term capital. A vibrant stock market would allow the risk diversification necessary for the management of aggregate and idiosyncratic risks. Such an active market would reduce the dominance of banks and debt financing where risks become concentrated, in turn creating system fragility.

A number of theoretical and empirical studies in recent decades have focused on the investment-employment-growth benefits of stock markets. When risk is spread among a large number of participants through an efficient stock market, closer coordination between the financial and real sector is promoted, as well as better sharing of the benefits of economic growth and financial system stability. In contrast, risk transfer through debt instruments along with high leverage weakens the link between the financial and real sectors, thus posing a threat to financial sector stability. Especially as the growth of pure financial instruments, i.e. those with little connection to real assets, outstrips the real sector a phenomenon known as decoupling emerges (Menkhoff and Tolksdorf, 2001), as can financialisation (Epstein, 2005), whereby finance is no longer anchored in the real sector. The result is financial instability leading to frequent bouts of crises. Reinhart and Rogoff (2009) have demonstrated the high frequency of crises in the history of the conventional system, which are invariably connected to excessive increases in debt financing or leveraging. All too often financial sector crises have required large government interventions and massive bailouts. Thus, while private financiers enjoy the robust gains of pure financial innovations, society at large suffers the pain of rescuing the real sector from the vagaries of financial sector crises. Governments preserve private gains and socialise the losses and the pain.

Empirical studies have demonstrated that countries with robust stock markets rely more on equity and long-term financing and less on banks and short-term debt. Firms place greater reliance on external capital than on internally generated funds. With a strong stock market, venture capitalists can recoup their capital investment in a project through an initial public offering thus promoting faster turnaround of venture capital, making it available more frequently to finance other productive real sector projects. Not only can individuals and firms benefit from the

existence of a vibrant and robust stock market that provides risk-sharing opportunities, countries can also benefit from risk sharing with one another. A large body of empirical research in the area of international risk sharing in recent years has demonstrated that there are gains to be made by countries when they trade in each other's securities.

3.3. Unstable conventional stock markets

Conventional stock markets suffer serious instability and experience repeated crashes with detrimental consequences on the real economy. Figure 5 shows that in the USA the S&P 500 stock market index has been increasing at an annual rate of 25% per cent during the period January 2009-December 2013 despite sluggish real growth, high unemployment and low labour force participation rate. This shows that a conventional stock market has a tenuous link to the real economy and may be driven by cheap money policy and speculation. As average real GDP growth was about 2 per cent, the difference 25%-2%=23% represents gains not paid by dividends from firms' profits, but by capital gains that redistribute wealth in favour of the gainers. The distortions of stock prices entail distortions in asset prices, commodity prices and the sharp depreciation of monetary assets. When stock markets are dominated by speculation, they can rarely contribute to financial intermediation; the risk of bubbles is high; late investors will see their wealth wiped out in the event of a crash. Furthermore, the dividend rate on over-valued stocks is low and is not attractive for investors except for those who want to realise capital gains and exit safely when and if the central bank decides to tighten monetary policy.

From early on, conventional stock markets have been exposed to big swindle schemes such as the South Sea Company (1720). While vibrant stock markets are recommended, stock markets may be characterised by low investor participation. The prime reason for this is low levels of trust and, a related factor, the high cost of market entry. Empirical evidence (Guiso *et al.*, 2008) suggests one reason for low participation of the

Figure 5 – *Weekly S&P 500 stock index, Jan. 2009-Dec. 2013*

general population in stock markets is the fact that people generally do not trust stock markets. Low levels of trust, in turn, are explained by institutional factors and education. Moreover, high transaction costs – especially information and search costs, as well as the high cost of contract enforcement – are crucial factors inhibiting stock market participation. Conditions for a vibrant, robust stock market have been analysed in the literature. Allen and Gale (2007) suggested that a successful, deep and active stock market requires that information, enforcement and governance costs be eliminated or at least minimised. Once this happens, the cost of entry into the equity market becomes low and "[…] there is full participation in the market. All investors enter the market, the average amount of liquidity in the market is high, and asset prices are not excessively high". Lucas (1990) has proposed the abolition of capital gains tax as a way to promote investment through stock markets: "I now believe that neither capital gains nor any of the income from capital should be taxed at all".

There is, however, a paradigm gap between what Islam teaches and actual market behaviour. If the Islamic rules of market behaviour – such

as faithfulness to the terms and conditions of contracts, trust and trustworthiness – are in place in a society, the informational problems and transaction costs, governance and enforcement issues either would not exist or would be at levels low enough not to create a deterrence to stock market entry. For this reason, government actions (and the institutions they create) to remedy the deficit in informational, enforcement and governance behaviour to reduce the cost of participation in stock markets have to be stronger and more comprehensive than they are today. These policies, actions and institutions should have the competence, efficiency and enforcement capabilities such that they can elicit the kind of behaviour that replicates, or closely approximates, those expected if market participants behaved in compliance with Islamic rules. Such actions, policies and institutions would include, inter alia: developing a level playing field for equities to compete fairly with debt-based instruments, this would mean removing all legal, administrative, economic, financial and regulatory biases that favour debt and place equity holdings at a disadvantage; creating positive incentives for risk sharing through the stock market; limiting the leverage (including margin operations) of non-bank financial institutions and the credit creation ability of banks through prudential rules that effectively cap the total credit the banking system can create; instituting thoughtful securities laws and regulations as promulgated for example by the U.S. Securities and Exchange Commission.

Taj El-Din (2002) noted that Islamic *Sharia* law recognises stock markets as vehicles for investment and also encourages existing non-interest modes of investment that are based on the pooling of numerous sources of capital through floatation of stock subscriptions under specified rules and conditions. However, he observed that the exchange of financial claims was found more vulnerable to hazard and to the lack of information, both contrary to Islamic rules of exchange. He examined the efficiency criteria of conventional stock markets and concluded that the dominance of speculative motives versus those of real investment and the nature of interaction among 'professional' and 'non-professional' market players deprived these stock markets of

internal stabilisers and undermined their efficiency. Efficiency in the financial market cannot be ensured by laissez-faire policies. It is necessary to reinforce Islamic rules. A regulatory framework is, therefore, indicated with the aim of organising the stock market on an Islamic basis that controls speculation and information asymmetry.

Along similar lines, Allais (1999) called for radical reforms of conventional stock markets. He noted that stock markets were true casinos where big poker games were being played. The significant fluctuations in stock prices were transmitted to the real economy, leading to economic crises. According to Allais, the stock market system is fundamentally non-economic, inefficient and unfavourable to the smooth functioning of economies. It can be advantageous only to a small minority of speculators. Allais called for the elimination of hedge funds and institutional intermediaries, other than brokers, whose activity consisted only of trading in shares. He proposed the elimination of all financing of stock market operations through credit and the adoption of high margin requirements for forward operations, to be paid in cash and not through loans. The continuous quotation of stocks should be dismantled and replaced by one daily quotation; the automatic trading programs for sales and purchases have to be eliminated. In the same manner, speculation on indices and derivatives has to be eliminated.

We should note that monetary policy has a direct bearing on the stability of stock markets. Central banks have often fuelled stock market bubbles by creating excessive liquidity. When stock prices become overinflated in relation to fundamentals, the market eventually crashes. Central banks at times try to re-inflate the bubble. Governments have seen stock market bubbles as a sign of a buoyant economy and opposed attempts to arrest bubbles. A regulatory framework for stock markets cannot be conceived independently of monetary policy. Criteria have to be developed for measuring and preventing bubbles and determining how far stock prices have departed from their fundamentals. Triggers have to be put in place to curtail euphoria and speculation and prevent ruinous crashes.

3.4. Monetary policy and the role of central banks in the Islamic financial system

Monetary policy in an Islamic economy takes place in a framework in which all conventional tools normally available in a conventional modern economy are at the disposal of the monetary authorities, with the exception of the discount rate and other policy tools that involve an interest rate (buying and selling of interest bearing bonds). All other tools, namely open market operations (where equity shares rather than bonds are traded) and credit policies, can be as effective in an Islamic system as they are in the conventional Western system. The authorities in an Islamic system can utilise reserve requirements and profit-sharing ratios to achieve changes in the stocks of money and credit, and monetary policy could be considered to operate through a more direct channel in the Islamic financial system. The central bank, by buying and selling risk-sharing securities, directly affects the financial portfolio of the private sector – households and firms – and indirectly by affecting the holdings of banks and conditions in capital markets that in turn affect real economic activity. The decisions of households and firms impact the real rate of return in the economy, which again affects economic activity; while financial signals to capital markets through central bank policies affect the availability of real resources for investment.

We should emphasise that the monetary instruments that can be used in an Islamic economy are different than those in the conventional system. Open market operations can be used to buy and sell papers of a different sort because interest bearing financial debts, such as bonds, are prohibited in the Islamic system. The State can use a number of other avenues to finance expenditures that exceed tax revenues, resulting in securities that can be bought and sold by the central bank to conduct monetary operations. For example, the State can finance all necessary capital expenditure through private-public programs as mentioned below. Similarly, a number of projects could be combined and equity shares sold in the aggregate number of projects; or, again what is essentially the same thing, the combined projects could be the assets that back a bond that generates a fixed income with the bondholders granted access to the

underlying assets. Even under conditions where there was no direct revenue from an infrastructural project, the government could resort to private sector financing with dividends paid by the government at (or above or below) the rate of return in the real sector.

While some argue that money and value cannot be created out of 'thin air' in Islam, others believe that this method has some merit if it is being done to benefit particular members of the community. The latter argue that there is nothing in the Quran or in the Sunnah that recommends or prohibits the state from creating money (of course there was no paper money at the time of the Prophet). Yes, the state cannot issue interest bearing bonds and paper money that earns interest, but if the state prints money in order to facilitate business transactions and enhance prosperity for the benefit of the community because the economy's output is below its potential, then it could be permissible. This can be operationally defined as when there is unused productive capacity in the economy. Also, the central bank can print money to accommodate expected additions to productive capacity. This would mean that there is accurate estimation of full employment output and expected future growth of the economy. Along the same lines, the state gets the normal advantage of seigniorage, but again if this is used for the equitable benefit of all members of society, not rulers and privileged classes, then why should the central bank be barred from issuing paper money? It is in the interest of the community. Similarly, the central bank should be permitted to act as a lender of last resort as long as it does not charge interest in order to sustain economic growth. It could charge a financially sound investment bank in need of liquidity a rate consistent with the rate of return in the real sector of the economy ex post (thus an actual real rate of return). Alternatively, the central bank could purchase assets from the investment bank, which in the end is akin to acting as a lender of last resort.

A commercial banking system that is based upon 100 per cent reserve banking prohibits lending and eliminates the need for reserves and changes in the reserve requirement of such commercial banks as a policy instrument. But the other mode of banking, namely investment banking, affords important policy options. Recall that these banks channel investor funds into different investment projects (by risk,

maturity, rent/dividend, etc.) and issue the investor with equity shares or bonds (backed by the investments) that are traded in the market. The central bank can affect the operation of these banks in two principal ways. First and foremost, the central bank can buy and sell the securities that they issue directly to investors and those that they issue on their account by investing their own capital. In the case of security purchases, the central bank injects cash into the hands of investors and the banks, resulting in investors and banks having cash to invest in new projects. Note the power of this instrument and compare it to open market operations in the conventional banking system. Here, the central bank puts cash directly into the hands of investors who decide their investments, whereas in the conventional system the cash is put into the hands of bankers who *may* or *may not* lend. Open market operation is a much more potent policy instrument in Islamic banking than it is under the conventional system. Second, the central bank can change the reserve requirement of investment (mutual fund activities) banks. Investment banks essentially invest the capital of investors in projects of different sorts in a pass-through mode and invest their shareholders' capital in these or other projects. The central bank can require reserves of these investment banks, not because of their exposure to risk but to influence their ability to channel funds into projects and in turn reduce the return to investors. By requiring reserves, these banks can invest less of the investors' assets (keeping a part as reserves) and thus they reduce the attractiveness of investing (lower rate of return, as a portion is kept as reserves and does not earn any return). In addition to open market operations and reserve requirements for the central bank, we should note that the central bank could also use its guidance advisories to form market expectations and thus affect the investment/saving decision, which in turn will affect economic activity. The impact and effectiveness of central bank guidance, including inflation targets, will be directly proportional to its credibility.

    In addition to the implementation of monetary policy, central banks in an Islamic system could take the lead in evolving financial institutions and instruments that facilitate the efficient mobilisation of savings and the allocation of resources consistent with the economic development

objectives of the Islamic economy. The central bank, in particular, must initiate and foster the development of primary, secondary and money markets. Mere adoption of Islamic rules of finance will not necessarily create the impetus for financial and economic development where the shallowness of financial markets and the lack of attractive financial instruments have created impediments to the saving-investment nexus and to the process of financial intermediation. The central bank in the Islamic system can be expected to perform the usual regulation, supervision and control functions of central banks as in the conventional financial system. A further opportunity for enhancement of the control of the banking system is available to the central bank through its ability to purchase equity shares of not only the banks but also of other financial institutions. The necessity of the leadership role of the central bank in initiating and evolving primary, secondary and money markets has already been discussed. Through the performance of these functions and its lender-of-last-resort role, the central bank can exert greater influence in the financial system. The opportunity for the central bank to buy and sell securities in the financial markets may enable it to influence financial resource allocation further if that becomes necessary or desirable.

4. Theoretical stability of Islamic stock markets

Theoretically, an Islamic stock market should operate according to the precepts of the Quran and Sunnah. In a similar manner to the theoretical stability of banks that operate on the basis of Islamic precepts, Islamic stock markets are free from two major sources of instability, namely interest rates and un-backed money creation. High degrees of instability make a stock market inefficient, requiring large resources for trading and hedging risk, and dissuade savers from participation in the markets. Stock market crashes following stock market booms have often ruined household savings and caused economic disorders. A high degree of stability will encourage savers and enable stock markets to achieve maximum efficiency in financial intermediation, reduce trading costs and increase levels of participation.

In the absence of speculation arising from dysfunctional credit (debt) markets, equity prices would tend to show less volatility. Essentially dividends and real savings would drive demand for equity shares. Such demand cannot be fuelled by fictitious credit. The supply would be influenced by initial public offerings. Hence, both the demand for and supply of equity shares is influenced by stable variables in the absence of interest rates and debt, and equity prices would tend to display a stationary pattern. Assuming that economic and financial relations in society are governed by the institutions (rules of behaviour) prescribed by Islam, one would expect that the likelihood of speculative bubbles emerging would be minimal. Asset prices in Islamic finance would feature low correlation with the market portfolio and would be more influenced by idiosyncratic risks.

Two elements explain the absence of systemic risk (Askari *et al*., 2010). First, the Sharpe ratio in the capital asset pricing model (CAPM) is very low.[12] Expected returns are compared to the average rate of return in the economy. Such a rate of return would display a stable pattern over time and would not fluctuate in the same fashion as interest rates. Interest rates on risk-free bonds cannot influence the Sharpe ratio in Islamic finance. Consequently, the equity premium would be small, since households do not hold risk-free assets. The deviation between the expected return and the market return would be minor and result from non-systemic factors, such as the scale of the firm, the efficiency of its labour force or its entrepreneurship. Second, the magnitude of beta coefficient in the CAPM would be small in Islamic finance. The performance of one firm would be influenced by its competitiveness, cost-efficiency, promotional efforts and investment plans. In the absence of common systemic risks, the correlation between a firm's return and the market portfolio would be very low.

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[12] The Sharpe ratio is defined as $\frac{R_i - R_f}{\sigma_i} = \rho_{iM} \frac{R_M - R_f}{\sigma_M}$, where the variables are: R_i = expected return of share i; R_f = rate of return of riskless asset; R_M = expected return of market portfolio; σ_i = risk of share i; σ_M = risk of market portfolio and ρ_{iM} = the correlation coefficient between share i and market portfolio returns.

In Islamic finance the pool of real savings would determine asset demand, not credit. The supply of equity shares would be determined by real investment plans. Hence, demand for and supply of shares would tend to be stable. The rate of return would essentially comprise dividends, with very small changes in equity prices. Equity share prices would be stationary variables, with no persistent upward or downward trend.

5. Financing government projects through risk sharing

Economic growth depends in part on capital accumulation, the higher the capital/labour ratio the higher the income per capita. Poverty is identified with a shortage of capital; alleviating poverty requires increasing capital in the form of housing, machinery, plants, hospitals, schools, etc. Development of infrastructure is required for sustained growth in poor countries. However, capital accumulation and economic development have been constrained in many poor countries by the scarcity of savings.

Infrastructure projects involve large indivisibilities and have a high social rate of return. In many poor countries, the State alone undertakes the construction of these projects, generally financed from taxes or borrowing. The development of infrastructure in roads, water, electricity, education, health and communications depends heavily on government capital expenditures. However, in spite of donors' financing, public investment programs (PIP) have remained insufficient. Many poor countries have become heavily indebted and have not been able to repay their debt. Foreign debt was in part directed to finance government current expenditures and did not contribute to building a capital base for its repayment. Despite many decades of foreign borrowing, numerous poor countries have not graduated from dependency on foreign resources and have become even more dependent. Many poor countries have little control over their budget. They have a narrow tax base and face frequent budget overruns in salary payments and military spending; they experience serious shortfalls in capital expenditure and maintenance. As a result, existing infrastructure is deteriorating. Islamic finance offers an

innovative approach for mobilising domestic and foreign resources and boosting the public investment programs (PIP). The prohibition of interest can be helpful for a poor country because it avoids debt and relieves the government budget of any debt and debt service payments. They could instead rely on equity and the risk-sharing financing of PIP. Basically, the government as well as other equity holders become joint owners of an infrastructure project. They contribute long-term capital and hold non-redeemable property titles called common stocks. Stocks can be liquidated only on secondary markets. The government and private equity holders face the same risk and share any dividends as in any joint stock company. Besides equity financing, Islamic finance embraces the securitisation of real assets and the issuance of asset-backed securities for financing PIP. The securitised assets are called *sukuk* and they have a return generated by the underlying real assets. Unlike common stocks, *sukuk* are redeemable at a maturity date and may also be liquidated on a secondary market. *Sukuk* financing of PIP is widely used in a number of countries. To promote Islamic finance instruments, a poor country needs to develop a stock market as a vehicle for long-term resources and liquidity (Askari *et al.*, 2012).

An early concession to a private company of a major infrastructure project was the Suez Canal, which was entrusted by the Egyptian government to a French company for a period of 99 years. The company completed the project during 1859-1869 and was in charge of its exploitation thereafter, until its nationalisation in 1956. Private stockholders subscribed the equity of the French company. The government of Egypt received royalties from the company. Examples of concessions are numerous; in Malaysia, the North-South Highway extending over 900 kilometres from Singapore to Thailand was entrusted to a private company as a concession. The company completed the project and runs it on a commercial basis. For a selected infrastructure project, a poor government may establish a public entity that will float equity shares on the stock market, mobilise domestic and foreign resources and construct the project. The entity will manage the project on a commercial basis and generate dividends to be paid to the shareholders. The rate of return of the project has to be competitive in relation to the

stock market return in major stock exchanges. Otherwise, the government will not be able to attract domestic and foreign subscribers.

The private sector is generally far more efficient and innovative that the public sector. Technological innovations such as computers, the internet, cars and airplanes originated in the private sector. Many countries, seeking efficiency and higher growth, have devolved to the private sector a large number of infrastructure projects that are still under the auspices and ownership of government in many poor countries. Projects in fuel and hydroelectricity can be easily conceded to the private sector. Similarly, projects in water, roads and communications may be delegated to the private sector. In some sectors, infrastructure projects involve large indivisibilities; they can be efficiently implemented only as a natural monopoly, such as for instance a railroad, a major highway, an airport, seaport, etc. In these conditions, the government may make a concession to a private company for a period of time. The company constructs and exploits the project on a commercial basis under contractual arrangements that regulate a natural monopoly. The government may hold a portion of the capital, or it may simply hold sovereignty rights over the concession while all the assets remain privately owned by the company.

The association between the public and the private sector (PPP) in infrastructure projects can take a number of forms. BOT, or build-operate-and-transfer, is a concession agreement between an entity representing the public authority and a private party whereby the private party constructs and operates an infrastructure facility for a fixed time period and after that time period the ownership of the project is transferred to the public authority without any or minimal financial obligations. Besides BOT, there is Build, Operate & Renewal of Concession (BORC). It is similar to BOT, but with an option to re-negotiate the agreement of renewal of contract for operation at the end of a contract period. As a result of the negotiation the operation will either remain with the same company or the ownership will be transferred to the public authority. This option makes the contract flexible and efficient provided the obligations and risk sharing processes are clearly defined, understood and implemented. There is also the Build, Own and Operate

(BOO) contract. The BOO is a variant of BOT in so far as the specifications and obligations are concerned. However, generally BOOs are permanent franchises in which the private party retains ownership until its performance on obligations is judged satisfactory by the public authority. In this sense it is a hybrid of BOT and BORC. Since many infrastructure facilities exist, however, in deteriorating conditions, a poor country may consider the Rehabilitate, Own and Operate (ROO) contract. Under a ROO, an existing public project is given over to a private firm for rehabilitation according to specifications. The private firm will own the project until it meets the initial conditions.

A poor country may also consider *sukuk* as another Sharia-compliant mobilisation of financial resources. Governments and corporations use *sukuk* extensively. Unlike a fixed-income bond, *sukuk* are a structured product based on a real asset. The primary condition for issuance of *sukuk* is the existence of assets on the balance sheet of the government, the corporate body, the banking and financial institution or any entity that wants to mobilise financial resources. The identification of suitable assets is a key step in the process of issuing *sukuk* certificates. Sharia considerations dictate that the pool of assets should not solely be composed of debts from Islamic financial contracts (e.g., *murabaha*, *istisna*), but should also comprise real assets. As with the typical securitisation of financial or real assets, the basic framework is that a special purpose vehicle (SPV) issues *sukuk* (or certificates) to investors and uses the proceeds of the issuance to purchase a pool of assets from the originator of the *sukuk*.

Poor countries should consider an Islamic approach to their PIP and innovate in risk sharing and financing with *sukuk*. They could consider stock markets as a vehicle for mobilising domestic and foreign resources and reducing debt financing. This approach has a number of advantages: it reduces the national budget's reliance on borrowing, thus imparting greater stability to the budget and mitigating the risk of 'sudden stops'; it promotes tax equity and reduces the burden of taxation; it has a positive distributional effect in that the financial resources that would normally be devoted to servicing public debt can now be spread wider among the people as returns on the shares of government projects; it enhances the

potential for the financing of a larger portfolio of public goods projects without the fear of creating an undue burden on the budget; it promotes ownership of public goods by citizens, which should have a salutary effect on the maintenance of public goods as it creates an ownership concern among the people and to some extent mitigates 'the tragedy of the commons'; it promotes better governance by involving citizens as shareholder-owners of public projects and it provides an excellent risk-sharing instrument for the financing of long-term public sector investment. By providing greater depth and breadth to the stock market and minimising the cost of market participation, governments convert the stock market into an instrument of international risk sharing as other countries and their people can invest in that stock market.

The design of risk-sharing instruments to be issued by governments is not difficult (Askari *et al.*, 2012); they are designed in the same manner as any private instrument. They pertain to individual infrastructure projects; each project is a separate entity and managed according to market and profitability criteria. For instance, if the project is a port, it is a monopoly project. The user fees should be determined in a common agreement between the government and the PPP entity in such a manner as to enable cost recovery but no monopoly profits, in order to maximise the social returns of the project. Hence, in view of the absence of risk, the rate of return to shareholders should be aligned with the average market rate of return on low risk or riskless investments. The PPP instruments can be traded in the secondary market if the shareholders experience a liquidity shock.

Many countries are locked in a vicious circle of low capital and low income; their agriculture and industry are still at a primitive stage; risk sharing and capital markets are poorly developed; capital markets could not develop and investment and capital accumulation in agriculture, industry and commerce are severely constrained by a lack of savings. A number of banks failed and were liquidated; the number of surviving banks is small. Some countries have only one bank; others may have not more than five banks. Surviving banks are fragile; they concentrate their activities on short-term commercial operations in export-import transactions and have no vocation for long-term lending to agriculture or industry. At best, they

make campaign loans to state marketing boards, but with frequent loan recovery difficulties. Moreover, farmers cannot borrow; simply, the conventional banks do not view them as eligible borrowers.

An alternative to overcome conventional finance constraints in many developing countries is to promote Islamic finance and risk sharing in form of *musharakah* and *mudarabah* arrangements. This alternative seems to be the alternative that can alleviate the investment constraints facing the private sector in many developing countries. In agriculture, Islamic financial institutions, local or foreign, may enter into joint-stock companies with farmers. In each company, farmers contribute their land and labour; financial institutions contribute capital that finances building, machinery, fertilisers and insecticides. The profits will be divided according to contractual arrangements. In joint-equity companies, farmers never lose their land; financial institutions never lose their assets in the form of capital, buildings, livestock, etc. By organising farms into modern corporations, many constraints may be alleviated; there will be employment of qualified labour, the application of highly productive technologies, better control of larceny and better storage and marketing facilities. Financial institutions invest according to comparative advantage principles where a relative cost advantage enables companies to engage competitively in foreign trade. Joint-equity financing is far superior to conventional financing where one party may be exposed to devastating risk; for instance, farmers may lose their collateral farms or the banks may lose their loans. Foreign capital may be attracted; foreign investors may subscribe to shares in joint-stock companies and they may also be listed in foreign stock markets. Risk-sharing financing has not yet been applied in most developing countries; vital sectors could not attract capital; farms remained too parcelled, have a very low yield and lack irrigation facilities and modern machinery.

6. Conclusions

Conventional finance has been subject to recurrent financial crises that cause economic dislocations. It is redistributive, redistributing wealth

to borrowers at the expense of creditors. It requires recurring government bailouts. Numerous developing countries have been unable to promote risk-sharing equity markets capable of mobilising domestic and foreign financial resources to encourage development while many advanced countries continue to be plagued by recurring financial crises.

Throughout time, a number of politicians and renowned economists have denounced the shortfalls of conventional finance. They advocated a financial system that operates according to principles that happen to broadly coincide with the principles of Islamic finance. Islamic finance has (i) a two-tier banking system – a 100% reserve deposit system and risk-sharing equity banking akin to a mutual fund – and (ii) prohibits interest and interest-based (debt) transactions. Islamic finance promotes risk sharing and an efficient risk-sharing vehicle would be a stock market that operates along Islamic principles that prohibit interest and interest-based leverage. The advantages of an Islamic stock market are its ability to preclude the crashes of conventional stock markets, to attract more participation in stocks and support sustained growth. Governments can finance some public projects through equities (instead of debt), using asset-linked securities. The development of a stock market has long been a part of proposals for monetary reform that have sought to reduce the money creation power of banks and leveraging. Nonetheless, there is considerable work in terms of institution building that needs to be done. Regulations have to be all-encompassing in order to limit any damage caused by instability. Developing an active and efficient stock market can promote international as well as domestic risk sharing that renders the economy and its financial system more resilient to shocks.

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