TOWARDS THE FOUNDATIONS OF ISLAMIC MACROECONOMICS

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ABSTRACT

This paper uses the material previously prepared by the author for an Islamic monetary and financial system (Al-Jarhi, 1981) as well as other related contributions to closely investigate the saving-investment as well as the money-market equilibrium in an Islamic economic system. The characteristics of the two equilibria have been made more explicit than previously attempted. They are based on the relationship between real growth, monetary expansion and inflation. The macroeconomic equilibrium is derived for the whole economy and implications of monetary policy are derived. The article makes a first step towards laying the foundations of Islamic macroeconomics.

بسم الله الرحمن الرحيم

PREFACE

Islamic teachings cover a vast scope of both individual and institutional decision-making, covering political, social and economic aspects of human life[1]. In the economic arena, economic activities are allowed within certain ethical values that provide rules of behavior according to which all is permissible except for that which harms self or others. Setting aside moral judgment regarding those rules of behavior, we find that the study of Islamic economics as a distinct school of thought within economics, studies the rationale and consequences of the resulting decisions. Naturally, Islamic economics does not have to be distinct in every aspect from its mother discipline. Islamic and conventional economics share several areas of behavioral analysis. However, the area of macroeconomics appears to be a good ground to develop distinct foundations.

This has been one of the lifetime objectives of the author. The first description of the monetary and financial structure of an interest-free monetary economy was made earlier, benefiting from the works of several pioneers. The first draft was prepared in Arabic in June 1979. It was later presented to a seminar at the International Center for Research in Islamic Economics, University of King Abdel-Aziz, Jeddah. The revised edition was later published in February 14, 1980. An English version was published with some modifications in 1983. Since then, the author's description of Islamic monetary and financial institutions has been generally accepted, but continued to raise questions vis-à-vis some details.

The author has been repeatedly reminded that the behavioral aspect of the institutional structure must be elaborated. This is another step towards offering more general, yet less cryptic description of the major behavioral functions, especially those of saving, investment, money supply, and demand. At this stage, the target is to scrutinize the characteristics of macroeconomic equilibrium in an Islamic framework and ascertain its policy implications.

The ultimate objective of laying the foundations of Islamic macroeconomics still requires further work. The explicit introduction of

1. The teachings of Islam embodies thee systems. The economic system is based on free but regulated markets, interest-free financial system, which allows no risk trading, the prohibition of all objects and actions harmful to living beings, ethical investment, and a redistributive system based on Zakah. The political system gives all citizens equal rights and obligations regardless of religion and makes it a duty on all citizens to elect their representative government from the subset of the best-qualified candidates in education as well as moral standards. The social system is based on strong family and neighbors ties as well as mutual support.

consumers' and investment behavior are some of the aspects that require further treatment[2]. The mathematical derivation of equilibrium and its stability conditions is another. All what can be said at this stage is that few more steps have been taken and there is more to come.

2. Notice here that rules of behavior in an Islamic economic system will not necessarily follow the system-prescribed moral values. Rules of the game must be set in the system to make it rational to adopt such values and vice versa.

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INTRODUCTION

The analysis contained in this paper is conducted in a world of fiat money and is based on treating money as being a means of exchange before anything else. The reason is that we are confronted with a world where transactions are costly. In such world, money can be described as an asset from which a stream of transactions services emanates. Without such quality, money has no reason to exist and cannot serve its other functions, *viz.*, store, and standard of value.

The folly of conducting monetary analysis in a framework where money has no *raison d'être* has been recognized very early in the history of economic thought (Menger, 1892) and taken prominence in the late seventies of the last century (Clower, 1967; Hahn, 1971).

Starr (2001), using a general equilibrium model with transactions costs and economies of scale in transactions, demonstrates that transition from barter to monetary exchange is resource saving if the scale economies in transactions technology are large enough. with a relatively high transaction volume and low average transaction cost, a barter economy converges incrementally to a monetary economy. If there is a unique low transaction cost instrument in an economy with a linear transaction cost structure, that instrument may be the unique medium of exchange in equilibrium. If there are many equally low cost instruments, scale economies in transaction will allow one to be endogenously chosen as the unique medium of exchange.

Any effort to restructure the perfect market model currently used for monetary analysis, so as to include the ingredients necessary for the holding of money to be rational, could expose the weaknesses of allowing money to be issued by banks exchanged at a price equal to the rate of interest (Al-Jarhi, 1975).

Theoretical discussions related to the issues of what "Price" money should have cannot be separated from the monetary institutional arrangement. Up to the end of the twentieth century, those who adhered to the prevailing doctrine[3] were at an advantage, since they always refer in their arguments to the conventional state of banking practices. Those who try to show shortcomings in the prevailing doctrine had no existing deep-rooted institutional setup to which they could refer. They had to specify in each discussion all the necessary details of what system they may have in mind.

Now the situation has radically changed. Islamic banking has been

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3. We refer here to the doctrine of conventional finance, i.e., financing through the sale of present for future money.

practiced at the microeconomic level for longer that a quarter of a century. At the macro level, it has been running for more than a decade mainly in two countries, Iran and Sudan. However, critics of the existing practices of Islamic banking and finance, both at the micro and macro levels point out to several defects.

The author has previously outlined a detailed monetary and financial structure for an Islamic economy (Al-Jarhi, 1981). The same institutional structure of monetary and financial system previously developed by the author will be used. A more detailed attempt than previously made to explain the equilibrium process in the saving-investment and money markets will be attempted here.

The author hopes to continue to work on the other behavioral functions of this macro model in order to build up the foundations of Islamic macroeconomics.

WHY THE FUSS ABOUT THE RATE OF INTEREST? THE FRIEDMAN RULE: LOVE OR LEAVE

Charging interest on loans has had a bad name in all 5 religions: Islam, Christianity, Judaism, Hinduism and Buddhism. Nonetheless, economists continued to ignore the moral aspect of charging interest. As time passed, charging interest on loans has become a household practice as it is now taken for granted with no moral quibbles.

In the second half of the last century, Milton Friedman and Paul Samuelson came forward with the observation that the cost of producing fiat money is zero at the margin. In order to reach optimality, the price of money (the rate of interest) must be zero. To reach that goal, the economy must be deflated at a rate equal to the real rate of interest. Curiously, Samuelson notice that the goal of optimality cannot be reached within laissez faire. This could be interpreted as the need to change the structure of the financial system. However, Friedman introduced his rule (which is the same as Samuelson's, but the name of Friedman persisted), which has been taken as applicable to the current system.

The rationale behind Friedman rule is two sided. On the one hand, optimality requires that equality between marginal cost and price. On the other hand, putting a positive price on money would lead trading agents to economize on the use of money as a means of exchange through the substitution of real resources for money in transactions. Such substitution runs contrary to optimality, as total output can be increased with less substitution.

The proposal to reach a zero nominal rate of interest created a lot of discussion in the economics academia, but failed to stir concern in the banking community. Central banks took no notice of Friedman rule, indicating perhaps that they thought it impractical.

Discussion ensued later about the zero-bound rate of interest and whether it implied a liquidity trap. Further discussion examined the Friedman rule in overlapping generations models in contrast with the infinitely lived representative agents models[4]. Others studied the rule

4. See, for Example, Yates 2002.

in models with and without non-distortionary taxes[5].

Instead of calling on people to lend each other at a zero interest rate, the interest rate is forced to take a zero value or to move asymptotically towards zero, convincing people to hold sufficient real balances in order to benefit from the deflation reward on money. The former case is a case of charity and cannot be used to finance business investment. The latter deflationary policy depends on persuading central bankers. Between the two, we can expect no institutional reform of the monetary system.

Islamic economics presents to us a bold idea of monetary reform. This is based on few rules. First, no sale of present for future cash is allowed. Second, financing is provided through twelve contracts that can be divided into three categories: equity-based finance, sale- and lease-based finance and agency finance. The structure of the monetary system and the way money is created has to change radically. What the monetary and financial system should look like, and how monetary policy is exercised is what we plan to show below, where we can contrast an Islamic economy with a conventional economy.

The Islamic monetary system can best work when all requirements are present, including necessary market regulations, redistributive systems and an enabling sociopolitical environment. However, its partial application is possible and can be useful in creating an Islamic finance industry that competes in open markets with conventional finance. The market test would be critical, as it would show whether Islamic finance can expand its market share through competition and without explicit or implicit subsidies.

5. Compare Friedman (1969), Grandmont and Younes (1973) and Townsend (1980) and Kimbrough (1986), Phelps (1973) with Chari, Christiano, and Kehoe (1986) and Correia and Teles (1996, 1999).

THE ALLOCATION OF FINANCIAL RESOURCES: LENDING- VS. PRODUCTIVITY-BASED PROCESSES

In a conventional economy, money is produced in two foundries: the central bank and commercial banks. The central bank issues currency against government debt instruments. It cannot use the money its issues, but can lend it mostly to the government and occasionally to banks. Once it is used to finance its operations, money filters down from the government to those who supply it with goods and services. In the other workshop, currency filtered down to the banking system as demand deposits is used to create credit money by *lending it* to borrowers, which gives rise to derivative deposits. In both workshops, newly created money is *loaned* to users for a charge. The process of creating and then allocating financial resources in such an economy can then be described as lending-centered or lending-based money creation.

Only in the second round of allocation of financial resources, when currency filters down from the government to its suppliers and when money filters down from banks to household borrowers, only then can some holders of financial resources invest directly into an enterprise. They would be purchasing real assets (stocks) in enterprises based on their profitability.

Many others would prefer to place their financial resources with lending institutions in the form of monetary assets, e.g., deposits, bonds, certificates, etc. Lending institutions in turn provide (some of) the financial resources they receive to investors. However, because of their asset- and liability-maturity mismatch, lending institutions maintain the claims they hold against investors in the form of monetary asset, rather than titles to real assets.

The key issue here is that the process of money creation is lending-based. In order to increase the money supply broadly defined, lending by the central bank to government and/or by banks to households must increase. The process of money destruction runs in the opposite direction. This raises an important question: can we base the process of money creation (and destruction) on productivity related factors? In other words, can we tie domestic output and domestic liquidity together? We understand that borrowed money is used to carry out transactions in the real sector, including stock exchanges. But some of it is also used to carry out transactions in debt and risk trading. In the money market, people (as well as banks) borrow money and then sell it against future cash if the interest-rate differential is favorable. They make bets on prices and interest rates in the financial market through

derivatives. If we can tie money creation with the transactions requirements of national output, and remove its tie with lending, and if we can make the money market redundant[6], the rate of interest becomes irrelevant to resource allocation. Financial resources would be allocated according to criteria related to output, meaning that uses with higher productivity or profitability would take a higher priority in obtaining finance.

We can therefore distinguish between two kinds of decision-making processes related to allocating financial resources. The first kind is the *lending-based process*, and the second kind is the *productivity-based process*. The lending-based process encompasses the rational behavior of lenders, while the productivity-based process includes the rational behavior of investors,

A lender is a holder of monetary assets, which are claims to fixed sums of money. He is therefore interested in the solvency of the borrower, in the sense that the present value of the borrower's net worth is at least sufficient to cover the value of his debt. To ascertain the solvency of borrowers requires information collection and follow-up in which financial institutions specialize.

The lending-based process is an allocation process in which the solvency of borrower holds the utmost importance, and the "productivity" of the borrower's undertaking is of secondary value. Therefore, individuals would place their funds with financial institutions of highest interest rates, given their ability to meet repayments and other conditions. In the same ways, banks offer funds to consumers as well as producers, as long as they are expected to meet repayment obligations.

All lending-based allocative processes in the economy provide for the interaction between demand and supply forces in such a way that sets an equilibrium interest rate This rate serves as the opportunity cost of liquidity which would in turn play an indirect role to influence the productivity-based process.

Finance through lending is intrinsically inefficient. It suffers from information asymmetry that leads to risks of adverse selection and moral hazard. It is therefore important to insure that whatever productivity-based financing process is used, it must not suffer from information asymmetry that usually exists between borrowers and lenders.

It is those two processes: a lending-based creation of money and allocation of financial resources that distinguish the conventional

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6. The money market here is used to denote the market for exchanging present for future money, or lending at interest.

system from an interest-free economy. It will be argued later on that the interest-free monetary economy draws its relative strength from that distinction.

THE CONVENTIONAL BANKING SYSTEM

Under the system of commodity money, the supply of metal (gold and silver) controlled the money supply. Monetary authorities played no role in determining the rate of monetary expansion. Policies were developed later to promote the importation of gold through the realization of trade surpluses. In addition, governments practiced currency debasement as well as issuing coins made of non-precious metals. Despite that, bimetallism imposed an external limitation on monetary expansion by monetary authorities.

When fiat money became prevalent, it was thought of being more efficient that commodity money, because of its lower cost of ascertaining quality, transporting and storage. However, the external limitation on the power of the monetary authority to expand the money supply was lost with the retirement of the gold standard and convertibility to gold. In theory at least, monetary authorities can (and sometimes did) issue fiat money at will. Literature on monetary policy concerns itself with the rules to which the monetary authority must adhere in changing the supply of money. Most of those rules are based on the relationship between monetary balances, growth on the one hand and prices on the other hand. Money affects growth as it facilitates transactions because it reduces transactions costs. It influences prices because the change in monetary balances is directly reflected into excess demands for commodities.

Ordinarily, in a conventional economy, the central bank stands ready to issue money against interest-bearing claims on the government[7]. Changes in the central bank holdings of foreign assets, unless sterilized, would also lead to changes in money supply. The central bank creates money in two cases, hence. Firstly, when the government (or banks) borrows directly from it and, secondly, when the central bank decides to carry out an “expansionary open market operation".

In the first case, governments borrow to finance a deficit in the budget, which is politically determined. In the second case, the central bank attempts to stabilize the economy through open-market operations.

As for the first case, the decision to borrow from the central bank is politically easier than raising taxes and less costly than borrowing from the public. This would make it relatively more attractive for governments to extend their hands to the central bank, which has

7. [7]Issuing money against foreign assets as well as the effects private borrow on the money supply will be dealt with later on

always to oblige. Financing politically unpopular undertakings as well as an important fraction of the activities of politically weak governments, or governments with inefficient taxing structure is always done through this method. Even democratic governments with strong tax systems find it easier to overspend simply because the legislative is usually more flexible when it comes to government *internal* borrowing.

While in both cases the government obtains the resources it desires, borrowing from the public and borrowing from the central bank are not similar in economic effects. Borrowing from the public keeps the current (nominal) money supply at the same level. However, to the extent it raises future tax liabilities it redistributes wealth from future to present generations[8]

Borrowing from the central bank, however, changes the nominal supply of money. This has ramifications on prices and, consequently, on the distribution of wealth. If price increases continue, an inflationary process ensues, with its negative implications on macroeconomic efficiency as well as its well-known redistributive effects. Borrowing from the central bank could therefore influence both efficiency and equity. Further effects of changes in the money supply on the real sector cannot be ruled out *prima facie*, and under certain conditions, can be significant.

To make the central bank a lender of last resort to the government is not critical to the stability of the economy. Besides, there is an alternative which is economically, if not politically, superior, i.e., to borrow from the public. However, if the central bank does not issue fiat money against interest-bearing assets, it may be thought of as not exercising its authority over the control of the money supply and, consequently, on the price level. We will show below that there are alternative means to doing so.

The currently dominant financial structure can therefore be described as a lending-centered system. Its financial resources are wholly created and then handed down from their owners to users through lending processes.

Another important characteristic of the conventional financial system is that the process of money creation is lending-based. Money is created by the central bank to be lent to the government. It is also created by commercial banks, in the form of derivative deposits, to be lent to the public. This process, as will be seen, influences the mechanism of price expectations. In addition, it establishes the rate of interest on government securities as "the" interest rate, through which the

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8. The wealth of the holders of new government debt will not change except through future tax liabilities.

productivity based process is influenced by monetary factors.

THE ISLAMIC BANKING SYSTEM

In an Islamic economic system, conventional lending in the sense of trading present for future money is strictly prohibited[9]. A loan is considered as an act of philanthropy, in which the lender makes a charitable gesture to the borrower. A lender may charge the cost of writing the loan contract and the cost of collecting the debt, but such charges must reflect the actual costs and should in no way reward the lenders for giving the loan. Only the incentive of charity remains. We can therefore expect lending activities to take a back-seat position in an Islamic economy, as it would be limited to philanthropic purposes. In an Islamic economy, the government, business enterprises and almost everybody else cannot borrow. Only the needy can borrow and only if they find people who are willing to lend them interest free.

The Islamic monetary and financial system must be structured to reflect this basic fact. The processes of financial resource creation and allocation cannot be based on borrowing, as this would make it religiously unlawful. The author has previously presented a design for a monetary and financial system that is not based on borrowing (Al-Jarhi, 1981). Fortunately, that design has gained credence over time. It will therefore be used as a basis for our analysis.

THE CENTRAL BANK

The central bank is the institution entrusted with the management of the supply of money, which involves the issue of fiat money as well as the control of commercial banks.

I. FIAT MONEY CREATION:

The central bank can open investment accounts in its member banks, in which it deposits whatever money it creates and from which withdraws whatever money it retires. Member banks, as will be seen below, will invest those deposits in the real sector in accordance with the investment policy of each. Profits earned on such deposits could be used in part to cover the cost of central bank operations. Such deposits will be termed central deposits, or CD's.

CD's can be used as a tool of monetary policy (to create and retire

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9. It is also considered immoral, unjust and a sign of greed. The logic of Islamic religious scholars can be explained further. Being unjust is based on the assumption that money is a barren asset, which cannot produce anything, by itself. To charge for lending money would therefore be unjustified. Greed is symptomatic of the behavior of people who have money and live on interest (in contrast to wages or profits). They tend to get the highest possible rate of interest on the money they lend. Once unjustness of charging interest and its association with greed is established, immorality becomes a conclusion.

money). They can also be used as a means of financial intermediation, which would amount to additional monetary services. The central bank would create an instrument, which could be termed “central deposit certificate". CDC's would be sold to the public and their proceeds be invested in CD's throughout the banking system. Obviously, the CDC's provide the lowest degree of financial risk in an interest-free economy, since each carries with it a title to a more diversified investment portfolio than any member bank by itself can provide. The rate of return on the CDC's will approach the average rate of profit on investment for the whole economy.

As a substitute for the conventional process of money creation, which is based on issuing money in return for government debt instruments, we have just outlined a non-lending based process of monetary expansion. Such process has several advantages. It is an investment-based process. Since central deposits are invested in the real sector by banks, their rate of return would gauge monetary policy performance. It is totally independent of government budget, meaning that the process monetary policy would be depoliticized. The monetary authority will depend solely on monitoring the relationship between both prices and output in deciding upon the (optimal) rate of monetary expansion.

II. MONEY, GROWTH AND PRICES

The function of the management of the money supply is, in a nutshell, to provide for the transactions requirements of the community, especially in a growing economy. While the central bank must set the money supply at the level, which provides the “maximum” amount of transactions services at a certain level of income, it must keep the level of prices stable.

It is important to note that it is the real and not the nominal unit of money that produces transactions services. This implies that an increase in the supply of (Nominal) money will afford greater transactions services for the community *only* to the extent that the price level stays stable; or increased less proportionately than the nominal money supply.

An increase in the rate of growth of money creates excess demand for goods (excess supply of money) at faster rates. Assuming markets to be sable, equilibrium will be regained. However, the new rates of growth of prices will differ from the old ones depending on price speeds of adjustment (α), compared to quantity speed of adjustments in all markets.

Speeds of adjustment can be related to three factors: the institutional framework of the economy, the degree of complementarity and substitution between gooks, and the rate of growth of the economy.

To illustrate the first point, the rate of growth of prices can be written as

$$P \quad = \quad P(p_i \; ; i = 1,\ldots,n) \qquad (1)$$

Where (p_i) is the rate of growth of the price of the ith good, which is equal:

$$p_i \quad = \quad \frac{dp_i}{dt} / p_i \quad = \quad \{\frac{\partial p_i}{\partial s_i} . \frac{ds_i}{dt}\} / p_i \qquad (2)$$

Where (s_i) is the excess demand for the ith good:

Equation (2) shows that the rate of growth of the ith price can be decomposed into two factors. The first is the responsiveness of the price of the good in question to changes in its excess demand. The second is the extent to which that excess demand is increasing or decreasing over time. While the first term refers to the price speed of adjustment, the second refers to the quantity speed of adjustment.

Speeds of adjustment can be hindered by non-competitive elements on the institutional side of the market, e.g., government regulations, monopolies, etc. They also depend on the degrees of substitutability and complementarity between goods.

Given the institutional arrangement as well as the degree of substitutability between goods, speeds of adjustment depend on the rate of growth. This is so because the quantity speed of adjustment is faster with higher rates of growth, as it becomes easier to satisfy excess demands in this case.

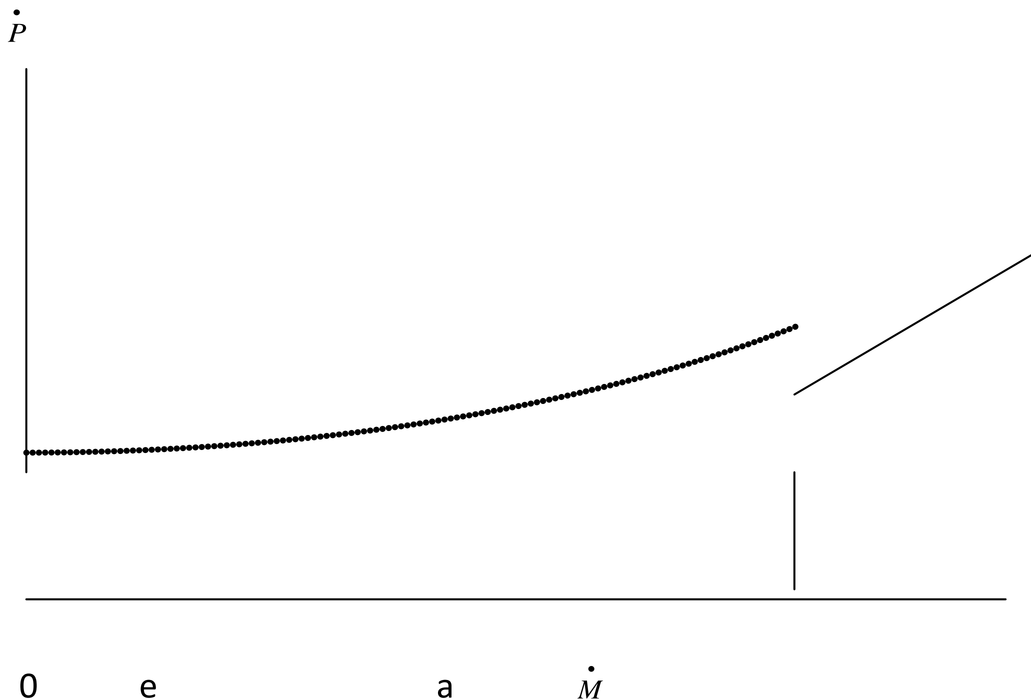

FIGURE (1): THE RELATIONSHIP BETWEEN INFLATION RATE AND THE RATE OF MONETARY EXPANSION

Therefore, we can say that, ceteris paribus, the higher the rate of growth, the lower the rate of inflation[10] resulting from a certain increase in the rate of growth of money ($\dot{M}$), or the rate of monetary expansion.

The optimal supply of money is the rate of monetary growth that maximizes the transactions services for the community at the current levels of growth and inflation; and the optimal monetary policy is that which equates monetary growth to that rate. Since we are concerned with the services of real money units, a comparison between monetary growth and inflation rates is necessary. The relationship between the rate of growth of the money supply ($\dot{M}$) and the rate of growth of prices $\dot{P}$) could be based on a postulated relationship between the two variables like the one depicted by Figure (I). The faster the growth of money, the stronger is its effect on the real sector in terms of raising demand schedules and, consequently, the faster prices must rise.

We can therefore perceive of rates of monetary expansion low enough not to produce any significant change in the rate of inflation, given the real growth of the economy and the state of expectations. Such rate falls within the range of (oe) in figure (1). As ($\dot{M}$) rises further, ($\dot{P}$) will increase in response, but less proportionately in the beginning. Sooner or later, increases in ($\dot{M}$) produce equi-proportional increases in ($\dot{P}$). This is depicted by the 45 degree portion of the curve in Figure (1) beyond oa.

It is possible that increases in ($\dot{M}$) produces more than proportional changes in $\dot{P}$, when higher monetary growth gives reason to expect more of the same, in the future. This case is not depicted graphically.

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10. Notice that higher rates of growth means decreasing excess demands over time, i.e., negative (ds_i) in equation (2) above.

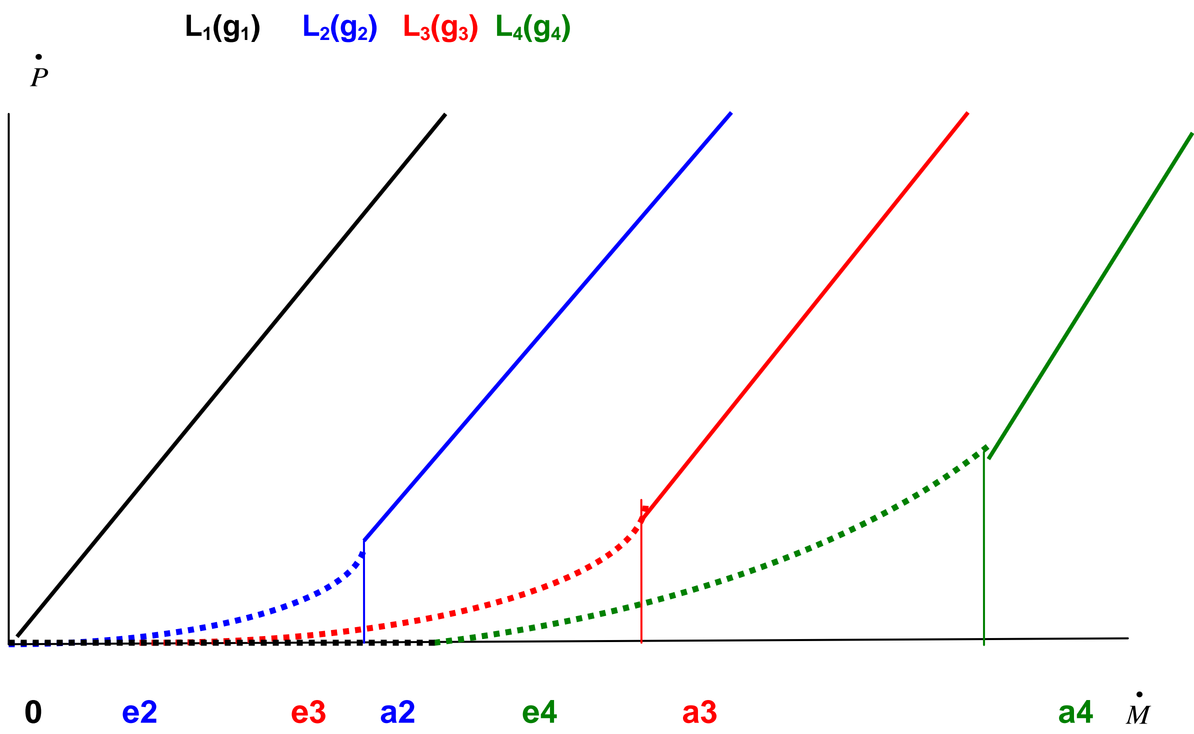

FIGURE (2)

We can consider the proposition that economic growth attenuates the effects of monetary expansion on prices. Figure (2) shows the monetary expansion lines L_l through L_4, which are associated with the rates of growth g_1 through g_4, respectively. The proportion of the expansion curve within which prices respond less proportionately to monetary expansion is larger with higher rates of economic growth. Along L_4 (g_4) the rate of growth is so low that any monetary expansion produces equi-proportional change in prices[11]

The portions of the expansion lines, which coincide with the horizontal axis, show that monetary expansion is being fully reflected in growing real balances. As indicated by Figure 2, such non-inflationary monetary expansion would be equal to oe_1, when the economy grows at g_l, and oe_2 when it grows at g_2 . Higher, rates of monetary expansion would lead to positive rates of inflation.

An economy in which strict price stability, viz., $\dot{P}=0$, is preferred, the monetary authority should choose $\dot{M}=oe_1$ or oe_2 when real growth is equal to g_I or g_2, respectively Otherwise, the rate of monetary expansion should equal zero. Rates of monetary expansion higher than oa_1, oa_2 or oa_3, when corresponding rates of growth are g_I , g_2, or g_3, respectively would cause correspondingly equal rates of inflation.

III. THE OPTIMAL PATH OF MONETARY EXPANSION

Let us now assume that the monetary authority is bound by absolute price stability (zero inflation rate), and has been carefully monitoring the relationship between the rate of monetary expansion, inflation and the rate of growth. The monetary authority will face a frontier of rates of growth, each associated with a maximum rate of monetary expansion that can be implemented without increasing prices. We can term that rate the optimal rate of monetary expansion or the optimal supply of money. This frontier is represented by the curve in figure (3) and can be termed the optimal path of monetary expansion or the optimal path of monetary policy. As the rate of growth increases, the maximum rate of monetary expansion rises up to a limit after which no further increase in the rate of monetary expansion without increasing the rate of inflation.

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11. This is where the quantity theory of money strictly applies

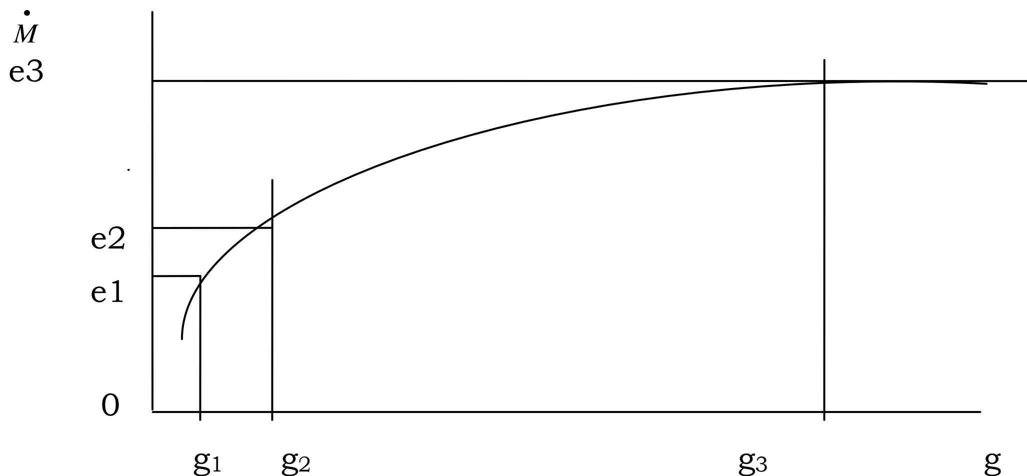

FIGURE (3) : THE OPTIMAL PATH OF MONETARY EXPANSION

When the rate of growth is g_1, the optimal rate of monetary expansion is e1. when growth rises to g2, the optimal rate of monetary expansion rises to e2. when the rate of growth is g3, the optimal rate of monetary expansion is e3, which is the highest possible rate of optimal monetary expansion. Any further rise in growth will not be associated with higher rates of monetary expansion above e3.

IV. EXTERNAL INFLUENCES AND THE MONEY SUPPLY

In an open economy with no foreign exchange controls, we expect traders across the borders as well as the banking institutions themselves to hold foreign assets. Variations in foreign asset holdings, accompanied by the absence of offsetting monetary policy will have effects on the supply of money.

When residents receive foreign exchange, they will either use it to cover purchases abroad (of goods, services, real assets and shares), sell it to other residents who use it for the same purpose, or exchange it from the banking system for domestic currency to finance domestic spending. We must exclude the fourth alternative, which is to hold foreign-currency-denominated debt instruments. Such instruments would be interest bearing and therefore unacceptable or tradable in the domestic market.

Naturally, the change in net foreign assets held by the banking system will have a direct effect on monetary expansion. This could distort the optimal supply of money rule, which we have proposed above, namely to tie the path of monetary expansion to the path of real growth, given the relationship between money and prices. The monetary authority will have few options to avoid such distortion. The first is to neutralize

completely all changes in net foreign assets, so that they would have no effect whatsoever on the money supply. This means that the monetary authority will stand ready to absorb any increase in the money supply resulting from an increase in net foreign assets. It will also inject an amount equivalent to any decrease in money supply resulting from a decline in net foreign assets. Both absorption and injection would be carried out through the sale and purchase of CDC's, respectively.

Another option is to neutralize only the changes in the money supply that would cause the path of monetary expansion to deviate from its optimal path.

As a third option, the monetary authority can stand ready to sell and purchase foreign exchange at daily declared prices, which would be set at levels that would enable the monetary authority to keep net foreign assets at levels consistent with the optimal path of monetary expansion. Net purchases of foreign exchange by the central bank can be invested in foreign or domestic projects through member banks. The central bank can therefore keep CD's in foreign currencies with member banks for this purpose. Meanwhile, it can issue CDC's denominated in foreign currencies or domestic currency equivalents. The proceeds of selling those CDC's can be used to finance foreign currency purchases.

MEMBER BANKS

Member banks in an interest-free system cannot follow the traditional modes of operations developed by commercial banks. Since they cannot charge interest, they cannot operate on the basis of taking loans from fund owners and lending them back to fund users. They must undertake direct investment, take equity in the firms they finance and provide the rest of customary banking services as well. Such banks have come to be known in the past as business banks or Banques d'Affaires. They are commonly known today as relationship or universal banks[12].

A. RESOURCE MOBILIZATION

1. Demand Deposits

These are similar to the checking accounts usually held in commercial banks. They carry no rate of return, but give their holders the right to write checks against them. They could be insured against bank insolvency in a manner similar to that of the FDIC. Such deposits are

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12. Relationship or universal banks are "large-scale banks that operate extensive networks of branches, provide many different services, hold several claims on firms (including equity and debt), and participate directly in the corporate governance of the firms that rely on the banks as sources of funding or as securities underwriters, "(Al-Jarhi, 2003).

considered as interest-free loans whose principal is guaranteed by the bank.

The existence of demand deposits raises the question of whether the central bank should enforce a 100 percent or a fractional reserve ratio. It is obvious that with fractional reserves, when traders switch from "high powered money" to "deposit money" and vice versa, the total supply of money will change. However, with one hundred percent reserves, such a switch will change the composition of money, leaving its total supply constant.

Milton Friedman uses the above reason to suggest the abolition of fractional reserves (Friedman, 1959). He argues that fractional reserves caused the monetary system to suffer from an "inherent stability". While Friedman's argument is correct, it should not be the only basis for abolishing fractional reserves.

Many writers believe that the "production" of money is costless (Mints, 1950), Tolly, 1957, Friedman, 1959 and 1969, Samuelson, 1968, and 1969, Tobin, 1968) at the margin, but not at the average. Our approach presented here suggests that adding real balances to the existing stock is more costly than just operating a printing machine. The central bank has to watch for the changes in prices while keeping an eye on economic growth. Traders would require assurances of the relative price of money and its future developments, so that their expectations would not misread the direction of monetary policy. Such a process of "asset characterization" is costly (Al-Jarhi, P. 373 ff).

In a fractional reserve system, the process of creating derivative deposits is accompanied by changes in the money supply resulting from substituting deposits and cash for each other. Both processes change the cost of producing real balances. Specifically, such changes in the money supply resulting from banking as well as depositors' behavior under fractional reserves make it more costly to maintain the existing stock of real balances or to add to it.

In addition, fractional reserves provide banks the right to create money through derivative deposits and earn interest on it. This represents unjustifiable redistribution from the publich to banks shareholders. Considering that such shareholders would lie in the higher-income groups, a fractional reserve system is equivalent to a regressive tax. Such tax is non-neutral, as it affects allocation in favor of the banking sector.

We consider all the reasons above, the inherent instability and the cost of producing real balances, the allocative and redistributive effects sufficient to warrant the adoption of 100 percent reserves against demand deposits.

2. Investment and saving deposits, Mudaraba based.

Banks can mobilize funds through taking investment deposits. Such

deposits are provided by customers on the basis of profit-and-loss sharing or Mudaraba. Banks would invest the proceeds of such deposits in a (Mudaraba) pool that contains such funds together with shareholders funds. Placing both types of funds in one pool reduces the risk of moral hazard, as banks would treat investment and saving deposits in the same manner as it treats shareholders funds.

The resulting profit would be divided between banks and customers in a preagreed ratio. Standardized deposit contracts should specify such ratio. When it is changed, the new ratios should be announced to customers.

Investment deposits can be either unrestricted or restricted. In the latter part depositors provide funds to be placed in specific channels or under certain instructions.

3. Wakala based investment deposits

Wakala is an agency contract. Deposits can be supplied on an agency basis if it is going to be invested in specific channels, where both banks and depositors have more or less definite ideas about the ultimate results of the investment, through feasibility studies, estimates and the like. The depositors would stand ready to share the full risk of the investment in which their deposits are placed. They get the full profit. Banks get a pre-specified commission for their agency efforts.

4. Associated services

Customers can also obtain the same services associated with having demand, investment and saving deposits as provided by conventional banks, including:

- 4.1. ATM
- 4.2. Credit cards
- 4.3. Online banking
- 4.4. Mobile banking

Banks can provide the same services, which commercial banks usually provide, like selling foreign exchange, issuing letters of credit, and other services. Such services are provided for a fee.

The bank may have to establish correspondence relationships with foreign banks to facilitate the provision of those services. It may keep interest-free deposits with its correspondents on a reciprocal basis, or may pay its correspondent for whatever services it requires

V. FINANCING ACTIVITIES

Member banks, equipped with expertise in project appraisal and financial analysis, can make three kinds of investment.

1. Direct equity investment (Musharaka):

Banks can establish new firms providing their full capital initially or acting as catalyst to attract other equity holders. They can also hold shares in existing enterprises and participate in their management. The bank can use its expertise to give technical assistance to those companies, in order to enable them to be more profitable. Geographic proximity to the projects involved, possession of first hand information about their activities, and relative familiarity with people operating them all afford banks excellent opportunities for profit. Considering their expertise, banks can increase the degree of business success in their communities.

Musharaka or equity investment can be made for an indefinite period, or for a specific period. The latter is called diminishing equity investment or Musharaka Mutanaqissa. Each year the other partner uses part of his or her profit to purchase part of the bank's equity. At the end of the period, all the bank's equity share would have reverted to its partner.

Some visualize Musharaka as something that businessmen want to avoid as a means of finance for two reasons. First, the company has to divulge its profits and second it has to share them with the bank. This can be more expensive than conventional or interest-based finance. Islamic banks have developed ways to make Musharaka more attractive. First, with Musharaka, the bank shares risk with its partner and provides technical assistance while participating in management. Second, the bank can provide an extra incentive to its partners through setting a *hurdle profit rate* as a maximum rate of profit taken by the bank. The rest would automatically be assigned to partners.

2. Profit-And-Loss Sharing (PLS) Finance, or Mudaraba

Banks can use their vantage point in the firms in which they hold equity to monitor their operations cheaply and assess their finance needs, which can be provided on a profit-and-loss-sharing (PLS) basis. This category of finance provides short-term funds to finance business needs for working capital for the duration of the production cycle. It is also a good outlet for funds to be employed in commercial activities.

The earnings of firms financed by banks would be netted out of costs, and the remainder is shared with banks according to an agreed upon formula.

Mudaraba as a mode of finance can be unrestricted, so that the fund user can use them in all aspects of his business. It can also be restricted to specific activities.

The time length of such operations could vary from six to twelve months for industrial and agricultural projects. Yet it could be as short as 60 to 90 days for commercial ventures.

Because of the presence of information asymmetry in Mudaraba as a mode of finance, it is best provided side-by-side with Musharaka, in

order to eliminate the cost of monitoring. Such behavior would by similar to that of universal banks.

3. Financing through agency arrangement

Banks can provide funds to fund seekers through agency or Wakala agreements. Fund users would present a feasibility study regarding the prospects of their investment activities. On the basis of this study banks provide funds on Wakala basis, where the fund user acts as agent to the bank in return for a fixed commission. Banks in return get the full profit of the investment.

The Wakala mode of finance is a good way for interbank funds as well as syndicated finance. It could be one of the ways of establishing an interbank market.

4. Leasing (Ijarah) Activities

Leasing or Ijarah can be two kinds, operating lease or financial lease (Ijarah Muntahia Bettamleek). Under the first type, the bank sells the usufruct of assets it acquires their titles or their services. Under the second type, the bank leases an asset while commuting itself to transfer its title to the lessee at the end of the lease. Installments paid would include part of the principal as well as the value of the usufruct.

A bank under this scheme can purchase means of transport (ships, planes, etc.), industrial equipment, buildings, and others to lease them to users in return for periodical installments. The lease agreement terminates with a title transfer to the user.

While leasing contracts can provide a means to serve customers in a way that is flexible enough to cater for varying need, they provide the bank a way to invest in an equity, which transfers itself into liquid cash gradually over a certain period.

Customers may seek Ijarah finance for existent or (currently) non-existent assets, like a ship or airplane to be build or a house to be constructed. Banks would require in this case customers to commit themselves to leasing the assets through *forward Ijarah*. This is a lease contract that takes effect, once the assets in question are delivered to the lessee.

5. Commodity Finance

Banks can finance purchasing commodities and services on credit. This would entail acquiring commodities from suppliers for cash (benefiting from suppliers credit and quantity discount) and selling them to customers on credit. Such activity appears to be rather unique, as it would require banks to trade. This can be done in several ways.

5.1. One way of doing it is that banks acquire commodities first and then offer them for sale on a deferred-payment basis. This is called Bai' Bethaman Ajel.

5.2. Alternatively, customers can come forward to banks to specify in an application the commodities they would like to buy, while perhaps attaching offers from suppliers and committing themselves to purchase the same from banks at an agreed cost-plus price. This is called Murabaha.

5.3. When a customer wants to acquire commodities or assets which are not currently on hand, banks can purchase them from their manufacturers through a command to manufacture or Istisna' contract. Banks can then sell the same to customers through parallel manufacturing contract, financial Ijarah, or a deferred-payment sale contract.

5.4. When goods would be available in the future, regardless the necessity to manufacture them, they can be purchased by banks by cash payment against future delivery. This called Salam. Such method is particularly effective in providing finance of working capital in agriculture and industry. Naturally, banks need to find someone to purchase the same commodities at the time of their delivery.

6. Use of Holding Companies to carry out investments

We have seen above that banks take equity in firms, and provide them and household customers with finance through a variety of modes. Such activities may be considered to be far outside traditional banking activities. In order to keep a reasonable amount of division of labor in the banking industry, for the sake of economic efficiency, banks can establish specialized subsidiaries to handle their equity, PLS, leasing and commodity finance finance. Banks need only to hold part of the equity of their own subsidiaries and attract the rest from other shareholders. They also would have an opportunity to provide interim financing to subsidiaries.

VI. OVERVIEW OF ISLAMIC FINANCE MODES

A. MULTIPLICITY OF FINANCE MODES & FINANCIAL INNOVATION

We have so far specified 12 contracts that can be used singly or in combinations to provide finance to fund users. They include:

1. Musharaka,
2. Diminishing Musharaka,
3. Unrestricted Mudaraba,
4. Restricted Mudaraba
5. Unrestricted Wakala,
6. Restricted Wakala,

7. Operational Ijarah
8. Financial Ijarah,
9. Deferred-payment sale,
10. Murabaha sale,
11. Istisna'
12. Salam

The twelve contracts replace the classical loan contract (present for future cash), which is the only ingredient used in conventional finance. The twelve contracts does not exhaust the list of modes, as they can be used also in combinations, e.g., in one finance transaction we can mix Musharaka and Ijarah. Mixing and matching of the twelve contracts increases the number of *financial products* far beyond what is available in conventional finance. This implies a much larger room for financial innovation.

B. INFORMATION SYMMETRY

With the exception of Mudaraba, information is perfectly symmetrical with all twelve modes of finance. This means that both the bank and the finance user are equally informed about the use of finance, thereby excluding possibilities of moral hazard and adverse selection. In addition, information can be made symmetrical with Mudaraba, when it is mixed with Musharaka finance. This is a welcome conclusion for banks as finance providers, as their risks would be more limited than in conventional finance.

C. BORROWING REQUIREMENTS

Since banks do provide long and short-term capital to enterprises on equity or profit-sharing basis, borrowing by business enterprises would become unnecessary. In addition, the provision of commodity finance and leasing finance would cover most of the needs of households. Yet some borrowing may still be needed to balance one's income stream with his consumption stream. This is the case when individuals face emergency situations or special needs that would require short-term bridge financing. Such individuals would be expected to fall in low-income brackets. A modest amount of interest-free lending must be provided as a philanthropic activity.

The central bank can inject into the system a regulation that each "bank would devote a small percentage of its resources for interest-free lending. The central bank can supplement such resources from its CD earnings. Naturally, since loans would be interest-free, funds have to be rationed according to some social criteria.

Some members of the community would be interested in making a part of their financial resources available for interest-free lending. While this would be motivated by altruistic reasons, it could be encouraged by

stable prices. Some individuals may hesitate to lend for being unable to assess the borrowers' future earnings. In addition, since they are non specialists, it would be relatively more costly for individuals to do so.

The central bank can overcome this problem by issuing central lending certificates, CLC's, which carry no return, but are guaranteed to be paid on maturity. Proceeds of CLC's can be made available to member banks, which would lend them to borrowers after proper assessment of future income, and application of social criteria, as rationing would certainly be required.

THE TREASURY

The picture of the monetary and financial sector of any economy would be incomplete without the details of the operations of the public sector. Islam sets specific rules to govern the public sector in a way that would not contradict with interest-free banking.

The functions of the public sector have been traditionally divided into what is known to be the allocative and the distributive branches (Musgrave, 1959). While this would bear similarity to the Islamic structure, there are some differences still.

In an Islamic economic system, the allocative branch takes responsibility of the mineral resources, which are generally considered public property. This adds another feature to the allocative branch, which is traditionally known to be in charge of the finance and production of public goods. Handling monopolies, insuring orderly markets, correcting for externalities, and the like can be placed in another division of this branch, which would be termed the *market-order division.*

The distributive branch in the Islamic system is based on the collection as well as the distribution of AL Zakah.

THE ALLOCATIVE BRANCH

1. Division of Mineral resources:

The state ownership of mineral resources does not necessarily imply state production. The state can involve itself in the production of minerals through state-owned enterprises although it would be more efficient to enfranchise private producers for this purpose.

The mineral Resource Division assumes the responsibility of mineral production, directly or indirectly, the proceeds of which are added to the Treasury to be used in financing government operations.

2. Division of Public Goods

Public goods are generally known to be those goods whose consumption is carried out collectively, e.g., defense, basic education, certain categories of health services, and so forth. While the details of their provision are determined through the political process, the state stands responsible for providing public goods to its citizens.

Public goods may be produced directly by government owned public enterprises or, more efficiently, by private enterprises. They are

financed by the net proceeds from the mineral resource division[13] and from other taxes and revenues. Some taxes can be of special practical importance when the exclusion principle can be applied to the distribution of semi public goods, as in the cases of toll roads, higher education, security and other services provided by municipalities authorized to levy (property) taxes, and the like. Other taxes would include income, sales, and international trade taxes. Revenues would include the net profits earned by the central bank on issuing money and then transferred to the government. Some of the public goods, like defense, can be financed from Al Zakah proceeds given enough funds from that source after satisfying the poor.

3. Division of Market Order

The working of free markets can always be disturbed by the rise of monopolies, the existence of externalities, and other market failures. Dealing with such problems could involve a certain tax-subsidy network or direct regulations by the government. Most of the time, what is required is a tax-subsidy scheme. In extreme cases, direct control may be called for. The finance of such operations could be accomplished through balancing tax services with subsidy payments. It may also call for special taxes to finance the maintenance of "orderly markets".

THE REDISTRIBUTIVE BRANCH

A distributive tax, called Al-Zakah is levied on the following:

1. Monetary assets, including cash, demand deposits and debt, when held for a year,
2. Titles to real assets, e.g., shares, profit sharing funds, etc, when held for a year.,
3. Gold, precious metals, and diamonds, based on their current market value, when held for a year,
4. End of year Net earnings of assets not included in the above categories, like housing not occupied by proprietor, factories, enterprises operating in production, trade or services, and the like.
5. Agricultural crops (including bee-hive production),
6. Animal wealth,

The tax rates, which differ from one category of assets to another, are applied on total holdings over and above a certain level, called *Nissab* that reflects the cost of living of the taxpayer. The proceeds are

13. Mineral resources are considered wealth and not income. The government should not spend earnings from selling such resources, but should invest such earnings and spend only the net income of their investment.

earmarked for certain purposes on the top of which poverty reduction lies supreme. This is done through two kinds of redistributive policies: *wealth* maintenance and *income* maintenance policies.

The poor, i.e., those whose income (and wealth) is below a certain *minimum* level, are classified into two categories, those capable and those incapable of work. Those capable of work are given sufficient productive assets to use in order to earn income that would place them above the poverty line. Those incapable must be guaranteed a minimum level of income to cover their basic needs.

It is commonly understood that the process of redistribution continues every year and poverty is reduced gradually and eventually eliminated in the long run for all capable of working. Banks would play a role, as wealth maintenance policies can be implemented through the finance of micro enterprises, which the poor own and manage.

Questions have been raised regarding he ability of Zakah to eradicate poverty and over what period of time. Answering this question should depend on empirical data drawn from experiences of countries that apply the system of Zakah conscientiously and effectively. Unfortunately, we know of no country that does exactly that[14]. Therefore, we have to do with a simple arithmetic example. However, it is not easy to simulate Zakah application using simple arithmetic. The rates of Zakah are applied sometimes to assets (as in cash, inventories, precious metal, equity shares) and sometimes to income (like crops, dividends, etc.) Zakah rates may also differ according to tax base. This may require a separate research by itself.

FISCAL STRATEGY AND POLICIES

The fact that the government does not have access to borrowing from the central bank is balanced by the fact that the central bank has a wholly exclusive right to issue money in the form of central (investment) deposits and consequently earns all the seignorage on such process. The surplus of the central bank is automatically made available to Treasury to draw from for use in covering part of its expenditures. In order to provide some perception of the amount of seigniorage available to the government, we can safely assume that the supply of money

14. This is true, even in countries, which claim to apply Islam, like Saudi Arabia, Iran, and Sudan. Lack of conscientious application of Zakah can be related to several factors. First, Islamic economics have not practiced on a countrywide scale for a long time. Developing countries, where most Muslims live are riddled with corrupt governments which people do not trust with their Zakah funds and prefer to give them directly to the poor they know. This deprives Zakah from effective management at the macroeconomic level. Third, political decisions in such countries are not in the hands of the poor. Fourth, poverty eradication has not been an explicit priority. Instead, political stability takes precedence. This is usually realized through huge spending on internal security.

would amount to 25 percent of GDP, if this amount were to net 6 percent of its value as income when invested in the real sector through the banking system, available seigniorage could amount to 1.5 percent of GDP. That could easily cover a large size deficit in the government budget[15].

In as Islamic economic system, the government has two concerns. First, it must have a fiscal strategy, to mobilize resources to cover its expenditures and keep its budget balanced. Second, it must consider the role of its fiscal policies when circumstances require.

A. FISCAL STRATEGY

1. The fiscal strategy should be based upon the following principles:
2. No interest-based lending is allowed.
3. All opportunities to earn income on providing government services must be exploited.
4. Income-earning government services are good candidates for finance using either equity, PLS, or commodity finance modes. In such cases, production could be done through franchised private enterprises.
5. The government must resist the temptation to tax. All taxing must be done through the legislative branch of the government. Taxation without representation, viewed from an Islamic vantage point, could be considered as simply unjust.

VII. FISCAL POLICIES

The government operates in an economy in which the monetary authority has total control of the rate of monetary expansion, and consequently full ability to implement a policy of absolute price stability. The objective of economic stability is therefore best left in the hands of the monetary authority, which would be fully equipped to pursue it with effectiveness.

However, the government must stand ready to confront instabilities emanating from natural disasters, or inadequacies of institutional infrastructure. It must have some accumulated savings to draw upon in such cases. In addition, the government can turn its full attention to the objectives of full employment, economic development, and social justice.

In the area of full employment, the government can work on the

15. As a matter of fact, deficits exceeding 1.5 percent of GDP are considered excessive by many.

establishment of investment-enabling environment that would facilitate the exploitation of all profitable investment opportunities. That includes improving the legal, social, institutional, and physical infrastructure. In particular, the government role in building up human wealth of its community cannot be overemphasized. In addition, the government can go a long way in encouraging investment by limiting its own size, and streamlining its bureaucratic procedures.

In the short run, the government can turn its attention to solving bottlenecks. In addition, keeping an eye on market order and applying a balanced tax-subsidy scheme to confront market failures would provide investors with leveled-playing field.

The functions delineated in the budget, namely allocation and redistribution have a sufficient scope for government action to pursue economic and social development without making the life of its citizens more difficult.

D. GOVERNMENT BUDGET BY FUNCTION

EXPENDITURES	REVENUES
THE ALLOCATIVE BRANCH	
MINERAL WEALTH DIVISION	
1. Current Expenditures	1. Net income on investing Sales Proceeds
2. Capital Expenditures 3. Cost Of Finance	2. Net income from investing Franchise Income
PUBLIC GOODS DIVISION	
1. Current Expenditures	1. Sales Proceeds
2. Capital Expenditures 3. Cost Of Finance	2. Franchise Income
	3. Direct and Indirect Taxes
MARKET ORDER DIVISION	
1. Current Expenditures	1. Fines and Fees
2. Capital Expenditures 3. Cost Of Finance	
A. **SURPLUS OR DEFICIT OF THE ALLOCATIVE BRANCH**	
THE REDISTRIBUTIVE BRANCH	
1. Operating Expenditures	1. Zakah Revenue
2. Payments	2. Proceeds of other levies
3. Wealth Maintenance	
4. Income Maintenance	
B. **SURPLUS OR DEFICIT OF THE REDISTRIBUTIVE BRANCH**	
TOTAL POSITION IN GOVERNMENT BUDGET	
1. Other Operating Expenses	
	1. Net Central Bank Surplus
	2. Loans From Central Lending Certificates
C. **TOTAL DEFICIT OR SURPLUS**	3. Withdrawals From Past Surpluses
	4. Foreign Grants

FINANCIAL INSTRUMENTS

A review of the balance sheets of the central bank as well as member banks will show the different financial instruments, which compose the "demand side" in the financial market. The ''supply side" is considered later in order to obtain a complete picture of the financial market

I. BANK BALANCE SHEETS

A. THE CENTRAL BANK

BALANCE SHEET
(100% REQUIRED RESERVE RATIO)

ASSETS	LIABILITIES
Cash in Vault	Central Deposit Certificates
Central deposits with banks, restricted and unrestricted	Central Lending Certificates
Lending Accounts with Member Banks	Member Bank Reserves
Other investments made from bank reserves and retained earnings	Investment Accounts for Government and Public corporations
Net Foreign Assets	Monetary Base = demand deposits
	Capital and retained earnings

The central bank holds central deposits and loan accounts with member banks, which, in addition to net foreign assets and cash in vault, constitute the central bank assets. On the liability side, the public holds central deposit and central lending certificates.

Unlike the traditional process of money creation, issuing money by the central bank is not a liability that is offset by holding debt instruments (government securities). In our case, money creation increases central bank deposits with member banks. Retiring money implies decreasing the central bank deposits with banks.

The central bank income statement would include income earned on its

central investment deposits, as well other investments coming from bank reserves, foreign reserves, etc.

VIII. MEMBER BANKS

Member banks place their resources in equity (direct investment), in profit-sharing accounts, leasing and commodity finance accounts. In addition to cash in vault and reserves with central bank, that makes the asset side.

BALANCE SHEET

ASSETS	LIABILITIES
Cash in Vault	Demand Deposits
Reserves with Central Bank	
Equity In Subsidiaries, And Other Enterprises	Central Deposits, Restricted And Unrestricted
	Unrestricted investment deposits
Accounts With Fund Users:	Restricted investment deposits
PLS Accounts	
Leasing Accounts	Mode-restricted deposits
Commodity finance Accounts	Project(s-specific deposits
	Sector-specific deposits
Assets owned by special funds and portfolios	Unrestricted Investment Deposit Certificates
Net Foreign Assets	Restricted Investment Deposit Certificates:
	Project(S) Specific Certificates
	Sector Specific Certificates
	Mode Specific Certificates
Lending Accounts	Fund Shares
	Central Lending Funds

On the Liability side, member banks take demand deposits, and investment deposits restricted as well as unrestricted. Investment deposits can be restricted to a specific project, a number of projects, or a specific sector. They can also be restricted to special modes of finance, like profit-sharing, leasing and commodity finance. All investment deposits would be attached to specific maturities. The length of maturities for unrestricted deposits should be rather flexible and could presumably be as short as a one week. However, banks should strictly observe maturity dates and never allow withdrawal before maturity, at least for maturities below one year. Longer maturity deposits can be withdrawn but with heavy penalty. Maturities of restricted investment deposits should depend upon the nature of the investment to which they are attached. Their withdrawal before maturity should be out of question[16].

Issuing certificates in a variety of maturities would suit a wide spectrum of tastes for savers. Their profits would be distributed on maturity and can be plowed back in the same deposits.

In addition, member banks could issue unrestricted and restricted investment certificates. Restricted certificates can be limited by project(s), sector, and finance modes. Deposit certificates provide a more liquid alternative to deposits themselves. They could be sold in a secondary market before maturity. Their market prices would depend on profit expectations related to the general investment pool of the bank in case of unrestricted certificates, and to the specific investment to which they are attached in case of restricted deposits[17].

FINANCIAL INSTRUMENTS

Savers in the model presented have three investment alternatives each of which is discussed in what follows:

I. SHARES

A. CORPORATE STOCKS

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16. Practicality does not allow for such degree of regidity. Contemporary Islamic banking practices expose the need to allow deposit withdrawal anytime, because such banks work side-by-side with conventional banks. Competition imposes similar rules of behavior towards deposits. Islamic banks allow deposit withdrawal anytime. However, the minimum maturity that qualifies a deposit to share in profit is usually one month. Withdrawals before one month disqualifies deposits from sharing in the profit of the investment pool.
17. Investment certificates can be restricted by modes of finance. They can be restricted to PLS and leasing modes. However, they cannot be restricted to commodity finance modes, for this would make them nontradable. Their trade would be tantamount to trading monetary assets or debt, which would run contrary to the prohibition of interest. they can alternatively be restricted to a combination of credit purchase and one or more of the other two modes, PLS and leasing.

A saver can buy stocks directly and becomes a stockholder. This affords him the direct participation, to the extent of his capital, in the management of the company. If his savings are substantial, he can divide them on holdings in different companies. A proper diversification scheme can be applied in this respect.

In an economy where private enterprise has a significant degree of freedom, stocks would be easy to trade and change hands between different shareholders. To the extent this is true stock prices should reflect a "market consensus" on the expectations of the future earnings of each respective enterprise. However, this does not necessarily take place when speculative (rather than investment) transactions dominate the market. Speculation tools range from trading on the margin, short sale, and trading in derivatives. Interestingly enough, such transactions are not allowed in Islam, as they are considered gambling (zero sum games). We can therefore rest assured that stock prices would be much closer to fundamentals in an Islamic economy that would be in a conventional one.

B. FUND SHARES

Banks and other financial institutions can form special funds with special objectives, regarding risk, return and liquidity. Such funds would hold a variety of stocks as well as investment deposits and certificates. Instead of holding few shares in enterprises, fund shares give individuals an opportunity to choose the combination of financial asset holdings that suit his preferences by just holding those shares.

II. SUKUK

A. MEMBER BANK SUKUK

After more than a quarter of a century of practicing Islamic finance, Islamic financial instruments came to be known as *Sukuk*[18]. We have instead used the term “certificate.” We will therefore keep the old name, followed by the use of the new terminology.

Member banks offer two categories of certificates or Sukuk.

1. Unrestricted investment certificate, UIC’s (Mudaraba Sukuk).

The proceeds of unrestricted investment certificates would enter the general pool of member bank investment. Its holder would be entitled to an average rate of profit on all operations done by the member bank. It is the closest thing to holding a stock in the bank itself, although it

18. Sukuk in Arabic is the plural of Suk, which literally means a title document. Notably, the word check is a corrupt version of the word Suk. Nowadays it donates a title to a common share in one or more assets, which are usually income earning. Sukuk bearers are entitled to a proportional share of the income resulting from the underlying assets.

does not carry a voting power. In addition to benefiting from the expertise, the UIC's provides a greater degree of diversification. This could mean lower risk for savers.

UIC's can be issued for terms to maturity. They could be as short as one week and as long as several years, depending on the range of bank operations. Restricted investment certificates, SIC[19].

2. Restricted Investment Certificates (Restricted Mudaraba Sukuk)

Investment certificates can be restricted by object of investment or finance modes. As to the object of investment, they can be restricted to investment in one or more projects, or a specific sector[20]. When restricted to certain finance modes, they can be PLS, leasing or a mixture of any two or more finance modes in proportions that suit the preferences of savers.

3. Central Deposit Certificates, CDC (Central Bank Sukuk)

AS Mentioned above, a CDC gives its holder a share in the central bank deposits, which are being invested with all member banks. This makes it the most diversified investment in the economy. In addition, since it involves two layers of financial intermediation, namely banks and the central bank combined, it should be the safest instrument available in the whole economy.

The central bank allocates its CD's among banks according to profitability, liquidity, and risk. By using those traditional investment criteria, the central bank would encourages both investment and banking efficiency in the economy, as relatively more efficiently operating member banks will obtain relatively greater shares of the CDC proceeds. This ultimately leads to high rates of economic activity for the whole economy, especially if the aggregate amount of CD's is significant.

Being relatively more familiar with banks than individual households, the central bank can make judgment that is more reliable on the performance of each. This further reduces the financial risk to the CDC holder.

Obviously, CDC's would have a wide secondary market, for they are readily tradable Moreover, since they are titles to CD's, they can be redeemed for their face value plus dividend through the central bank.

4. Central Lending Certificates, CLC's (Central Lending Sukuk)

As mentioned before, CLC's are titles to a fixed sum of money. Their

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19. Note that practical limitations on maturity allows for a minimum of one month. Liquidity comes from the fact that such instruments would be tradable.
20. Perceivably, project-restricted investment certificates would carry the name of the project, ultimately an enterprise in which the value of the certificate would be invested. They would be close to stocks held by a member bank as in investment-agent for a particular customer.

proceeds from their sale are used by the central bank to lend borrowers whose future income expectations warrant their solvency. Besides, the CLC's do not give any rate of return to their holder.

It may be doubted that people would want to hold "barren" assets, when a wide spectrum of financial assets are available. Altruistic reasons would explain that. In addition, the central bank could guarantee the instant encashment of CLC's[21]. This makes them both safe and liquid

Considering that a holder would have to pay AL-Zakah on CLC's (2.5%) it would appear that people will hold them for very short periods as good cash substitutes; that is considering the cost of demand deposits and of safe deposit boxes. Only philanthropic motives could make the amount of CLC's significant.

B. NON BANK SUKUK

1. ASSET OWNERSHIP Sukuk

Asset ownership Sukuk represent common shares in a portfolio of assets,. Sukuk holders are entitled to proportional shares in the proceeds of their sale or the sale of their usufruct.

2. Usufruct Sukuk

Usufruct Sukuk represent common shares in the usufruct of a portfolio of assets. Sukuk holders are entitled to proportional shares in the proceeds of selling such usufruct (subleasing the underlying assets)

3. Services Sukuk

Services Sukuk represent common shares in the services to be given by service providers that undertake to make them available to others in return for agreed fees, either directly or through firms, means equipment, e. g., medical, educational and transport services; financial and legal consultancies and engineering designs. Services Sukuk holders are entitled to a share in the price of reselling the services provided.

4. Mudaraba Sukuk

Mudaraba Sukuk represent common shares in Mudaraba capital (capital provided to some investors to be invested on the basis of profit sharing. Sukuk holders are entitled to proportional shares in both the principal and the profit.

5. Musharaka Sukuk

A partner in a joint venture issues Sukuk, representing common shares in his interest in the joint venture (JVI). Sukuk holders are entitled to

21. Islamic teachings would not allow the same for other certificates.

shares in the dividends due to the JVI, as determined by the agreements among the shareholders of the joint venture. They bear proportionately their shares in losses.

6. Ijarah Sukuk

Ijarah Sukuk represent common shares in the usufruct of assets acquired for resale (sublease). Ijarah Sukuk holders share proportionally the proceeds of selling the usufruct (the sublease).

7. Salam Sukuk

Starting with some merchandize purchased through Salam (price is paid upfront and merchandize delivery is deferred to a later date), the merchandize owner securitizes his/her merchandize through Salam Sukuk. Sukuk holders own proportional shares in the merchandize and are entitled to proportional shares in its price when sold.

8. Istisna' Sukuk

Starting with someone contracting with another party to manufacture one or more assets through an Istisna' contract (price would be paid, upfront, according to stages of production, during or after production), the assets purchaser securitizes the assets into Istisna' Sukuk. Sukuk holders own proportional shares in the asset to be manufactured. They are share proportionately the proceeds of selling such assets.

9. Murabaha and deferred-payment-sale Sukuk

Someone would contract to purchase some assets or merchandize on Murabaha from a second party. It means that sale would be made at cost plus markup, and merchandize/assets are delivered upfront and price is paid later in lump sum or installments. Alternatively, merchandize/assets are purchased at an agreed price without reference to cost with instant delivery and deferred payment. The merchandize/asset owner securitized them into Sukuk. Sukuk holders would own a common share in the merchandize/assets and are entitled to a proportional share in their sale proceeds.

III. DISTINGUISHING FEATURES OF ISLAMIC FINANCIAL INSTRUMENTS

1. All Islamic financial instruments represent titles to common shares in companies, assets or merchandize, but not to future cash. In other words they are equity-based financial instruments.

2. The only exception to the above rule is the central bank lending Sukuk. They represent a title to a specific sum of future money. However, they carry not rate of interest. We can therefore call them zero- interest-rate bonds. They are sellable only at par.

3. Since Sukuk are based on ownership of real goods, they would attract funds, depending on the merits of the economic uses of

such goods. Funds would therefore be allocated in a Sukuk market according to productivity or investment criteria.

4. In an Islamic financial market, there are no instruments that reflect risk trading, like options and other derivatives. As previously mentioned risk trading is considered as zero-sum games or gambling and is prohibited by Islam.

FINANCIAL MARKET EQUILIBRIUM

I. ALTERNATIVE USES OF MONEY IN AN ECONOMY WITH A MONETARY INTEREST RATE

In the conventional economic system within which we live, the alternative uses of money are centered not on the function of investment but on the function of lending. When money is directed to any alternative use, its opportunity cost is considered to be the rate of "return" on the safest and most liquid financial asset, *viz.*, government securities. Since those securities are interest bearings assets, their rate of interest is the opportunity cost of placing money in other uses [22]

It may be noted that "lending" as a process is distinct from “investing”. The former is based on solvency assessment, while the latter is based on production opportunity appraisal. Both can be influenced by future price expectations. Yet, a saving process, which is lending centered creates a mechanism of price expectations, which would be different from the corresponding process created by an investment-centered saving process. This is because the mechanics of money creation differ between the two cases.

In a lending-centered economy, economic agents tend to associate changes in the price level with monetary growth. This is so because the prevalent method of monetary expansion or contraction is influenced, in the first instance, by the desired level of government expenditures. This has consequences on the prices expectations. The central bank tries to moderate such consequences through the use of available tools. However, its ability to do so is by no means free from constraints.

When the government expands the money supply by using its prerogative to sell securities to the central bank, the latter can attempt to offset such a move by selling back some of those securities to the public. Yet, even with a fairly wide market, such an action will raise the monetary rate of interest. The cost of money would rise, and economic activities would be restrained in the private sector while expanded in the public sector.

The rate of interest, as the cost of borrowing would therefore become a

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22. It may be pointed out, at the risk of circularity, that to place money in government securities has as the opportunity cost the rate of return on the asset with the highest possible yield.

chariot of price expectations. The rate could rise by a magnitude that is sufficient to discourage any inflationary expectations. However, this magnitude can be reached only when the central bank is capable of completely offsetting the initial government monetary expansion.

Although total offsetting is hardly conceivable, it could lead to the contraction of the private sector and an expansion of the government sector. This leads government expansionary policy to frustration. People will compare the rate of monetary expansion with the rise in the rate of inflation. An excess of the former over the latter would justify expectations of further inflation, until both are equalized. We therefore can postulate that in lending centered economies price expectations compare the rate of monetary expansion with changes in the rate of inflation.

When there is no "monetary" rate of interest, the government carries its monetary expansion in a way similar to that outlined in Ch. II. In this case, the central bank would not allow any monetary expansion, which would not lead to a justifiable expansion of real balances. Moreover, all monetary expansion is invested in CD’s, which has ramifications on prices as well as on production.

Such a method of monetary creation in investment-centered economies forces economic agents to look into investment activities in general, and factors markets in particular, for a cue to price expectations. Therefore, we can safely claim that in investment-centered economies, price expectations are productivity oriented

We can also add that the familiar equalization of opportunity cost of money and the rate of return on investment, at the margin, is only illusionary. Savings are channeled through the banking system on the basis of interest rate expectations. Meanwhile, the production sector absorbs those savings on the basis of productivity expectations. When the saving process is lending-centered, interest rate expectations dominate productivity expectations, a case of a tail wagging its dog.

ALTERNATIVE USES OF MONEY IN AN INTEREST-FREE ECONOMY

In contrast to the previously outlined system, an interest-free economy gives a minute role to the process of lending. Money is issued and allocated to different uses on bases that are related to growth and productivity and far removed from the political pressures connected with public sector requirements. Lending plays an insignificant role in the interest-free economy. Considering safety, central lending certificates, CLC’s are quite safe. They are also liquid, due to their encashability, but so is money. Yet, to hold a barren asset, like CLC’s for a full period of a year, implies getting no yield

while having to pay Al-Zakah rate of 2.5% that is usually levied on monetary balances. This means that the net rate of return on those assets is negative. Such applies to money hoardings as well. In general, it applies to all monetary assets, i.e., claims to fixed sums of money. Therefore, lending or holding monetary assets in general is not the "next best” alternative to investment

In an interest-free economy, the investor considers placing his money into central deposit certificates, CDC’s as his next best alternative. Diversification exercised in the management of CD's gives the highest degree of safety and the lowest degree of risk for income-earning financial assets. In addition, CDC's with short-term maturities should be encashable with a notice that is shorter than other income-earning assets. This places them in liquidity next to CLC’s

Since central deposits are allocated to banks according to efficiency criteria, their rate of return approximates the average rate of return on investment for opportunities lying on the production frontier of the whole economy. It is therefore possible to say that this rate of return becomes in itself the opportunity cost of money and the benchmark for all uses of money. Noting that the proceeds of central deposit certificates are invested in productive uses, this makes the interest-free economy an investment-centered economy.

Investors consider the safest possible investment opportunity , rather than the safest possible lending opportunity, as their next best alternative. They do not consider the safest possible lending opportunity at all. In this way, money and investment markets are effectively interconnected, for money holdings are considered in comparison with investment opportunities directly and not through a scheme of financial intermediation based on lending.

THE DEMAND FOR MONEY IN A CONVENTIONAL ECONOMY

The study of the demand for money in a conventional economy starts with distinguishing between transactions, precautionary and speculative demand for money. Ultimately, all three kinds of demand are added together in one aggregate called the demand for money (Keynes, 1936). Whether treating this demand was done through the inventory approach (Baumol, 1952) or the portfolio approach (Tobin. 1958), all analysts agree that the quantity demanded for money is inversely related to the rate of interest.

One of the pillars of monetary analysis under the conventional monetary structure is what is called “inelastic expectations”. This means that agents believe in the existence of a natural rate of interest that reflects economic fundamentals. When the rate of interest rises above or declines below the natural rate, agents believe that it will return back to its original level.

When the rate of interest rises, bond prices decline. Since agents expect the rate of interest to decline in the future and consequently bond prices to rise, they find an opportunity to make profit. Speculators switch from cash balances to bonds. When the rate of interest rises, they switch from bonds to cash balances. Therefore, we find that the quantity of money demanded increases when the rate of interest declines and vise versa. This analysis represents the theoretical basis for the downward sloping liquidity preference curve.

We can therefore conclude that people in the conventional system hold money for speculative purposes either when they expect prices to decline or they expect the rate of interest to increase. Both reasons would be interrelated. Expectations of lower future prices or higher interest rates will both lead to a shift from real and financial assets into money, thereby causing a decrease in real asset and bond prices, which is equivalent to an increase in the rate of interest.

THE DEMAND FOR MONEY IN AN INTEREST-FREE ECONOMY

A. THE ROLE OF THE RATE OF RETURN ON CENTRAL DEPOSITS

We can now ask how the demand for money would like in the structure we have so far proposed for an interest-free economy. Such question could be answered through understanding the nature of the rate of return on short-term central deposit certificates, RCDC. We have previously stressed that holding those certificates represents the next best alternative to holding cash. We can therefore infer from this that the RCDC can perform the following functions:

1. A benchmark for investment. In this regard, we can consider the whole spectrum of maturities and use the RCDC on the CDC's of the comparable maturity to the investment in question.
2. A rate of discount for future income streems expected to accrue on financial and real assets.
3. A tool and an indicator for feasibility studies and business planning.
4. A market price for the allocation of resources.

We can therefore conclude that the demand for money must be directly related to the RCDC. When that rate rises, agents will find that they must economize on the use of monetary resources in transactions and switch some cash balances to investment. When it declines, agents will find that holding money has become less costly, thereby encouraging them to increase their money holdings. In other words, the demand for money would be such that the quantity demanded is inversely related to the RCDC.

IV. SPECULATIVE DEMAND FOR MONEY

It is true that in an interest-free economy RCDC replaces the rate of interest. Yet, speculative demand for money should not increase with expectations of higher rate of return on CDC's. Such expectations would automatically be translated by the market into higher prices of investment instruments.

The rate of CDC's is used to discount the stream of future earnings of other instruments into their present values. When it is expected to be higher, the expected returns of such instruments must be higher, since the latter is some kind of an average of the former. Moreover, and for the same reason, the rise in the expected returns of investment instruments will always be higher than the rise in the CDC rate. The final conclusion is that expectations of higher RCDC will not lead to a decline but a rise in the prices of investment instruments.

An expected decline in the CDC rate must be associated, because of reasons similar to above, with an expected decline in the prices of investment instruments. However, expectations of such decline in the rates of return on financial instruments will not lead to a rise in speculative demand for money unless the rates of return are expected to take a negative value that is less than the rate of zakah on monetary assets with a negative sign.

In an interest-free economy, prices should be stable, since monetary growth is tied to the rate of change in prices. Nevertheless, if prices were expected to decline, because e.g., some policy error, people would revert to money, if the decline exceeds 2.5 percent. They sell some of the investment instruments they hold and for cash.

While the economy can adjust itself back to equilibrium through changes in the prices of investment instruments, the effects of a rise in speculative demand for money can be easily reversed through monetary policy. This is more assured since all monetary growth is automatically translated in CD's, which flow through member banks to investors.

V. MARKET EQUILIBRIUM

From the above discussion, we can define the following functions.

$$S = S(\rho, Y) \tag{3}$$

$$I = I^h(\rho, Y) + I^g[Y, (\overset{*}{\pi} - \pi_g^e)] \tag{4}$$

Where (S) is savings, (ρ) the rate on CDC of shortest maturity, Y is real national income, and (I) is investment. Superscripts (*h)* and (g) refer to household and government, respectively. Equation (3) expresses savings as a function of the average rate of return on investment as well as on the level of real national income. Meanwhile,

equation (4) expresses private investment as a function of the average rate of return on investment. A part of public investment, namely investment in the exploitation of mineral resources, is included in private investment, as it is decided upon in light of its profitability.

The other type of public investment is done by the monetary authority through the issue of new money and adding it to central deposits with banks, i.e., through monetary expansion. Now we must ask about the basis upon which the decision of monetary expansion or contraction is made. Remembering from above, money creation in an interest-free economy is totally free from political pressures regarding the finance of the budget. It is bound by fulfilling the needs of the economy to money holdings for transactions purposes, while observing price stability. We can follow the accepted doctrine in this regard and assume that transactions demand will depend on the level of real income Y. In order to present a more general case, we can assume that the monetary authority targets a rate of inflation, whereby the rate of monetary expansion or contraction depends on the difference between the target $\overset{*}{\pi}$ and the expected rate of inflation, π_g^e or $(\overset{*}{\pi} - \pi_g^e)$. Notice that we used the subscript (g) to refer to price expectations by the central bank as a government agency. Such expectations would be based on systematic and conscious calculations. It would be different from price expectations by households, which would be made in a less formalized fashion.

This formula includes that case of absolute price stability when the target inflation rate is equal to zero. In this case, rate of monetary expansion will not increase unless keeping it at the current level would lead the economy to deflation.

We can therefore state that public investment (through the issue of money) would be subject to the following conditions:

$$I^g = 0 \quad if \quad (\overset{*}{\pi} = \pi_g^e) \tag{5a}$$

$$I^g \succ 0 \quad if \quad (\overset{*}{\pi} \succ \pi_g^e) \tag{5b}$$

$$I^g \prec 0 \quad if \quad (\overset{*}{\pi} \prec \pi_g^e) \tag{5c}$$

Equilibrium in the investment market would require:

$$S(\rho, Y) = I^h(\rho, Y) + I^g[Y, (\overset{*}{\pi} - \pi_g^e)] \tag{6}$$

A rise in ρ would increase savings on the one hand. It would increase investment on the other hand, as investment opportunities become more attractive. We can therefore conclude that the equilibrium frontier of the saving-investment market can be represented by a positively sloped curve that rises between income and the rate of return on CD's. This is similar to the IS relationship that is commonly

known in Keynesian economics.

Moving to the money market, we can notice that the supply function of money is the same as the function of public investment. In other words:

$$M^{s} = I^{g}[Y, (\overset{*}{\pi} - \pi^{e}_{g})] \tag{7}$$

The demand for money can be written to depend upon the rate of return on CD's, as the cost of holding money, the level of real income, as well as the expected rate of inflation. Price expectations here would be made form the vantage points of households and, as mentioned before, would differ from price expectations formulated by central bank.

$$M^{d} = M^{d}(\rho, Y, \pi^{e}_{h}) \tag{8}$$

Where M^d and M^S refer to the demand and supply of money. We can now write the equilibrium condition for the money market as follows:

$$M^{d}(\rho, Y, \pi^{e}_{h}) = I^{g}[Y, (\overset{*}{\pi} - \pi^{e}_{g})] \tag{9}$$

When ρ increases, the monetary authority gets a signal that the real sector is performing better than before and aggregate supply is rising. The expected rate of inflation goes down and the gap between target and expected inflation widens.

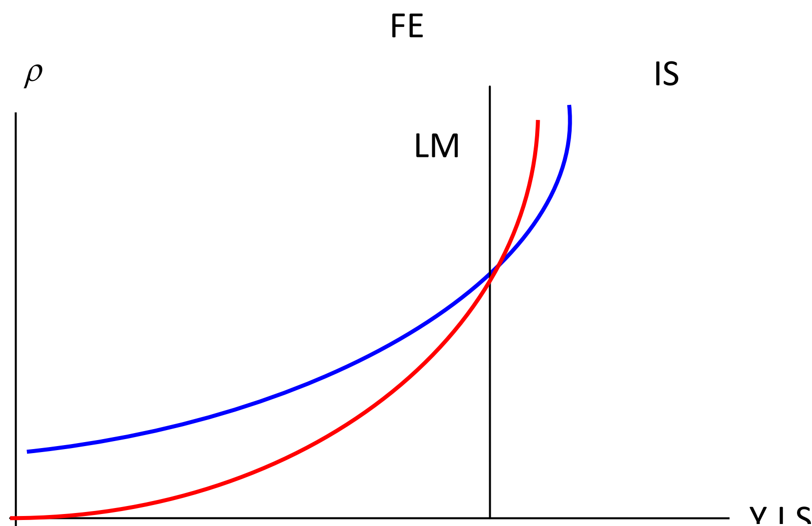

FIGURE (4): FULL EMPLOYMENT EQUILIBRIUM

The monetary authority finds it safe to increase the supply of money without violating its inflation target. The increase in base money translates itself into an increase in central deposits and ultimately in investment. Therefore, the equilibrium frontier of the money sector can be represented by a positive relationship between real income and

RCDC.

Such relationship would be parallel to the LM curve in Keynesian economics, but with a different slope, because all money issued is automatically plowed into the real sector from the start.

Figure (4) represents the full employment equilibrium for the whole economy, using the equilibrium frontier of the investment and saving market, IS and that of the money market LM, in addition to the full employment level of aggregate supply FE.

While both frontiers are positively sloped, the IS frontier is more elastic than the LM frontier. Along the former frontier, increases in RCDC leads to higher savings and investment then to higher income. As would be expected, income is more responsive to increases in investment below the level of full employment aggregate supply. Meanwhile, it becomes relatively inelastic beyond the level of full employment. The same applies to the LM curve but to a lesser extent. As higher RCDC's motivate the monetary authority to issue more money and increase central deposits, the expected inflation rate gets closer to the target inflation rate, inhibiting further increases in monetary expansion. The responsiveness of income along the LM curve is therefore constrained by both the rate of inflation and the full employment level of aggregate supply. That is why the LM should be less elastic everywhere than the IS curve. Interestingly, the elasticity of the IS relative to the LM frontier appears from Figure (3) to be an equilibrium condition.

MONETARY POLICY IN AN INTEREST-FREE ECONOMY

The monetary authority in the economy described above can change money supply through two means. The first is the addition of new cash to central deposits, or the destruction of cash by withdrawal from those deposits. The second is the sale and purchase of central deposit certificates through open market operations.

It is obvious that neither the required reserve ratio nor the discount rate exist in such an economy as policy tools. Yet, the smaller number of tools should not in our case, be taken as a disadvantage.

The expansion must always be justified by a possible contribution to real balances. Therefore, the matter is not left totally to the discretion of the monetary authority.

The central bank will have to monitor the real growth of the economy through the investment performance of its member banks. Growth as well as past performance of the general price level will provide the central bank with necessary information on whether a faster expansion of the money supply can contribute to real balances.

An interesting consequence of the above is that monetary policy could

be viewed as closely intertwined with development policy. Some would hasten to think that the government could encourage investment in certain regions or sectors, as may be needed through the central bank (Al-Jarhi, 1983). This runs contrary to what we have proposed above, that the central bank should allocate its newly created money among banks according to some efficiency yardstick. Using other criteria for allocation would introduce serious inefficiencies in the national economy. It is best that the monetary authorities' main concern should be that of stabilization rather than development.

It is clear from above that monetary expansion in an interest-free economy is effectively constrained by the rate of inflation. The reason is that the monetary authorities in this economy visualize themselves as creators of real and not nominal balances. It can therefore be said that stability is not just an objective to be sought by policy tools. Stability becomes also a mandatory precondition for the use of monetary policy tools.

The role of the Treasury reinforces the importance of stability. Since the monetary authorities leave no opportunity to create real balances forsaken, there is no need for government deficits financed by monetary expansion. Such inflationary impulse is neither necessary nor useful. Nonetheless, the government has sufficient flexibility to cover the expenditures of its economic activities, including public goods provision, through taxation and AI-Zakah. Income earning government activities can be financed through the market mechanism with no need to borrow or incur a deficit.

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