A Comparison of the Operational Aspects in Islamic and Non-Islamic Banking Systems

By:
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Abstract

The present paper is an attempt to:

1- Demonstrate how money is created (by the nature of the system), and to estimate the inflation resulting from monetary factors in both usurious and non-usurious systems. Operational aspects of Islamic and non-Islamic banking systems are compared.

2- Introduce a corrective term to be added to the multiplier of the supply of money, in order to prevent the under-estimation of the multiplier into the usurious system.

1- Introduction

Not only does the Holy Qur'an clearly claim usury to be an indecent practice, but also the noble verses of the Holy Qur'an and our Holy Prophet's traditions all reveal to us that the practice of usury is a great sin. One cannot argue the point that Allah's injunctions are to be accepted with no question. There is no doubt about the fact that usury brings misery and injustice to the society.

With this in mind, this paper attempts to elaborate on how the usurious banking system causes inflation, and in what manner the inflation, resulting from the creation of money remains concealed in it. In other words, this paper attempts to demonstrate that the inflation resulting from monetary factors is inherent in the usurious monetary system, and that inflation and usury are indispensable in this system.

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In this article we shall see that in the usurious systems, changes in the supply of money (due to the creation of money through the banking network) are greater than the changes occurring in the aggregate (overall) supply of the economy. In practice, the banking network is operating with money which is not proportionate and is surplus to the economic needs of the country.
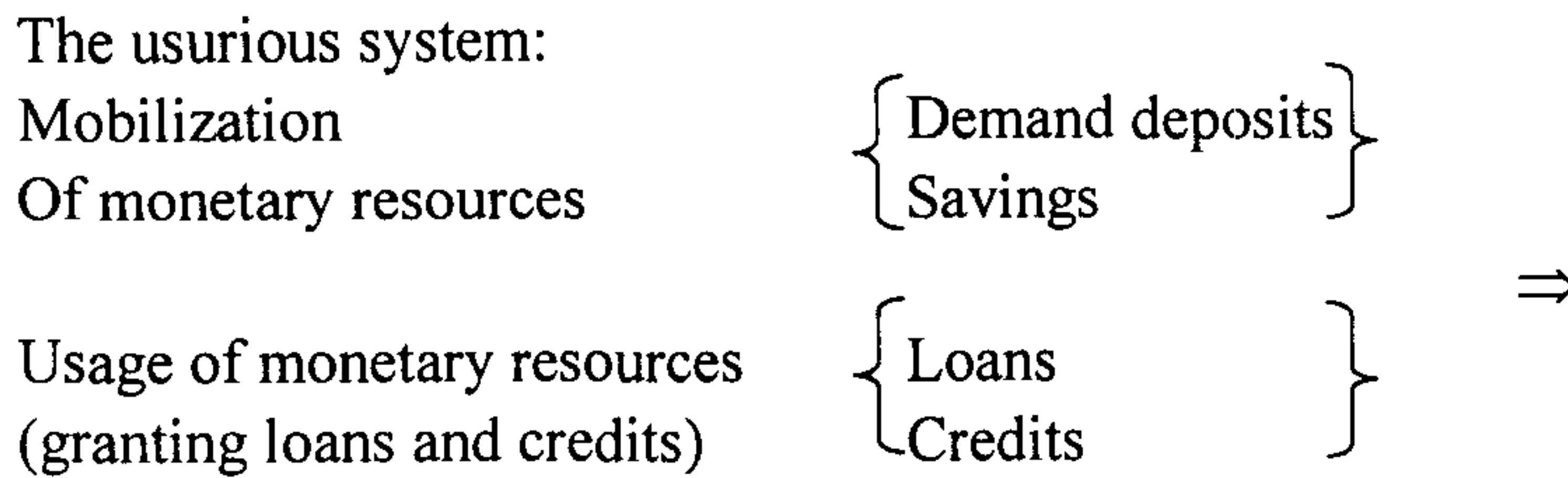
Whereas, in non-usurious monetary systems (Banking systems with no interest) the inflation resulting from the monetary factors sinks to its lowest levels on the grounds that the nature of banking operations and the money supply is different from those in the usurious system, and that the money supply and the changes occurring in the volume of money should necessarily be proportionate with the economic activities in the country. In case, the popular economic non-usurious system is rightly and rigidly operated, we can even expect the inflationary period to reduce to near zero (indeed non-monetary factors should be omitted).

To discuss the issues mentioned above, it is essential, in the beginning to elaborate on the manner of mobilization of monetary resources and banking facilities (granting loan and credit) of the usurious and non-usurious banking systems, and then close attention is paid to the problems concerning the creation of money and the manner it is initiated.

2- Mobilization of Monetary Resources and Granting of Loans and Credits and their Outcome

A few similarities are observed in the two systems, but in the manner of granting loans, they are completely different. The difference lies in the basis on which money is created in the two systems.

In the usurious system, the bank extends credit, or advances a loan through intercession of deposit owners, without having practically any share or role in the economic or business activity, whereas in a non-usurious system, the banking network on behalf of deposit owners, participates in economic and business activities by concluding contracts through Islamic banking operations. In short, the activities and the output constituting the core of the two systems are comprised of totally distinct features. The functioning of the two systems can be described in the following manner:

The usurious system:

Mobilization $\left\{ \begin{array}{l} \text{Demand deposits} \\ \text{Savings} \end{array} \right\}$
Of monetary resources

$\Rightarrow$

Usage of monetary resources $\left\{ \begin{array}{l} \text{Loans} \\ \text{Credits} \end{array} \right\}$
(granting loans and credits)

The bank, utilizing deposits from people, and not participating in any type of economic or business activity or rendering any kind of public service, extends loans and credits to applicants, and pays interest to deposit owners. In return for its intercession and brokerage, it collects a percentage from applicants, which is in fact, a greater amount than what it really pays to deposit owners.

3- Methods of Money Creation in the Usurious Banking Network

In order to study the methods of money creation, the following assumptions shall be discarded one by one upon analysis:

Required reserve ratio for demand deposit is determined- demonstrated by (γ_D)- and it is assumed that there is no time deposit (for simplicity).

No other reserve, such as excess reserve, is effective except the legal reserve.

All transactions are concluded through sight drafts (demand deposits, and by drawing cheeks), in other words no currency notes are involved.

Considering the above assumption, it is evident that the greater the bank or banking network is (enjoying greater amounts of free resources subject to deduction of legal reserve), the more it would be able to extend credits or loans to its customers, whereas people can make payments only with sight drafts (based upon our assumption). They should have a current account so they could work through drawing cheeks. Suppose AD_1 enters the banking network as on "1" monetary unit and deposits funds in a new account, the bank will be forced to deposit some part of it as a trust with the central bank as the legal reserve, and its amount would be γ_D% of one monetary unit. The balance ie $(1-\gamma_D)$% of one monetary unit should be extended by it as a credit or loan. Thus, taking the mentioned assumption into consideration, the total amount of credits or loans would be given, and the receiver of the loan in order to utilize it, would deposit the amount of the loan first in his current account. After the bank has utilized it, he could expend it.

Benefiting from mathematical operations, we can calculate the volume of money which is created as follows:

$AD_1 = 1$ Monetary unit of the first new demand deposit (preliminary deposit)

$$AD_2 = 1 - 1(\gamma_D) = 1 - (1 - \gamma_D) = d$$ Second deposit which

has been assumed as $1 - 1 - \gamma_D = d$

$$AD_3 = d - d.\gamma_D = \gamma_D(1 - \gamma_D) = d^2$$ $0 < d < 1$

$$AD_4 = \qquad\qquad = d^3$$

$$\vdots$$

$$AD_n = \qquad\qquad = d^{n-1}$$

Total deposits then are calculated through the following connections[1]:

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1 - Then the volume of demand deposits $= \Delta D = \overset{n}{\sum} \Delta D_i$

$\Delta D = \overset{n}{\sum} \Delta D_i = 100 + 80 + 64 + ... = 500$
and

the volume of loans $\Delta L = \overset{n}{\sum} \Delta L_i$

$\Delta D = \sum \Delta L_i = 80 + 64 + 51.2 + ... = 400$
and

sum of the legal reserve $= \Delta RD = \overset{n}{\sum} \Delta RD_i$

$\Delta D = \overset{n}{\sum} \Delta D_i = 20 + 16 + 12.8 + ... = 100$

The accounting operation evaluation can also be stipulated in the following forms, which are available and can be read in the various books on money and banking as follows:

Assets	Liabilities	A	L	A	L
$\Delta RD_1 = 20$ First Legal Reserve $\Delta L_1 = 80$ First loan or Credit	$\Delta D_1 = 100$ Preliminary Deposit	$\Delta RD_2 = 16$ $\Delta L_2 = 64$	$\Delta D_2 = 80$	$\Delta RD_3 = 12.8$ $\Delta L_3 = 51.2$	$\Delta D_3 = 64$

(At this point the volume of money is equal to the volume of demand deposits, because there is no bank note in circulation based on the assumption).

$$\Delta D = \Sigma \Delta D_i = 1 + d + d^2 + ...$$

$$\Delta D = \frac{1}{1-d} = \frac{1}{1-(1-\gamma_D)} = 1\frac{1}{\gamma_D}$$

we show $m_d = \frac{1}{\gamma_D}$ as multiplier $\Delta D = \Delta D_1 . m_d$

For example, if 100 monetary units enter the network (in the form of new deposits), by assuming that the required reserve ration is γ_D = 29\0% , the volume of money created is calculated as follows[1]:

$$\Delta D = \frac{100}{1-(1-.2)} = \frac{100}{.2} = 500$$

$$500 - 100 = 400$$

Total volume deposit = volume of money in circulation

Money which has been created

As noted here, the bank's money creation power changes under the influence of the required reserve ratio. Greater magnitude of the rate of legal reserve "γ_D" (required reserve ratio) suggests that the circle of depositing and lending must be paced down and the volume of money creation be deflated and vice- versa.

100 units

500 units out

The bank net work

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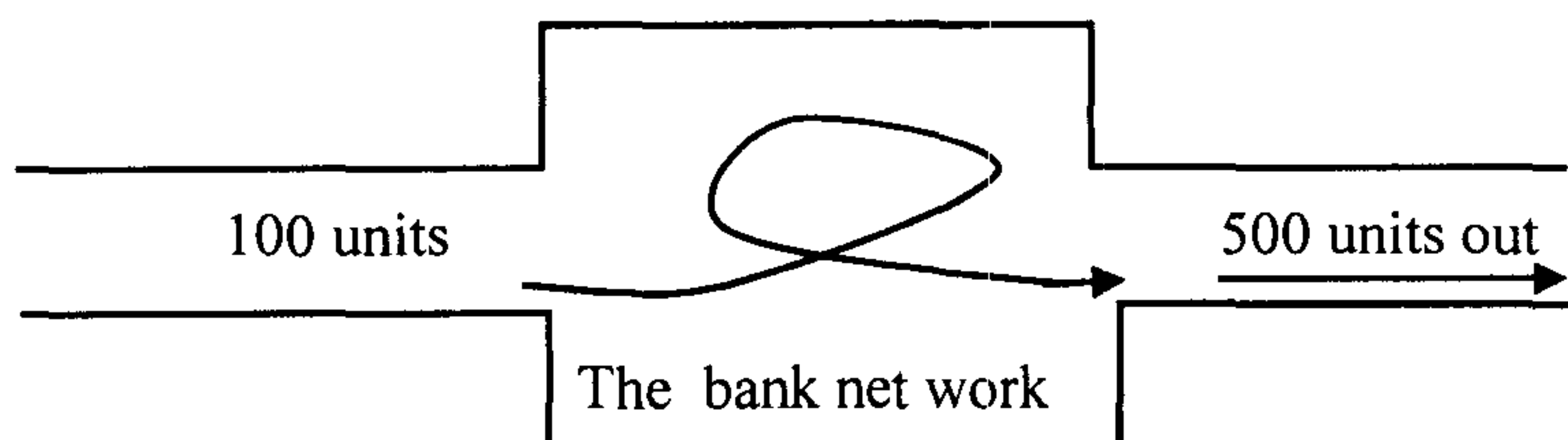
1 - The volume of credits will also be calculated:

The first granted loan = $\Delta L_1 = 1 - \gamma_D = d$

Second $= \Delta L_2 = d - \gamma_D = d(1 - \gamma_D) = d^2$

third $= \Delta L_3 = \qquad = d^3$

⋮ ⋮

Total volume of loans = $\Delta L = \sum_{i=1}^{n} \Delta L_i = (d + d^2 + d^3 + ...)$

$$\Delta L = \frac{d}{1-d} = \frac{1-\gamma_D}{\gamma_D}$$

It can be observed that the bank profit in the usurious system is derived not only through differences of the interest paid and received. But mainly, through the creation of money. With the volume of money growing more than the volume of productions or as a whole from the aggregate supply (It could always be noted that in the usurious banking system, changes in the volume of money in circulation are greater than the system, changes in the volume of money in circulation are greater than the changes occurring in the overall [aggregate] supply), the banking network apparently never sustains a total loss, and moreover, with the money losing its value (money illusion), for which the usurious system itself is responsible, and because of the growing need of people for more money, the banker can create more money (for the reason that in the usurious system the profits of the banking network are quite distinct from those of the public).

In the view of the followers of the usurious system, with the money losing its value or with the rise of inflation, incurrence of interest is inevitable and quite justified, as they consider inflation to be the real cause for receiving the interest, even if the inflation is caused by the monetary factors of the banking network itself.

4- In addition to legal reserve, banks might posses excess reserve

In this part the bank's power of money creation would be affected upon cancellation of the second assumption (banks hold the excess reserve) observe in the following equations that the amount of excess reserve is demonstrated by "ER", excess reserve ratio by γ_E then $\gamma_E = ER/D$, in which D stands for total demand deposits. Thus total volume of the created money can be calculated, and the multiplier of money supply would be[1]: $m_D = \dfrac{1}{\gamma_D + \gamma_E}$

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1 - If the preliminary deposit is shown be ΔD_1, then

$\Delta D_1 = 1$ first new deposit

$\Delta D_2 = [1-(\gamma_D + \gamma_E)] = \tau$

$\Delta D_3 = \tau_n - \tau(\gamma_D + \gamma_E)] = \tau[1-(\gamma_D + \gamma_E)] = \tau^2$

$\vdots$

$\Delta D_n = \quad\quad\quad\quad\quad\quad = \tau^{n-1}$

$$\Delta D_i = \sum_{i=}^{n} \Delta D_i = 1 + \tau + \tau^2 + \tau^3 + \ldots = \frac{1}{1-\tau} - \frac{1}{1-[1-(\gamma_D + \gamma_E)]}$$

$$\Delta D = \frac{1}{(\gamma_D + \gamma_E} \quad (1)$$

For example, assuming $\Delta D_1 = 100$ and $\gamma_D = 20\%$, the total demand deposit--- the volume of money in circulation (the assumption still being in force)--- would be 100/(0.20+0.20)=250. The volume of loans is also easily calculable amounting to $\Delta L = 150$ monetary unit.

Therefore, it can be argued that by excess reserve growth, the bankers' power of money creation is reduced and the circle and mechanism of deposit making and granting of loans slows down.

Meanwhile, banks try to grant loans to applicants to as great an extent as possible to be able to carry their excess reserve to the minimum, or in other words to be able to demonstrate the created money at its maximum. Apparently, whatever the upward level of money creation is, which is created without considering the volume of aggregate (overall) supply, the inflation and the inflation rate will increase by the same degree.

Thus it may be observed that by the excess reserve falling into lower levels, the volume of the money created by the banks and the banking network increases in the usurious system and vice versa. If the volume of the primary and the new deposit-making is 100 monetary unit, and the required reserve ratio and the excess reserve ratio are 20% each, the total volume of money which goes out of the network would be 250,
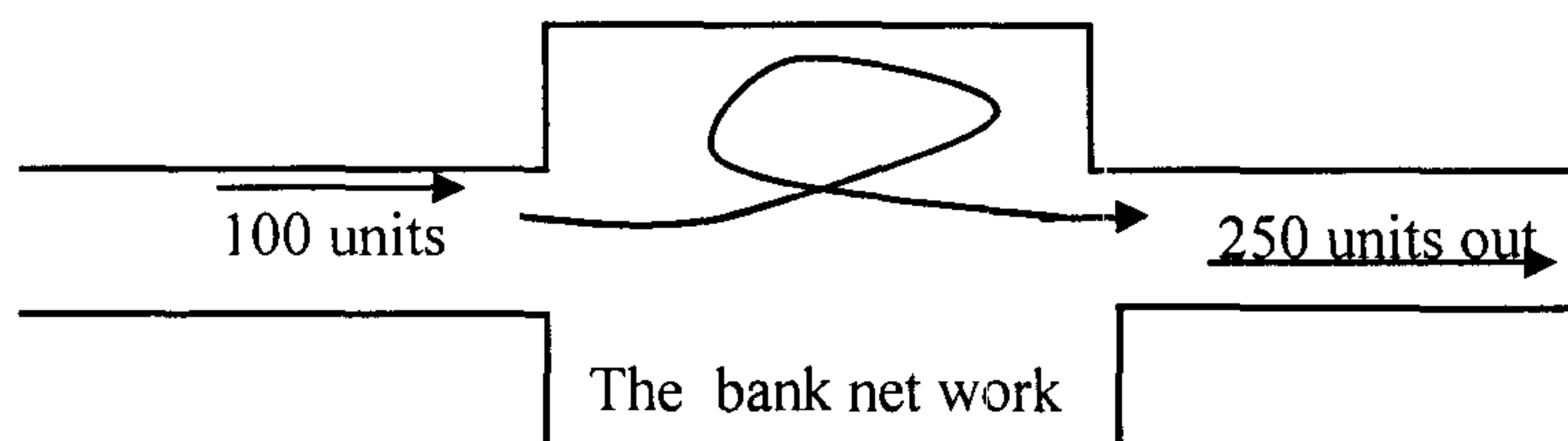
$$\Delta D = \Delta D_1 \cdot \frac{1}{\gamma_D + \gamma_E} = 100 \frac{1}{.2 + .2} = 2.5 = 250$$

5- Bank notes, bank drafts and cheeks should be jointly circulated

For the sake of simplifying our discussion, we again assume that excess reserve is not at work here, but, this assumption will be cancelled later, and the facts will be thoroughly discussed.

Now let us take a look at how bank notes, if put into circulation together with bank drafts and cheeks, influence the volume of money change, and in what manner money is created through the banking network. In this case if the bank grants a loan, or a credit, there would be no reason to place the entire loan or credit into circulation in the form of a new deposit of the bank. In other words, after the loan or credit is granted, considering people's great tendency to use currency, a percentage of the loan or credit is returned to the bank and kept in the current account. The remaining portion of the loan or credit is circulated in to the society in the form of cash.

Now, if people's tendency to cash (bank notes) transactions is demonstrated by "α" and the level of currency in circulation by "c" and the total demand deposits by "D", then we would have:

$$\alpha = \frac{C}{D}$$

By demonstrating the first new deposit in the banking network as $\Delta D_1 = 1$ monetary unit, $\gamma_D\%$ amount out of it would be assigned to the central bank as the legal reserve, and the balance would go to clients as a loan $(1-\gamma_D)\%$. But the loan and the granted credit in their entirety, like the previous cases, are not returned to the bank. Rather $\alpha\%$ is withdrawn from the banking network as currency (bank notes) to satisfy deals in cash, and the balance is returned to the banks as the second deposit. (It enters the circle of deposit making and loan-granting). Therefore if $\Delta D=1$ then: $\Delta D_2 = (1-\gamma_D)(1-\alpha)$ where $(1-\gamma_D)(1-\alpha)$ is considered as γ , and is the absolute value of the progression. Again, the value of γ, which is the second deposit, subject to deduction of legal reserve, would partially go as loan $(\lambda-\lambda.\gamma_D)$, and after granting of loan, $\alpha\%$ will go out of the banking network and $(1-\alpha)\%$ of the loan will return as new deposit to the network.

Demand Deposit	Reserve	Loan	Excess Resource
$\Delta D_1 = 1$	γ_D	$(1-\gamma_D)$	$(1-\gamma_D)(1-\alpha) = \lambda$
$\Delta D_2 = 1$	$\lambda . \gamma_D$	$(\lambda-\lambda . \gamma_D)$	$\lambda(1-\gamma_D)(1-\alpha) = \lambda^2$

Subsequently:

$$\Delta D_3 = (\lambda - \lambda\gamma_D)(1-\alpha) = \lambda(1-\gamma_D)(1-\alpha) = \lambda^2$$

$$\Delta D_4 = (\lambda^2 - \lambda^2\gamma_D)(1-\alpha) = \lambda^2(1-\gamma_D)(1-\alpha) = \lambda^3$$

and ΔD (total demand deposit in circulation) would be:

$$\Delta D = \sum_{i=1}^{n} \Delta D_i = 1 + \lambda + \lambda^2 + \lambda^3 + \ldots = \frac{1}{1-\lambda}$$
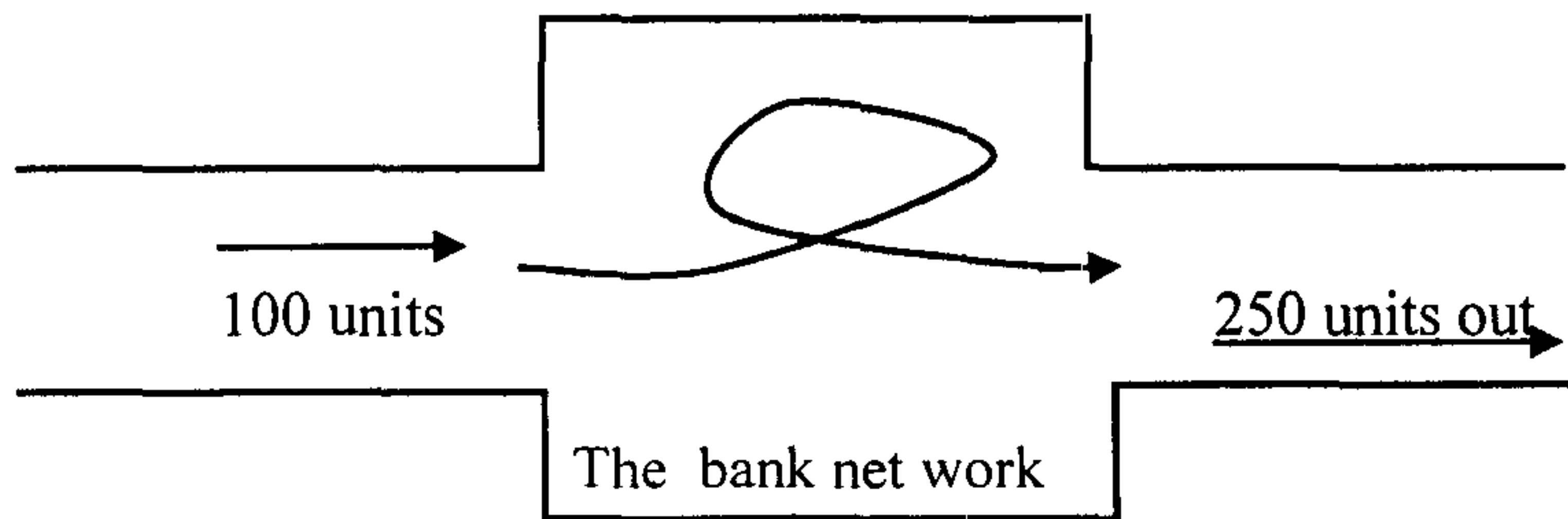
$$= \frac{1}{1-(1-\gamma_D)(1-\alpha)} = \frac{1}{\alpha + \gamma_D - \alpha\gamma_D} = m_d . \Delta D = m_d . \Delta D_1$$

which is the multiplier in the form of demand deposit (multiplier of money supply in the form of bank draft and cheeks).

The fraction's denominator "$\alpha \gamma_D$" enters with a minus mark, which we call here the corrective term[1].

In case the initial preliminary demand deposit equals 100, and $\gamma_D = 20\%$, $\alpha = 25\%$, the volume of bank drafts and cheeks, which is a collection of demand deposits, is calculated as follows[2]:

$$\Delta D = \Delta D_1 \frac{1}{\alpha + \gamma_D - (\alpha\gamma_D)} = \frac{100}{0.25 + 0.20 - (0.20)(0.25)} = \frac{100}{0.4} = 250$$

100 units   250 units out

The bank net work

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1 - Corrective term has been introduced here for the first time in the money and banking theories, so that by corrective term, the money supply multiplier could be calculated in a correct manner, especially in the developing countries, in which the tendency to cash transaction is so much higher than in the developed countries.

2 – The accounting operations can also be stipulated in the following manner :

A	L	A	L	A	L
$\Delta RD_1 = 20$ First legal Reserve $\Delta L_1 = 80$ First loan	$\Delta D_1 = 100$ Preliminary deposit	$\Delta RD_2 = 12$ $\Delta L_1 = 48$	$\Delta D_2 = 60$	$\Delta RD_3 = 7.2$ $\Delta L_3 = 28.8$	$\Delta D_3 = 36$
20 Currency (Cash)	60 Bank draft (Cheeks)	20 Cash	60 Cheeks	20 Cash (Currency)	21.6 Cheeks

As noted here, the use of bank notes and their coming into circulation reduces the banks' power of money creation. As mentioned before in the first state, with no bank notes in circulation (without taking into consideration, the excess reserves), the volume of money supply which is equal to the bank drafts and cheeks (demand deposits) increases by 500 units.

The reason is that the more people use bank notes in their transactions, compared to bank drafts and cheeks, the banks' power of money creation decreases because the perpetual of deposit-making and loan granting turns round in the countries where the usury-based system prevails, and changes in the volume of money and its magnitude tide are not, perforce, in co-ordination and harmony with the volume of production and the aggregate supply. It can be argued that the more people use bank drafts, cheeks, and the more banks grant loans and credits, the money creation is of a greater scale.

It is for this reason that in advanced industrialized countries, a great deal of advertising is utilized to attract people toward using cheeks on a large scale, so that more than 90% of transactions are carried out through current accounts in those countries.

Indeed here the total volume of money in circulation is equal to the volume of the bank notes in circulation plus total demand deposit $(M=C+D)$ and since ΔD has been computed before as:

$$\Delta M = \Delta C + \Delta D.\alpha \frac{\Delta C}{\Delta D} \rightarrow \Delta C = \alpha(\Delta D)$$

if "1" unit enters in the beginnings as preliminary deposit the result as follows:

$$\Delta M = \Delta D + \alpha \Delta D = \Delta D(1 + \alpha)$$

$$\Delta M = \frac{1 + \alpha}{\alpha + \gamma_D - \alpha \gamma_D}.\Delta D_1 \quad \text{here} \quad \Delta D_1 = 1$$

Which is demonstrated here by "m" and is the multiplier of the supply of money[1]

$$M = \frac{1 + \alpha}{\alpha + \gamma_D - \alpha \gamma_D}$$

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1 - If the bank drafts and the bank notes should be jointly in circulation and should also be considered as excess reserves, the money multiplier could be computed in the same manner and will be as follows:

$$\Delta M = \frac{1 + \alpha}{\alpha + \gamma_D - \alpha \gamma_D}.\Delta D_1 \quad \text{here} \quad \Delta D_1 = 1$$

whereas $\alpha (\gamma_D + \gamma_E)$ is our corrective term and $m_D = \dfrac{1}{\alpha + \gamma_D + \gamma_E - \alpha(\gamma_D + \gamma_E)}$ is money multiplier in the form of bank notes (deposit money)

With the creation of inflation, initiated by the usurious system and concealed therein, not only are the bank's profits not reduced, but with the fall in the value of money, the bank will be able to create money on a greater level, because during an inflation period, the need for money grows (though the marginal utility of money diminishes).

It can be seen that in a usurious system, inflation and money creation are inseparable and essential parts of a circle, and interest is inherent because of the nature of the system.

It was observed throughout the paper that the circle and mechanism of deposit making and loan granting bring about power of money creation to bankers in the usurious system. And how, often in creating money in the manner that we observed has been a great charlatanism throughout. In the past the alchemists used to try to transmute copper into gold. Nowadays the alchemists of the usury base baking system easily transmute paper into gold. Their justification is to receive interest on loans for the reason that money has lost its value. In fact, they themselves are responsible for making the money valueless.
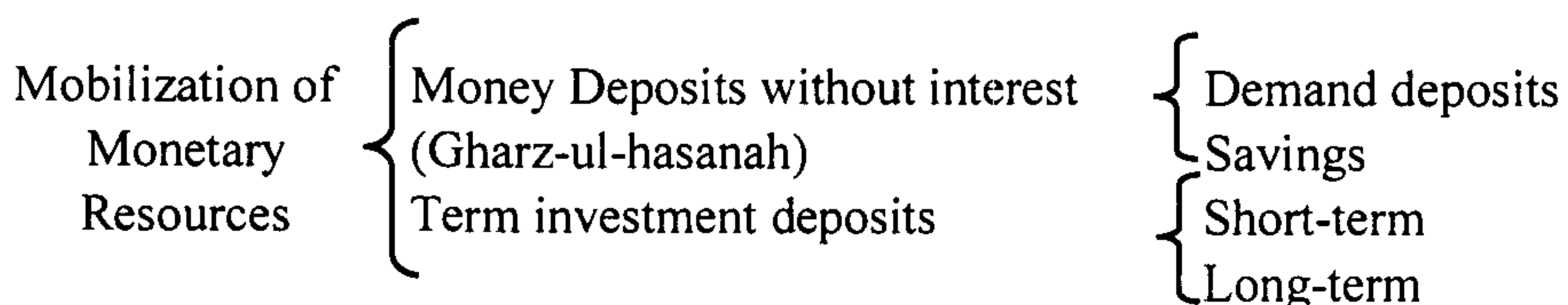
Thus, in a usury-based system, the money no longer preserves the nature and the duty that it is supposed to, as "a means of storing values".

6- Mobilization and usage of money in the Islamic Banking System, and their outcome

Whereas in a non-usury banking system, because of the different manner of granting loans and credits and the different nature of the banking operations, and because the money supply and the changes occurring in the volume of money should necessarily be proportionate to and coordinated with the economic activities in the country, the inflation resulting from the monetary factors, sinks to its lowest levels.

First we have to study the mobilization of money and pay more attention to the nature of usage of monetary resources in an Islamic banking system.

Mobilization is as follows: (Islamic Banking)

Mobilization of Monetary Resources
- Money Deposits without interest (Gharz-ul-hasanah)
  - Demand deposits
  - Savings
- Term investment deposits
  - Short-term
  - Long-term

Usage of resources is as follows:

Usage of Monetary Resources
{
1) Money loaned with no interest (Gharz-ul-hasanah)
2) Direct capital investment
3) Joint-venture activities (partnerships)
4) Mozarabah (limited partnerships)
5) Joalah (entering into contracts)
6) Hire purchase (Leasing out property in possession)
7) Installment transaction (installment sale)
8) Mozara-ah
9) Mosapat
10) Salaf (Forward Purchasing)

It is observed that, despite some similarities (not quite conforming) in the mobilization of monetary resources, there are noticeable differences in the two systems, particularly in the manner of granting loans and credits.

In the usurious systems, the main objective in banking is to recollect the principal and the accrued interest, so as to create as much money as possible. The bankers do not care how the money is going to be spent. Although it is possible that the bank officials, when granting a loan, question the applicant, or occasionally even perform some inquiries on the merits of the applicant before the loan is finally approved and for receiving the loan paid, it is only done to minimize the risk. In fact, the money loaned could possibly be used for any purpose in the usurious system without necessarily being expended in a productive project or economic utility. The banks or banking network are merely a go-between for obtaining money.

In the case of the non-usurious system, an amount of money is required to be sent out of the banking network, an economic activity, different types of which have been mentioned above (Islamic banking operation, such as joint venture activities, hire purchasing,...) is embarked upon, and the banker enters in to a partnership or participates in that economic or business venture on behalf of the deposit owners.

The following is a probe into the mechanism of money creation and the results obtained the usurious system.

In the Islamic banking system, if the use of bank notes falls by degrees among people, there will be no increase in money creation and inflation compared with the extent to which that occurs in the usurious system. It is

possible that the amount of bank drafts and cheeks increase in society, but the amount of money, which goes out of the banking network in the non-usury based system is proportionate with the aggregate supply. That is to say, the desired method to employ the bank's monetary resources in non-usurious system is, inevitably, one of the Islamic banking operations such as entering into partnership contracts, installment transactions, joint venture activities. etc [1].

Thus, the bank practically shares in or enters into the partnership on behalf of the deposit owners. Here the bank does not derive any profit from taking interest on the money made over to it, but it receives its share of the profit made by the above mentioned type of economic activities. Consequently, the volume of the money that has been taken out of the banking network, will be proportionate with the society's productive activities and gross national product. But in a usury based system, as observed, there is no correlation between the volume of money and the gross national product in this respect.

It could be argued that with changes of volume of money being disproportionate to GNP, inflation occurs, whereas in a non usury-based system, inflation resulting from the monetary factors would fall to its lowest levels, even to zero.

7- Conclusion

It is observed that in the two systems of usury based and non-usurious banking because the nature of operations and the systems are unlike each other, the creation of money is accomplished in two diversified ways. Since in the usury- based system the expending of the monetary resources is perforce, not accompanied by an economic activity, and the changes occurring in the supply of money are usually greater than the changes in the aggregate supply, the inflation resulting from the monetary factors is always concealed in the system.

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1 - Article 7 of the Law for Usury Free Banking of I.R.Iran states that "In order to bring to bring a bout the necessary conditions to expand the activities of various productive, commercial, and services sectors, the banks may on the basis of partnership provide a portion of capital and/or resources required by the sectors.
The central bank determines the minimum and maximum ratio in joint venture, mozarabah, investment, hire purchase, installment transactions, buying or selling on credit forward deal, Masqat, jailed, and gharz-ul-hazanah for banks with respect to various fields of activity. It is also responsible to fix the maximum facility that can be granted to each customer.

With the creation of inflation, which is spawned by the usurious system and is concealed therein, not only are the bank's profits not reduced, will not be reduced, but with the emergence of inflation and the fall in the value of money, the banks would succeed in creating money on a greater level, for the reason that during an inflation period, the need for money grows (though the marginal utility of money diminishes).

It can be seen that in a usurious system, on account of the nature of this system, inflation is essential to money creation, and interest and inflation feed each other and augment themselves.

We observe that the vicious circle and mechanism of deposit making and granting of loans will give the power of creation of money to the bankers in the usurious system. How often, in creation of money in the manner that we have observed has there been a great charlatanism throughout? In the past, the alchemists used to try to transmute copper into gold. Today the alchemists of the usury based baking system easily transmute paper into gold. Then, they justify receiving interest on loans for the reason that the money has lost its value. In fact, they themselves are responsible for making the money valueless.

Thus, in the usury- based system, the money no more has the nature and the duty that was expected of it, as "means of store of values".

Whereas, in the non usury banking system, as the nature of granting of loans and credits, and the nature of banking operations and the money supply differ from those in the usurious system, and the money supply and the changes occurring in the volume of money should necessarily be proportionate to and coordinated with the economic activities in the county (contrary to the usurious system, the bank's profits are not separate from those of the people). Therefore, the inflation resulting from the monetary factors in this system sinks to its lowest level or even sinks to near zero, (if non monetary factors are omitfed).

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