

Are the Asymmetric Risks Upstream in Islamic Banks an Obstacle to the Principle of Money as a Relay to Capital?

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Abstract

Banks in developing countries are too much liquidity, result of the poor sectoral allocation of resources, caused by their inefficiency in the production of information and in the management of risk. The economies of developing countries are, also, in a context of financial repression where the rates are capped at low levels paying evil savings and do not favor the formation of capital. The great importance of liquidity at the strict sense M1 in the monetary mass (80% according to Goldsmith, 1969) in the economies of developing countries and the lack of substitutability between physical capital and financial capital established by McKinnon (1973) brings him to advocate for these economies the principle of money as a relay to capital.

The alternative posed by Islamic banks, effective in the production of information (Alim B., 2011) and in the risk management (Khan M., 1986; Alim B., 2011) favorable to a better sectoral policy, faced to a peculiar asymmetric risk upstream of the financing operation. The purpose of the study is to show that this risk, mainly financial, has such effect to reduce or even eliminate the utility of depositors and may constitute a barrier to the principle of money as a relay to capital. If Islamic banking is recommendable because adapted to the financing of emerging economies, it should be defined for this system the management mechanisms of this type of risk with evident impact.

Keywords: financial repression, Islamic banks, risk upstream, savers, principle of money as a relay to capital

1. Introduction

1.1 Context and Problematique

The economic literature as regards interest has aligned itself mainly on work done by Wicksell N. (1927) distinguishing the nominal and real interest rates responsible for inflation and the expansion of the real sector. Using this same approach, Malinvaud (1984), later, regards the interest rate as a determinant of savings and thus a constraint for investment and profits, a determinant and a reason for investment.

If the economic literature establishes the absolute superiority of the profit mechanism over the mechanism based on interest rates in the financing of the real activity, it is not the case as concerns the relative superiority of the banking systems based on profits and the interest rate.

We find ourselves far from the Arrow- Debreu (1954) resolutions according to which financial intermediation generates externalities which break the first order equilibrium and like Fama (1985) and Diamond & Dybvig (1983) according to who the bank is more efficient than the market in the management of asymmetries since it produces selective and confidential information which allow an increase the scale of loans and this shifts the border of the production possibilities.

We reject the approach of the banking firm which analyzes the bank according to the Structure-Behavior - Performance model of Cowling & Waterson (1976) by conforming with the approach of the financial intermediary where Ross L (1990) identifies the essential financial functions of a bank as consisting of the mobilization of savings, the allocation of resources, the production of information and risk management.

In the same way, we agree with Gurley & Shaw (1954) for who the role of a financial intermediary is to manage the liquid savings by transforming it (principle of financial transformation by the expiry date) particularly in the developing countries characterized according to Shaw (1973) and McKinnon (1973) by financial repression. For

these authors, there does not exist in the developing countries the possibilities of substitution between physical capital and financial capital and only savings can raise investment; this is the principle of money as a relay to capital of McKinnon or principle of complementarity between money and capital. This principle is further founded on the studies of Goldsmith (1969) who notes a high rate of liquidity in the economies of the developing countries (80% of the monetary mass is consisted of strict liquidity or M_1 in developing countries against 5 to 20% for the Developed Countries).

Accepting the results of Enzler, Conrad & Johnson (1988) according to which the interest rate instrument is to blame for the poor sectoral allowance of resources and does not constitute a determinant of savings;

Considering Khan M. (1986) for whom, in addition to a very particular form of moral risk, the Islamic banks perform better than the traditional banks in the asymmetrical risk management;

Also considering Anouar H. (2008) who introduces the concept of "translated financial risks" which is close to the risk of illiquidity of the bank with considerable impacts on savings;

Considering Alim B. (2011) who highlights asymmetrical risks upstream of the financing operations specific to Islamic banks and having an unquestionable impact on their stability.

We can therefore pose the question of knowing if these asymmetric risks upstream do not constitute an obstacle to the principle of money relay to capital.

1.2 Originality, Goal and Objectives

This topic is approached with an aim of carrying out a study of viability of the Islamic banking structure, an alternative to the traditional system. However for Diamond (1984), three conditions must be checked for the viability of a financial intermediary: the deposits must be non-risky, the non-riskiness of loans net of the cost of monitoring, investments should have an output higher than that obtained by the recourse to direct financing. The description of the asymmetrical risk upstream constitutes the principal originality of this work which also aims to show that the risk upstream is a key element of the stability of the Islamic banks and could constitute an obstacle with the principle of money as a relay to capital.

1.3 Methodology

On the methodological level, we adopt the model of Alim B (2011) of the credit market and in particular the assumptions on the construction of the utility function of the depositors of Islamic banks.

From an evaluation of the expected profits of agents and in particular those of the savers, we will highlight the effects of asymmetrical risk upstream on saving and, thus, the effects of the variations of incomes of savers on the utility of those that hold bonds of Islamic banks. We admit that a disutility of the savers in bonds of Islamic banks starts up a rush to its counters automatically. The rush to the counters inevitably leads to the bankruptcy of the bank concerned and, by the Dwyer & Gilbert (1988) effect, the crisis of the banking system, asymmetrical risk upstream will obviously constitute an important obstacle to the principle of money as a relay to capital.

2. The Double Asymmetry of Information in Islamic Banks

The notion of double asymmetry of information arises from the fact that upstream asymmetry between the saver and the bank, can be combined with asymmetry downstream, between borrower and the bank.

2.1 Basis of the Asymmetrical Risk Upstream of Islamic Banks

Islamic finance is based on PLS principle (Note 1) and the primarily risky nature of capital. The ex post determination of the remuneration on savings and the non-access to information on the management of bank deposits by savers of Islamic banks can be at the origin of a particular type of upstream asymmetry between the bank and the saver.

The existence of a particular type of risk of illiquidity in Islamic banks referred to as "translated commercial risk" by Anouar H. (2008) added to the results of Khan T & Ahmed H. (2002) show that 64,2% of Islamic banks hold that the depositors hold the bank responsible for the weak rate of remuneration of the deposits also constitutes a basis for the existence of upstream risk. This constitutes a basis of the asymmetrical risk upstream insofar as this responsibility of the bank can raise:

- inefficiency in the production of information,
- poor sectoral allocation of resources,
- high costs of bank intermediation,
- poor evaluation of the risks, etc.

This responsibility can also concern the discretionary management of information on the deposits on behalf of the Islamic bank with respect to the depositors. Considering this last aspect in particular, this weak rate of remuneration would result from the opportunist actions of the bank in view of transferring to itself the wellbeing of the savers. There are thus two types of equilibrium, the first when the bank publishes the effective results on the lending operations and the second when the bank publishes a result which is opportunist for it. The second case of equilibrium refers to the case of total equilibrium of the Islamic credit market with upstream asymmetry of information between the intermediate organization and the household saving. The bank thus decides, as an agent that holds information and maximizing its satisfaction, to transfer information or to shape it from an opportunist point of view.

2.2 Unveiling of the Upstream Risk (Note 2)

Let us consider the model of Alim B (2011). Given the Mudharaba financing technique based on arrangements of sharing of profits or losses where a , $0 < a < 1$ et e , $0 < e < 1$ are the shares of the returns respectively remunerating the investor and the saver.

Asymmetry upstream, concerned with the discretion of the financial organization, can exist without there being as a preliminary asymmetry downstream. The bank thus improves its wealth to the detriment of the saver. In fact, when the bank declares R^* whereas the effective result is r , it records a positive profit, resulting from the variation of its level of income. Not only, will it pocket the profit on the rate that it declares $(1-e)(1-a)R^*z$, but also it will keep the supplement $(1-a)(r-R^*)z$ because of its position upstream compared to the saver. Its total profit is thus $(1-a)[(1-e)R^* + (r-R^*)]z$ while the depositor gains $(1-a)R^*z$ and the investor arz . The remuneration of savings, when compared with the situation without asymmetry upstream, witnesses a fall of $e(1-a)(r-R^*)z$, amount representing the value of the wellbeing transferred from the depositor to the bank.

In certain cases, asymmetry upstream can arise from the preliminary existence asymmetry downstream. It is then assimilated with a transfer of surplus, initially, between the investor and the bank, then, between the bank and the saver. The investor then declares $g(r)$ instead of r and the bank, in its turn, informs the depositor the rate is R^{**} instead of $g(r)$ such as declared by the contractor. The investor withdraws with an additional amount of $(1-a)[r-g(r)]z$ representing the value of the wellbeing from the bank which it claims.

Let us suppose that the bank declares a yield R^{**} to the depositor instead of $g(r)$. It will thus obtain an additional profit represented by the amount $e(1-a)(g(r)-R^{**})z$. This profit represents the additional share of the transfer of the wellbeing of the saver, this time, towards the intermediate financial organization. This additional profit of the bank is likely to cover the effects of asymmetry supported downstream by the bank or, quite simply, it constitutes a purely opportunist option of the bank aiming at improving its wellbeing.

When $e(1-a)(g(r)-R^{**})z = e(1-a)(r-g(r))z$ then the bank carries out just a transfer of the negative effect of asymmetry downstream towards the depositor. It thus preserves the same level of remuneration that it had in a situation of perfect symmetry of information downstream. The bank can also transfer more than the effective amount of asymmetry downstream; it is the case when $(1-a)(g(r)-R^{**})$ is greater than $e(1-a)[r-g(r)]$. It does not transfer only the effect of asymmetry downstream, but also joined for this purpose its own opportunism characterized by its desire to improve its level of wellbeing to the detriment of the depositor.

The saver, despite being located at the base of the constitution of the banking system, is very vulnerable in the Islamic model of finance since he is without any guarantee of returns and primarily taker of information. He thus records total losses represented by the amount $-e(1-a)(r-R^{**})z$ because of the double asymmetry of Islamic intermediation. In fact his profit represented the sum of his savings and of his share of the returns of the loan equals $e(1-a)R^{**}z$, with losses of $e(1-a)[r-g(r)]z$ because of asymmetry downstream and $(1-a)(g(r)-R^{**})z$ because of asymmetry upstream.

This vulnerability of the saver can be reduced when the bank foresees a significant gap between effective returns and declared returns of the investment and engages itself to control the activity of the investor. It will thus compare its additional profit $e(1-a)[r-g(r)]$ per unit of funded capital with the unit cost of monitoring. If this unit cost is b , the bank carries out monitoring when $(1-a)[r-g(r)] > b$. In this case, the bank reduces the wellbeing of the borrower bringing it back to its level in the situation of perfect symmetry of information. The borrower loses the amount $(1-a)[r-g(r)]z$, an excess which it claimed because of exclusive detention of information. He thus hands back this wealth of the other agents intervening in the credit market. However the other agents, the bank and the savers, will bear the cost bz representing the total cost of monitoring. This amount is deadweight for the whole of the community. The net additional profit of these agents is thus $[(1-a)r-b]z$.

The bank having engaged on an upstream distortion withdraws with an amount given by

$[(1-e)(1-a)R^{**} + (1-a)(r-R^{**})-b]z$ representing the share of returns which it holds because of the declaration of R^* to the savers as returns of the investment project financed and equal to $[(1-e)(1-a)R^{**}]z$ and the extra return because of monitoring $[(1-e)(r-R^{**})-b]z$.

The household does not record an improvement of its income because of monitoring. It would have recorded it if the bank had, in consequence of the additional profit generated by this monitoring, modified the returns declared to it R^* .

The three cases presented above show the constant vulnerability of the saver in the Islamic banking system. The saver, whatever the action undertaken by the bank to improve the returns of the invested funds, remains very vulnerable since he is without a guarantee of return and primarily a taker of information.

3. Double Asymmetry and the Principle of Money as a Relay to Capital

3.1 Upstream Risks: A Key Element of the Stability of the Islamic Banks?

The affiliation with the financial policy of real activity by households is at the base of any banking and financial system. If there is no prior saving, there is no bank credit and the bank represents, according to Boyd & Prescott (1986), a coalition of economic agents proposing contracts of deposit and buying a great number of bonds.

The savings of the Islamic bank is a risky capital and the incidence of a loss supported by a Mudharaba deposit, for example, is limited to the amount of this deposit. This means that all Mudharaba saving is not guaranteed and is entirely at risk. The transmission in the state, at best, or the amplification of the negative effects of financing to the savers gives to the Islamic banks the attribute of a permeable system showcasing the great porosity of this system.

An illustration can be carried out to show, through the mechanism of refraction of light (Note 3), the incidence on the savers of the effects of the Islamic bank intermediation. The traditional banking system can be compared to a zone of constant incidence for the bank as well the saver. The constant nature of the credit and deposit interest rates in this intermediation seems to suppose an incidence that can be fixed at a level compatible with social utility. Whatever the profits which the investor will make, the bank is sure in advance to obtain the nominal amount of the loan and a fixed interest. In the same way, the saver in the long term expects the amount of his savings augmented by the fixed interest. Here, the problem is to be on the level of the optimal rate compatible with the wellbeing of the savers and the bank but also favorable to the development of the productive sector.

Contrary to the traditional system, nothing is guaranteed in Islamic intermediation. The bank expects a random result that it will transmit to the household. Thus, to any financing given corresponds a lending as well as a savings rate.

The incidence of Islamic intermediation takes into account two groups of arguments: (Note 4) financial arguments which are the financial returns of the investment and their variability and the subjective arguments which are ethical, moral and Islamic principles. Also, far from being primarily transmitting, i.e. to restore to the savers only the negative effects of the financing from the investment project, Islamic intermediation can amplify these negative effects. Nevertheless, in the same way that there is a limiting deviation of the incidence in the case of the refraction of light, the financial effects are also tolerable until a certain threshold. Any deviation higher than this maximum deviation will have unforeseeable effects on the stability of the Islamic banking system. Indeed, such as in the case of total reflexion of light where the refracted ray cannot penetrate in the second medium, the households will express an attitude which will not be favorable to the stability of the banking structure. This attitude will be characterized by a race to the counters which can contaminate all the banking system through the Dwyer & Gilbert (Note 5) effect. The race to the counters indeed constitutes one of the principal consequences of the risks specific to the banking system.

3.2 Vulnerability of the Savers and the Principle of Money as a Relay to Capital: An Approach by the Utility Function of Savers of Islamic Banks

Upstream asymmetry admits very considerable effects in the Islamic banking intermediation. These effects are primarily financial and can contribute to a reduction of the wellbeing of savers. Furthermore, they can be combined with those generated by asymmetry downstream.

In a Mudharaba contract at the rate a between the bank and the investor and at the rate e between the bank and the depositor, the net profits of the bank and the depositor are respectively $P^m = (1-e)P^v = (1-e)(1-a)r$ and $S^v = eP^v = e(1-a)r$.

In the event of the presence of asymmetry of information downstream and/or upstream, the saver of the Islamic

bank is the most vulnerable agent among the participants of the system of financing because he has no possibility of access to information on the management of his deposits whereas these deposits are not guaranteed. The effects on the utility of the savers are varied according to whether this asymmetry upstream is combined or not with asymmetry downstream.

For the description of the vulnerability of the savers of the Islamic banks, let us consider the utility function of the savers built by Alim B. (2011): $U_m(S^v) = U_m(P^v, \varepsilon) = f(P^v)g(\varepsilon)$ where $f(P^v) = f(P^v(Ri, \sigma_r^2))$ measures the financial values of the saving and $g(\varepsilon) = e^{S^v} I(t_i, t_j)$ measures the essential character of the subjective arguments of Islamic bank intermediation.

The first case of equilibrium is equilibrium in the presence of asymmetry upstream only. The effect of this asymmetry is to reduce the volume of the saving by the means of a reduction in the level of returns. In fact, $\Delta S^v = S_2^v - S^v = -e(1-a)(r-R^*) < 0$. The utility function of the saver taking account of the subjective and financial arguments will be affected. In fact this function grows with the expected returns of the investment which is seen reduced in the event of asymmetry upstream. In fact $\Delta E(S^v) = e[E(P_2^v) - E(P^v)] < 0$.

The effect of this reduction of the expected returns of the saver is the fall of utility given by the function $f = f(E(P^v))$ such that $\Delta U_m = g(\varepsilon) \Delta f(P^v) \approx g(\varepsilon) \Delta E(S^v) < 0$.

The second case of equilibrium is that of the simultaneous presence of asymmetries of type 1 and type 2. The remuneration of savings becomes lower than when we were in the presence of only asymmetry upstream $S_{12}^v = e(1-a)R'' \text{ avec } R'' < R' < r$. In fact, this asymmetry can be the result of a manipulation by the bank with an aim of improving its profits at the expense of the savers. In any event the risk due to asymmetry upstream is a primarily financial risk and for the saver is measured by: $\Delta S_{12}^v = -e(1-a)(r-R^{**}) < 0$. The effect measured by the utility function of the Islamic saver is given by: $\Delta U_m^{12} = g(\varepsilon) \Delta E(S_{12}^v) < 0$.

The utility that the savers of the Islamic banks obtain is reduced in the presence of asymmetries of the types 1 and 2 in the credit market. The consequences measured in terms of mobilization of savings are enormous. In fact, the disinterest that savers will have in the bonds of the Islamic banks can be at the origin of the massive withdrawals of the deposits but especially does not constitute a good indicator as regards the attraction of the resources of surplus agents. The principle of money as a relay to capital of McKinnon (1973) stipulating that only savings can raise the level of investment in developing countries in the absence of the possibilities of substitution between physical capital and financial capital sees itself blocked. This principle is blocked because the savers who adhere to the Islamic principles will arbitrate for hoarding and the banking system will run a risk of contagion by the Dwyer & Gilbert effect. The instability of the banking system will transform itself into global economic instability because the process of financing of the investments is blocked.

4. Conclusion

There is indeed the asymmetrical risk upstream in Islamic banking with multiple effects on the banking system and global economic stability.

In the presence of asymmetrical risks upstream, the first negative effect on the savers is the transfer of their wealth to the bank and/or the investor and thus a fall of the utility which the savers in bonds of Islamic banks will obtain; this may be at the origin of a race to the counters and systemic crisis according to Dwyer & Dybvig (1988).

The risk upstream with negative effects on the level of bank savings (financial repression) is at the origin of problems of reconstitution of capital and constitutes an obstacle to the principle of money as a relay to capital of McKinnon (1973).

However the unforeseeable character of the incidence of an Islamic financing, main explanation of the instability characteristic of the banking system, has some beneficial effects at the level of stability and the capacity of the system to ensure the lifting of financial repression.

One can thus conclude that asymmetrical risk upstream is an obstacle to the principle of money as a relay to capital postulated by McKinnon (1973). Extreme care is recommended in the examination of the performance of a banking system by going to the agents at the base of the system which are the savers.

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Notes

Note 1. PLS is the principle of Profits or Losses Sharing.

Note 2. For any simulation in this subparagraph, to refer to the annexe1.

Note 3. For a comprehension of the phenomenon of refraction of light concept highlighted in physics, refer to the appendix.

Note 4. See Alim B (2011).

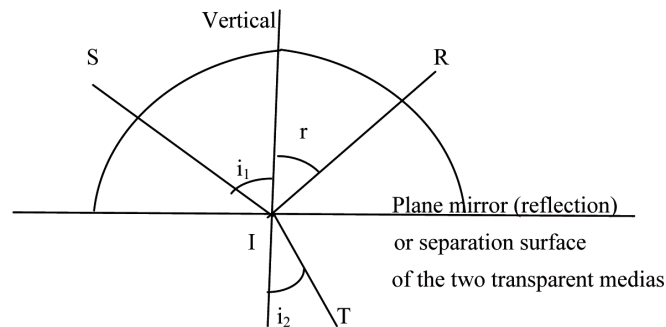
Note 5. Dwyer & Gilbert (1988) establish that when several banks have the same known characteristics of the public and that one of them is bankrupt, the probability of the bankruptcy of the other banks is over-estimated by the public.

Appendix

Appendix 1. Statement of changes in income of agents depending on the type of risk present in Islamic credit market

Age	Investors	Bank	Depositor
problem of symmetry			
Symmetry	ar	$(1-e)(1-a)r$	$e(1-a)r$
asymmetry downstream	$r-(1-a)g(r)$	$(1-e)(1-a)g(r)$	$e(1-a)g(r)$
asymmetry upstream	ar	$(1-e)(1-a)R^* + (r-R^*)(1-a)$	$e(1-a)R^*$
double asymmetry	$r-(1-a)g(r)$	$(1-e)(1-a)R^{**} + [g(r)-R^{**}](1-a)$	$e(1-a)R^{**}$
Earnings change in asymmetry downstream	$(1-a)[r-g(r)]$	$-(1-e)(1-a)[r-g(r)]$	$-e(1-a)[r-g(r)]$
Earnings change in asymmetry upstream	0	$e(1-a)(r-R^*)$	$-e(1-a)(r-R^*)$
Earnings change in double asymmetry	$(1-a)[r-g(r)]$	$-(1-e)(1-a)(r-R^*) + (1-a)[g(r)-R^{**}]$	$-e(1-a)(r-R^{**})$

Appendix 2. Refraction of light



SI is the incident ray

IR is the reflected ray

IT is the refracted ray

Note: The conventional bank can be likened to the plane mirror giving a constant ratio between the incident ray and the refracted ray which are all in the same plan. In the other side, Islamic bank is characterized by uncertain income, capital being a venture capital, and is comparable to a surface separating two transparent media which is very porous and with multiple and various effects. Thus, for an incidence SI, the expected effects can be at any level in the two transparent media. These effects are essentially random and therefore difficult to predict explaining the instability characteristic of the model of Islamic bank.

Appendix 3. $U_m(S^v) = U_m(P^v, \varepsilon) = f(P^v) \cdot g(\varepsilon)$ avec $f(P^v) = f(P^v(R_i, \sigma_r^2))$

$g(\varepsilon) = e^{S^v} I(t_i, t_j)$ reflects the importance of subjective values in the saver's behavior of Islamic banks. Alim B.

(2011) assumes that the utility of the household has an exponential value when his funds finance activities to

upgrade the faith. In addition, $I(t_i, t_j) = 0$ si $i \neq j$ $I(t_i, t_j) = 1$ si $i = j$

$i=j$ means that, besides the subjective principles, the bank finances the investments according to the method

prescribed by the investor.

$f(p^v) = f\left(P^v\left(R_i, \sigma_r^2\right)\right)$ is a function that considers only values of financial savings. It increases with the profitability of savings and therefore investment returns. It also varies with the volatility of returns. Note that

$f(P^v)$ is independent of subjective values and is only affected by the financial risks.

Finally, the multiplicative form of the utility function reflects the essentiality of subjective principles.

Appendix 4. Variations of the utility of savers by type of risk

type of risk	Variations of the utility of savers
Asymmetry1	$\Delta U_m^1 = g(\varepsilon) \Delta E(S_1^v) < 0$
Asymmetrie2	$\Delta U_m^2 = g(\varepsilon) \Delta f(P^v) \approx g(\varepsilon) \Delta E(S_2^v) < 0$
Asymmetries12	$\Delta U_m^{12} = g(\varepsilon) \Delta E(S_{12}^v) < 0$