Size, Profitability, and Agency in Profit- and Loss-sharing in Islamic Banking and Finance

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ABSTRACT

Negative relationships exist between profitability, size, and the use of profit- and loss-sharing (PLS) in financial contracts. This tradeoff is explained by analyzing the agency problem, dwelling on transaction and monitoring costs. The crucial assumption is the equality of agency costs and benefits of integration (or unitary output elasticity of reward incentives) in the environment in which contracts are drawn. A cooperative environment is a prerequisite for the existence of share contracts; an opportunistic environment in which property rights are ill defined or are not properly protected is not conducive to PLS. However, the tradeoff between size, profitability, and the existence of PLS is also expected to hold in a cooperative environment with well defined property rights.

I. INTRODUCTION

Profit- and loss-sharing (PLS) dominates the theoretical literature on Islamic finance. Broadly, PLS is a contractual arrangement between two or more transacting parties that allows them to pool their resources to invest in a project to share in profit and loss. Most Islamic economists contend that PLS based on two major modes of financing, namely *mudaraba* and *musharaka*, is desirable in an Islamic context wherein reward sharing is related to risk-sharing between transacting parties. Almost all theoretical models of Islamic banking are either based on *mudaraba* or *musharaka* or both, but the to-date actual practice of Islamic banking is far from these models. Nearly all Islamic banks, investment companies, and investment funds offer trade and project finance on markup (*murabaha* and *bai' mua'jjal*), *istisna'*, or leasing bases.[i] PLS features marginally in the practice of Islamic banking and finance.

Whatever the degree of success of individual Islamic banks, they have so far failed in adopting PLS-based modes of financing in their businesses. Even specialized Islamic firms, such as *mudaraba* Companies (MCos) in Pakistan, which are supposed to be functioning purely on a PLS basis, have a negligible proportion of their funds invested on a *mudaraba* or *musharaka* basis. In 1991, supposedly a boom period for MCos, income form PLS investments for the top 17 MCos accounted for less than a 0.5% of the total current income (CLA, 1992). The usage of PLS-based modes of financing used by Pakistani banks in 1984 was 11.1% (*musharaka* and equity participation), which marginally improved to 15.9% in 1995. According to the International Association of Islamic Banks, PLS covered less than 20% of investments made by Islamic banks worldwide (1996 figures). Likewise, the Islamic Development Bank (IDB) has so far not used PLS in its financial business except in a few small projects.[ii]

Several explanations exist for this lack of PLS. First, PLS contracts are inherently vulnerable to agency problems, as entrepreneurs have disincentives to put in effort and have incentives to report less profit compared to the self-financing owner-manager. This argument is based on the idea that parties to a business transaction will shirk if they are compensated less than their marginal contribution in the production process, and as this happens in the case of PLS, capitalists hesitate to invest on a PLS basis. The argument further goes back to a different worldview of ownership under PLS as compared to the capitalist worldview, which allows only those who own certain crucial means of production to be legitimate residual claimants in the production process. Entrepreneurs claim residual income (profit). Capitalists, on the other hand, put an emphasis on the productivity of capital and, hence, are reluctant to bear any losses incurred in production. Capitalists' unwillingness to bear risk and entrepreneurs' tendency to exclude others from sharing profits has resulted in a less favorable response to PLS from the financial and business community.

Second, PLS contracts require well-defined property rights to function efficiently. As in most Muslim countries property rights are not properly defined or protected, PLS contracts are deemed to be less attractive or to fail if used.

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Third, Islamic banks and investment companies have to offer relatively less risky modes of financing as compared to *mudaraba* or *musharaka* in the wake of severe competition from conventional banks and other financial institutions, which are already established and hence more competitive.

Fourth, the restrictive role of shareholders (investors) in management and, hence, the dichotomous financial structure of PLS contracts make them non-participatory in nature, which allows a sleeping partnership. In this way, they are not sharing contracts in a true sense; the transacting parties share financial resources without participatory decision-making (Choudhury, 1998). Practice of MCos in Pakistan is a perfect example of such a non-participatory PLS. The *mudaraba* certificates issued by MCos do not give voting rights to certificate holders, and hence no AGM is called.[iii]

Fifth, equity financing is not feasible for funding short-term projects due to the ensuing high degree of risk (i.e., the time diversification effect of equity). This makes Islamic banks and other financial institutions rely on some other debt-like modes, especially markup to ensure a certain degree of liquidity.

Sixth, unfair treatment in taxation is also considered to be a major obstacle in the use of PLS. While profit is taxed, interest is exempted on the grounds that it constitutes a cost item. This legal discrimination and its associated problem, tax evasion, make PLS less reliable as a tool for reward sharing. This argument is quite true in the case of growth of MCos in Pakistan. The MCos showed an impressive growth till 1992 when their tax-exempt status was withdrawn.

Seventh, secondary markets for trading in Islamic financial instruments, particularly *mudaraba* and *musharaka*, are non-existent. Consequently, they have so far failed to effectively mobilize financial resources.

Proponents of Islamic banking take the exclusion of PLS as a serious operational deficiency and face a challenging task ahead to innovate PLS-based products to make the asset side of banks more dependent on profit- and risk-sharing. The IDB has recently initiated a research project to identify operational problems of Islamic banks but it will take some time before its results are published.

While the above arguments explain practical problems that hinder the use of PLS by banks and other financial institutions, they exclude theoretical judgment on the issue. This paper attempts to develop a model of PLS capable of application to the practice of Islamic banking and finance. The primary focus here is on transaction and monitoring costs without an explicit reference to risk attitude of the transacting parties.

The next section briefly introduces some key concepts and states crucial assumptions to the analysis. Section 3 develops a model of PLS, which is used to draw policy implications, discussed in section 4.

II. SOME BASIC CONCEPTS

This paper uses a simple model to explore relationships between size, profitability, and agency problems in the context of contract choice. While transaction and monitoring costs are not explicitly modeled here, their consideration is important in discussing policy implications. Agency problems are also central to the analysis here, as is the role of overall the socioeconomic environment. These basic concepts are briefly explained before modeling the contract choice.

Transaction costs comprise search costs, negotiation costs, and costs of drawing up the contract.[iv] The term "search" refers here to the process of a capitalist (entrepreneur) finding and canvassing various entrepreneurs (capitalists) and of ascertaining the most favorable terms of contract (price, quality, and location etc.), and includes advertising. Search costs increase with activity of search, i.e., increased search yields diminishing returns (e.g., marginal benefits of negotiation or advertising on average go down). Dahlman (1979) offers three interpretations of transaction costs. The first, attributed to mathematical economists, defines transaction costs as a fixed proportion of the amount traded, which disappears in transaction itself. This shows that a specific medium of exchange is preferable because it consumes less real resources in exchange. Second, transaction costs concern "the idea that a trade may be costless to carry through, but may still require resources to organize: there may be set-up costs associated with each exchange. Such a cost is no longer proportional to the trade itself, but is a fixed cost which is independent of the amount to be exchanged" (Dahlman, 1979, p. 146). The third follows Coase (1960) and emphasizes poor information. So, transaction costs represent resource loss due to poor information. Formal contracts are drawn to account for poor information in different contingencies. Such contracts specify the rights of each transacting party in different contingencies, criteria by which they are evaluated, and reward functions. Specification should state limits on the behavior of contracting parties in terms of property rights, how such property rights may be exercised and transferred, and who will bear rights for ultimate control. Property rights determine resource allocation while the control has implications for residual claims and risk bearing. In principle, a perfectly articulated contract could solve the agency problem arising from moral hazard and strategic behavior. These specifications notwithstanding, contracts are essentially incomplete leaving an element of uncertainty in all contracts

to which no probability can be assigned. William and Findlay (1986) argue that "as rights and duties can be expressed only in terms of the *ex ante* set of states, no ironclad (i.e., perfect) contract can, even in principle, be written. In a world where one cannot know all possible outcomes, one cannot contract away all (or even) most of the uncertainty of the future" (p. 37). This implies that transaction costs cause contractual incompleteness.

Monitoring costs are incurred to make sure that the terms of the contract are observed and that the problem of moral hazard is minimal. According to the definitions of transaction and monitoring costs used here, resources dedicated to controlling adverse selection are called transaction costs while costs incurred on controlling moral hazard behavior are defined as monitoring costs.

Consideration of transaction and monitoring costs, along with other costs, determines the share of rewards in a contractual arrangement and provides incentives for investment. In a world of positive transaction costs and incomplete contracts, *ex post* residual rights of control are important because of their influence on asset use.

Transaction costs are expected to be higher in the case of PLS contracts than fixed return contracts, given the need for careful definition of rights and roles of transacting parties in a participatory mechanism. However, monitoring costs are excessively high in the case of the PLS contracts, whereas fixed return contracts require practically negligible monitoring.

When parties to a transaction have conflicting interests, when, for example, one tries to maximize its own interests at the expense of others, an agency problem is said to exist between them. Agency stems from uncertainty, asymmetry in information, and self-interest-seeking individuals. With respect to financial contracting, efficiency is determined by control of agency and technical-administrative weakness arising from bounded rationality. Bounded rationality here denotes the whole range of informational constraints and management limitations that prevent writing complete contracts and implementation of incomplete contracts in the wake of business complexities. An agency problem arises from adverse selection, moral hazard, and strategic behavior. Adverse selection is related to uncertainty and the prohibitive transaction costs required to pick up the right transacting parties in the face of limitless contingencies in the business environment. Moral hazard describes opportunism or self-interest that includes subtle and devious behavior known as self-interest seeking with guile (Williamson, 1985).

The analysis here does not explicitly incorporate attitude toward risk, which is implicit in the behavior of transacting parties. Emphasis is rather on the profit-maximizing behavior of transacting parties. This approach is more realistic as gain maximization at the expense of other contracting parties is a major source of the agency problem. Loss minimization at the expense of others occurs only in cases of bankruptcy and unexpected liquidation.

The role of the overall environment in the contract choice is also important. It is assumed that individual behavior determines social behavior or what we call here environment. However, the environment becomes binding on individual behavior once the former gets established.

Duality of human behavior is assumed in terms of opportunism and cooperation. Depending on the dominance of one behavior over the other, the environment is described as opportunistic or cooperative. The new theory of the firm assumes that if benefits of integration exceed the cost of integration (agency costs), economic agents establishing a firm will cooperate.[v] The same applies to the financial contracts. Arrow (1968) says that cooperative behavior is characterized by relations of trust and confidence between transacting parties so that they do not cheat even though it may be rational economic behavior to do so.

Cooperation may be of three kinds, viz., voluntary, induced, and competitive. Arrow's definition refers to the first kind. Induced cooperation is enforced by a sovereign (i.e., a state), a social institution, customs, or through hierarchy as contended by Williamson (1985, 1993). Competitive cooperation is the result of a competitive process in which actions of individuals are integrated with each other in such a way that if an individual follows a particular course of action, it is in his own interest that others should do so, too. All individuals in such a community cooperate in a competitive environment. Following Bradrach and Eccles (1989), Korczynski (1998) attributes the voluntary, induced, and competitive cooperation to trust, power, and market, respectively.

III. MODELING THE CONTRACT CHOICE

The following assumptions are crucial to the analysis here.

Contrary to traditional theories of distribution wherein the capitalist is either viewed as a money lender who earns interest or profit, or as an entrepreneur who employs labor for profit, we assume here that the capitalist hires an entrepreneur who shares profit and loss in a venture financed and possibly supervised by the capitalist. In this context, the capitalist bears most of the risk not the entrepreneur (unless a share in capital is taken alongside salary). However, the entrepreneur is not an employee of the capitalist in the conventional sense. Being a residual claimant, the entrepreneur effectively becomes a joint owner of the enterprise. Their shares in the investment define the financial relationship between the capitalist and the entrepreneur.

Positive transaction and monitoring costs are assumed. This assumption along with duality of human behavior has implications for agency problems.

The assumption of bounded rationality is crucial to the analysis here. While the entrepreneur and capitalist are assumed to be rational in the neo-classical sense, the role of the overall economic environment and transaction and monitoring costs is emphasized in decision-making. For example, in an environment of high transaction and low monitoring costs, the capitalist will choose a reward structure for the entrepreneur, which maximizes the marginal productivity of monitoring and reduces transaction costs. This implies a fixed-remuneration management contract between the capitalist and the entrepreneur. Similarly, if low transaction and high monitoring costs prevail, a financial contract that takes benefit of low transaction costs and minimizes on high monitoring costs will be optimal—obviously an interest-based contract as it minimizes transaction and monitoring costs.

A. Model

Consider the following general form of the income function

$$Y = R + (1 - r)\Pi \tag{1}$$

where Y is income of either party to a financial or a management contract, depending on the signs of R (a profit-independent component of income) and r (profit ratio), and Π is realized profit of the business.

R and r may take negative or positive values depending on the nature of the contract used. The above income function can be specified for different contractual arrangements by assigning different signs to the parameters R and r. For example:

1. If $R = 0$ and $0 < r < 1$, equation 1 will specify the income function of an entrepreneur using a pure PLS contract.
2. If $R < 0$ and $r = 0$, equation 1 will represent the income function of an entrepreneur using a fixed return (interest-based) contract. Equally, this will signify a situation wherein a capitalist invests in a project and relies on management that gets a fixed fee.
3. If $R > 0$ and $r = 1$, equation 1 will identify the income function of a capitalist using an interest-based contract.
4. If $R > 0$ and $r = 0$, equation 1 will be an income function of an entrepreneur who does not rely on external fund, and hence no financial contract.

r can be viewed as an incentive parameter that may generate an agency problem in a share contract (call it agency disincentives). However, it may also help reduce the agency problem stemming from the variability in the project output (call it reward incentives). An optimal contract should maximize the difference between the reward incentives and the agency disincentives.

Equation 1 is fundamental and may be used to explain different contractual relationships between capitalists and entrepreneurs in terms of transaction and monitoring costs. For example, if capitalist-entrepreneur relations are characterized by low transaction and monitoring costs, it leads to a contract that maximizes the marginal productivity of monitoring and optimizes on transaction costs. In practice, transaction costs do not vary much across different contracts, and, hence, leave monitoring costs to be a major determinant of the contract choice. Low agency costs, ignoring other things, will lead to choice of a PLS contract by capitalist and entrepreneur. However, if transaction costs are low but monitoring is costly, the capitalist will be reluctant to enter into a PLS arrangement. In addition to agency costs, the profitability and size of project need serious consideration. The entrepreneur will prefer a PLS contract if there is a perception that the project is less profitable, and would accept an interest-based contract if there is an expectation of large profitability, in which case the entrepreneur will be the sole residual claimant on profit stream. The capitalist is expected to provide funds on a PLS basis if project size is such as to make it easy to identify the agency problem by the capitalist. Large projects therefore may be financed on an interest basis as the capitalist may find it hard to detect the agency problem.

Transaction and monitoring costs are internalized in the model with the help of the incentive parameter, r. Suppose, initially a capitalist invests in a project and hires a manager to manage it. This signifies the case (ii) above wherein r = 0. It is not unrealistic to assume that the manager who has no financial stake in the project will have diluted incentives to work hard if more investment is poured into the project.[vi] In other words, monitoring costs will be increasing on margin. Increasing the management fee (R) will not help strengthen incentives but an increase in r will help, establishing a positive relationship between investment and r. Similarly, an increase in uncertainty will

give rise to more need for surveillance and monitoring, given that uncertainty makes it easy to shirk. In a more uncertain environment, more incentives are required to control the agency problem. Hence, an incentive function of the following form[vii]

$$r = r(Q(k,\theta),\theta) \tag{2}$$

where Q is the level of output of the project, k is the level of investment, θ stands for the nature (uncertainty), and $r_k > 0$ and $r_\theta > 0$.

The element of uncertainty in the incentive function is important in the analysis that follows. While θ is affected by the degree of completeness of contracts, it can also be reduced by a well-defined and effectively implemented legal framework that regulates the situations that cannot be contracted.[viii] In developed economies, the market for information tends to substitute for legal framework. Most lenders to consumers rely on information provided by credit rating agencies before making a decision to extend credit. In an environment with a developed market for information, there is less uncertainty and, hence, less need for incentives.

Assuming that output carries a unitary price, then using equation 2, equation 1 can be rewritten for a capitalist as follows:

$$Y^e = R + [1 - r(Q(k,\theta),\theta)](Q(k,\theta) - c) \tag{3}$$

Y^e is the expected income that depends on uncertain output and expected profit, $\Pi^e = Q(k,\theta) - c$. Maximization of equation 3 with respect to k yields[ix]

$$\eta = \left(\frac{1-r}{r}\right)\left(\frac{Q}{Q-c}\right) \tag{4}$$

η is the output elasticity of reward incentives and is defined as

$$\eta = \frac{\partial r}{\partial Q} \cdot \frac{Q}{r} = \frac{\partial r / r}{\partial Q / Q} = \left(\frac{\partial r}{\partial k} \cdot \frac{\partial k}{\partial Q}\right)\frac{Q}{r} = \left(\frac{\partial r / \partial k}{\partial Q / \partial k}\right)\frac{Q}{r} \tag{5}$$

Output elasticity of reward incentives relates the size of the project to the agency problem between management and ownership. An increase in investment has two effects: output effect and incentive effect. While more investment is expected to increase output, it may lead to dampening incentives to put a desired level of effort by management, hence putting an upward pressure on r. A unitary value of η implies equality of proportionate change in incentives and proportionate change in output, i.e., $\frac{\partial r}{r} = \frac{\partial Q}{Q}$, a situation describing equality of benefits of integration and agency costs. In such a case

$$r = \frac{Q}{Q+\Pi} \tag{6}$$

with $\partial r/\partial Q$ and $\partial r/\partial \Pi$ both being negative.

This equation has interesting implications indicating that the choice of contract parameters will depend primarily on the size of the project and profitability. It implies that, keeping other things constant, projects of very large size will tend to be financed on an interest basis while very small projects may be on PLS or may not attract external funds at all. Medium size projects are expected to be on a PLS basis. Similarly, owners of highly profitable projects will either not opt for external finances or will go for interest-based financing, ceteris paribus. Capitalists will be interested in investing in the least profitable projects on an interest basis, and projects with average profitability may be financed on a PLS basis.

DIAGRAM 1: OUTPUT, COST, AND INCENTIVES
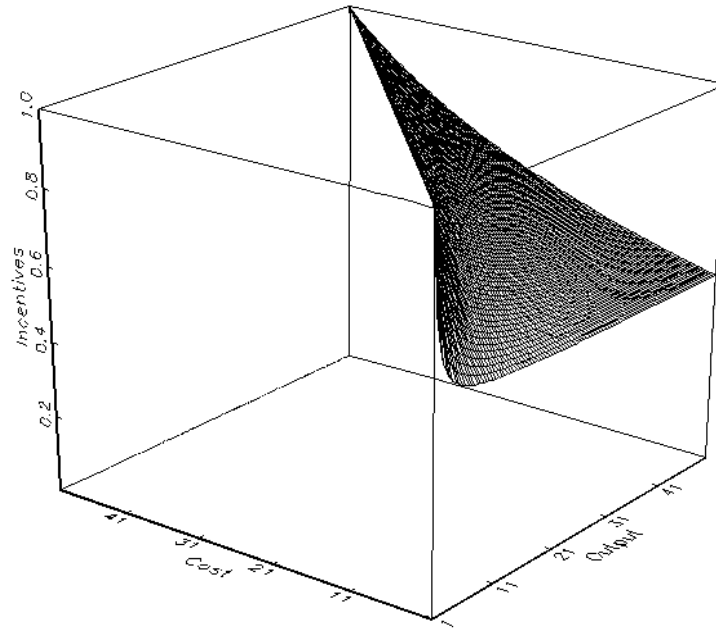
The diagram plots reward incentives against output and cost as described in equation 6. It is interesting to note that a simultaneous rise in output and costs will give rise to convergence of incentives to one, a case of fixed return contracts. In contrast, gradual increase in size of the project (output) at low costs will make the incentives to converge to 0.5, a pure share contract.

DIAGRAM 2: OUTPUT, PROFIT, AND INCENTIVES
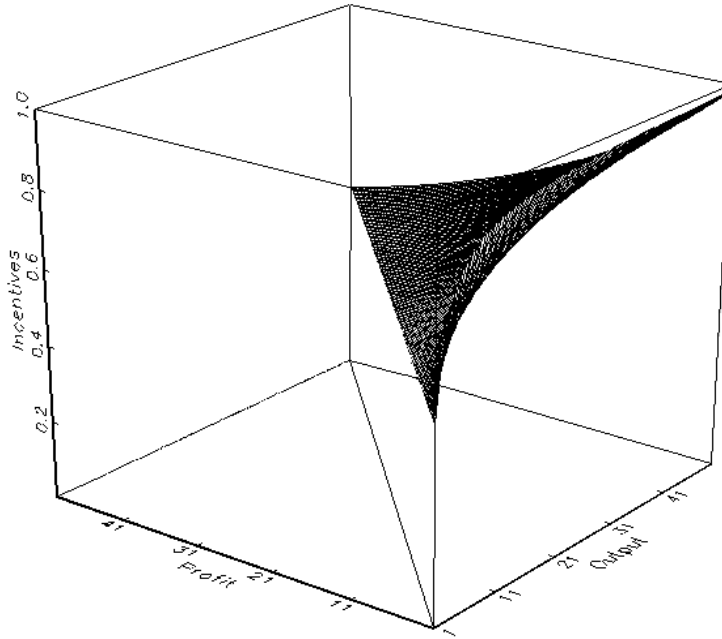
Equation 6 is used to plot incentives against output and profitability of the project. This shows that small projects with low profitability and large projects with high profitability will attract PLS, although for different reasons. Large projects with low profitability, however, will be financed on a fixed return basis.

Diagram 1 shows the possibility of existence of PLS arrangements in medium size projects. Even more interesting is the convergence of r to 0.5 at high levels of output with gradual decrease in costs. This means that change of profits in large projects leaves reward incentives intact and equal distribution of profits is optimal. On the other hand, small projects with low costs may not be able to attract external funds at all. Similarly, at high levels of output, costs (physical as well as agency costs) become enormous, a major hindrance in the use of PLS contracts. Diagram 2 relates reward incentives with the size of project and profitability. Large projects with low profitability are not financed on PLS basis for obvious reasons. Small projects with low expected profitability or large projects with high profitability may attract PLS.

However, in the case of large and very profitable projects, PLS arrangements may exist depending on the relative bargaining power of transacting parties and the complexity[x] of the project. In the absence of business risk, capitalists are likely to wish to retain control of very highly profitable projects, and would prefer to be the residual claimant on profits by hiring salaried managers; while entrepreneurs would seek outside funds, if required, on an interest basis (Table 1). Similarly, keeping other things constant, capitalists would like to control very large projects and, hence, to be sole residual claimants, while entrepreneurs would prefer debt contracts (Table 2). Hence, there would be no PLS contracts. But given volatility of profits and output, capitalists and entrepreneurs may agree to enter into PLS arrangements to share the total risk of net cash flows that tend to be large in large projects. However, such arrangements will involve the agency problem given the clashing interests of the transacting parties as regards profit distribution. Such an agency necessitates entering into further contracts or writing complete contracts.

The inherent agency problem of PLS can alternatively be explained with the help of Diagram 3 in the following. It is a graphical representation of the quadratic equation[xi]

$$\Pi^2 - (Y^e - R)\Pi - (Y^e - R)Q = 0 \tag{7}$$

for different levels of $(Y^e - R)$.

$(Y^e - R)$ serves as an approximation of the contract choice. $Y^e - R = 0$ means that expected income from a venture is wholly independent of profits. Positive values of $(Y^e - R)$ imply a profit-related component in the total expected income, which increases at higher levels of $(Y^e - R)$. Diagram 3 suggests that variability of profits increases directly with output. More interestingly, profits tend to increase with a decreasing rate for a given contract, but can be increased by changing the contract mix in favor of more PLS. The following slope equation relates output, profits, and the contract mix (as given by $Y^e - R$).

$$\frac{dQ}{d\Pi} = \frac{2\Pi}{Y^e - R} - 1 = \frac{2\Pi - (Y^e - R)}{(Y^e - R)} \tag{8}$$

However, an increase in profits is accompanied by an increase in variability of profits (as shown by the spread of curves in Diagram 3). It is interesting to observe that spread in profits tilts in favor of positive profits, suggesting that expected profits will go up with an increase in PLS in the contracts mix. This should lead to an increase in the reward incentives.

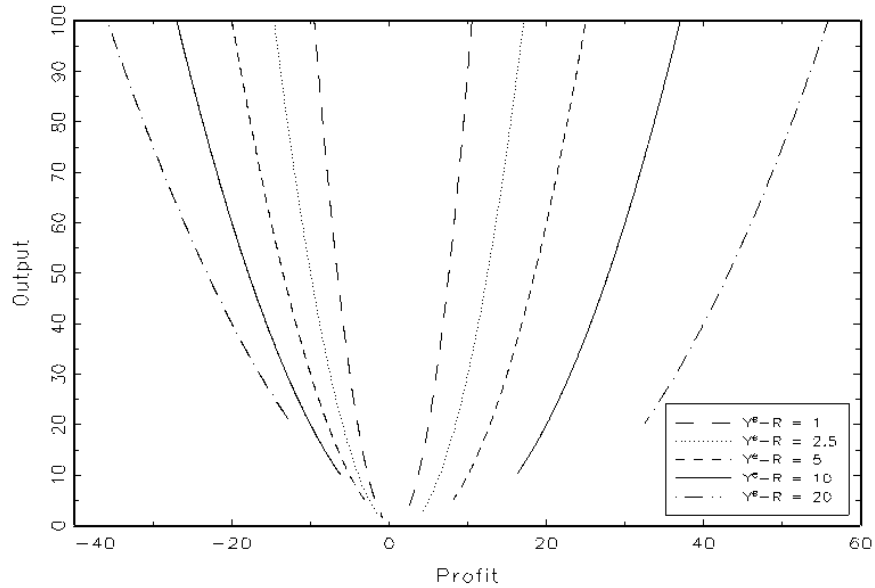**DIAGRAM 3: RELATIONSHIP BETWEEN SIZE AND VARIABILITY OF PROFITS**

TABLE 1. PROFITABILITY AND CONTRACTUAL CHOICE

Profitability	Capitalist	Entrepreneur
Very low *(Π → 0)*	Fixed return contracts: mainly interest-based *(R > 0; r = 1)*	-
Finitely high or medium	PLS contracts *(0 < r < 1)*	PLS contracts *(0 < r < 1)*
Infinitely high *(Π → ∝)*	Either no outside contract (R > 0; r = 0) or management contracts (R < 0; r = 0)	Fixed return contracts: mainly interest-based *(R < 0; r = 0)*

TABLE 2. PROJECT SIZE AND CONTRACTUAL CHOICE

Project Size	Capitalist	Entrepreneur
Small (very low output)	PLS contracts *(0 < r < 1)*	PLS contracts *(0 < r < 1)*
Medium	PLS contracts *(0 < r < 1)*	PLS contracts *(0 < r < 1)*
Infinitely large *(Q → ∝)*	Either no outside contract (R > 0; r = 0) or management contracts (R < 0; r = 0)	Fixed return contracts: mainly interest-based *(R < 0; r = 0)*

1. Diffusion of Ownership and Agency

It is useful to extend the analysis to a case where both parties share capital and/or management right. The following simple formula (similar to equation 1) can be used to describe such a relationship.

$$Y_i = R + r_i \Pi \qquad (9)$$

$\forall \, i = 1, 2$, and $r_1 + r_2 = 1$. Subscripts 1 and 2 stand for capitalist and entrepreneur respectively. R, as defined earlier, is a profit-independent component of income, and r_i are profit ratios.

R, being opportunity cost of financing on a PLS basis, serves as a reference point. If PLS financing is to substitute interest-based financing then the capitalist will have an incentive to invest on a PLS basis only if r_1 is chosen such that return on investment exceeds its opportunity cost, i.e., $r_1 \Pi \geq R$ or $r_1 \geq \frac{R}{\Pi}$. Substituting the value of R from equation 7 and considering the binding case, the capitalist's share is

$$r_1 = \frac{Y_1}{2\Pi} \qquad (10)$$

As $r_1 + r_2 = 1$, the entrepreneur's share should be

$$r_2 = 1 - \frac{Y_1}{2\Pi} \qquad (11)$$

This negative relationship between profit and the capitalist's share is interesting. In the extreme case of infinite profit, r_1 approaches zero, which means no PLS. This implies, as discussed earlier, that capitalists prefer to use interest-based contracts for highly profitable projects. Entrepreneurs, however, prefer PLS as they expect to receive a larger share of profit.[xii]

In case of n sharing partners, the total income of all transacting parties can be summed as follows

$$\sum Y_i = nR + \Pi \sum r_i \qquad (12)$$

If an individual share (r_j) is chosen to be at least equal to the fixed interest payment, as mentioned above, then

$$r_j = \frac{\bar{Y}}{\Pi} - \bar{r} \qquad (13)$$

In this case of diffused ownership, the negative relationship between profit and PLS sustains. An increase in the number of partners, however, makes individual shares smaller, which in the limit may cause breakdown of PLS arrangement due to an increase in monitoring and transaction costs.

2. Investment and Growth

The analysis here implies that further investment in a PLS project is curtailed if the incentive effect of investment either exceeds or equals the output effect of investment change. In other words, if reward incentives are unitary elastic to output or finitely elastic, capitalists will not make further investment on PLS basis as in such a case, benefits of expansion will go to the manager and/or entrepreneur only. Only when reward incentives are not sensitive to output, further investment in the project will increase the capitalist's share in total profits. Tight control over costs in large projects may make equal distribution of profits optimal (Diagram 1). Although PLS itself is a source of the agency problem, it creates more reward incentives than agency disincentives in such a case. When reward incentives are sensitive to output, a fixed return contract will be preferred over PLS.

Investment in and growth of PLS-based projects depend on a number of factors.

While the residual right over profit is inherently responsible for the agency problem in PLS, the residual right to control may mitigate the agency and, hence, provide incentives for further investment.[xiii] The decision to invest more by capitalists will be affected by the degree of *ex post* control they can exert on the project. Capitalists will make the more investment the higher the *ex post* control over the use of funds. Hart (1995) makes a similar argument in a discussion of a merger of two firms.

Considering the problem from an entrepreneur's point of view, PLS in the wake of unitary elastic reward incentives will induce the entrepreneur to acquire more funds on a PLS basis.

The investment decisions in this context depend on asymmetric information between and *ex ante* bargaining power of capitalist and entrepreneur. Asymmetric information and *ex ante* bargaining power are related with each other as much as the latter is with the ownership of crucial assets. The more an entrepreneur is able to conceal its incentives, the more *ex ante* bargaining power is possessed, and vice versa.[xiv] In many cases, it may be in the interest of the entrepreneur to create asymmetry of information to get access to some funds that are not otherwise available. A competitive environment, however, reduces bargaining power of contracting parties and induces a cooperative behavior, which makes it feasible to share information.

Signaling also plays an important role. Given the alternatives, choice of PLS by an entrepreneur will signal to the capitalist that the entrepreneur expects a large share of profit from the project as both output and incentive effects go in the entrepreneur's favor. This holds only if the project has sufficient history of profitability. Otherwise, the choice of PLS may give mixed signals to the capitalist.

IV. CONCLUSION

The analysis here suggests that PLS best works in small and medium size projects with relatively low expected profits. Governments in Muslim countries, almost all of them being developing countries, spend huge funds to encourage establishment of small and medium size industries as part of their industrial planning. Islamic banks and other non-bank Islamic financial institutions have a large scope in such environments. However, Islamic banks have failed to realize their potential in the economic development of the Muslim countries. Influenced by the already established banking practices, they have adopted a route not much dissimilar to that of conventional banks. As existing financial structure in the Muslim countries is not efficient in resource mobilization, the Islamic banks have consequently followed suit.

The implications of the preceding sections suggest the following to improve upon the current practice of Islamic banking and finance.

Islamic banks should be set up as specialized banks catering for specific sectors. This will help in monitoring the investments in the projects relatively cheaply. The current phase of privatization and the shrinking role of the public sector in resource mobilization should help Islamic banks as they can fill the post-privatization vacuum in development finance. Governments in almost all developing countries, including the Muslim ones, are pulling themselves back from development finance and are gradually introducing private finance initiatives. The Islamic banks have a role to play if they target traditional industries that have enjoyed comparative advantage in the past but now face financial constraints to expand or modernize their operations.[xv] Specialized financial institutions can play a pivotal role in the development of these industries.[xvi]

Most Islamic banks and finance companies have so far been engaged in short term financing. *Mudaraba* and *musharaka*, being long term financing instruments, have as a result been ignored. Hence, there is a need to innovate in designing short term PLS contracts, for example, to stage the financing, as is common in venture capital financing.

Small but growing industries should be targeted by Islamic banks as the firms in such industries are in need of outside capital more than the established firms that in general have access to credit on an interest basis.

Given that capitalists are liable to losses in proportion to their capital shares in an investment project, it is recommended that PLS contracts should stipulate a profit-independent component in reward-sharing formulae in addition to a profit-related component. This will encourage the use of PLS by both entrepreneurs and capitalists. This amendment is not contradictory with the Islamic PLS and at the same time is symbiotic to the profit related payment schemes that have proved to be successful in the retail sector and labor market in Britain and elsewhere.

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[i] For legal definitions of the Arabic terms, see Ahmad (1993) or Kahf and Khan (1992).

[ii] Even recent developments in Islamic banking have failed to spur the use of PLS. For example, Islami Bank Bangladesh, Sudanese Islamic Bank, Tadamon Islamic Bank, Qatar Islamic Bank, and Bank Islam Malaysia Berhad have so far failed to use *Mudaraba* as a mode of financing. Islamic banking in Europe (especially in Switzerland and Britain) is also heavily biased in favor of trade finance and project finance on *Murabaha* basis. PLS has yet to attract a successful practitioner in Europe.

[iii] The *Mudaraba* managers face no restrictions from certificate holders. However, stock markets and different government authorities (Corporate Law Authority and the State Bank of Pakistan) monitor them externally to ensure transparency in business.

[iv] This may seem contradictory to Coase and others who say transaction costs are costs of organizing resources across markets, or more precisely the costs of using the price mechanism (Coase, 1937). Coase (1960) explained the concept in these words, "In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up a contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on" (p. 15). So transaction costs could include not only search costs, contract costs, etc., but costs of enforcing agreements (monitoring costs). This is a broader definition. However, this study takes transaction costs to simply represent search costs, costs of drawing up the contract and of negotiating price of input.

[v] This argument is based on Coase (1937) who says that whether a transaction is organized within the firm or in the market by independent entrepreneurs depends on a comparison of costs and benefits of integration. Coase defines integration as joint organization of the transactions previously carried out between two or more entrepreneurs independently. He further explains that integration involves bringing different functions under one control (see Williamson and Winter, 1991). Coase links organization with cost while the argument here emphasizes the effect of cooperation and opportunism on agency costs and hence on contractual choice.

[vi] Alternatively, it can be assumed that the probability that the manager deviates from the contract will increase as more is invested in a project, unless supervised more closely.

[vii] An incentive function of the form $r = r(k, \theta)$ will leave the argument unaltered.

[viii] Some argue that uncertainty implies incompleteness of contracts (Hart, 1995). In this paper, consideration is also given to the role of contracts in decreasing uncertainty in financial relationships.

[ix] Given the income function

$$Y = R + [1 - r(Q(k,\theta),\theta)](Q(k,\theta) - c)$$

Maximization with respect to k yields

$$\frac{\partial Q}{\partial k}\left(1 - r\big(Q(k,\theta),\theta\big)\right) = \frac{\partial r}{\partial Q}.\frac{\partial Q}{\partial k}Q - \frac{\partial r}{\partial Q}.\frac{\partial Q}{\partial k}c$$

Transformation of the above equation into an elasticity expression gives

$$\frac{1-r}{r} = \frac{\partial r}{\partial Q}.\frac{Q}{r} - \frac{\partial r}{\partial Q}.\frac{Q}{r}.\frac{c}{Q}$$

Putting $\eta = \frac{\partial r}{\partial Q}.\frac{Q}{r}$ in the above equation and re-arranging

$$\eta = \left(\frac{1-r}{r}\right)\left(\frac{Q}{Q-c}\right)$$

[x] An organizational structure is said to be complex if it is easy to diffuse specific information relevant to decisions amongst different agents (Fama and Jensen, 1983).

[xi] Equation 7 is simply a reduced form of equation 1 with the value of *r* as defined by equation 6.

[xii] Evidence in farming supports this hypothesis. Dar (1996) shows that landlords prefer to cultivate profitable land by themselves or on fixed rent tenancy. Sharecropping (which is similar to PLS) is practiced on less profitable farms.

[xiii] The agency costs associated with PLS can be reduced by following what Fama and Jensen (1983) suggest. They suggest that *decision management* and *decision control* should lie with managers/entrepreneurs and capitalists, respectively, to control the agency problem. They divide the decision process into (i) *Initiation* – proposals for resource use and structuring of contracts; (ii) *ratification* – selection of projects; (iii) *implementation* – execution of projects; and (iv) *monitoring* – monitoring agents and distributing rewards. They assign initiation and implementation to the entrepreneur/manager, and call it decision management. Ratification and monitoring are the responsibilities of the capitalist and are termed as decision control. However, this specialization is useful only if it increases organizational efficiency by allowing valuable knowledge to be used at points in the decision process where it is most relevant; and if it reduces the agency problem such that additional costs are less than the benefits from increased organizational efficiency.

[xiv] *Ex ante* and *ex post* bargaining power will differ as informational asymmetry will decrease after the contract has been drawn. In a two-period model, if there is re-negotiation at the end of period 1, the bargaining power will depend on degree of informational asymmetry at that point (which is expected to have diminished since the start of the contract).

[xv] Fishing and forestry in Malaysia and Indonesia, agricultural tools, leather products, handicrafts, and farming in Pakistan, carpets and rugs in Iran, and numerous other industries in all countries need attention to compete in the world market.

[xvi] The examples already exist in some countries. MCos in Pakistan can float either specific-purpose *Mudarabas* or multipurpose *Mudarabas*. However, their practice so far has been more general and there is a need to make it more specific.