On Sharia'a-Compliance and Return to Investment

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Abstract

In this paper we study the role of contract limitations on the performance of Islamic banks, in contrast to the role of asset limitations, invoked by Derigs and Marzban [1] to explain why Sharia'a-compliant strategies result in much lower portfolio performance than do the conventional strategies. Their results were, however, challenged in recent empirical paper by Walkshäusl and Lobe [2], who argued asset limitation even sometimes, is beneficial. The reason may be that they prevent excessive risk taking by the managers. Contract limitations provide a more nuanced explanation of performance of Islamic banks, and can explain why Islamic indexes seem to underperform in emergent, rather than developed markets, as documented by Walkshäusl and Lobe [3].

Keywords: Incentives; Contracts; Islamic banks

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Introduction

Recently, Derigs and Marzban [1] argued that Sharia'a-compliant strategies result in much lower portfolio performance than do the conventional strategies. This view was, however, challenged in recent empirical literature. For example, Lobe, Rößle, and Walkshäusl [4] argue that ethical screens do not have significant effect on an index performance during the bull market and improve performance in the bear market. Walkshäusl and Lobe [2] argue that, while Islamic equity indices underperform comparatively to the conventional ones in the emergent markets, they actually outperform them in the developed markets. Therefore, *asset limitations* faced by Islamic banks do not necessarily diminish their performance.

In this paper we investigate the role of business contracts provided to potential entrepreneurs as determinants of performance of Islamic banks, i.e., we concentrate on the role of contract limitations faced by Islamic banks In particular, we study a form of limited partnership, where an investor gives money to entrepreneur for investing in a commercial enterprise, known as a Mudaraba contract. After investing into the enterprise, the entrepreneur exerts effort, which generates profits, subject to noise. The profit (loss) is to be shared between the investor and entrepreneur in some agreed upon proportion. The optimal linear contracts in such an environment will trade-off optimal risk sharing versus creation of optimal incentives. Usually, it is achieved by manipulating two instruments: the slope of the incentive scheme, which determines entrepreneurs share of profits and the fixed payment to the entrepreneur. However, according to Usmani [5], a Mudaraba contract cannot involve lump-sum payments to either party or payments determined as a proportion of the capital given by the investor (rabb-ul-mal or the principal). Usmani [5] further explains how it is agreed upon by all schools of Islamic jurisprudence that the asset manager (mudarib or the agent) cannot take any periodic salary, fee or remuneration from the capital he is entrusted with although some Islamic scholars have inferred that there are exceptional circumstances. This means that the asset manager can only be compensated by a share of profits as negotiated with the investor.[1]

We show that, under these additional limitations, a Mudaraba contract may prevent profitable projects from being undertaken. In particular, the contracts that are not undertaken are high risk and

high return ones. Since prevalence of such contracts is a characteristic property of emerging markets, this result sheds a light on the empirical finding of Walkshäusl and Lobe [2] that Islamic equity indexes tend to underperform the standard ones in the emergent markets.

The Model

Assume that the investor provides initial financing for a project, $K > 0$ and hires an entrepreneur. The entrepreneur exerts effort, which generates profit according to:

$$\Pi = z + \varepsilon \tag{1}$$

where z is effort undertaken by the agent, and ε is normally distributed random noise with zero mean and variance σ^2. Only Π is observable by the investor and verifiable by both parties. The utility of the entrepreneur is given by:

$$U = 1 - \exp(-\phi(w - \frac{z^2}{2})) \tag{2}$$

where w is the agent's payment (wage) conditioned on z through Π and ϕ is the coefficient of absolute risk aversion of the entrepreneur.

Let us first consider the optimal affine payment schemes that will be offered by the investor who does not face any additional restrictions on the set of contracts offered. The payment scheme is given by:

$$w = \alpha\Pi + \beta \tag{3}$$

Here α is the slope of the incentive scheme, which determines the power of incentives and the effort undertaken by the entrepreneur and β is the fixed payment, chosen in such a way that the entrepreneur is indifferent between accepting the contract or taking the outside option. If the entrepreneur accepts the contract, she will choose effort z to maximize the (CE) associated with utility function (2), i.e.,

$$CE = \alpha z + \beta - \frac{z^2}{2} - \frac{\phi}{2}\alpha^2\sigma^2$$

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[1] If the finance for the project is provided solely by the investor, then Islamic law also forbids for the entrepreneur to be liable for losses. We ignore this restriction in our analysis.

which implies

$$z = \alpha \qquad (4)$$

The principal then chooses α and β to maximize expected profits net of wages, conditional on the entrepreneur's participation and subject to (4). The calculations are pretty standard and can be found, for example, in Basov [6]. The result is:

$$z = \alpha = \frac{1}{1+\phi\sigma^2}, \beta = \frac{\phi\sigma^2 - 1}{2(1+\phi\sigma^2)^2}, E(\Pi - w) = \frac{1}{2(1+\phi\sigma^2)} \qquad (5)$$

The investor will finance the project if and only if profits net of wages exceed the fixed cost of investment, i.e.,

$$\frac{1}{1+\phi\sigma^2} \geq 2K \qquad (6)$$

One can see that the slope α of the optimal compensation scheme and the profit of the principal are decreasing in σ, while the utility of the agent is determined by the reservation utility, which is normalized at zero here. Hence, noise damps incentives and dissipates social surplus. Note, however, that no matter how noisy and environment is and how risk averse is the agent, the project will be undertaken and a positive effort will be exerted as long as (6) holds. In particular, if $K = 0$ then all projects will be undertaken.

Now let us consider a similar situation, but let us assume that the participants write a Mudaraba contract under the Islamic law. Following discussion of Mudaraba contracts in the Introduction, it restricts the intercept of the wage schedule, β to be equal to zero. A further restriction imposed by Islamic law is that losses must be shared proportional to the investment, i.e. α must be zero for negative profit realizations assuming the agent has no funds. This restriction, however, can be neglecting assuming effort is sufficiently productive, which in this case translates into condition $\alpha \ll 1$.[2] Let us assume that the principal is forced to set $\beta = 0$. Then entrepreneur's incentive constraint is still given by (4) and the investor solves

$$\max [z(1 - \alpha)]$$

$$s.t. \alpha^2 (1 - \phi\sigma^2) \geq 0, z = \alpha \qquad (7)$$

The solution is

$$z = \alpha = 1/2 \qquad (8)$$

as long as $\phi\sigma^2 < 1$ and $z = \alpha = 0$ for $\phi\sigma^2 \geq 1$. We will interpret the latter as non-participation. Conditional on the entrepreneur's participation, the investor will finance the project as long as

$$\frac{1}{2} \geq 2K \qquad (9)$$

Note that conditional on the participation, the optimal contract will have the same slope $\alpha = 1/2$ irrespective of the risk attitudes of the agent or riskiness of the environment. Comparing this with the optimal slope under no restrictions on the intercept, we see that conditional on participation a mudarib faces weaker incentives than a conventional agent. Also, note that even if condition (9) holds, the project may fail to be undertaken if the environment is too risky or the agent is too risk averse. The reason for this is that now the principal has only one degree of freedom, α to satisfy two constraints: incentive constraint and participation constraint, which in general cannot be done. Therefore, some projects, possibly the most innovative ones, will not be undertaken under the system of Islamic financing.

[2] Sign "≪" reads "much less."

Note also that even if environment is not too risky and the entrepreneur is willing to participate, the principal is less likely to fund her under Mudaraba contract then under the conventional one, since conditional on the entrepreneur's willingness to participate

$$\frac{1}{1+\phi\sigma^2} > \frac{1}{2} \qquad (10)$$

One way out of this situation is to rely on social norms to mitigate the moral hazard problem. For an analysis of costs and benefits of relying on a social norm, see Basov and Bhatti [7] and the literature cited there in. Another possibility is to consider non-linear wage schedules. Such schedules will have additional degrees of freedom and therefore will be able to take into account both participation and incentive constraints. However, such schemes will be more complex and it may be important to incorporate bounded rationality of the agents in such models. For a review of mechanism design models under bounded rationality, reader may refer to a review paper by Basov, Bhatti, and Danilkina [8].

Conclusions

In this paper we studied the role of contract limitations faced by Islamic banks on their performance. Unlike asset limitations, which have ambiguous effects on the performance of Islamic banks, contract limitations always result in diminished performance. The reason is that the contract limitations prevent some profitable projects from being undertaken, since now a contract has too few instruments to trade off the optimal risk-sharing versus incentive provision. As a result, the entrepreneurs will not undertake risky, but profitable investments, and even when they do, they will provide too low effort, which will further discourage investors from financing such ventures. Prevalence of risky but profitable investments are typical for the emergent markets. Therefore, our results are in tune with recent empirical findings of Walkshäusl and Lobe [2,3].

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