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On Sharia'a-compliance, positive assortative matching, and return to investment banking

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ABSTRACT

In their recent paper Derigs and Marzban (2009) argued that Sharia'a-compliant strategies result in much lower portfolio performance than the conventional strategies. The main reason for their argument is of Sharia'a-compliance limits on the set of admissible investments. However, in the world of imperfect financial markets such a limitation may also have some beneficial consequences. We therefore, assume that a net disadvantage caused by such limitations is relatively small, but is magnified by equilibrium hiring strategies, which match Islamic banks with employees who have a lower average level of human capital.

1. Introduction

Recently, Derigs and Marzban (2009) considered the effects of different strategies to construct a Sharia'a compatible financial portfolio. They argued that Sharia'a-compliant strategies result in much lower portfolio performance than the conventional strategies. They pointed out that it happens because Sharia'a-compliance limits the set of admissible investments. Sharia'a finance does indeed prohibit investment in certain assets and industries, such as conventional bonds, derivatives, armaments, sex, tobacco and gambling industries. However, the effects of this prohibitions are not exclusively negative. For example, a firm that is run in the interest of shareholders, protected by limited liability, is prone to excessive risk taking. If excessively risky projects are more likely to occur

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in these industries, the commitment of Islamic banks (IB) not to invest in these projects, enforced by Sharia'a advisory boards, may result in improvement of financial performance and attract more debt financing. Debt financing may also prove to be more beneficial than equity financing from the point of view of providing better incentives to the management. This means that the effects of limiting the set of admissible investments by Sharia'a law is ambiguous and invites to seek for an alternative explanation of low performance of Islamic banks.

One might also argue that Islamic law restricts the set of contracts, that can be offered to the employees of the Islamic bank and imposes certain norms of behavior of both employees and employers. There exists substantial literature on the interaction of social norms and economic incentives. In the most recent paper, Basov and Bhatti (2013) argue that ability to rely on social norms is both a blessing and a curse, they also provide review of the relevant literature on the subject.

In this paper we assume that restricting set of investments indeed puts Islamic banks into a slight disadvantage, which is magnified by self-selection of employees with different level of human capital. We assume that there are two types of banks: conventional and Islamic and two types of potential employees: low type and high type. Producing output (e.g. undertaking an investment project) requires a bank to be matched with an employer and the value of a match depends on both the employee's skill and the banks type. We assume that controlling for the employee's skill value produced in a match with an Islamic bank is slightly smaller than the one produced in a match with a conventional bank, for the reasons identified by Derigs and Marzban (2009) and Basov and Bhatti (2013).

We show that if the output depends on both the banks inherent productivity parameter and the employee's human capital, under reasonable assumptions on the matching process, there exists an equilibrium with positive assortative matching.[1] More precisely, even if asset limitation convey very small advantage to the conventional bank over the Islamic one, the matching will result in employees with high human capital to be matched to the conventional bank, while the employees with the low human capital matched with the Islamic bank, exacerbating existing asymmetry. The differences in performance will persist in the limit of the original asymmetry, caused by asset's limitations converging to zero.

This model shows how small inefficiency caused by fundamentals can be magnified via positive assortative matching. In this respect the model is similar in spirit with Kremer (1993) O-ring theory of economic development.

2. The model

Let us assume the output produced from a match of a bank and an employee depends on both: banks type and the employees human capital. The bank's type effect on the productivity parameter, b, is given by:

$$b = \delta \times \chi(I = 1) + 1 \times (1 - \chi(I = 1)), \tag{1}$$

where $\delta \in (0, 1)$ and $\chi(I = 1)$ is the indicator function, which equals one if the bank is Islamic and zero if it is conventional. The bank's productivity parameter is determined by the investment possibilities open to the bank. Eq. (1) summarizes Derigs and Marzban's finding the limitation on the set of assets puts Islamic banks into a disadvantage.

To produce output (e.g. undertake an investment) a bank also needs to hire an employee. Employees differ in their level of human capital, $y \in \{y_L, y_H\}$, with $y_H > y_L > 0$. If a bank with productivity parameter b hires an employee with human capital level y, the output will be given by:

$$x = f(b, y). \tag{2}$$

We will refer to f as the *production function* associated with the bank's productive capability. The set of participants in the economy is depicted in Fig. 1, the production technology is illustrated in Fig. 2.

[1] Idea of positive assortative matching was introduced by Becker (1973). Robustness of this phenomena for search theoretic models with frictions was examined by Shimer and Smith (2000).