



# Does Islamic banking development favor macroeconomic efficiency? Evidence on the Islamic finance-growth nexus<sup>☆</sup>



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## ABSTRACT

This study evaluates whether the development of Islamic banking influences macroeconomic efficiency. Thus, we contribute to the analysis of the relation between Islamic finance and economic growth by applying the stochastic frontier approach to estimate technical efficiency at the country level for a sample of 70 countries. We use a unique hand-collected database that covers Islamic banks worldwide over the period of 2000 to 2005, identifying evidence that Islamic banking development favors macroeconomic efficiency. Furthermore, we provide support for a non-linear relation between efficiency and Islamic banking development, which is measured by credit or by deposits. Although increasing the development of Islamic banking enhances efficiency up to a certain point, the expansion of Islamic banking becomes detrimental to efficiency beyond this point.

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## 1. Introduction

There has been an impressive expansion of Islamic finance in recent years. Mohieldin (2012) observes that the total value of Islamic financial assets has risen from approximately \$5 billion at the end of the 1980s to approximately \$1000 billion in 2010. Islamic banking represents the vast majority of these assets, with banking assets having a total value of \$939 billion in 2010. Islamic banks are particularly active in Middle Eastern countries and in Southeast Asia. However, academic literature that investigates the impacts of this phenomenon remains impressively scarce, although a few microeconomic studies have analyzed these consequences by analyzing the differences in behavior between Islamic banks and conventional banks.<sup>2</sup> Still, the question regarding the macroeconomic impact of Islamic banking remains widely ignored.

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<sup>2</sup> For instance, see Cihak and Hesse (2010) on financial stability, Weill (2011) on competition, Rosman et al. (2014) and Johnes et al. (2014) on efficiency, or Shaban et al. (2014) on willingness to lend to small businesses.

A huge strand of the literature has shown that the development of financial intermediaries contributes to economic growth (for example Levine et al., 2000; Levine and Zervos, 1998).<sup>3</sup> Thus, we wonder if the development of Islamic banking also fosters economic growth and, more generally, if the impact of Islamic banking is more or less beneficial than the development of conventional banking. These questions have major policy implications because evidence on this issue would provide economic motives to favor or prevent the expansion of Islamic finance. Such issues are of interest for all countries concerned with the development of Islamic finance, but they have assumed special importance in recent years. Indeed, following the Arab Spring, several leaders have proclaimed their willingness to enhance the presence of Islamic finance in their country, and some of these leaders are even willing to replace their banking system with a fully Islamic one.<sup>4</sup>

Hence, the goal of this study is to investigate the macroeconomic impact of Islamic banking development. To our knowledge, this is the first paper that provides empirical results on the role of Islamic finance in economic development. Thus, we provide a contribution to the 'Islamic finance-growth nexus'.

<sup>3</sup> It is of interest to stress the findings from Narayan and Narayan (2013) who find no impact of financial development on economic growth for Middle Eastern countries in their cross-country study on developing countries.

<sup>4</sup> Among others, Chairman Mustafa Abdul-Jalil of the National Transitional Council of Libya claimed in October 2011 that 'new banks would be established on banking principles which comply with Islam's ban on interest and speculation. Interest would be canceled from any personal loan already taken out for less than 10,000 Libyan dinars', while the Tunisian Prime Minister Hamadi Jbeli declared in June 2012 that 'Tunisia is looking to become a regional center for Islamic finance'.

Instead of analyzing the role of Islamic banking on economic growth, we focus on productivity for two reasons. First, there is a consensus that productivity growth plays a greater role than factor accumulation in explaining countries' growth differences (Caselli, 2005; Easterly and Levine, 2001). Hence, we focus on productivity, which is the key driver of countries' differences with respect to economic development. Second, because the development of Islamic banking is a recent phenomenon, we cannot yet analyze its long-term impact on economic growth.

Islamic finance can be defined as finance that conforms to Islamic law (*Shariah*), which is derived from the Qur'an and other sources. Among the principles to be respected under *Shariah* is the prohibition against charging interest. However, this prohibition does not mean that all forms of return are prohibited for the provider of funds in a financial transaction. Instead, interest is replaced with the concept of profit-and-loss sharing, which implies that both parties in a financial transaction are expected to share in the returns from a project. Another important aspect of Islamic finance is the prohibition against contractual uncertainty, which requires contract terms to be defined clearly and without ambiguity. Additionally, Islamic finance cannot be used to finance activities that Islam considers sinful, such as gambling or conventional banking.

Levine (2005) explains that financial development can favor productivity and growth because the financial system contributes to the availability of information, the enforcement, and the transactions costs of financing decisions and transactions. The financial system can reduce these costs in several ways. Furthermore, the development of Islamic banking can contribute to productivity and growth in the same way as the development of conventional banking by following these mechanisms. However, the development of Islamic banking could also provide a greater contribution to macroeconomic productivity for two principal reasons, which are explained below.

First, the financial system has the function of producing information *ex ante* about possible investments. Banks enhance productivity by using this information because they reduce the costs of evaluating investment projects before they make lending decisions. Therefore, banks allow for a better allocation of capital. Inasmuch as Islamic banks propose profit-and-loss-sharing financial instruments, they have strong incentives to perform a greater evaluation of the investment projects they finance. For this reason, we can expect Islamic banks to provide an even greater contribution than conventional banks to the production of information *ex ante* and thus to the optimal allocation of capital.

Second, the financial system has the function of pooling savings; therefore, financial intermediaries can help improve the productivity of firms by reducing the transaction costs that are associated with the mobilization of savings from different economic agents and by reducing the information costs for the savers. Because some individuals in Muslim countries are reluctant to deposit their savings in conventional banks for religious reasons, the development of Islamic banking can increase the local population's participation in the formal banking system and therefore enhance the pooling of savings.

However, the positive impact of Islamic banking development should not be taken as assured; these mechanisms may not be sufficiently strong to create a beneficial role for Islamic banking relative to conventional banking. Moreover, some counterarguments can be advanced. For example, one can observe that the financial system serves the functions of monitoring firms and exerting corporate governance. Thus, financial intermediaries place pressure on firm managers to perform and increase productivity. However, this argument is based on the binding nature of debt: debt implies interest-payment obligations that must be satisfied by managers, who are under the threat of bankruptcy if these obligations are not satisfied (Grossman and Hart, 1982). This incentive scheme can be less efficient in the context of the profit-and-loss-sharing instruments that are proposed by Islamic banks because the replacement of interest-payment obligations by a share of profits reduces the threat of bankruptcy for managers.

To examine the impact of Islamic banking development, we apply efficiency frontiers to aggregate production functions, following Moroney and Lovell (1997) and Méon and Weill (2010b). Our method comes from the microeconomics literature and has been applied at the macroeconomic level in a few studies.<sup>5</sup> The idea is to measure countries' relative distances from an estimated common production frontier. We can then compare each country with the best-practice countries. We obtain efficiency scores, which are synthetic measures of the gap between countries' observed and optimal productions. These scores are thus relative measures of productivity that measure macroeconomic efficiency, i.e., technical efficiency at the country level. Indeed a country is more efficient if it has greater production for a given bundle of inputs and thus greater productivity. We estimate the production frontier with the stochastic frontier approach following Méon and Weill (2010a) and Kuhry and Weill (2010), among others; both of these studies have investigated the impact of financial intermediary development on macroeconomic efficiency and tend to show a positive impact.<sup>6</sup>

The data on Islamic banking development come from a unique database, which is known as the 'IFIRST' (the 'Islamic Finance Recording and Sizing Tool'). This database was built in collaboration with industry professionals and provides the credit and deposits of all of the active Islamic banks worldwide over the period of 2000–2005. In comparison with other sources of data (for example Bankscope), our database is exhaustive and does not suffer from misclassification issues. Thus, we are able to compute the measures of Islamic banking development with the ratios of credit and of the deposits of all Islamic banks to the local GDP by country and by year.

The rest of the article is structured as follows: Section 2 presents the data, Section 3 describes the methodology, Section 4 develops the empirical results and Section 5 presents the article's conclusions.

## 2. Data

We use two sets of data: measures of the development of Islamic banking and macroeconomic data. We describe these datasets in that order.

### 2.1. Data on Islamic banking development

Despite the expansion of Islamic finance, it is still difficult to find reliable data on the Islamic banking industry. The most widely used database in empirical studies on Islamic banking is Bankscope (for example, Cihak and Hesse, 2010; Srairi, 2010; Weill, 2011). This generalist database covers a large number of financial institutions around the world and provides a binary classification of banks as either Islamic or not Islamic. However, data from the Bankscope database raise several concerns. First, the database is not exhaustive, making it difficult to obtain aggregate measures of Islamic banking development. Second, misclassification issues have been reported (for example Cihak and Hesse, 2010). The Bankscope database defines an Islamic bank as either a member of the International Association of Islamic banks or one of the 20 non-member banks that are considered 'Islamic' by Fitch Ratings. Nonetheless, the final list of Islamic banks includes certain banks that

<sup>5</sup> Moroney and Lovell (1997) wrote the seminal paper on this topic, in which they measure macroeconomic efficiency for a set of planned and market economies. In addition, Adkins et al. (2002), Méon et al. (2009) and Méon and Weill (2010b) analyze the impact of different facets of institutions on efficiency.

<sup>6</sup> An alternative approach is the one followed by Lucchetti et al. (2001): they analyze the relation between bank efficiency and economic growth. This approach has a similarity with ours through the use of frontier efficiency techniques. However it differs on the fact that it considers a qualitative measure of banking development, as bank efficiency informs on the productivity of banks, while we consider a quantitative measure of banking development by considering banking assets relative to GDP. We prefer focusing on a quantitative measure, given the limited development of Islamic banks in many countries of our sample.

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