Research in International Business and Finance 34 (2015) 324–337

Contents lists available at ScienceDirect

Research in International Business and Finance

journal homepage: www.elsevier.com/locate/ribaf

Large scale analysis of Islamic equity funds using a meta-frontier approach with data envelopment analysis

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ARTICLE INFO

Article history:
Received 18 March 2014
Accepted 3 February 2015
Available online 11 February 2015

JEL classification:
G1
G01
G2
G23
G11
G15

Keywords:
Islamic funds
Mutual funds
Crisis periods
Investment regions
Meta-frontier approach
Data envelopment analysis

ABSTRACT

The paper aims to analyze the efficiency of Islamic equity funds (IEF) during crisis and growth periods and across six investment regions. To our best knowledge, our study uses for the first time the meta-frontier approach with data envelopment analysis (DEA) to compare the relative efficiency of Islamic equity funds. The paper uses a large scale set of data with a sample of 301 IEF for the period of 1993–2013 which enables us to reach conclusions across different investment regions and across different periods which cannot be made with a small size set of data. The paper provides empirical evidence about the improvement of the efficiency levels between 2002 and 2007. It shows that the average efficiency scores during recession periods are higher than the corresponding scores during growth periods. The paper also reveals that the Asia Pacific and Middle East/Africa investment regions exhibit the best technology for IEF. While North America, Europe, Emerging Markets and funds investing worldwide operate with almost the same scores and remain below the average showing a technology gap from "the best practice" for IEF. For funds investing worldwide and in North America, the meta-technology ratio is steadily increasing since 2009, indicating an improvement in their technologies. Our results suggest that although Islamic funds do not seem to be impacted by the financial crisis, they do need to improve their efficiency since the levels are far below the frontier.

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http://dx.doi.org/10.1016/j.ribaf.2015.02.014
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1. Introduction

The rapid development of Islamic funds over the past two decades has been triggered by urgent requests from investors with high liquidity, mainly in Muslim countries. Moreover, the recent financial crisis has attracted considerable attention for an alternative financial model that is oriented toward ethically, socially and environmentally responsible investments. One of the main instruments of ethical finance is provided by ethical mutual funds.[1]

Fund management refers to investors who pool their resources to purchase a greater number of shares through a collective manager which they cannot acquire individually. Islamic equity funds are the Islamic counterpart to conventional mutual funds. They are based on Mudaraba[2] or wakala[3] contracts. Islamic equity funds have to conform to the Islamic laws which impose a set of rules that govern every aspect of a Muslim's life, including dealings with others through commerce transactions. The Islamic financial system operates on the basis of these principles and values.

From the global financial perspective, the prohibition of interest rates is one of the main differences between Islamic and conventional finance. Obviously, this is not the only point of divergence. The Shariah[4] guidelines and principles govern several aspects of Islamic mutual fund. These guidelines can be classified as positive and negative principles. The negative principles include the prohibition of "Riba[5]", prohibition of speculation ("Gharar[6]" and "Maysir[7]"), and the prohibition of financing immoral and unethical sectors. The positive principles include the principle of profits and losses sharing (PLS) and the need for traceability and association of financial transactions with tangible assets.

Islamic funds are defined by their compliance with Islamic laws. Hence, fund managers have to take into account not only the profitability of their titles, but also their compliance with the Islamic laws. To do so, they need to follow two screening steps:

The first step is the "non-financial filtering[8]", which consists of selecting only those companies operating in sectors that are not prohibited by the Islamic laws. There are two levels of screening: the first level consists in excluding firms that earn a portion of their revenues from the following sectors: armament, alcohol, tobacco, gambling, pornography, conventional banking sector, insurance and conventional finance system based on the interest rate, etc. The second level consists of determining if the secondary activity of the company includes a reason for exclusion. More specifically, the proportion of income generated from the prohibited activity must not exceed 5% of its total income and is subject to the condition of "Haram purification[9]".

The second step is the "financial filtering" which consists of excluding companies based on their financial characteristics. It takes into account the capital structure of the issuing companies. Therefore, a series of ratios have been established, including leverage ratios, liquidity ratios and ratios of illicit income. These ratios are established by Muslim jurists according to the following limits: The leverage ratio has to be less than 33% and can be calculated by the fraction of total debt by the trailing 12-month average market capitalization.[10] The liquidity ratio has to be less than 33% and can be calculated by the ratio of cash divided by the average market capitalization.[11]

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1 For more details see Wilson (1997), Adamo et al. (2010), Derigs and Marzban (2008, 2009), Hamilton et al. (1993), etc.

2 Partnership contract.

3 Agency contract.

4 Arab word that means Islamic law.

5 Arab word meaning prohibited gain. "Riba means and includes any increase over and above the principal amount payable in a contract obligation, not covered by a corresponding increase in labor, commodity, risk and expertise." Ayub (2007)

6 Uncertainty or hazard caused by lack of clarity regarding the subject matter or the price in a contract or exchange. Ayub (2007)

7 Maysir: gambling, games of chances. It refers to easily available wealth or acquisitions of wealth by chance, whether or not it deprives the others rights. Ayub (2007)

8 Cekici (2009).

9 Investment companies have to donate the equivalent proportion of their gains from the prohibited activity to charities to purify their earnings from prohibited activities. The purification is usually supervised by the Shariah Board. Cekici (2009)

10 Or total debt divided by total asset.

11 Or cash plus interest-bearing securities divided by the trailing 12-month average market capitalization or accounts receivable by the 12-month average market capitalization.

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