J. of Multi. Fin. Manag. 29 (2015) 115–138

Contents lists available at ScienceDirect

Journal of Multinational Financial Management

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

Risk-return characteristics of Islamic equity indices: Multi-timescales analysis

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ARTICLE INFO

Article history:
Received 14 April 2014
Accepted 26 November 2014
Available online 8 December 2014

JEL classification:
C1
C4
G1
G2
G3
P5

Keywords:
Shariah-compliant stocks
Risk-return profile
Systemic risk
Wavelet analysis
Islamic finance

ABSTRACT

This paper is motivated by the heightened interest in investing in Islamic equities. The paper is the first attempt at analysing the risk-return characteristics of Islamic indices at different timescales by applying a relatively new approach in finance known as wavelet analysis. We analyze the Dow Jones indices of 11 countries, mostly emerging markets, and 10 global sectors between 2008 and 2012. We focus on exploring the multi-horizon nature of systemic risk (market beta), average return, volatility, and correlation.

We find that the differences in betas between Islamic and conventional indices at most of the timescales are not statistically significant. A few exceptions show equal returns with lower risks for Islamic indices mostly at higher time scales (longer horizons) in some countries as well as 6 out of 10 sectors. We also find lower correlations for some Islamic sector-pairs (financials, utilities and consumer services) at lower time scales (shorter horizons).

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http://dx.doi.org/10.1016/j.mulfin.2014.11.006
1042-444X/

1. Introduction

Portfolio optimization, as a major interest of investors, deals with the risk-return trade-off. Markowitz (1952) has demonstrated a mean-variance model that embodies the underlying economic rationality and asset return models. Linking to the pricing mechanism, Capital Asset Pricing Model (CAPM) starts from the component of a firm's total risks, namely, unsystematic and systematic risks (Lintner, 1965; Sharpe, 1964). While the unsystematic risk or the firm-specific volatility will disappear through diversifying the portfolio, the systematic risk cannot simply be eliminated by diversification. As the later represents the risk of a stock relative to the risk of the market portfolio, the underlying framework of CAPM is to estimate beta (Sharpe, 1964; Lintner, 1965) as the co-variation between a security return with the market portfolio return (Black et al., 1972; Fama and MacBeth, 1973). In that case, the expected return of a security can be obtained by adding risk-premium to risk-free rate, where the expected risk premium will vary in direct proportion to beta. This theory suggests that the return of a security should be completely priced by its market beta, while the presence of excess return indicates the overpricing of risk.

Apart from a substantial development in modern finance, the objective of our study is to apply the above stated theory in the context of Islamic equity markets. The current trend of Islamic finance to move toward the global markets, and expand from a merely banking-based industry into wider areas of market-based instruments, has made Islamic capital markets as the fastest growing sector in the Islamic finance industry. This further raises a deeper question with respect to the risk-return profile of Islamic assets. Focusing on the equity asset class, the *Shari'ah* rules play a critical role in screening equities to be listed in Islamic indices. The rules distinguish between *halal* (lawful) and *haram* (unlawful) business activities, which result in the unique characteristics of Islamic equities (Derigs and Marzban, 2008). In particular, the qualitative *Shari'ah* screening excludes firms with any non-compliant activity (i.e. liquor, gambling, interest-based financial institutions, etc.) while the quantitative *Shari'ah* screening strictly imposes the zero interest-based leverage. Since only a small number of today's listed firms fit into this requirement, a certain degree of tolerance is required.[2] As a result, the filtering criteria will take out some non-compliant firms from the pool of investable equities. The mixture of *Shari'ah* compliant firms becomes less diversified and being concentrated in some specific sectors, which further results in more volatile returns (Hussein and Omran, 2005). In other words, lower leverage and less diversification are the main distinctive features of Islamic indices.

When we relate to a strand of literature in modern finance, several studies suggested that the levered equity beta can be decomposed into a business risk and a financial risk component (Hamada, 1972; Rubenstein, 1973; Christie, 1982; Mandelker and Rhee, 1984). A fixed financial commitment out of uncertain revenues increases the risk of the cash flow to equity. If a security is efficiently priced, its higher financial leverage will raise its required return in order to compensate for the higher risk borne by its equity holders. This suggests that Islamic equities, due to low leverage, theoretically should be associated with a lower beta to the market. The other studies focused on volatility in relation to leverage effect, where firms with higher debt/equity ratios should have a stronger negative relation between current returns and stock volatility as compared to firms with lower debt/equity ratios (Black, 1976; Christie, 1982). This suggests that Islamic equities, with lower leverage, theoretically have low beta to the market. On the other hand, another study has documented that the risk premium effect behind volatility asymmetry is more pronounced for firms which have higher covariance with the market Bekaert and Wu (2000). In other words, the level of volatility varies in direct proportion to market beta. Islamic equities, due to the nature of less diversification, theoretically have high beta in response to more volatile returns.

The overall risk-return characteristics of Islamic equities remain unclear, which motivates this study to explore their risk-return profile. Firstly, this study only focuses on systemic risk (market beta), average returns, volatility, and correlation. The reason for considering correlation can be linked to a

[2] (i) A company's debt financing is not more than 33% of its capital, (ii) interest-related income of a company is not more than 10% of its total income, (iii) the composition of account receivables and liquid assets (cash at banks and marketable securities) compared to total assets is minimum at 51% while a few cite 33% as an acceptable ratio.