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Do global risk factors and macroeconomic conditions affect global Islamic index dynamics? A quantile regression approach

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ABSTRACT

The aim of this paper is to explain global Dow Jones Islamic Market Index (DJIMI) dynamics across quantiles during the period of January 2003 to October 2014. Using quantile regression approach, we investigate the co-movement and the dependence structure between DJIMI returns and influential global financial market conditions, macroeconomic indicators and risk factors (major conventional stock market indices returns, global stock market uncertainty (VIX), crude oil prices, inflation rates, slope of the yield curves, investor sentiment indicator, and global sovereign credit risk represented by sovereign credit default swap (CDS) premiums). The empirical results demonstrate that conventional stock market returns, stock market implied volatility and the slope of the yield curve (as a proxy for future economic conditions) are significant for all the quantiles and display asymmetric tail dependence. During and after the global financial crisis, the sovereign credit risk factor has also been significant with positive coefficients, implying the impact of systemic nature of sovereign credit risk on explaining DJIMI returns. Moreover, the impact of oil prices and investor sentiment indicator is positive and significant but only for the lower quantiles.

1. Introduction

Islamic finance is not only a fast-growing field but has now officially moved into the mainstream of financial markets. Islamic finance is the practice of conducting finance in compliance with the rulings of Islamic law (or *Sharia*) principles[1]. The central feature of Islamic finance is the prohibition of the payment and receipt of interest (or *riba*). The conventional definition of "riba" is the prohibition of charging interest when lending money and of any addition to money that is unjustified (such as a penalty). Lending money by charging interest allows the lender to increase his capital without any effort because money by itself does not create "valued added". In addition, Islamic finance prohibits investing in transactions involving gambling, alcohol, and drugs and transactions including uncertainty regarding the subject matter and terms of contracts (or *gharar*). This practice includes a prohibition on selling something that one does not own or the characteristics of which are not certain and upon contractual terms that are ambiguous. In Islamic finance, capital must have a social and ethical purpose beyond pure and unfettered return. In addition, the association between risk–return and the notion of profit and loss sharing and partnerships inherent in Islamic contracts are central to Islamic finance.

The strong disapproval of interest by Islamic law led Muslim thinkers to explore ways and means by which firms and investors could be financed on an interest-free basis. The demand of Islamic financial instruments is growing at a high rate. Islamic investors seek to invest only in investments that are compliant with Sharia. Islamic investments that are compliant with Sharia are based on ethical principles and consider the social implications of a business transaction. One area of Islamic finance that attracted many investors is the development of Islamic indices that are stock benchmark indices designed to track the performance of publicly traded Sharia compliant companies.

The main motivation for this study arises from the perception that the Islamic finance instruments may provide a cushion against global risk and instability in conventional financial markets, particularly in the wake of the recent major financial crisis. Furthermore, there is a strong motivation for many investors of different religions to invest in accordance with their faith. This paper contribute to the existent debate by using a quantile regression

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[1] *Sharia* is the moral code and religious law of Islam.

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approach to investigate how global financial market conditions, macroeconomic indicators and numerous other risk factors shape DJIMI return distributions. Quantile regression approach allows information to be inferred on co-movement in bullish (upper quantile), bearish (lower quantile) and normal (intermediate quantile) market circumstances. This study contributes to the existing literature on Islamic equity price dynamics in three ways. First, we analyse how dependence and co-movement between DJIMI price dynamics and global risk factors and macroeconomic conditions varies over different quantiles, as this has implications for international investors in terms of hedging and downside and upside risk management decisions. Second, we add a proxy for investors' sentiment to serve as an indicator of financial crises and proxy for systemic sovereign credit risk using CDS premiums. Third, we report evidence of: (i) co-movement in all quantiles between DJIMI and conventional stock market returns and implied stock market volatility; (ii) co-movement between DJIMI and investor sentiment indicator only for the upper quantiles; (iii) co-movement between DJIMI and sovereign CDS during and after the global financial crisis for all the quantiles.

The remainder of the paper is organized as follows: Section 2 presents a brief background of Islamic stock markets indices developments. Section 3 discusses a theoretical framework for Islamic index studies. Section 4 presents the quantile regression methodology. Section 5 presents data and preliminary statistics. Section 6 presents estimation results and discussion. Section 7 presents the conclusions.

2. Background on Islamic stock markets indices

The domination of the "Originate and Distribute" or OD model over recent years has led to a significant growth in international structured finance markets. The OD model has presented several benefits to the financial system. Banks' increasing use of the OD model in their term-lending business lead to a transfer of important portions of credit risk out of the banking system (Bord & Santos, 2012). Furthermore, Banks have more money to lend and can make more in loan origination fees. In addition, the OD model provides to investors with a range of risk options. However, the level of innovation and complexity in structured instruments has also increased and posed challenges for appropriate risk assessment and valuation by investors, thus raising financial stability concerns. According to Naifar (2014), the OD model coupled with the easy global money and credit conditions that have existed over many years, advances in structured finance, and a persistent rise in risk-taking and financial leverage contributed to the recent financial crisis. An alternative to the OD model is the Islamic finance model, which works on the basis of risk sharing instead of risk shifting. Lending transactions under Islamic finance are based on the concept of asset backing and specific credit participation in identified business risk.

A variety of *Sharia* compliant financing and investment structures has been developed. The most commonly utilized structures are *Murabaha* (cost-plus financing at an agreed profit margin), *Mudarabah* (a special type of partnership), *Musharaka* (sharing and participation) and *Ijara* (Leasing). Last few years, there has been the development of Islamic indices that are stock benchmark indices designed to track the performance of publicly traded Sharia compliant companies. Islamic stock market indices have gained popularity because of the greater potential of growth and profitability (Hassan & Girard, 2010). In addition, Islamic indices are designed to comply with Islamic ideology, and the management of funds is strictly regulated to avoid fee-gauzing and other means of unethical transfers to operators (Ho, Abd Rahman, Yusuf, & Zaminor, 2014). The Islamic index series methodology is in compliance with generally accepted Sharia principles and consists of rigorous screenings for business activities (to ensure that they are not involved in any non-Sharia compliant activity, such as gambling and the production of pork and alcohol) and financial ratios and purification of dividends.

Most major global banks and investment firms, both in Islamic and in non-Islamic countries, provide investors with the opportunity to invest in compliance with Sharia principles. Islamic indices were launched for the first time in the late nineties. The Dow Jones Islamic Market Index (DJIMI), launched in February 1999 in Bahrain, was the first index created for investors seeking investments in compliance with Sharia. Today, the Dow Jones Islamic Market Indexes currently offers a variety of nearly 70 Sharia compliant measures covering equity and fixed income securities across the globe. In October 1999, the FTSE Group launched the Global Islamic Index Series (GIIS) on the London Stock Exchange. In December 2006, Standard and Poor's launched the S&P Global Investable Sharia Index Series (S&P 500 Shariah Index, the S&P Europe 350 Index and the S&P Japan 500 Index). The index series includes regional and country investable indices. In July 2007, MSCI Barra launched the Morgan Stanley Capital International (MSCI) Global Islamic Indices designed to reflect Sharia investment principles while retaining replicability for international investors. In January 2008, Standard and Poor's launched three new benchmark indices designed to help investors track the performance of the largest global universe of more than $20 trillion of Sharia-compliant equities. The three indices are the S&P LargeCap World Sharia, S&P SmallCap World Sharia and S&P UK Sharia and cover 26 developed markets. In May 2009, Standard and Poor's launched the S&P/TSX 60 Shariah Index. This index is the leading tradable Canadian index designed to represent leading companies in leading industries. The S&P/TSX 60 Index covers approximately 73% of Canada's equity market capitalization. In June 2006, Russell Investments (Russell) and Jadwa Investment (Jadwa) launched the Russell–Jadwa Shari'ah Global Index (RJSGI). The index contains more than 2700 securities from over 60 countries and is organized by region, country, and developed and emerging markets. In February 2011, Stoxx limited (the market-moving provider of innovative, substantial and global index concepts) introduced the STOXX Europe Islamic Index and its two blue-chip sub-indices, the STOXX Europe Islamic 50 and EURO STOXX Islamic 50. These indices measure the performance of Sharia compliant companies selected from the universe of Stoxx Europe 600 index. In February 2013, the S&P Dow Jones Indices and the Bombay Stock Exchange (BSE) created the S&P BSE 500 Sharia index. The index joins the family of S&P Sharia indices with the S&P 500 Sharia, S&P Europe 350 Sharia, and S&P Pan Asia Sharia indices among others. Table 1 summarizes the development of the major active global Islamic stock indices.

3. Literature review

The effect of macroeconomic variables on stock market behavior is a well-established theory in the financial economics literature. Most of the existing literature on the effect of macroeconomic variables on stock market returns provides tests and empirical evidence for: (i) relationship between monetary policy variables and stock market returns (e.g. Flannery & Protopapadakis, 2002; Kurov, 2010), (ii) relationship between oil price shocks and stock market returns (e.g. Jones & Kaul, 1996; Basher & Sadorsky, 2006; Mohanty, Nandha, Turkistani, & Alaitani, 2011; Naifar and Al Dohaiman, 2013), and (iii) impact of key macroeconomic indicators on stock returns dynamics (e.g. Boyd, Hu, & Jagannathan, 2005; Abugri, 2008; Mun, 2012).

Other studies introduce the effects of behavioral finance in explaining conventional stock market returns dynamics because