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Are Dow Jones Islamic equity indices exposed to interest rate risk?

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ABSTRACT

The Dow Jones Islamic Market indices (DJIMI) are constructed by screening out stocks that are incompatible with Islam's prohibition of interest and certain lines of business. However, as a blunt instrument, the interest rate can affect discounted cash flows of any firm, even a firm with no financial leverage. This study reveals that the aggregate portfolio of Islamic stocks is immune to interest rate risk. However, at the sectoral level some Islamic equity portfolios demonstrate exposure to interest rate risk. Overall, evidence of interest rate risk exposure is less pronounced among Islamic sector portfolios than that of their mainstream counterparts—the Dow Jones World sector indices. The results also hold when interest rate risk is assessed in terms of the sensitivity of the DJIMI return to changes in level, slope and curvature of the interest rate term structure.

1. Introduction

Islamic investment has received attention in financial press for withstanding the recent global financial market turmoil. In recent years the global market for Islamic financial services has grown between 10 and 15% annually, and contrary to popular beliefs, most of this growth originates from non-Muslim countries. Islamic assets under management have reached over US 3.5 trillion dollars. Islamic finance is guided by the principles of Islamic law (*shariah*), which prohibits interest (*riba*), excessive risk-taking (*gharar*), gambling (*maysir*), and promotes risk-sharing, profit-sharing, asset-backed financial transactions, and ethical investment.[1]

Islamic investment can be regarded as a subset of the socially responsible or ethical investment universe. The growing demand for Islamic investment products is seen as new business opportunities by some, while others articulate concerns about the potential link between Islamic finance and political agendas (see Ilias, 2008; Kuran, 1995). The former view has been gaining momentum, which is evident from the burgeoning global interest in Islamic stock market indices, Islamic bonds (*Sukuks*), exchange-traded Islamic managed funds, Islamic insurance (*Takaful*), and the launch of the Islamic interbank benchmark rate (IIBR), among others. Subsidiaries of the mainstream global financial institutions such as Citibank, Barclays, Morgan Stanley, Merrill Lynch, and HSBC are now offering Islamic financial services. In the United Kingdom alone, about 20 conventional banks offer Islamic financial services. The Dow Jones Islamic Market Indices (DJIMI) were launched in 1999 to provide a global investable universe of stocks that comply with Islamic law (*shariah*). As of December 2013, the DJIMI includes 2177 stocks from 55 countries (Dow Jones, 2013). The Dow Jones Shariah Supervisory Board acts as a gatekeeper to determine permissible stocks under Islamic law.[2] The board comprises of five distinguished Islamic scholars from different parts of the world to reflect diverse interpretations of *shariah*.

There is a vast literature on Islamic banking[3] but the literature on Islamic investment is sparse, primarily covering the performance of Islamic equity indices and mutual funds. For example, Hussein and Omran (2005) observe that Dow Jones Islamic Market Indices yield positive abnormal returns and outperform Dow Jones mainstream indices over January 1996 to July 2003. The outperformance is driven by the overrepresentation of small, basic materials, consumer cyclical, industrial and telecommunication firms in the Islamic market indices. However, DJIMIs underperform their conventional counterparts in the bear market (April 2000–July 2003). Extending the sample of Hussein and Omran (2005) to November 2005, Girard and Hassan (2005) observe no significant difference in risk-adjusted performance between DJIMIs and corresponding mainstream MSCI indices. As they compare performance of DJIMIs with mainstream MSCI indices rather than with their

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[1] For a detailed overview of Islamic finance see Zaher and Hassan (2001), El-Gamal (2006), Shanmugam and Zahari (2009), and Iqbal and Mirakhor (2011).

[2] The Islamic investment guidelines and Dow Jones screening criteria are discussed in Section 2.

[3] For example, Beck et al. (2013) finds that Islamic banks outperform their conventional counterparts in terms of stock returns during the GFC. They attribute this result to Islamic banks' higher asset quality and better capitalization. In a similar vein, Abedifar et al. (2013) investigates risk exposure of 553 Islamic banks. They observe that compared to conventional banks, loan quality of Islamic banks is less sensitive to interest rate changes and small Islamic banks are more stable.

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mainstream Dow Jones counterparts, their results should be interpreted with caution.

Since Islamic investment can be considered part of the ethical investment universe, the findings of Bauer et al. (2005) are worth noting. Using data for 103 German, U.K. and U.S. ethical mutual funds over January 1990 to March 2001, they observe no significant differences in risk-adjusted returns between ethical and mainstream funds. Apparently there is no trade-off between moral wellbeing and financial wellbeing, at least in the boom market period. Al-Zoubi and Maghyereh (2007) examine the risk performance of the Dow Jones Islamic Market Index using the Value-at-Risk approach. They observe that the DJIMI outperforms the Dow Jones World Index in terms of risk and attribute this finding to the profit-and-loss sharing principle of Islamic finance. However, their interpretation does not fit well with the fact that a vast majority of DJIMI constituent firms are essentially non-financial firms with low debt and ethical line of businesses, and they follow the shareholder wealth maximization principle rather than the profit-and-loss sharing (PLS) principle. This is also supported by Chong and Liu's (2009) finding in the context of an emerging Islamic financial market — Malaysia. They find that returns on Islamic deposits are closely pegged to conventional deposits and only a small portion of Islamic bank financing activities comply with the PLS principle.

To our knowledge, there is no study on the interest rate sensitivity of Islamic stocks, but considerable attention has been given in the literature to examine interest rate exposures of mainstream stocks, particularly financial firm stocks. Flannery and James (1984), Sweeney and Warga (1986), Choi et al. (1992), Elyasiani and Mansur (1998) and Reilly et al. (2007) examine the ex-post relation between interest rate changes and financial stock price changes. This relationship is referred to as empirical duration and is used as a measure of interest rate risk exposure. Empirical duration reflects the proportionate change in market value of a firm's equity due to a change in interest rate.

The primary aim of this paper is to examine the interest rate sensitivity of Islamic equity returns. In a pure Islamic economic system, firms would have no interest sensitive assets or liabilities. Therefore, the issue of interest sensitivity of stock returns would not be relevant. However, in a market economy, the value of a firm can be influenced both directly and indirectly by interest rates. As a blunt instrument, the interest rate can affect the whole economy and lead to changes in discounted cash flows of all firms. Thus, firms with no financial leverage, interest receivables or payables are not necessarily immune to indirect effects of interest rate changes. The direct effect of interest rates depends on the firm's interest sensitive assets and liabilities as well as off-balance sheet activities. Islamic scholars have made some concessions on the permissible degree of financial leverage and the level of interest income in relation to DJIMI constituent firms. Thus, we expect Dow Jones Islamic equity returns to be sensitive to interest rate changes but to a lesser degree than that of their conventional counterparts. Furthermore, a change in the level of interest rate reflects only the parallel shift of the yield curve, which may lead to an inadequate measure of interest rate risk. Thus, the robustness of the results is checked by examining the sensitivity of stock returns to changes in level, slope, and curvature of the term structure of interest rates. The level, slope and curvature factors are estimated using the Nelson and Siegel (1987) model of interest rate term structure. In addition, this paper investigates whether the return volatility responds asymmetrically to bad and good news. Asymmetric volatility is viewed as a manifestation of the leverage effect (Black, 1976). The leverage hypothesis states that bad news (negative return shocks) increases financial leverage and makes the stocks riskier, which in turn increases return volatility. To verify this conjecture, this paper examines the possible asymmetric response of return volatility to good and bad news, employing a threshold generalized autoregressive conditional heteroskedasticity (TGARCH) model.

The rest of this paper is organized as follows. Section 2 briefly outlines the key principles of Islamic finance and the Dow Jones screening criteria to comply with those principles. Section 3 provides a description of data and descriptive statistics of the DJIMIs and their conventional counterparts. Section 4 presents empirical models. The results are discussed in Section 5 and Section 6 presents concluding remarks.

2. Islamic finance and Dow Jones screening criteria

In a capitalist economy, market forces and self-interest motive dictate economic decisions, and distribution of income is directly linked to the resource endowments of individuals. Distributive justice is achieved primarily through affirmative actions and tax and transfer policies of governments rather than imposing moral boundaries on activities of economic agents. Like the capitalist system, Islam recognizes private ownership, market forces and profit motive but imposes moral prohibitions on economic activities with the aim to ensure distributive justice and bring a balance between material attainment and spiritual attainment of human beings. The Islamic ethical system has emerged from two sources: the holy book of Islam—the Qur'an and the teachings and practices of Prophet Mohammad, PBUH[4] (*sunnah*). Islam adopts a holistic approach to economic decision-making where behavior of rational economic agents is bounded by a set of moral prohibitions: the prohibition of interest or usury (*riba*), the prohibition of excessive risk-taking (*gharar*) and the prohibition of sinful (*haram*) economic activities. The DJIMI Shariah Supervisory Board has developed a screening process to exclude firms whose core business activities are incompatible with these prohibitions (see Siddiqui, 2007). A brief overview of these prohibitions along with the Dow Jones screening process for Islamic stocks is presented below.

2.1. Prohibition of interest (riba)

In a capitalist economy, interest rate is regarded as the rental price of money, reflecting compensation to lenders for delaying consumption and possible depreciation in the value of money. In contrast, Islamic law prohibits such compensation regardless of whether it takes the form of a lump-sum payment in advance or on maturity, a fixed or variable, or simple or compounded.[5] In Islam, money is viewed purely as a medium of exchange, not an asset. Thus, Islam does not permit a Muslim to earn a return by simply transforming money into a debt instrument. Instead, in Islam entitlement to return arises from ownership of assets and bearing the risks associated from its ownership (see Kahf and Khan, 1992). Hence, Islam promotes profit-and-loss sharing (PLS) arrangements between suppliers and users of funds. Islamic scholars view *riba* as a means to exploit weaker market participants and argue that a PLS arrangement is conducive to distributive justice as it ensure more equitable sharing of risk and return. Islam not only prohibits *riba* but also encourages giving of interest-free loans (*Qard-e-Hasana*) as a spiritually rewarding act for the welfare of the society.

[4] The acronym PBUH stands for 'peace be upon him'—a phrase uttered by Muslims to show their respect to a prophet.

[5] The Qur'an states: *Those who consume interest cannot stand [on the Day of Resurrection] except as one stands who is being beaten by Satan into insanity. That is because they say, "Trade is [just] like interest." But Allah has permitted trade and has forbidden interest* (*Al-Baqarah 2:275;* accessed from http://quran.com/2/275). Prophet Mohammad (PBUM) is reported to have said: *May Allah send down His curse on the one who devours Riba and the one who pays it and on the two witnesses and on the person writing it* (Ahmad, No: 624; accessed from http://theliteral.com/business-ethics-islam/). Stance against interest can also be found in Christianity and Judaism (Cornell, 2006). For details, see the Old Testament (Exodus 22:25; Leviticus 25:35; Deuteronomy 23:19; and Psalms 15:5 at http://www.biblestudytools.com/esv/). The book of Deuteronomy (23:19) states: *Do not charge your brother interest, whether on money or food or anything else that may earn interest.*