Predictability dynamics of Islamic and conventional equity markets[☆],[☆☆]

Ahmet Sensoy [a],[*], Guler Aras [b],[c], Erk Hacihasanoglu [a],[d]

[a] Borsa Istanbul, Research & Business Development Department, Emirgan, Istanbul 34467, Turkey
[b] Georgetown University, McDonough School of Business, Northwest Washington, DC 20057, USA
[c] Yildiz Technical University, Faculty of Economic and Administrative Sciences, Besiktas, Istanbul 34349, Turkey
[d] Borsa Istanbul, Index & Data Department, Emirgan, Istanbul 34467, Turkey

A R T I C L E   I N F O

A B S T R A C T

This study undertakes the challenging task of comparing the weak form efficiency of conventional and Islamic equity markets. Using 12 different Dow Jones indexes that cover 16 years of daily data, we compare the time-varying non-linear predictability patterns of conventional market indexes and their Islamic counterparts at country and continent level by using permutation entropy. Accordingly, we find that all indexes in our analysis have different degrees of time-varying predictability and all conventional markets are found to be more efficient compared to their Islamic counterparts. However, in some of the cases, this difference in efficiency is almost indistinguishable. Our findings reveal that compared to their conventional counterparts, Islamic markets do not necessarily need to carry a more deterministic or predictable structure since efficiency in these markets depends mostly on liquidity, market quality, institutional characteristics and the country/continent specific investment behavior.

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1. Introduction

The concept of market efficiency has been widely discussed in finance literature for a very long time. According to weak form[1] of the Efficient Market Hypothesis-EMH (Fama, 1970), stock prices follow a random walk, a term to denote the logic asserting that tomorrow's price changes only reflect tomorrow's news where news is assumed to be unpredictable hence price changes must be random (Malkiel, 2003).[2] However, as far as financial markets are concerned, the notion of long-range dependence was shown to exist in asset returns first by Mandelbort (1971) and then by many others,[3] and the presence of such dependence brings out serious problems: The investors' preferred investment horizon becomes a risk factor (Mandelbort, 1997), the methods used to price financial derivatives (such as the Black and Scholes (1973) model) may not be useful any more, and the usual tests based on the Capital Asset Pricing Model or Arbitrage Pricing Theory (Black, Jensen, & Scholes, 1972) cannot be applied to these series. Moreover, investors can earn consistent higher returns than in a buy-and-hold strategy.[4]

As the literature expanded drastically, the tests of random walk and weak form efficient market hypothesis have been performed on almost all the conventional markets of developed and emerging countries through empirical research. However, although it is of great interest for academics and practitioners, literature on market efficiency, dependency in returns and predictability structures is highly limited for Islamic markets; indeed, solid works can be counted on the fingers of one hand. Islamic finance assets and markets following the Sharia-based principles have been consistently gaining importance in finance industry and are expected to reach to a larger society as more countries and institutions accept them.[5] Considering their increasing importance, the lack of studies on the subject brings out an essentially for a deep understanding of the efficiency in Islamic equity markets.

As it is understood, this study has the novel aim of comparing the efficiency of Islamic and conventional equity markets. This comparison seems to be very interesting since the Islamic markets exhibit some properties that are not present in their conventional counterparts: Due to the ideology behind, Islamic markets prefer investments in growth and promising stocks with small capitalization, which usually suffer from illiquidity compared to the conventional stocks.[6] Besides, since they require real transactions by definition, financial derivatives such as futures and options, government debt issues with a fixed coupon rate, hedging by forward sale, interest rate swaps and any transaction involving items not physically in the ownership of the seller (e.g., short sales) are not allowed in this context (Alvarez-Diaz, Hammoudeh, & Gupta, 2014). Moreover, not only the equity markets but also the conventional and Islamic equity funds also have strict differences as Islamic equity funds possess some

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[1] Other forms are semi-strong efficiency, where the information set is all public known and the strong efficiency, where prices reflect all kinds of information (public and private).

[2] In efficient markets literature, the terms "random walk" and "martingale" are generally used interchangeable. However, the term that is of essential interest is the martingale property (or unpredictability). In particular, random walk requires independent and identically distributed innovation series, while martingale requires "martingale difference sequence" for innovations. Clearly, random walk hypothesis implies the martingale hypothesis (as the former is more restrictive), but the inverse is not always true.

[3] For the early studies, see Fama and French (1988), Lo and Mackinlay (1988), Poterba and Summers (1988), Brock, Lakonishok, and LeBaron (1992), Cochran, DeFina, and Mills (1993). For the recent studies, see Di Matteo, Aste, and Dacorogna (2005), Cajueiro and Tabak (2006), Kim and Shamsuddin (2008), Cajueiro, Gogas, and Tabak (2009), Lim and Kim (2011), Addo, Billio, and Guegan (2013), Ajmi, Hammoudeh, Nguyen, and Sarafrazi (2014).

[4] Although, on the contrary to the long-range dependence, short-range dependence is generally accepted up to some point even by the supporters of EMH as exploiting short memory patterns requires a very active trading strategy and excess returns earned can be smaller than the transaction costs.

[5] According to Kuwait Finance House Group Research, the total Islamic finance assets will reach USD 2.1 tln by the end of 2014, and the total asset of Islamic banking sector will reach USD 1.6 tln. The Islamic finance industry's assets are estimated to have amounted to USD 1.8 tln as at end of 2013, recording an over 16% year-on-year growth. For details, see http://www.kuna.net.kw/ArticleDetails.aspx?id=2359950&language=en.

[6] Companies with business activities including alcohol, gambling or gaming, conventional financial services, pork and pork products, tobacco, weapons and pornography are not included in Islamic market indexes and are considered as unacceptable investments according to the Sharia rules. The Shariah Advisory Board is the highest authority that provides the guidelines and regulations where investments in Islamic compliant businesses must be based on the Islamic principles of transactions referred to as Muamalat. Screening of compliance in accordance to a set of ethical and trading restrictions are in place.