

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Physica A

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

Market efficiency of Baltic stock markets: A fractional integration approach

Luis A. Gil-Alana^a, Rangan Gupta^b, Olanrewaju I. Shittu^c, OlaOluwa S. Yaya^{c,*}

^a Department of Economics & ICS, University of Navarra, Pamplona, Spain

^b Department of Economics, University of Pretoria, Pretoria, South Africa

^c Economic and Financial Statistics Unit, Department of Statistics, University of Ibadan, Ibadan, Nigeria

HIGHLIGHTS

- Fractional integration technique as alternative method for testing Efficient Market Hypothesis (EMH).
- Weak form efficiency of Baltic stock markets.
- Bull and Bear market phases of Baltic stocks.
- Bear market volatility persists longer than bull market volatility.

ARTICLE INFO

Article history:

Received 4 April 2018

Received in revised form 13 June 2018

Available online xxxx

Keywords:

Baltic stocks

Bull and bear phases

Efficient market hypothesis

Fractional cointegration

Fractional integration

Volatility

JEL classification:

C22

ABSTRACT

We investigate financial market efficiency in the time series of four daily Baltic stock market indices, namely: Baltic Benchmark Gross Index (OMXBBGI), all share index of Tallin-Lithuanian (OMXT), all share index of Riga (OMXR) and all share index of Vilnius (OMXV), based on historical data from 1 January, 2000 to 22 January 2016. We use fractional integration methods to test the hypothesis of market efficiency. Realizing that long-memory estimation could be spurious in the presence of structural breaks, we identify bull and bear market phases from each of the time series. Applying the fractional integration approach, we find that the random walk hypothesis of market efficiency is generally rejected in the overall, and at two bull and one bear sub-samples of the four Baltic stock indices. The volatility at the bear markets of these stocks persists more than the volatility at the bull markets. Our results therefore provide evidence for weak form of market efficiency in the Baltic stock markets, with some exceptions. As a way of policy, the results are relevant to portfolio managers and policy makers in a number of ways.

© 2018 Elsevier B.V. All rights reserved.

1. Introduction

The three countries by the coast line of the Baltic Sea, in the geographical centrum of Europe are the Lithuania, Latvia and Estonia. These countries obtained their independence from the Russian Empire in the 90s and became members of the North Atlantic Treaty Organisation (NATO) in March 2004, and later member states of the European Union (EU) in May 2004 [1]. Over the years, these countries have experienced high economic growth. This rapid economic growth was fuelled by Foreign Direct Investment (FDI) inflows which was abruptly terminated during the financial crisis period of 2008 to 2009 [2].

The Baltic stock markets are “niche” markets from global perspective. These are new markets with low market capitalizations and low trading volumes. Moreover, with the fact that these countries are emerging economies ginged

* Corresponding author.

E-mail address: os.yaya@ui.edu.ng (O.S. Yaya).

Table 1
Overview of Baltic Stock Markets.
Source: World Bank.

States	Variables	Mean (1995–2012)	S.D. (1995–2012)
Estonia	Market capitalization in \$ Billions	2,841,496,277	1,789,988,815
	Portfolio-net inflows in \$	–28,288,982	369,224,003
Latvia	Market capitalization in \$ Billions	1,181,142,493	905,648,516
	Portfolio-net inflows in \$	8,021,278	21,558,466
Lithuania	Market capitalization in \$ Billions	3,860,776,732	3,153,798,169
	Portfolio-net inflows in \$	12,554,087	63,023,488

Portfolio equity includes net inflows from equity securities other than those recorded as direct investment and including shares, stocks, depository receipts (American or global), and direct purchases of shares in local stock markets by foreign investors.

the interest of researchers to study the level of financial market efficiency, with the mind of obtaining useful information relevant to decision makers and traders. The understanding of the efficiency or otherwise of the Baltic stock markets may be useful to investors in their portfolio diversification decisions and risk management [2–4]. The first Baltic stock market commenced operation after the Second World War in 1993, as the Vilnius Stock Exchange (VSE) in Lithuania. Later, Riga Stock Exchange (RSE) in Latvia started trading in 1995 and Tallinn Stock Exchange (TSE) in Estonia commenced operation in 1996. The descriptive statistics of the financial market conditions of the Baltic States are given in Table 1. Of these three markets, VSE is the largest stock market based on the market capitalization, and this is followed by the TSE, while the RSE is the smallest stock market. The three Baltic States have achieved substantial economic success since the independence period. In spite of these achievements, income levels are still low below those in developed or high income economies. In 1995, income levels in the Baltic States were over 20 percent of the level in the USA, with Latvia having the lowest income level of the three, and Estonia as the richest and best developed. In 2014, income level of the States was 43–50 percent of the level in the USA and 51–59 percent of the level in Sweden which is a neighbouring country [5]. Between 2008 and 2009, the three countries faced an economic crisis with deep recession of more than 14 percent, which is more in other Euro areas [5].

Research regarding efficiency of Baltic stock markets is very scarce. Since efficient markets would imply that nothing but its own past information predicts the movements in the stock markets, suggesting that these markets are unaffected by, possible, other domestic and global macroeconomic and financial predictors affecting stock prices.

The aim of this paper is to analyse whether stock markets in the three Baltic economies can be dubbed as efficient. For this purpose, we investigate financial market efficiency in the time series of four daily Baltic stock market indices namely Baltic Benchmark Gross Index (OMXBBGI), all share index of Tallinn-Lithuanian (OMXT), all share index of Riga (OMXR) and all share index of Vilnius (OMXV), based on historical data from 1 January, 2000 to 22 January 2016. We use fractional integration methods to test the hypothesis of efficiency instead of the standard practice of applying unit root testing, given that it is quite well-known that unit root tests have very low power against trend-stationarity [6], structural breaks [7,8], regime-switching [9], or fractional integration [10–12]. Moreover, fractional integration tests are more general than the classical unit root tests in the sense, for example, that they allow for more flexible specifications, including the unit root case as a special case of interest when the number of differences is 1.

Fama [13] formalized the argument that stock prices were following a random walk. In the literature, they defined the efficient market: “In an efficient market, at any point in time, the actual price of a security will be a good estimate of its intrinsic value” ([13]; in [1]).¹ Fama [16] developed the efficient market hypothesis (EMH) which is widely applied in empirical financial time series analysis. The EMH stated that the prices of assets already contain past information and in the event of new information, the price quickly adjusts so that at any time, the security price will be equal to its real value. The weak form of market efficiency means that current stock prices reflect all information from market transactional data (see [17]). Government, investors and stakeholders are exposed to unhedged risk whenever they assume that countries are not related in their financial activities [18]. The countries in the same region often experience similar financial dependency, particularly in the time of extreme market movements. The Baltic stock markets are emerging markets in the same region that experience such financial dependency, and these markets are with low liquidity, low trading volumes and low absorption of information and news.

The wealth of a country is determined by the capitalization of her equity markets. The stability of market prices is then measured by the level of volatility observed. Volatility is a very prominent property of stocks which is observed from the data (see [19,20]). Financial observers also need to look out for market efficiency; is it in the weak form or not? (see, e.g., [16]). An efficient market is therefore a trading platform whereby there are no possibilities of making abnormal returns from an active investment strategy, that is relevant information is incorporated into the prevailing asset price. Lim and Brooks [21] provided a systematic review of the weak-form market efficiency literature that investigated return predictability from past price changes, with an exclusive focus on the stock markets. Their survey showed that the bulk of the empirical studies

¹ Details of other approaches for investigating market efficiency are given in [14,15].

Download English Version:

<https://daneshyari.com/en/article/7374554>

Download Persian Version:

<https://daneshyari.com/article/7374554>

[Daneshyari.com](https://daneshyari.com)