

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

The Journal of Economic Asymmetries

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

Financial markets integration: A vector error-correction approach



Dumitru-Cristian Oanea

Bucharest University of Economic Studies, Romana Square, no. 6, Bucharest 010374, Romania

ARTICLE INFO

Article history:

Received 22 February 2015

Received in revised form

25 June 2015

Accepted 7 July 2015

Available online 19 November 2015

JEL classification:

G15

E44

Keywords:

Capital markets

VECM

Impulse response function

Variance decomposition

ABSTRACT

Financial crisis pointed out the higher possibility of financial contagion and put a bigger attention in recent years on this topic. Integration between financial markets it is the best channel of spreading the negative effects of crises within markets. Due to this, the risk had increased on financial markets, simultaneously with the decrease of the benefits received by investor based on portfolio diversification.

The aim of this paper is to detect any significant interactions among the stock markets from the European Union (EU) countries from the Central and Eastern Europe. We particularly apply cointegration tests and vector error correction model for a set of 6 markets namely: Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovakia. The results highlight that financial crisis had a significant impact on all financial markets from the region. In the same time we pointed out that geographical distribution of the countries have a significant impact on the manner of reciprocal influence between capital markets from the region.

Based on the VEC model we were able to see that the long run term relationship between indices is statistically significant only for BUX, SAX and WIG.

© 2015 Published by Elsevier B.V.

1. Introduction

Crisis periods are very important for economic literature, because researchers are able to analyze in a detailed manner all aspect and particularities of such events in order to point out the main characteristics which can increase the risk on financial markets due to the financial contagion during such periods.

In the literature we are able to find several concepts which are related to such events, namely: international market integration, cointegration and financial contagion. It is important to stress again that we are only dealing with cointegration of the capital markets in normal times of financial stability and not during financial crisis times. The latter period is connected with the concept of financial contagion.

The paper is structured as follows: [Section 2](#) presents the literature review on financial market cointegration, [Section 3](#) presents the methodology we applied, [Section 4](#) presents the data used in the analyses and the main descriptive statistics for the data sets, [Section 5](#) point out the main findings of our research and the last section, [Section 6](#) concludes the paper.

2. Literature review

International market integration represents a common used perspective to study the global markets integration and usually it is related to the impact that it has on economic growth, but this is not the object of our study. We are interested in

E-mail address: oanea.cristian@gmail.com

the economic integration point of view. Europe is the best example for studying for economic integration. After 1999, when euro became the common currency, the exchange risk was eliminated. Even if money markets and the bond markets have become very much integrated, the banking sector and the integration of equity markets is still far from being completed. In our study we deal with connections between the financial markets that are part of the economic integration process.

The second term, “Cointegration” it is strictly referring to time series. If a linear combination of two or more non-stationary variables are stationary we can said that the variables are cointegrated. This co-integration relationship means that there is a long-term economic equilibrium between the two variables, which are moving in the same direction (Engle & Granger, 1987).

Kodres and Pritsker (2002) define contagion in a more restrictive way as “a shock in one country that generates price movements in other countries that are excessive relative to ‘full information’ fundamentals.” Further Forbes and Rigobon (2002) define contagion as “a significant increase in cross-market linkages after a shock to one country”.

Moreover, Masson (1998) describes the three main channels of the turbulences in the financial markets as contagion moves from one country to another, namely: monsoonal effects (exhibit when the countries that are affected are sharing similar economic characteristics or are facing common shocks), spillovers (appear because of trade linkages or financial interdependence) and the pure contagion effects (crisis in one market triggers a crisis elsewhere).

There are a lot of papers regarding the market integration over the last 10–15 years, which are emphasizing the bonds markets and equity markets. After Engle and Granger (1987) introduced the notion of cointegration researchers have started to study the long-run relationships for a series of stock market indices.

Using six major stock market indices for Australia, United Kingdom, United States, Japan, Hong Kong, Singapore, Malliaris and Urrutia (1992) provided evidence that during the stock market crash from 1987 the cointegration between the stock market indices has significantly increased. Further, analyzing the December 1994 economic crisis from Mexico, Calvo and Reinhart (1996) highlighted that the main effects on both small and large open economies, are coming from the US, like swings in the interest rates. When we are speaking about the global markets, based on Bekaert, Harvey and Ng (2005) paper, we find that European Markets are more cointegrated to the world than to United States markets. Moreover, there are not found long-term linkages between CEE countries and the more developed European countries.

Going further Hon, Strauss and Soo-Keong (2004) have argued if the terrorist attack on the US produced a contagion in the financial markets. The time of the response from the European market to the United States ranged between 3 and 6 months.

If we are referring to European countries, there was pointed out a co-movement between the Hungarian and the Polish markets for the period between 1995 and 1997 by Scheicher (2001), which measured market integration between stock markets from Czech Republic, Hungary and Poland using a Multivariate GARCH-diagonal VEC model.

Further, Syriopoulos (2007) highlights that the major Central European markets, among which Czech Republic, Hungary, Poland and Slovakia tend to show stronger linkages with the developed countries than with the other Central European neighbors. In the same time, it seems that Czech Republic, Hungary and Poland display tighter links to the other members of the European Union (Gilmore, Lucey & Boscia, 2008).

Most of the studies found a significant increase in the cointegration of the markets post crisis. For emerging markets, although they display some segmentation with the developed markets, they seem to be more vulnerable to the effects of contagion (Horobet and Lupu, 2009).

The effect of crisis period over the financial markets integration is also pointed out by Lee, Shie and Chang (2012), which shows the presence of co-movement patterns during the crisis period. Further, Yang (2012) uses adjusted data with risk free rate for employing the cointegration methodology.

The relationship between markets were analyzed by Yang, Lee, and Shie (2014) using the equal variance test. Their paper indicate that the similarity of background and business cooperation are main factors for determining the price patterns.

3. Methodology

The first step in our analysis is performing a unit root test, based on Dickey and Fuller (1979) methodology. For this purpose we apply the Augmented Dickey–Fuller (ADF) test on the natural logarithm of each market index price values, based on the Eq. (1):

$$\Delta \ln P(x)_t = \alpha + \beta \cdot t + \mu \cdot \ln P(x)_{t-1} + \sum_{i=1}^p \phi_i \cdot \Delta \ln P(x)_{t-i} + \varepsilon_t \quad (1)$$

where $P(x)_t$ is the price value for index x for period t , and p is the maximum lag length selected based on Schwarz (1989) criterion known as Schwarz or Bayesian Information Criterion (BIC). We prefer BIC criterion due to fact that BIC is more consistent compared with Akaike Information Criterion (AIC) as it is pointed by Cavaliere, Phillips, Smeekes and Taylor (2015). In the same time the assumption states that error term is independent and identical distributed.

Furthermore, we apply another unit root test proposed by Phillips and Perron (1988) which is making a non-parametric correction for residual serial correlation without assuming that the error term is white noise.

Engle and Granger (1987) pointed out that differencing non-stationary variables can distort important facts regarding the relationship between the initial variables. For this reason a linear combination of non-stationary series can be stationary if

Download English Version:

<https://daneshyari.com/en/article/5097698>

Download Persian Version:

<https://daneshyari.com/article/5097698>

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