



19th International Conference Enterprise and Competitive Environment 2016, ECE 2016, 10–11
March 2016, Brno, Czech Republic

Conditional correlation coefficient as a tool for analysis of contagion in financial markets and real economy indexes based on the synthetic ratio

Rafał Siedlecki^a, Daniel Papla^{b,*}

^aDepartment of Corporate Finance and Value Management, Wrocław University of Economics, Komandorska 118/120, 53-345 Wrocław, Poland

^bDepartment of Financial Investments and Risk Management, Wrocław University of Economics, Komandorska 118/120, 53-345 Wrocław, Poland

Abstract

We define contagion in financial markets as a significant increase in cross-market linkages after a shock to one or group of countries. Contagion occurs if cross-market co-movement increases significantly after the shock. In this article, the authors attempt to answer the question whether the selected world stock exchanges and economies are infecting each other within the meaning of the definition provided. Conditional copula functions and conditional Spearman's correlation coefficient will be used as a tool. Construction of a synthetic index of world financial markets is introduced. This index is based on the taxonomic distances of chosen stock market from the "best" object, where the best means object which has highest financial parameters.

Main goal of this paper is to analyze changes in dependence between US stock market (S&P500) and chosen groups of world stock markets and constructed real economy index.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of ECE 2016

Keywords contagion in financial markets, synthetic measurement, conditional measure of concordance

* Corresponding author. Tel.: +48 71 36 80 373

E-mail address: daniel.papla@ue.wroc.pl



1. Introduction

Financial crises are an important phenomenon for the economy because in time of the crisis the cost of intermediation and the cost of credit increases, access to credit is also more difficult. This results in a reduction in activity of the real sector which may lead to the crisis in this sector.

The quite high incidence of financial crises may lead to the conclusion that the financial sector is particularly sensitive to various types of disturbances. In particular, the crisis of recent years has shown how the global economy is sensitive to disturbances in the era of globalization (BIS, 2009; Brunnermeier, 2009; Coffee, 2009; Guillen, 2009; Kolb 2010; Shiller, 2008). For the purposes of examination of determinants of the spread of the financial crisis, one of the methods to analyze the linkages between global capital markets was used in this paper. They should give an answer to the question whether the crisis is a significant increase in the relationship between markets, which in part explains this rapid spread of the crisis.

In literature on contagion most of authors analyses relationship between stock market indices (e.g. see Baig and Goldfajn, 1999; Forbes and Rigobon, 2002; Bae *et al.*, 2003; Baur and Schulze, 2005; Bekaert *et al.*, 2005; Boyer *et al.*, 2006; Chandar *et al.*, 2009; Horta *et al.*, 2010; Markwat *et al.*, 2009 and Dungey *et al.*, 2010 among others). Baur (2013) analyses connection between stock and real markets but he used data only from financial markets, divided on sectors. In our paper we analyse dependence between financial market and real market based on economy indices and stock markets data. We also build synthetic measure based on own economic and stock market data.

A tendency to increase the relationship between financial markets during the crisis, compared with dependency beyond the crisis was one of the phenomena associated with financial crises that have occurred over the past several years. As already mentioned, this property is called financial contagion and because of its fairly serious effects it drew the attention of many theorists and practitioners dealing with finance. Several methods to check the contagion were proposed. Most of these methods focus on finding changes in a multi-dimensional distribution of the return rates in times of crisis and beyond these periods. The basics of this approach and further literature on the subject are presented in papers (Forbes and Rigobon, 2002; Bae *et al.*, 2003; Pericoli and Sbracia, 2003; Dungey *et al.*, 2005; Rodriguez 2007).

Another approach was introduced a few years ago in papers of (Bradley and Taqqu, 2004; 2005a; 2005b). The authors have assumed that market contagion from market X to market Y occurs when the dependence between the market X and Y is greater when the market X is in period of above-average declines than when the market situation X is normal. In other words the dependence is greater when the market X returns are in the left tail of the distribution than in its central part. Since this definition does not focus on the period in which there is a crisis, but the manner in which “place” of distribution we are, contagion defined in this manner is called spatial contagion.

Most often, it is assumed that the contagion in financial markets occurs when in the crisis period correlation between price movements in various financial markets is much greater. In this article, the authors attempt to answer the question whether the selected world stock exchanges and economies are infecting each other within the meaning of the definition provided. Conditional copula functions and conditional Spearman's correlation coefficient will be used as a tool.

Construction of a synthetic index of world financial markets is introduced. This index is based on the taxonomic distances of chosen stock market from the “best” object, where the best means object which has highest financial parameters.

Main goal of this paper is to analyze changes in dependence between US stock market (S&P500) and chosen groups of world stock markets and constructed real economy index. The problem of the rising dependence between the markets in the periods of financial turmoil is already very well-known, proved in many empirical studies and with the application of several econometric methods (multivariate GARCH models, Dynamic Conditional Correlation models,

Download English Version:

<https://daneshyari.com/en/article/1107263>

Download Persian Version:

<https://daneshyari.com/article/1107263>

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