



Contents lists available at ScienceDirect

Research in International Business and Finance

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

Stock market recovery from the 2008 financial crisis: The differences across Europe

Ivan Ivanov^a, Stanimir Kabaivanov^b, Boryana Bogdanova^{a,*}^a Department of Statistics and Econometrics, Faculty of Economics and Business Administration, Sofia University "St. Kliment Ohridski", Sofia, Bulgaria^b Department of Finance, Faculty of Economic and Social Sciences, Plovdiv University, Plovdiv, Bulgaria

ARTICLE INFO

Article history:

Received 5 May 2015
 Received in revised form
 20 December 2015
 Accepted 6 January 2016
 Available online 9 January 2016

Keywords:

Financial crisis
 European stock markets
 Stochastic modeling
 Continuous wavelet transform

ABSTRACT

This study investigates the influence of the 2008 financial crisis on a number of European stock markets. The sample includes EU benchmark indices as well as European markets with slowed or hampered recovery over a period of ten years (2004–2014) thus allowing a comparison on their development before, during and after the crisis. We utilize a novel approach based on a combination of stochastic modeling and continuous wavelet transform. It enables a robust distinction between expected and unexpected spillover effects as well as assessment of the expected speed of European stock markets recovery. It further quantifies the temporal boundaries of absorption of negative and positive shocks coming from the US stock market and explains the observed asymmetry. The studied European markets are divided into several groups and expectations are built on the speed of their recovery. We find that the major reasons for the discrepancies observed between actual and expected recovery for some of the markets are due to structural breaks in the co-movement with US market as well as to weak domestic fundamentals.

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1. Introduction

During the last two decades the problem with crisis spillovers turns to be a major research topic for numerous scientists working in the field of economics and finance. The word “contagion”¹ appears for the first time in the empirical finance vocabulary with the outbreak of the “Asian flu” and the “Russian virus” to name the occurrence of severe and unexpected crisis spillover effects. Up to date a huge body of literature is engaged with the study of this phenomenon, nevertheless, the necessity to further develop and deepen this research strand is evidenced by the dense intensity of financial bubble bursts observed during the last years. Yet, there is no doubt that the 2008 financial crisis is the most recent one commensurate in its severity with that of the Great Depression.² It did spread extremely rapidly all over the globe, hitting financial markets and economic sectors worldwide, which has urged the search for profound understanding of the spillover processes that took place. Even though a considerable amount of literature is already available, still some aspects of the crisis are barely studied. In particular, most of the papers are focused on the spillover processes that took place, but little attention has been

* Corresponding author.

E-mail address: bpelova@feb.uni-sofia.bg (B. Bogdanova).¹ For a detailed discussion on the term “contagion” the reader is referred to (Forbes and Rigobon, 2001).² Such a comparison has been done in the papers of Almiunia et al. (2010), Didier et al. (2012), and Bekaert et al. (2014).

paid to the recovery phase of the crisis even though this issue is of growing importance not only for investors but also for policy-makers.

Apart from identification of the channels through which contagion propagate, the development of adequate counter-cyclical policies requires awareness on the speed by which markets synchronize with the crisis epicenter as well as understanding of the factors that might slow or even hamper recovery. Our goal is to examine these issues for a number of European stock markets as they seem to be important cornerstones for the subsequent recession observed in Europe. We ground our research on the distinction between expected and unexpected spillover effects, as the former are subject to modeling, while the latter are unpredictable. We estimate the speed of synchronization between a sample of European and the US stock markets so as to build up expectations on the rate of recovery. The actual performance of the investigated European stock markets is then benchmarked to the expected rate. Finally, the identified discrepancies are analyzed in an attempt to filter out the reasons behind them. Our goal is accomplished through application of a novel approach based on a combination of stochastic modeling and continuous wavelet transform.

Unlike most of the papers³ we study the 2008 financial crisis through the lens of the Bekaert and co-authors' understanding (Bekaert et al., 2014) according to which contagion represents the co-movement in excess to what is implied by market fundamentals. This definition is appealing from analytical point of view as it enables distinction between expected and unexpected spillover effects. The importance of such a distinction comes from the fact that the unexpected spillover effects are unpredictable therefore the task to design and implement proper anti-crisis policies aggravates significantly. At the same time when the spillover drivers are confined mainly to existing (fundamental) market dependencies, it might be expected that the recovery in the epicenter market would foster the recovery in the other markets. We carry on our analysis over a sample of eight European stock markets including the EU benchmarks as well as markets with weaker performance so as to enhance comparison and understand the main factors for delayed or hampered recovery.

In this framework we examine contagion as well as changes or breaks in the existing stock market relationships. It should be noted that the available literature suggests that the 2008 crisis' spillover is due to both high level of financial integration and contagion. On one hand, some recent studies provide strong evidence of contagion and reveal its major channels, while other studies argue that the violent spread across countries and economic sectors comes as a consequence of high financial integration. Among others, Hwang and co-authors (Min and Hwang, 2012; Hwang et al., 2013) conclude on presence of contagion, where foreign investments, exchange market volatility, and the VIX index are associated with the observed spillovers. Bekaert and co-authors (Bekaert et al., 2014) also document clear evidence of contagion, which has been prompted to a great extent by the investors' "wake-up call". Luchtenberg and Vu (2015) find that the US as well as other mature financial markets transmit and receive contagion with regional factors, investors' risk aversion, and economic fundamentals being among the major drivers. Yet, Stiglitz (Stiglitz, 2010) studies the 2008 crisis through the lens of globalized markets, in particular, the author compares integrated financial markets with integrated electrical grid, where failure in one part of the system can lead to system-wide failure. Mendoza and Quadrini (2010) also study the US mortgage bubble spillover and conclude that with globalized markets, country-specific shocks propagate to other economies including a worldwide drop in asset prices. Similarly, Kalemi-Ozcan et al. (2013) find that countries with stronger financial ties to the US experienced more synchronized cycles with the US during the recent crisis. Brière et al. (2012) also emphasize the role of globalization and flight to quality, while Calomiris et al. (2012) document the effects of the collapse of global trade and the contraction of credit supply but at the same time find significant effects of selling pressure on equity returns.

Nevertheless, little attention has been paid to the post-crisis period, the paper of Dieder and co-authors (Didier et al., 2012) being one of the few exceptions.⁴ The authors document the differences in the recovery process among world markets. A major finding is that the emerging economies recovered more strongly than advanced ones, still heterogeneity is present with the emerging economies from Eastern Europe and Central Asia performing worst. However, the question on the differences across EU member states is still unexplored and its answer seems to be of amplifying importance in light of the still on-going Eurozone crisis. From this perspective, we investigate not only the spillover processes that took place during the crisis, but we also focus on the aftermath period. While the existing literature puts emphasis solely on the influence of negative shocks, this research pays attention to the propagation of both negative and positive shocks. In particular, we examine in detail the spillover processes that took place as soon as the Fed announced the first round of quantitative easing measures.

First, we utilize the Ornstein–Uhlenbeck's (OU) process as follows. On one hand, we model the expected spillover effects so as to test for presence of contagion. On the other hand, we estimate the speed by which the European stock markets synchronize with the US stock market. On this basis, we infer on how quickly different European stock markets are expected to absorb the shocks coming from the US market. In particular, this procedure enables comparison and ranking of the analyzed markets in terms of their expected rates of recovery, yet, it provides no clues on the temporal boundaries of absorption. The continuous wavelet transform (CWT) allows their quantification with its three dimensional representation. We further use

³ The definition of contagion of Forbes and Rigobon (2002) is extensively utilized in the literature engaged with the study of transmission of crises. The Bekaert and co-authors' definition (Bekaert et al., 2014) might be viewed as its refinement, which however, enables distinction between expected and unexpected spillover.

⁴ The working paper of Ball (2014) documents the differences across OECD countries in terms of estimated losses of potential output, while a report of the European Commission (Directorate-General for Economic and Financial Affairs of the European Commission, 2009) focuses on the undertaken policy responses.

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