

DISEQUILIBRIA AND CONTAGION IN FINANCIAL MARKETS: EVIDENCE FROM A NEW TEST

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This paper provides an analysis of contagion by measuring disequilibria in risk premium dynamics. We propose to test financial contagion using an econometric procedure where we first estimate the preference parameters of the consumption-based asset pricing model (C-CAPM) to measure the equilibrium risk premia in different countries and then we consider the difference between empirical and equilibrium risk premia to test cross-country disequilibrium episodes due to contagion. Disequilibrium in financial markets is modeled by the multivariate DCC-GARCH model including a deterministic crisis variable. Our approach allows to identify the disequilibria generated by increases in volatility that is not explained by fundamentals but is endogenous to financial markets and to evaluate the existence of contagion effects defined by exogenous shifts in cross-country return correlations during crisis periods. Our results show evidence of contagion from the U.S. to U.K., Japan, France, and Italy during the crisis started in 2007-08.

JEL classification codes: G10, G15

Key words: financial contagion, risk premium disequilibrium, cross-country return correlations, financial crises, DCC-GARCH model, C-CAPM

I. Introduction

The investigation of the relationships among financial markets and the identification of financial contagion episodes are preferred topics in the econometric literature, especially after the recent global financial crises. Moreover, the dynamics of

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returns in international financial markets have been characterized by increases in volatilities and asset price synchronicity in the last decades and this has raised even further the scientific interest in the discrimination between interdependence and contagion effects. As a consequence, many different tests for detecting the existence of financial contagion have been developed (see, among many others, Corsetti et al. 2001; Forbes and Rigobon 2001; Dungey et al. 2005; Allen and Gale 2005; Rodriguez 2007; Cipriani et al. 2013). However, conclusions on both theoretical and empirical analyses of financial contagion are far from unique. Furthermore, there is not even a shared scientific definition of contagion (see Pericoli and Sbracia 2001 for a discussion).

In this paper, we propose a new econometric approach for the evaluation of contagion based on the extent of disequilibria in financial dynamics. In particular, using a step-wise procedure, we define an innovative test for the detection of contagion which specifically identifies the disequilibrium originated by the international transmission of financial crises and their relationships with the behaviors of market participants. In this framework, contagion effects are separated from the transmission processes of endogenous nature which have their genesis in the pricing process system and in investor's behaviors and which are responsible for the amplification of cross-market interdependence. In particular, our proposal is able to discriminate between contagion and interdependence among international financial markets and thus provides a powerful technique for testing for the existence of contagion.

In Section II of the paper, we discuss the theoretical framework underlying our approach. Section III illustrates the econometric model and details the proposed three-step procedure for evaluating contagion among countries. In Section IV, we estimate the model and present the results of the analysis. Finally, Section V concludes.

II. Theoretical framework

Correlation shift is the criterion generally chosen in contagion literature to separate "normal" from contagious periods (e.g., Corsetti et al. 2001, 2005; Forbes and Rigobon 2002; Chiang et al. 2007, among many others). However, the adequacy of this approach is still questioned since it does not take into account the correlation endogenously and independently generated by phenomena different from contagion. This drawback has become increasingly serious in recent years

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