International Review of Economics and Finance 29 (2014) 108–131

Contents lists available at ScienceDirect

International Review of Economics and Finance

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

The global financial crisis: World market or regional contagion effects?

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ARTICLE INFO

Article history:
Received 5 June 2011
Received in revised form 3 May 2013
Accepted 6 May 2013
Available online 11 May 2013

JEL classification:
F
G

Keywords:
Stock returns
GARCH modelling
Contagion
Interdependence
Volatility spillovers

ABSTRACT

In the last two decades, the world economy has been challenged by different economic and financial crises. These events have captured researchers' attention, and in particular, the analysis of contagion effects derived from stock market shocks has been a focal point of discussions. This paper analyses contagion effects in a worldwide framework using three different econometric models. We do not find significance evidence supporting contagion effects derived from the US stock markets, neither in a worldwide nor in a regional form.

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1. Introduction

What began as a bursting of the US housing market bubble and as a rise in foreclosures ballooned subsequently into a global financial and economic crisis. The world has been witness to how some of the largest and most established banks and insurance companies have either declared bankruptcy (such as Lehman Brothers on the 15th of September 2008) or had to be rescued financially. In October 2008, credit flows froze, lender confidence dropped, and one after another the economies of countries around the world dipped into recession (Nanto, 2008). As a consequence, many economists and experts started talking about global contagion effects. The US economy was, and still is, facing very difficult times, and given the national and international linkages of its financial system, it did not take long until the effects spread to the rest of the financial markets jeopardising for example monetary union in Europe. As a result, the initial US mortgage crisis evolved into what started to be called yet another "great recession" and led to dramatic economic changes in the world major equity markets (Table 1).

The question that springs to mind is whether the severity of the impact of the financial crisis on different world economies is directly connected with the level of integration of their financial markets. Since the world economies, and especially their financial systems, are at different levels of development, are all economies of the world affected in the same way? Is it appropriate to talk about contagion effects across the world markets, or should one refer simply to spillover effects derived from interlinkages across markets?

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http://dx.doi.org/10.1016/j.iref.2013.05.010

Table 1
Contagion effects in African stock markets.

Countries	Model 1		Model 2		Model 3	
Dow Jones	γ_3	p-Values	θ_2	p-Values	φ_2	p-Values
Egypt	0.11[a]	0.04[b]	0.11	0.04[b]	0.10	0.02[b]
Kenya	0.13	0.02[b]	−0.03	0.58	−0.03	0.50
Morocco	0.00	0.98	−0.01	0.81	−0.02	0.69
Nigeria	0.04	0.43	−0.06	0.27	−0.06	0.25
South Africa	−0.08	0.13	0.04	0.43	0.51	0.51
S&P 500	γ_3	p-Values	θ_2	p-Values	$ø_2$	p-Values
Egypt	4.71	0.04[b]	0.10	0.06[c]	0.09	0.07[c]
Kenya	5.32	0.02[b]	−0.02	0.69	−0.03	0.63
Morocco	0.42	0.85	−0.01	0.81	0.00	0.94
Nigeria	1.83	0.43	−0.05	0.35	−0.05	0.31
South Africa	−4.55	0.04[b]	0.06	0.25	0.31	0.31

The values appearing as significant identify contagion effects in the markets derived from the US stock markets (Dow Jones Industrial, S&P 500).

[a] 1% significance level.

[b] 5% significance level.

[c] 10% significance level.

During times of economic distress, shocks occurring in a stock market can be transmitted among world equity markets, a situation that is commonly known as 'contagion'. The main questions are how and to which extent contagion effects will spread across the world equity markets, and more importantly whether there are major differences in relation to a regional versus a world market impact. As a consequence, our main hypothesis is that the current financial crisis ought to be differentiated from past events, in that developed economies could be suffering to a larger extent from contagion effects than would be the case for some key emerging economies. Previous evidence has shown indeed that in the case of crises (e.g. the 1994 Mexican crisis, the 1997 Asian financial crisis, the 1998 Russian crisis, the 1999 Brazilian crisis, the 2001 Argentinean crisis, and the 2002 Turkish crisis), developed economies managed to be relatively insulated from contagion effects.

Although several definitions of the term 'contagion' have been proposed, there is however no unanimously agreed definition of the term, and there is a high controversy in the literature regarding definitions and methodologies developed to measure contagion effects across world economies.

If the world economy was suffering from real contagion effects emanating from the lead economy, i.e. the USA, the recovery process would be long and painful for all economies, as the whole economy would be involved in a dramatic economic situation. As witnessed recently, the Global Financial Crisis has badly hit major developed economies that do not appear to be capable of returning to a path of sustainable economic growth. These economies have strong ties with the rest of the world as they are interconnected in different ways. In this regard, a long lasting shock that spreads across developed economies will have long lasting direct and indirect effects in the global economy as a whole. Even though some countries with relatively solid and healthy financial institutions are starting to show signs of recovery, there is still uncertainty until the major economies start to embark upon a path of strong and sustained economic growth. In this regard, the emerging economies seem to lead the path since they have been able to keep a positive economic performance. However, the main problem they are facing is coming from their trade account. When the developed markets started being hit by the financial turmoil, the majority of the emerging economies' situation started indeed to deteriorate since a lot of their growth depends on exports to the markets of the developed economies. In the case of African countries, where one of the main sources of income is by means of FDI, financial aid and remittances, it is clear that these economies are under a situation of stress. As a result, it can be seen that the US financial crisis did spread around the world, but not in a way that could be considered as contagion (since many of the countries did not share the same problems and patterns that the US economy was presenting) (Table 2).

Consequently, although the crisis is significant in the USA and in the European Union (EU), to what extent is the financial crisis affecting the emerging economies, in particular the ones located in Asia and Latin America? Is there any difference between these regions and what is happening with regard to Eastern Europe and Russia? Is it possible to talk about differences between regions, and to identify with clarity which emerging economies would be able to recover faster?

The analysis proposed here intends to look at contagion effects among the world equity markets, in particular in Asia and Latin America, two regions that have been relatively less affected by the recent international turbulences. The major contribution of this paper to the existing literature can be summarised as follows: first, it analyses a wide range of equity markets (58 stock markets) with the objective of identifying contagion effects originating in the US equity markets (Dow Jones Industrial and S&P500). Second, a comparative analysis is undertaken with world equity markets being divided into different regions (developed and emerging financial markets) in order to identify possible divergence in terms of behavioural patterns; in doing this, we will use the G-20 classification as our point of reference.

The existing research argues that financial markets are becoming increasingly integrated. In our view, this statement has to be considered carefully, as this integration process cannot be generalised to the world economy. Indeed, there are economies that have experienced a high level of development, and as a consequence, their interaction and interlinkages with the rest of the world

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