International Review of Economics and Finance 20 (2011) 95–109

Contents lists available at ScienceDirect

International Review of Economics and Finance

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

Markets contagion during financial crisis: A regime-switching approach ☆

Feng Guo [a], Carl R. Chen [b], Ying Sophie Huang [c,*]

[a] Haile/US Bank College of Business, Northern Kentucky University, USA
[b] Department of Economics and Finance, University of Dayton, USA
[c] Department of Accountancy, Finance and Business Law, Northern Kentucky University, USA

ARTICLE INFO

Available online 23 July 2010

JEL classification:
G12
G14

Keywords:
Financial crisis
Credit default swap
Real estate market
Stock market
Oil price
Markov regime-switching VAR

ABSTRACT

Within a Markov regime-switching VAR framework, we investigate the contagion effects among the stock market, real estate market, credit default market, and energy market covering the most recent financial crisis period when markets experience regime shifts. The results demonstrate that the watershed of regimes occurs around the start of the subprime crisis in 2007, after which the "risky" regime dominates the evolution of market chaos. During the financial crisis, excluding their own shocks, stock market shock and oil price shock are the main driving forces behind the credit default market and stock market variations, respectively. The energy market also appears to be more responsive to the stock market movements than the shocks originating from housing and credit markets. However, the impacts from the credit default market on the real estate market are not significant as expected.

© 2010 Elsevier Inc. All rights reserved.

1. Introduction

The recent financial crisis provides us with an opportune backdrop to investigate the contagion effects among the stock market, credit default market, real estate market, and the energy market. In this paper, we employ a Markov regime-switching VAR framework to delve into the process and the magnitude of the impacts of certain economic shocks on different markets and how the effects spill over to the other segments of the economy.

In the early 2000s, after the high-tech bubble rocked the US stock market, the government decided to pump more funds into the real estate market to keep prices stable. As a house is usually the largest single asset of most households and its value represents an important component of the aggregate portfolio of financial intermediaries, housing policies usually have pervasive economic and social effects and attentions have been focused on the real estate price stability and mortgage affordability. Quasi-government agencies such as Fannie Mae and Freddie Mac purchased a significant amount of subprime-laden securities. As the US housing bubble peaked, a highly competitive and liquid market had made mortgage money easily available to households which otherwise would not qualify for underwriting. These low credit mortgages planted the seeds of the eventual subprime mortgage crisis.

The onset of financial crisis started after the real estate market peaked in 2006. Mortgage delinquencies and foreclosures rose sharply, which in turn caused huge losses for banks and financial institutions that held a large amount of mortgages and mortgage-backed securities. During the first half of 2007, several mortgage companies, including ResMae and New Century Financial, filed for bankruptcy protection. By August 2007, Countrywide drew $11.5 billion from credit lines and Bank of America injected $2 billion of equity capital into Countrywide. Such events began to spark a widespread loss of confidence in the banking system in the

---

☆ We would like to thank Hui Guo for providing CDS index data and an anonymous referee for helpful comments. The usual disclaimer applies.

* Corresponding author. Department of Economics and Finance, Haile/US Bank College of Business, Northern Kentucky University, Highland Heights, KY 41099, USA. Tel.: +1 859 572 6332.
E-mail address: huangy1@nku.edu (Y.S. Huang).

1059-0560/$ – see front matter © 2010 Elsevier Inc. All rights reserved.
doi:10.1016/j.iref.2010.07.009

investors' mind. As a result, banks tightened their lending standards, hence ignited another round of credit crisis. The crisis reached a critical point in September 2008 during which the Federal Housing Finance Agency placed Fannie Mae and Freddie Mac in government conservatorship, Bank of America purchased Merrill Lynch, Lehman Brothers filed for Chapter 11 protection, and the Federal Reserve Board lent $85 billion to the American International Group. Companies and financial institutions hastened to deleverage to reduce their risk exposures, hence selling massive assets at discount.

The tightening of the credit default market and liquidity, the decline of the real estate value, the rapid rising energy prices in conjunction with the tremendous loss of wealth in the stock market finally cut into economic growth, which started a domestic recession and the recession propagated into a global one. Therefore we are granted with this rare opportunity to study the dynamics of market contagion effects arising from various economic shocks. Not only this financial crisis involves the credit default swap market which was almost non-existent in the past recessions, the simultaneous collapse of the housing market and the stock market also differs from past experiences. Our analysis centers on market contagion during the financial crisis. Specifically, in this setting we study the magnitude and the process whereby certain economic shocks impact different segments of the economy. This issue not only warrants a timely study but also could be paramount to scholars and market participants.

Toward this end, we utilize a multivariate vector autoregressive (VAR) model with a Markov regime-switching feature in order to accommodate any potential regime shifts. As Dungey and Zhumabekova (2001) have shown, tests of contagion effects can be seriously affected by the size of the "crisis" and "non-crisis" periods. Our empirical results demonstrate that the watershed of regimes occurs when the subprime crisis starts in 2007, after which the "risky" regime (larger mean and high volatility) dominates the evolution of market chaos. The technical virtue of our model makes it accommodate the data and actual events sufficiently well. Subject to different market shocks, the responses of all markets exhibit regime-dependent patterns. These effects tend to be more dramatic in the "risky" regime, which corresponds to the financial crisis period. In the low volatility or "stable" regime, impulse response functions and variance decomposition analysis suggest that economic factors' own shocks explain the lion's share of the variations. On the other hand, the high volatility or "risky" regime finds that excluding their own shocks, stock market shock and oil price shock are the main driving forces behind the evolution of the credit default market and stock market, respectively. Contrary to general perception, however, the impacts from the credit default market and stock market on the real estate market are not significant.

The paper proceeds as follows. The next section reviews the background and related studies on the four markets in question. In Section 3, we present our econometric methodologies. Data source and preliminary analysis are provided in Section 4. We provide in detail the empirical results and their implications in Section 5. The last section summarizes the main findings.

2. Background and related studies

In this section, we discuss the possibility of contagion effects in four markets, namely housing market, stock market, credit default market, and energy market, as these markets all play essential roles in the financial crisis. We are interested in these four variables not only because these four markets are the center of focus during the financial crisis period, but also because the Federal Reserve Board on many occasions expressed its concern about the deterioration of these markets, and the situations in these markets shaped the government's monetary and fiscal policies during the period.[1] Our discussions focus on why these markets may be related and the ripple effects from the collapse of one market may spill over to the other markets. Financial contagion can be defined as the increase of a cross-market linkage after economic shock occurs in one market. Common to all these episodes is the fact that the turmoil originated in one market extended to a wider range of markets in a way that is beyond the changes in fundamentals. The simultaneous movement of markets, however, can be explained by common external factors, e.g., market shocks, and investor sentiments. While any of these factors could lead to what is perceived as contagious financial crises, it is crucial to identify which one of them is actually driving the market mayhem. Although the literature on financial market contagion is abundant, most of them examine cross-country contagions; fewer study cross-asset contagions. The recent financial crisis generated shocks that transmitted and/or were expected to transmit across multiple asset classes, hence provides a unique background for our study.

Financial contagion occurs through a number of channels. First, Kiyotaki and Moore (2002) propose a theoretical framework within which through a balance-sheet effect, contagion occurs when the collateral value is affected by fluctuations in asset value, and/or when the effect of default works through chains of credit. Kodres and Pritsker (2002) also posit that contagion occurs when the economic agent deleverages his/her portfolio when losses become significant in one market. For instance, hedge funds unwind their portfolios when losses occur. Such dramatic unwinding exerts downward pressure on the stock market.

We have witnessed this type of contagion during the financial crisis period. For example, Glitnir Bank of Iceland was unable to secure a line of credit when Lehman Brothers, which provided a line of credit for Glitnir, filed for bankruptcy. The collapse of the collateralized debt obligation (CDO) market is another example. Mortgage-backed securities (MBS) declined in value when

---

[1] Although interest rates may also be a factor to consider, we replaced interest rates with the CDS spreads for a number of reasons. First, CDS spreads play a key role during the onset of the financial crisis. Second, as CDS spreads measure the insurance cost of credit default, we expect a very high correlation between CDS spreads and various interest rates, in particular yield spreads. Indeed, during the period from January 2008 to February 2009, the simple correlations between daily CDS spreads and corresponding 3-month T-bills and 30-year Baa-rated corporate bonds are 85% and 82%, respectively; and the correlations between CDS spreads and the (Baa-AAA) yield spread and the (Baa-10-year Treasury Notes) yield spread are 89% and 91%, respectively. CDS spreads thus explain a bulk of the interest rate effect. Therefore, due to the high correlations, we include only the CDS spreads in the model to avoid multicollinearity issues. Third, the active Fed interest rate policy during the financial crisis period renders interest rates in the short maturity spectrum highly exogenous.

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات