



# A yield spread perspective on the great financial crisis: Break-point test evidence<sup>☆</sup>

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## ABSTRACT

We use a simple partial adjustment econometric framework to investigate the effects of financial crises on the dynamic properties of yield spreads. We find that crises manifest themselves in the form of substantial disruptions revealed by changes in the persistence of the shocks to spreads as much as by in their unconditional mean levels. Formal breakpoint tests confirm that in the U.S. the Great Financial Crisis has been over approximately since the Spring of 2009 and provide a conservative dating centered around the August 2007–June 2009 dates. However, some yield spread series point to an end of the most serious disruptions as early as in December 2008. Some symptoms of an impending crisis re-appear instead in the second half of 2011. We also uncover evidence that the LSAP program implemented by the Fed in the U.S. residential mortgage market has been effective, in the sense that the risk premia in this market have been uniquely shielded from the disruptive effects of the crisis.

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## 1. Introduction

The financial crisis that has allegedly taken place between 2007 and 2009 in the United States has been viewed as the worst financial disruption since the Great Depression of 1929–1933. Many commentators have in fact taken the habit of referring to it as the Great Financial Crisis (henceforth, GFC). The banking crises of the Great Depression involved runs on banks by depositors, whereas the GFC reflected widespread panic in wholesale funding markets that left banks unable to roll over short-term debt. That has deteriorated to engulf most fixed income (FI) markets, both in the US and internationally where persistently high, often historically abnormal yields and yield spreads between different instruments have been observed. The reaction to the crisis by central banks and governments around the world has been massive. It has involved large-scale interventions in both short- and long-term, in private as well as public segments of international bond markets. Although by the end of 2009, a majority of analysts became willing to admit that the worst of the GFC was over, throughout 2010 and 2011

lingering doubts have persisted as to whether the GFC could be dated as a closed, and yet painful event of the recent financial history.

Because a number of such interventions have directly involved the segments of the fixed income (FI) markets more severely affected by the GFC, in this paper we take a perspective that is based on *yield spread* data. A yield spread is the difference between the yield to maturity of a riskier bond and the yield of a comparatively less risky (or riskless) bond.<sup>1</sup> The dimensions of risk that are measured by yield spreads may be many, but they can be grouped as originating from either their default “intensity” (i.e., probability of default and loss given default) or their liquidity risk. In this paper, we ask four related questions:

- How can we date a financial crisis, at least on the basis of the yield spread perspective adopted in this paper? This relates to the general question of what properties of yield spreads are affected by a crisis.
- In particular, can we date the GFC? Most researchers have been referring to the crisis as a 2007–2009 phenomenon: is this dating as correct as commonly held and/or can we be more precise about its dating as it is usually required of business cycles?

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<sup>1</sup> Batten, Hogan, and Jacoby (2005) have emphasized that FI spreads may in principle be defined also as a ratio of (more) risky over less risky (riskless) gross yields but also notice that some type of analysis may be flawed by biases in this last case.

- Were the interventions by the Federal Reserve (more generally, by US policy-makers including the Treasury department) effective in fighting the disruptive effects of the crisis? In particular, were the Large Scale Asset Purchases (LSAP) programs announced in late 2008 and implemented between early 2009 and mid-2010 effective and when?
- Do any of these questions admit market-specific answers? For instance, are there FI markets that were never affected by the GFC, or for which the crisis seemed to be over well in advance of mid-to late-2009? Similarly, did the European sovereign debt crisis of 2010–2011 revive fears of either a new financial crisis spreading to US markets or of the GFC itself going through a later, deeper phase?

In fact, considerable ambiguity and an intense debate has recently concerned the exact dating of the GFC. The conclusions have often reflect the priors of the different researchers as well as their specific methodological approach. Table 1 offers a synopsis of a few among the papers that have appeared in the literature between 2008 and 2011. Although a simple synopsis cannot claim to be exhaustive, we have systematically searched all papers that have investigated the GFC focusing on the behavior of FI yield spreads. Additionally, many criteria could have been used to sort papers in the table and yet—because most of these manuscripts have been repeatedly revised and updated—we have opted for a simple alphabetical sorting. As a Reader may notice most papers had a distinct policy focus as their objective consisted in drawing a connection between (so-called

**Table 1**

Synoptic table of recent papers that have relied on (approximate) dating of the great financial crisis.

Paper/author(s)	Implications/statements on dating the GFC	Notes on Dating Policy	Conclusions
Adrian et al. (2010)	Starting date: August 15, 2007.	Event/History-based	CPFF generally effective.
Ait-Sahalia et al. (2009)	End date: second part of 2009. End date: April 2, 2009 (G20 Leaders' Summit on Financial Markets and the World Economy).	Event/History-based (starting date from regime switching mode)	International paper, but measures are generally found to have been effective also for the U.S.
Baba (2009)	Starting date: August 9, 2007. No end date stated.	Event/History-based	The Fed-activated swap lines met the demand for U.S. dollar funding created by the pull-back in funding from money market mutual funds.
Brave and Genay (2011)	Starting date: early August 2007. End date: Summer 2009 ("In Summer 2009, the Federal Reserve began to reduce the amount of funds available through the individual programs")	Event/History-based	The announcements of Fed policies during the crisis were associated with significant improvements in broad financial market conditions.
Campbell et al. (2011)	Starting date: Summer of 2007. End date: mid-2009.	Event/History-based	Announcements concerning TALF affected the markets of highly rated ABS and CMBS. TALF may have improved ABS market liquidity, but have not provided substantial subsidies or certification benefits to individual securities. TSLF was extremely effective in raising Treasury repo rate back to levels close to the Fed funds rate.
Cecchetti (2009)	Starting date: August 9, 2007 (the "definitive trigger"). No end date stated.	Event/History-based	TAF helped at first to reduce the LIBOR-Fed funds rate spread. The PDCF played a role in reducing the spreads btw. yields on government agencies and U.S. Treasury securities. TSLF was extremely effective in raising Treasury repo rate back to levels close to the federal funds rate.
Christensen et al. (2009)	First stage of the crisis: August 9, 2007–December 12, 2007 Second stage: December 12, 2007 (Fed commits to unconventional liquidity measures)–? (no end date stated)	Event/History-based	TAF was effective in reducing the LIBOR-Fed funds rate spread.
Dwyer and Tkac (2009)	Starting date: August 9, 2007. End date: March 2009 ("As of this writing in July 2009, it still is a conjecture, even if a more plausible one.")	Event/History-based	The AMLF and the CPFF appear to have been successful in averting a run on money market funds and providing a liquid secondary market to keep the commercial paper funding markets accessible.
Frank and Hesse (2009)	Starting date: July 2007. No end date stated.	Event/History-based	TAF helpful in compressing Libor spreads, but the economic magnitude not very large.
Furceri and Mourougane (2009)	First stage: July 2007–September 15, 2008, a period of financial turmoil and limited spreading. Second stage: 15 September 2008–? (no end date stated).	Event/History-based	International paper, but measures are generally found to have been effective also for the U.S..
Hancock and Passmore (2011)	Starting date: August 2007. End date: May 27, 2009 ("After May 27, 2009, MBS yields largely returned to reflect fundamentals").	Event/History-based	The Fed MBS purchase program removed substantial risk premiums embedded in mortgage rates because of the financial crisis. The Federal Reserve also re-established a robust
Sarkar, 2009	First stage of the crisis: August 2007–September 2008 Second stage: September 2008–? (no end date stated)	Event/History-based	First stage dominated by capital and liquidity shortages; second stage by credit risk. Fed facilities were effective: in particular, the Fed introduced TAF and the bilateral currency swap lines in December 2007 and the TSLF and the PDCF in March 2008, as the type of risks evolved.
Taylor and Williams (2009)	Starting date: August 9, 2007 (called a break-point). No end date stated.	Event/History-based	TAF had no effect on the Libor-Ois spread and did not affect total liquidity, expectations of future overnight rates, or counterparty risk.
Wu (2011)	Starting date: August 9, 2007. No end date stated but market strains "as of 2011, they are mostly gone."	Event/History-based	TAF had strong effects in reducing financial strains in the inter-bank money market. PDCF had less discernible effects than TAF in relieving financial strains in the Libor market.

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