



# The reaction of European credit default swap spreads to the U.S. credit rating downgrade

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## ABSTRACT

Using data consisting of Credit Default Swap (CDS) spreads, this study examines CDS spreads for nearly all European countries surrounding the August 5th, 2011 sovereign credit rating downgrade of the United States. While U.S. CDS spreads remained at relatively normal levels, we find a surge in European CDS spreads during the ten-day period surrounding the U.S. downgrade. At their highest level during this ten-day period, CDS spreads were nearly 25% higher than normal indicating that the CDS market perceived that the U.S. downgrade dramatically affected the likelihood of default in European countries. We show that European countries with the smallest GDP per capita and countries that had not recently been downgraded had the largest increase in CDS spreads. Our multivariate tests also show that countries that use the EURO also had the largest increases in CDS spreads.

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## 1. Introduction

On August 5th, 2011, Standard and Poor's Ratings Services downgraded the U.S. sovereign credit rating for the first time in the country's history. While prior research shows that the market generally reacts negatively to rating downgrades (Hand, Holthausen, & Leftwich, 1992), in the case of the U.S. downgrade, U.S. Treasury prices surprisingly increased and yields subsequently declined in response to the downgrade. For instance, the average 10-year U.S. Treasury yield was 2.20% during the ten-day period after the downgrade compared to an average yield of 2.83 during the ten-day period before the downgrade.<sup>1</sup>

While a brief examination of U.S. Treasury yields suggests that the announcement of the U.S. downgrade did not affect the market's perception of U.S. default risk, perhaps a more interesting examination is the spillover effect that the U.S. downgrade had on the market's perception of default risk in other countries. This study provides this examination by investigating Credit Default Swap (CDS) spreads in European countries surrounding the U.S. downgrade. Although we would prefer to examine the global spillover effects of the U.S. downgrade, CDS spread data is not widely available. Despite data limitations, however, our focus on European countries might be compelling since a country's membership in the European Union (EU) or the Euro Zone (EZ) may determine whether additional spillover effects are observed. Afonso, Furceri, and Gomes (2012) show the presence of information transmission from sovereign credit rating changes for member countries of the EU. Second, Delatte, Gex, and Lopez-Villavicencio (2012) show that the economic crisis in Europe has increased the information transmission of the European CDS market.<sup>2</sup>

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<sup>1</sup> The decline in yields surrounding the U.S. downgrade is likely explained by the "flight-to-quality" principle (Caballero & Krishnamurthy, 2008; Gulko, 2002). Said differently, the U.S. downgrade created some level of uncertainty in the global economy that caused a flight to quality and led to excess demand for Treasury securities and subsequently lower yields. In unreported tests, we find that 30-year, 10-year, and 5-year government bond yields markedly decreased during the 21-day period surrounding the U.S. downgrade. Interestingly, we also find that U.S. equity markets also traded lower in response to the downgrade announcement. These results suggest the possibility of a "flight to quality" although we exercise caution in this interpretation because the motive to trade is unobserved. While outside the scope of this paper, perhaps examining the flight-to-quality hypothesis in this context will be a fruitful area for future research.

<sup>2</sup> Other studies have also examined spillover effects during the financial crisis. See, for example, Morales and Anreosso-O'Callaghan (2014) and Gorea and Radev (2014).

Using a standard event-study methodology, we attempt to determine whether European CDS spreads increased during the period immediately surrounding the U.S. credit rating downgrade. This paper is most closely related to [Ismailescu and Kazemi \(2010\)](#) who argue that the relation between sovereign rating changes and spillover effects in CDS markets will most likely be observed in countries with high yield debt. [Ismailescu and Kazemi \(2010\)](#) first find that CDS spreads have a greater reaction to sovereign credit rating upgrades than to downgrades. However, they also find that spillover effects in CDS markets occur in emerging countries. Our tests contain two stark differences from [Ismailescu and Kazemi \(2010\)](#). First, instead of emerging countries, we focus on European countries, which are generally more developed. This difference is important given the arguments in [Ismailescu and Kazemi \(2010\)](#) regarding the emerging country effects. Second, our tests examine the transmission of the rating information in the U.S. downgrade as opposed to the downgrades and upgrades of neighboring countries within Europe. We posit that the magnitude of the U.S. downgrade will have much broader and more global effects in the CDS market that extend from neighboring countries.

In another related study, [Wang and Moore \(2012\)](#) examine 38 developed and emerging countries and find that these countries' CDS spreads have high levels of correlation with the U.S. CDS market. While [Wang and Moore \(2012\)](#) show that both developed and emerging countries' CDS spreads are correlated with the U.S. CDS market, the correlation increased around the Lehman Brothers bankruptcy, particularly for the more developed countries. Given the findings in [Wang and Moore \(2012\)](#), we expect to observe spillover effects from the U.S. downgrade in the European CDS market.

The growing literature on CDS markets has focused on two main areas. The first area is research that demonstrates whether price discovery occurs in the CDS market. The consensus in this line of research is that CDS markets provide an important information transmission mechanism to the market. For instance, [Zhang and Zhang \(2013\)](#) find that CDS spreads anticipate unfavorable earnings reports well in advance of earnings announcements. [Norden and Weber \(2004\)](#) also find that CDS spreads anticipate credit rating downgrades of U.S. companies, European companies, and Asian companies. Using different samples, [Baba and Inada \(2009\)](#) and [Forte and Pena \(2009\)](#) show that CDS markets play a more dominant role in the price discovery process than bond markets.<sup>3,4</sup>

The second area of research investigates the transmission of information between different CDS markets. As mentioned above, [Ismailescu and Kazemi \(2010\)](#) and [Afonso et al. \(2012\)](#) both document spillover effects from sovereign credit rating changes in other countries' CDS markets. In addition to these aforementioned studies, [Calice, Chen, and Williams \(2013\)](#) find spillover effects in the CDS market during the 2009 sovereign debt crisis. Further, [Fender, Hayo, and Neuenkirch \(2012\)](#) find that spillover or transmission effects in the CDS market are greater during periods of economic stress. Finally, [Kalbaska and Gatkowski \(2012\)](#) provide evidence of cross-country interdependencies in CDS markets in European countries. Results in [Kalbaska and Gatkowski \(2012\)](#) also show that from 2005 to 2010, spillover effects were most likely to be derived from Spain and Ireland, while Portugal was most susceptible to these effects. Further, the CDS market in the United Kingdom was least likely to cause spillover effects and the least vulnerable to these affects. Our study is related to this second area of research as we attempt to isolate the spillover effect of the U.S. downgrade on the European CDS market.

Interestingly, our tests show that CDS spreads did not increase in the U.S. in response to the downgrade. If anything, U.S. CDS spreads decreased in the ten-day period after the downgrade. We examine European CDS spreads by creating three event windows surrounding the U.S. downgrade. The pre-downgrade period is the period from days  $t - 5$  to  $t - 1$ , where day  $t$  is the U.S. downgrade day. The downgrade period is the period from days  $t - 1$  to  $t + 1$ . The post-downgrade period is the period from  $t + 1$  to  $t + 5$ . Interestingly, we show that European CDS spreads begin to increase during the pre-downgrade period. In particular, we find that the average European CDS spread during the pre-downgrade period is \$301.18, which is \$9.92 higher than average CDS spreads during the benchmark period, which we define as days  $t - 30$  to  $t - 11$ . We also find that the *change in CDS spreads* during the pre-downgrade period is both statistically and economically significant. These results provide some evidence that European CDS spreads during the pre-downgrade period were abnormally high and support the literature that shows that the CDS market anticipates the information contained in public announcements ([Norden & Weber, 2004](#); [Zhang & Zhang, 2013](#)). We also find that both CDS spreads and changes in CDS spreads were abnormally high during the downgrade period (days  $t - 1$  to  $t + 1$ ). During the post-downgrade period, European CDS spreads averaged \$332.52, which is 14.2% higher than CDS levels during the benchmark period. When examining changes in CDS spreads, we provide some evidence that changes in CDS spreads are abnormally high during the post-downgrade period. Combined, these results indicate that CDS spreads for European countries increased markedly during the period surrounding the U.S. credit rating downgrade. Further, these findings support the idea that, while the information regarding the U.S. downgrade did not seem to affect the market's perception of the default risk in the U.S., the downgrade did affect the market's perception of default risk in European countries ([Dooley & Hutchison, 2009](#); [Eichengreen, Mody, Nedeljkovic, & Sarno, 2009](#); [Ismailescu & Kazemi, 2010](#); and [Wang & Moore, 2012](#)). Our findings also have important implications that relate to the prior literature. While [Ismailescu and Kazemi \(2010\)](#) argue that spillover effects in the CDS market are most likely to occur in emerging countries with high yield debt, our results suggest that spillover effects in response to credit rating changes are not immune to developed countries like those in Europe.

In our next set of tests, we examine various country-specific factors that influenced the increase in CDS spreads surrounding the U.S. downgrade. Focusing our tests on the changes in CDS spreads during the three-day period surrounding the U.S. downgrade, our univariate tests provide some evidence that European countries with less GDP per capita, higher levels of corruption, and higher exchange rates had the greatest increases in CDS spreads during the downgrade period. Further, our univariate tests also show that

<sup>3</sup> [Delatte et al. \(2012\)](#) also find that during periods of economic distress, more price discovery occurs in the CDS market than in the bond market.

<sup>4</sup> [Pan and Singleton \(2008\)](#) show that CDS spread term structure can determine the arrival of credit events.

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