



The reaction of emerging market credit default swap spreads to sovereign credit rating changes

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ARTICLE INFO

Article history:

Available online 24 May 2010

JEL classification:

F30
G11
G14
G15

Keywords:

Credit default swaps
Credit ratings
Emerging markets
Spillover effects
Transmission channels

ABSTRACT

This paper examines the effect of sovereign credit rating change announcements on the CDS spreads of the event countries, and their spillover effects on other emerging economies' CDS premiums. We find that positive events have a greater impact on CDS markets in the two-day period surrounding the event, and are more likely to spill over to other emerging countries. Alternatively, CDS markets anticipate negative events, and previous changes in CDS premiums can be used to estimate the probability of a negative credit event. The transmission mechanisms for positive events are the common creditor and competition in trade markets.

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1. Introduction

The credit derivatives market has attracted significant attention and capital in the last decade, expanding from \$180 billion in outstanding notional value in 1996 to approximately \$33 trillion by the end of 2008.¹ Credit default swaps (CDS's) are the simplest and the most widely traded credit derivatives, capturing a substantial segment of the market.² A report issued by the British Bankers' Association indicates a recent increase in the fraction of the CDS contracts written on high-yield debt instruments, a fact that may be attributed to the expansion of emerging debt markets.³ Emerging sovereigns are among the largest high-yield borrowers in the world. What distinguishes them from other high-yield obligors, however, is that countries in financial distress do not liquidate their assets or enter bankruptcy proceedings, but go through debt restructuring mechanisms in which defaulted bonds are exchanged for new longer

maturity, lower yield debt instruments. Given the nature of sovereign default risk, it is important to determine how sovereign CDS markets react to credit rating announcements.

Using a daily data set consisting of dollar denominated CDS's written on high-yield sovereign reference entities, this paper investigates the reaction of CDS spreads to credit rating changes and the cross-border spillover effects of these events. In particular, we seek to address the following questions:

1. Do credit rating announcements contain new information? Is the information content of positive and negative rating changes symmetric?
2. Can changes in CDS spreads be used to estimate the probability of future rating events? Are these changes equally useful in predicting positive and negative credit rating announcements?
3. If credit rating events contain new information, is there a spillover effect on the CDS spreads of other sovereign entities? Are the reactions of other countries' CDS spreads symmetric in response to positive and negative announcements? Do prior credit rating announcements contribute to the spillover effect?
4. Can economic fundamentals explain the size and the direction of the potential spillovers?

In an efficient market, CDS spreads should not change in reaction to credit rating announcements. Assuming that rating agencies rely on publicly available information to form their opinions, CDS

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¹ British Bankers' Association's *Credit Derivatives Report 2006* and International Swaps and Derivatives Association's *2007 Market Survey*.

² A CDS is an insurance contract that provides protection against the risk of default by a corporation or a sovereign entity, referred to as the reference entity. The regular payment made by the CDS buyer to the CDS seller is expressed as a percentage (usually basis points) of the contract's notional value, and is known as the CDS premium (or the CDS spread).

³ British Bankers' Association's *Credit Derivatives Report 2006*.

spreads must already reflect this information. Therefore, our first hypothesis is:

H1. CDS markets are efficient and CDS spreads are not affected by rating announcements.

If CDS markets are efficient and rating agencies rationally rely on available information, we expect CDS spreads to narrow (widen) several days prior to a positive (negative) rating announcement. That is, having access to the same public information used by rating agencies, investors can make decisions that would lead to adjustments in CDS spreads prior to a rating announcement. Hence, our second hypothesis is:

H2. Credit ratings events are anticipated by CDS markets.

Several studies have demonstrated that a significant portion of sovereign CDS spreads is explained by common factors such as investors' risk appetite and global economic fundamentals (Remolona et al., 2008; Longstaff et al., 2008). In this case, any rating announcement containing new information should have spillover effects on the CDS spreads of other sovereigns, leading to our third hypothesis:

H3. Rating announcements containing new information have spillover effects on the CDS markets of other sovereigns.

Additionally, if rating events occur in short successions, the spillover effect of the current event may be affected by the information content of previous rating announcements. Therefore, we hypothesize that:

H4. The impact of rating announcements on CDS markets is diminished by prior rating announcements.

If a significant portion of sovereign CDS spreads can be explained by common factors (McGuire and Schrijvers, 2003; Remolona et al., 2008; Ciarlone et al., 2009), spillover effects could occur through the impact of a rating announcement on these factors. Alternatively, the spillover effects could arise if the announcement reveals new information about economic fundamentals. To answer our final question, we explore whether potential spillovers can be explained in terms of specific economic channels such as a common lending center or competition among sovereigns in the area of capital or trade flows.

Our findings generally reject the first hypothesis; rating announcements appear to reveal new information that affects CDS spreads. More specifically, premiums display a stronger reaction to positive announcements, but respond weakly to negative events. The latter indicates that the information contained in credit downgrades is already incorporated in CDS spreads by the time the rating announcement is released. Thus, our results support H2, suggesting that investors may be able to use changes in CDS spreads to estimate the probability of a rating event. We find that changes in CDS premiums are particularly useful in estimating the probability of negative events. We also find that while positive events display some spillover effects, negative credit rating announcements have no impact on CDS spreads of other emerging economies. The spillover effect of positive events, however, is only marginally significant and its impact is considerably reduced by prior rating events; therefore, we cannot reject H4.

The transmission channels of these spillover effects are the common lending center and competition in trade markets. In the context of the lending center, an increase in the credit quality of a sovereign relieves the capital requirements of its lending center making more capital available to other countries. Increased access to capital reduces the financial constraints of these governments, ultimately leading to lower CDS premiums on their debt. Alternatively, as a country's credit quality improves, it becomes more attractive to the world markets affecting capital flows to other countries and (eventually) increasing their levels of CDS premiums.

The remaining part of this paper is organized as follows. Section 2 reviews the related literature. A brief discussion regarding sovereign credit ratings and debt defaults follows in Section 3. Section 4 describes the data and provides a preliminary analysis. Section 5 discusses the methodology and summarizes the empirical results. Section 6 concludes.

2. Related literature

A considerable number of studies have analyzed the impact of credit rating announcements on bond markets (Hite and Warga, 1997; Steiner and Heinke, 2001; Gande and Parsley, 2005), stock markets (Dichev and Pietroski, 2001; Vassalou and Xing, 2003) or both (Hand et al., 1992). They all find evidence of market reaction to credit downgrades, but no (or weak) response to upgrades. Furthermore, as Hand et al. (1992) report, the average excess bond returns associated with downgrades are stronger for below investment grade bonds than for investment grade bonds.

More recently, sparked by the rapid growth of credit derivatives, attention has shifted to analyzing the effect of credit rating events on credit derivatives markets. Norden and Weber (2004) find that both the stock and CDS markets anticipate negative rating events, but neither exhibits any significant response to positive events. Hull et al. (2004) investigate whether CDS spreads widen before or after a Moody's rating event, and examine the contribution of CDS spread changes to estimating the probability of a change in credit ratings. Their study considers investment grade instruments only, arguing that credit derivatives are rarely written on below investment grade categories. The British Bankers' Association (2006), however, states that the share of below investment grade entities in CDS markets has increased significantly in recent years. Therefore, it is worthwhile to examine whether similar results hold for the high-yield segment of the market.

Norden (2008) finds that firms with high media coverage exert greater abnormal CDS spread changes and higher long-term run-ups when downgrades or revisions for downgrades are announced, but the CDS market's short-term surprise is stronger for firms with low media coverage. Additionally, the anticipation of negative events increases with the amount of private information (proxied by the number of banking relationships) spilled over to the CDS markets. Using stock market and CDS data, Jorion and Zhang (2009) examine the impact of a borrower's bankruptcy on its creditors and report that creditors experience significant negative abnormal stock returns and increases in CDS spreads in the 3-day and 11-day event windows. Acharya and Johnson (2007) investigate the existence of insider trading in CDS markets. They find that significant information (exclusively bad news) flows from the CDS market to the stock market for entities that have high CDS premium levels or experience a decline in credit quality. The degree of information flow increases with the number of banking relationships, but no evidence that the degree of insider activity adversely affects prices or market liquidity is found.⁴ Forte and Pena (2009) also study the dynamic relationship between CDS and stock markets, and report that stock markets play a leading role in price discovery.⁵

The other strand of research our study relates to focuses on the transmission mechanisms of a financial crisis from one country to another. Eichengreen et al. (1997) and Glick and Rose (1999) find that currency crises appear to spread more so through interna-

⁴ In fact, Norden and Wagner (2008) find that CDS markets have become increasingly important for banks, as CDS prices contain information relevant for bank lending.

⁵ Alexander and Kaeck (2008) go one step further and show that the relationship between CDS and stock markets is time-sensitive; CDS spreads are influenced by stock volatility during periods of CDS market turbulence and are more responsive to stock returns in ordinary market circumstances.

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