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### THE RELATIONSHIP BETWEEN CREDIT DEFAULT SWAPS SPREADS AND CREDIT RATING ANNOUNCEMENTS: EMPIRICAL EVIDENCE FROM THE SAUDI MARKET

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#### **ABSTRACT**

A credit default swap is a contract that transfers the credit default risk of a sovereign or corporate borrower to investors. The price reflects the credit risk of the borrower. The purpose of this study is to explore the relationship between the price spreads of credit default swaps and credit rating announcements issued by Moody's, S&P, and Fitch, to test the informational efficiency of the Saudi market through a 60-day event study of Saudi five-year sovereign credit default swaps and corporate credit default swaps for the Saudi Arabia Basic Industries Corporation. The analysis uses daily data obtained from Bloomberg for 2009 to 2015 and covers the Tawadul All Share Index and the Standard & Poor's 500 index. This study found that there was a relationship between credit rating announcements and corporate credit default swap spreads but not between credit rating announcements and Saudi sovereign credit default swap spreads. Also, the research found that the Saudi stock market is inefficient in the weak form which is contradictory to the efficient market hypothesis. This paper will be helpful for policymakers and risk managers.

#### **INTRODUCTION**

The CDS market includes two sectors: corporate and sovereign. Corporate CDSs allow the transfer and management of credit risks of underlying corporate entities. Sovereign CDSs offer protection against the default of a referenced sovereign government. Made and Olszanowski [1] proved that understanding the link between credit rating announcements and CDS prices is important because it relates to several interesting topics. First, if anticipation

patterns could be discovered, traders could engage in profitable strategies. Second, portfolio managers could mitigate certain credit risks through hedging. On other hand, Remolona, Scatigna and Wu [2] showed that, as the sovereign CDS market enables the exchange of sovereign risk between participating financial institutions, markets compile quotes from a large sample of financial institutions and aggregate them into a composite spread that is reasonably continuous.

Frequent debt crises have highlighted the importance of a correct assessment of credit risk and quick provision of the rating. For example, during the financial crisis of 2008-2009, credit ratings were accused of being inaccurate, coarse, and delayed. The credit quality of emerging markets has also declined since the onset of the 2008 economic crisis, resulting in 15 credit downgrades including the default of Ecuador in December 2008 [3]. In reality, the effect of credit ratings is not fully clear. Assigning importance to rating agencies requires an assumption that rating announcements have a significant impact on financial markets. If this is true, and if credit ratings reveal new information about a particular entity, then the market for financial claims that relate to the entity's credit risk should react significantly. Stocks, bonds, and derivatives are examples of credit-risk sensitive markets. The rapidly growing credit-default swap (CDS) market is an example of derivatives.

The credit derivatives market was a huge innovation in the first world financial markets during recent years [4]. Its growth exceeded all expectations, and many anticipate that it will continue to grow. Since 1996, credit derivatives market has experienced a phenomenal growth; this is partly explained by heightened interest in credit risk, among financial institutions, hedge funds, insurance companies, due to deteriorating corporate credit qualities after the burst of dotcom bubble [5]. The credit derivatives market in emerging economies has also grown rapidly since beginning in 1996.

Kapoor, Sachdeva and Gupta [6] found that credit rating announcements affected stock returns, and that the effects of an upgrade on credit ratings were less than on downgrades. In the case of upgraded credit ratings, the banks with the higher market share showed more positive returns than those with a lower market share, and vice versa in the case of a downgrade. This supports the hypothesis that the credit rating does affect the return on securities and that rating announcements bring new information to the market.

Burghof, Schneider and Wengner [7] examined the influence of credit rating announcements from the same big three credit rating agencies (Moody's, S&P and Fitch) on corporate CDS spreads and the spillover effect within industries. They found that both downgrades and upgrades had an impact on the CDS spreads and lead to spillover effects around the event date. The degree of the reaction depended on the industry, as well as on the credit rating agency.

Ismailescu and Kazemi [3] studied the reaction of sovereign CDS markets to a decline or improvement in the creditworthiness of an emerging economy, using daily observations from January 2, 2001 to April 22, 2009. They found proof of an asymmetric reaction of CDS markets to credit rating events.

Negative rating announcements had no impact, while positive rating announcements immediately altered sovereign CDS markets. This finding suggested that a credit upgrade carries more information than a credit downgrade in emerging economies.

The market for CDS spreads is continually updated with the latest credit-related information [8, 9]. Consequently, whether a CDS can become an important credit risk reference becomes an interesting issue. Therefore, this study identifies the relationship between credit default swaps spreads and credit rating announcements by the empirical evidence from the Saudi market.

## METHODOLOGY

This study observes the relationship between CDSs and credit rating announcements in the Saudi market and to analyze the market's reaction around the announcement date by using standard event-study methodology as proposed by Brown and Warner [10, 11].

### *Data*

In this study, the CDS spreads used as primary data were obtained from Bloomberg, as daily observations of the spreads of CDS contracts with a maturity of five years. The Saudi Arabia Basic Industries Corporation (SABIC) was chosen for observation because it was the only company with CDS spreads in the Saudi market. The study covers the time period from January 2009 to April 2015. The focus is on announcements from the three major credit agencies, Moody's, S&P and Fitch.

### *Event Study Methodology*

This study defined an event as a change in credit rating, and the event date as the day when a change in credit rating happened. The event window is the time period over which the study measured the effect of the event on the CDS spread. The event window included the event day and the days before and after the event.

The estimation window is a period during which parameters were estimated. The day of the credit rating announcement is denoted as the event date  $t=0$ , and the event window consists of 60 business days ranging from 30 days prior to the event date and 30 days after the event date. Therefore, the event window is written as  $(-30, 30)$ . Table 1 shows the rating event dates that were used in the study.

**Table 1. Event Windows**

<b>Agency</b>	<b>Corporate</b>	<b>Sovereign</b>
<b>Moody's</b>	-30, Feb 15, 2010, +30	-30, Feb 15, 2010, +30
<b>S&amp;P</b>	-30, Feb 09, 2015, +30	-30, Feb 09, 2015, +30 -30, Jan 07,

		2014, +30 -30, May 29, 2013, +30
<b>Fitch</b>	-30, Oct 29, 2014, +30 -30, Aug 28, 2014, +30 -30, June 29, 2012, +30	-30, Feb 26, 2015, +30 -30, Mar 07, 2014, +30

### *The Efficient Market Hypothesis*

The efficient market hypothesis suggests that all available information about the value of a firm (including expected future cash flow, which incorporates factors such as volatility, liquidity, and risk of bankruptcy) is already completely reflected in the current stock price and that nobody can generate profits by using available public and private information. To assess whether the market is an efficient, if the prices change quickly and without bias to all known information available to the investors. Many investors attempt to find securities that are likely to increase in value in the future and to increase more than others. The main factor behind change in price is the arrival of new information; the constant arrival of information makes prices fluctuate.

### *Kinds of Efficient Market Hypotheses*

**Weak Efficiency:** The current security prices fully reflect the most public and the most easily available information (past prices).

**Semi-strong Efficiency:** The existing security prices reflect all publicly available information, not only past prices, but also earnings and dividend announcements, and the financial situation of the company's competitors as reported in financial statements, expectations regarding macroeconomic factors, announced merger plans, etc. The market is efficient if all public and past price information is reflected in the stock price, and one should not be able to profit by using this information.

**Strong Efficiency:** The current price fully reflects all offered information, whether past, public or private. Nobody can earn excess profits even if trading on not-publicly known information at the time.

## **RESULT AND DISCUSSION**

### *Saudi Sovereign and Corporate Performance Analysis*

#### *Corporate Cumulative Average Abnormal Returns Analysis*

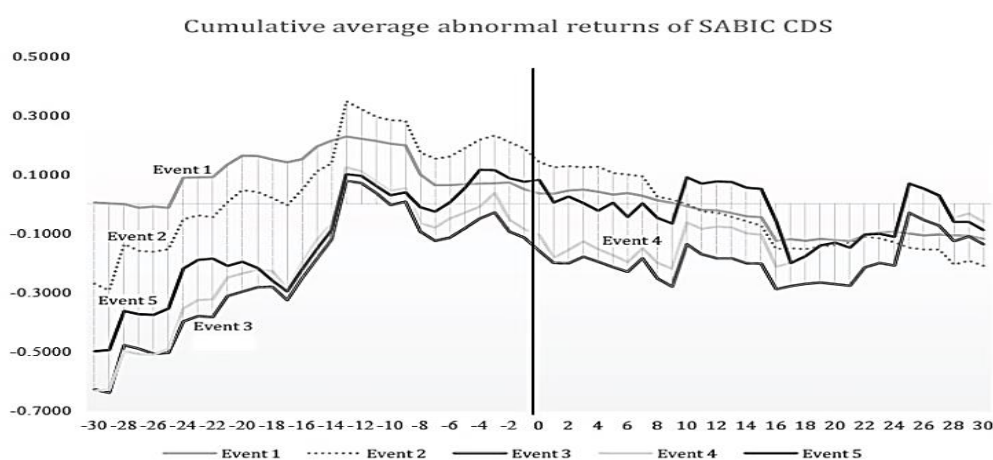
Table 2 shows the dates of SABIC credit rating announcements. Figure 1 shows that the returns of SABIC CDS were very volatile. Thirteen days prior to the announcement for all events, CAAR upturned to positive and to the highest point in the graph. This result suggests that investors were aware of the

new information or that there was leaked information. The investors updated their positions three days before the announcement, reflecting their expectations about the announcement. Then, after the announcement, the return performance decreased to negative. The announcement did not provide any new information to the market.

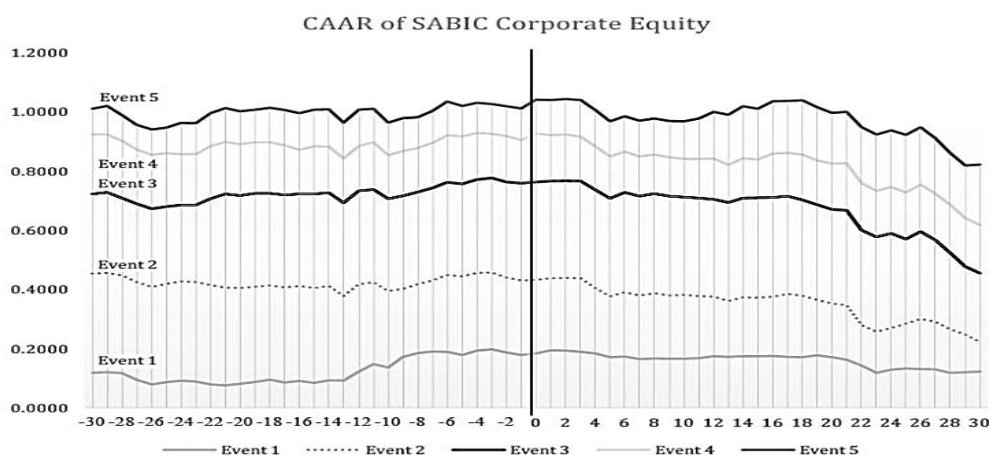
**Figure 2** shows stability in the return on SABIC’s CEQT. Thus, this movement shows good anticipation of the stock market holders; investors had significant expectations ten days before the announcements. The investors were aware of the situation, but about 20 days after the announcements, returns declined. After the announcements, it can be observed that the announcements caused low reactions, and the reactions were positive. From the graphs, the return performance of SABIC CDS spread was different than the performance of SABIC equity. There was volatility in CCDS returns and investors had significant expectations about the announcement, which proved there was a relationship between the CCDS and the credit rating announcements, while there was stability in CEQT returns which were not affected by the announcement over the event period.

**Table 2.** Dates Of SABIC Credit Rating Announcements

	Event 1	Event 2	Event 3	Event 4	Event 5
<b>Moody’s</b>					Feb 15, 2010
<b>S&amp;P</b>	Feb 09, 2015				
<b>Fitch</b>		Oct 29, 2014	Aug 28, 2014	June 29, 2012	



**Figure 1.** Cumulative Average Abnormal Return of SABIC CDS



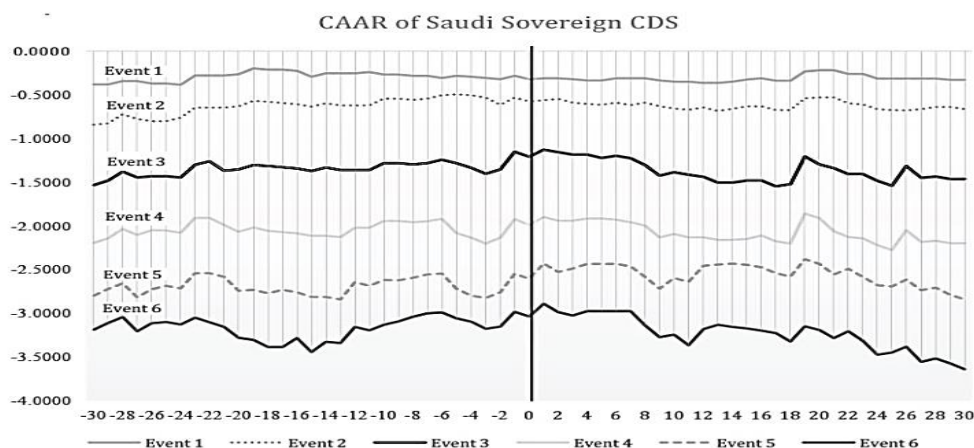
**Figure 2.** Cumulative Average Abnormal Return of SABIC CEQT

*Sovereign CAAR analysis*

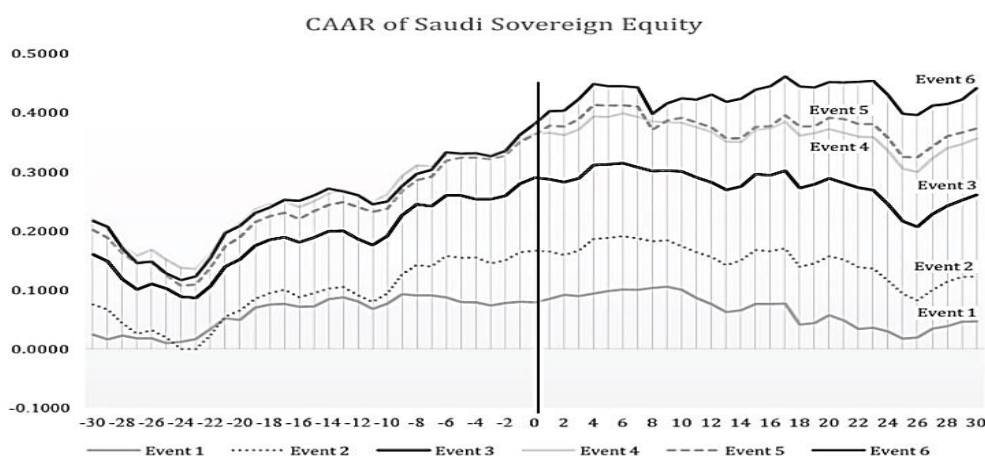
**Table 3** shows the dates of Saudi sovereign events. Figure 3 shows that all events were negative before and after the announcements. There was some volatility, but no noticeable abnormal returns during the announcement window. The efficient market hypothesis states that the constant arrival of information makes prices fluctuate, so these events are compatible with EMH. Figure 4 shows that returns were low for all events until eight days before the announcements and then the return performance began ascending. That means the investors had significant expectations about the announcements. After the announcement days, positive performance was seen. These consequences indicate that investors had corrected their positions before the announcement days, and the announcements provided new information to the market. From the graphs, the reaction of the Saudi CDS market to the announcements was different than the reaction of the Saudi equity market. The graphs show that the reaction in the SEQT was positive and proved a strong relationship between SEQT and credit rating announcements. On the other hand, there was no relationship between the SCDS and credit rating announcements. The returns were negative and stable over all events for the period 2009-2015.

**Table 3.** Dates Of Saudi Sovereign Events

	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
<b>Moody's</b>						Feb 15, 2010
<b>S&amp;P</b>		Feb 09, 2015		Jan 07, 2014	May 29, 2013	
<b>Fitch</b>	Feb 26, 2015		Mar 07, 2014			



**Figure 3.** Cumulative Average Abnormal Return Of Saudi SCDS



**Figure 4.** Cumulative Average Abnormal Return Of Saudi Sovereign Equity

**Saudi Market Analysis**

Global markets affected the general performance of the Saudi market. The indication is that the change in the rating was moderate but the stock market was highly confused. The change in the rating was not because of an absence of financial knowledge about the ratings, but because the investors were sensitive to the new information. Thus, they quickly adjusted their portfolios without waiting for the rating agencies' analyses.

If the Saudi market was efficient, the CDS returns would have adjusted quickly to the new information and the investors would have reacted immediately in an unbiased manner. In that way, no investor could have generated abnormal returns after the company's credit rating was announced, because the impact of new information was already reflected in the CDS returns. In an inefficient market, the returns would result from sales and purchases by investors who had new information that was withheld from the rest of the market, instead of using public information or past prices to forecast the announcement.

In Figures 1, 2, 3 and 4, there are small movements in the returns before the announcement. These indicate that some information leaked out. However, the research observed that after the announcement, the CDS returns changed without any visible trend, so the rating announcement did not provide new information to the market. This finding is coherent with the weak market efficiency hypothesis. The evidence is that sequential price changes in individual stocks are independent random variables. Independence indicates that the history of a series of changes cannot be used to forecast future changes.

## CONCLUSION

Based on the results, the study found that the returns reaction of CCDS was volatile, and investors had significant expectations about the announcements, which proved that there was a relationship between CCDS and credit rating announcements. However, the credit rating announcements did not reveal new information to the CDS market. While there was no relationship between SCDS and credit rating announcements, the returns were negative and stable over all events for the period 2009-2015.

This event study provided evidence that there was a relationship between SABIC corporate CDSs and credit rating announcements, while there was no relationship between Saudi sovereign CDSs and credit rating announcements. And, positive rating announcements had an impact on the sovereign CDS market and brought new information to the market. Moreover, specific country factors affected the CDS market. Yet, the results provide evidence that the Saudi stock market is inefficient in a weak form, which is contradictory with the theory. There are two possible reasons to justify this result: first, the most important possibility is that asymmetric information caused market inefficiency. Second, limited rationality of investors may impart some inefficiency. The Saudi market can be efficient in one period and inefficient in another; it depends on the time frame of the efficiency analysis.

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