



## WHEN IS A CDS POSITION UNCOVERED?

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**Abstract** Since November 2012 there is a shortselling ban for sovereign credit default swaps (CDS). The idea is to prevent speculative traders from betting on the default of a country by buying protection without actually being a creditor. Even if the CDS is bought with the intention to protect against losses arising from a sovereign bond position it is forbidden to buy “too much” CDS protection. The crucial question is: How much CDS nominal is appropriate to compensate for potential losses of a bond position? In this short note, we provide an upper bound for the CDS nominal that is appropriate in our view. One has to distinguish between an instantaneously perfect hedge on the one hand, and a hedge on nominal values on the other hand. Generally speaking, it is our understanding that all CDS nominals that are below the maximum of these two boundary hedges should be considered appropriate, and therefore not prohibited.

### 1 When is a CDS position considered to be uncovered?

The Regulation of the European Parliament and of the Council on short selling and certain aspects of credit default swaps (EU No 236/2012 (Regulation)) became applicable from 1 November 2012 in EU countries. It forbids to hold so-called “uncovered” positions in CDS. Now assume we have a negative basis position consisting of one sovereign bond and one respective CDS<sup>1</sup>. Chapter I, Article 4,1 of the aforementioned regulation states that “*a natural or legal person shall be considered to have an uncovered position in a sovereign credit default swap where the sovereign credit default swap does not serve to hedge against the risk of default of the issuer where the natural or legal person has a long position in the sovereign debt of that issuer to which the sovereign credit default swap relates*”. The question is, how much CDS nominal should be considered appropriate for the purpose of hedging one’s default risk from the bond? We are going to answer this question in the following tiny example.

#### **Example 1.1 (A negative basis position)**

Assume we hold one sovereign bond, which for simplicity is assumed to be a plain vanilla coupon bond with maturity  $T$  and pays an annual coupon. In order to protect ourselves against the risk of default we buy CDS protection with maturity  $T$ . Which nominal should we choose in the CDS contract? In principle, we have to consider the portfolio effects of a default event at any time point

<sup>1</sup>For further mathematical background on the handling of negative basis positions, we refer the interested reader to Bernhart, Mai (2012).



$t \in (0, T)$  during the bond's lifetime. A CDS nominal should be forbidden when it implies a gain upon a default event at all time points  $t \in (0, T)$ , because then it is clearly too large. However, we argue that a CDS nominal should be allowed if it does not imply a gain for at least one time point  $t \in (0, T)$ . The portfolio value is the sum of the bond's market value and the CDS's market value. The former pulls to its nominal amount during its lifetime, the latter pulls to zero during its lifetime. Hence, any portfolio value between its current market value (at  $t = 0$ ) and the bond's nominal value (at  $t = T$ ) is expected to be observed at some point in time  $t$  prior to maturity  $T$ , provided no default event happens. Considering these two extreme time points, all CDS nominals should be allowed that guarantee at most a perfect instantaneous hedge (at  $t = 0$ ) or at most a perfect nominal hedge (at  $t = T$ ).

- (a)  $t = 0$ : Assuming a default event happens within the next second ("instantaneously"), the CDS nominal should be large enough in order to compensate for immediate market value losses of the portfolio. The difference between the actually chosen CDS nominal and this "instantaneously perfect hedge" CDS nominal is called the *jump-to-default (JTD)*, and we show how to compute it in Section 2 below.
- (b)  $t = T$ : The bond pulls to par during its lifetime, so that close to maturity the bond's market value equals almost its nominal value. This means that in order to be on the safe side one second prior to maturity of the bond, a CDS nominal that matches the bond nominal is appropriate. Notice that the CDS loses all of its value at maturity, because it expires.

A CDS nominal exceeding both the instantaneously perfect hedge CDS nominal and the bond nominal is inappropriate in our view. According to the explanation above such a position would have a speculative nature, because it implies a gain upon an instantaneous default as well as a gain upon a default close to maturity. Provided no extraordinary market variable movements, such as interest rate and/or credit spread movements, are observed throughout the bond's lifetime, this implies a gain upon default at all time points  $t \in (0, T)$ .

We conclude from this example that any CDS nominal which is less than or equal to the maximum of the bond nominal and the instantaneously perfect hedge CDS nominal should be considered to be in accordance with the legislation laid down in the document (EU) No 236/2012. Further evidence for this conclusion can also be found in the ESMA circular ESMA-263 (2012), which provides technical advice on how to implement the new regulatory rules regarding the short-selling ban for sovereign CDS. In this document it is clearly described that even a case when the CDS nominal exceeds the bond nominal can be considered to be covered under certain conditions. Quoting from (ESMA-263, 2012, p. 40):

*"A further condition which ESMA sees as essential if a sovereign CDS position is to be treated as a covered one is proportionality. The value of the exposures hedged by the sovereign CDS*



*should be broadly proportionate to the value of the obligations of the sovereign within the scope of the CDS at the time the position is entered into. A position holder cannot be considered to have a covered CDS position if the value of the sovereign CDS is disproportionately large in comparison with the size of the exposures it is intended to hedge. [...] Where the position holder has a CDS position which is greater than the value of the exposures being hedged, they would need to be able to demonstrate that this was justified for the purposes of the hedge taking into account such factors as the size of the nominal position, the sensitivity ratio of the asset/liability to the referenced sovereign debt and whether the hedging strategy involved is dynamic or static.*

In particular, this document clearly mentions the two boundary nominals (a) and (b) described in Example 1.1 above. The sentence *"The value of the exposures hedged by the sovereign CDS should be broadly proportionate to the value of the obligations of the sovereign within the scope of the CDS at the time the position is entered into"* in our view must be interpreted like we did in part (a) of Example 1.1. Moreover, a CDS position is also covered if it is geared to *"the size of the nominal position"*, as outlined in part (b) of Example 1.1.

**Remark 1.2 (When must a CDS position be covered?)**

Important to notice is that according to the legislation a CDS position must be covered *"at the time the position is entered into"*. This means that the trader has to justify to the regulator that his position is covered only at the time points at which the position is altered. If the position becomes uncovered due to changes of market variables, there is no need to rearrange the position. Let us illustrate how this could happen. Assume we have invested 5 billion EUR into a Japanese Yen-denominated bond in June 2012, when the exchange rate was  $EUR/JPY = 100$ . In order to protect ourselves from potential losses due to a default event, we therefore bought CDS protection with a EUR nominal of 4.5 billion, which is totally in line with the legislation. Now by the end of January 2013 the exchange rate has increased to the level of  $EUR/JPY = 125$ , hence the EUR nominal of the bond is now only 4 billion, implying a breach of the shortselling ban<sup>2</sup>. However, this happened only due to an FX move, without rearrangement of the position. Finally, notice that if currency risk is hedged away using FX derivatives, the FX hedging position has compensated for the nominal loss.

**2 Computing the instantaneously perfect hedge CDS nominal**

Finally, we explain how to compute the instantaneously perfect hedge CDS nominal mentioned in part (a) of Example 1.1. First let us clarify some required notation. We assume we hold one negative basis position, i.e. one CDS and one eligible bond. Moreover, we assume both instruments to be quoted in EUR. In practice, we have to aggregate all bonds and CDS of the same reference entity and convert potential foreign currency prices into EUR. We use the following notation:

<sup>2</sup>If this really constitutes a breach cannot be inferred from the information given, since it might be true that the position is still not jump-to-default positive. However, a comparison of the EUR nominals indicates a potential breach, so let us assume we have one.



- $N^{CDS}$  denotes the CDS nominal (in EUR).
- $N^{Bond}$  denotes the bond nominal (in EUR).
- $B$  denotes the current market value of the bond. This means that  $B \cdot N^{Bond}$  is the current market value of the bond position.
- $C$  denotes the current market value of the CDS. This means that  $C \cdot N^{CDS}$  is the current market value of the CDS position.
- $R \in [0, 1]$  denotes a constant recovery rate, which is obtained in the auction following a credit event. Be aware that this number in reality is unknown, it is a modeling assumption!

With these notations, the portfolio market value  $V$  is the sum of the bond position and the CDS position, given by

$$V = B \cdot N^{Bond} + C \cdot N^{CDS}.$$

Now we assume a default event to happen in the next second. In this case, the portfolio suffers losses and gains, which we now describe:

- **Losses:** The bond market value jumps down from  $B$  to  $R$ , because only the percentage  $R$  is what we end up with after the auction process. Also the CDS market value  $C$  jumps to zero, because after the default event and the auction process, the CDS contract ends. Summing up, this means that the portfolio value  $V$  jumps down to  $R \cdot N^{Bond}$ , i.e. we suffer a loss of  $(B - R) \cdot N^{Bond} + C \cdot N^{CDS}$ .
- **Gains:** The CDS contract triggers and we receive a default compensation payment. The amount of this payment is obtained in the auction following the credit event, and it is given by  $(1 - R) \cdot N^{CDS}$ .

Summing up gains and losses, we see that upon a credit event the portfolio has the following PnL (Profit and Loss):

$$\begin{aligned} JTD &:= \text{Gains} - \text{Losses} \\ &= (1 - R) \cdot N^{CDS} - ((B - R) \cdot N^{Bond} + C \cdot N^{CDS}). \end{aligned}$$

The latter value is called the *jump-to-default (JTD)*. If it is positive, then this means that we make an instantaneous gain when default happens. If it is negative, then this means that we suffer an instantaneous loss when default happens. The CDS nominal  $N^{CDS}$  which satisfies  $JTD = 0$  is the instantaneously perfect hedge CDS nominal, which is said to be jump-to-default neutral. It is given by

$$N^{CDS} = \frac{B - R}{1 - R - C} N^{Bond}.$$

#### **Remark 2.1 (The Recovery Rate)**

Please be aware that the parameter  $R$  is unknown and only a modeling assumption. For most European sovereigns (Greece is an exception), a market standard is the assumption of  $R = 0.4$ . An assumption of  $R = 0$  corresponds to assuming that the bond price drops to zero and the full CDS nominal is paid by the protection seller to the protection buyer.



**3 Conclusion** In order for the shortselling ban to be put into practice appropriately, we therefore postulate for each basis position on sovereigns that one (or both) of the following two conditions is satisfied at all time points when the basis position is rearranged, in particular at inception:

- (a) One is not jump-to-default positive, i.e.  $JTD \leq 0$ ,
- (b) The CDS nominal does not exceed the bond nominal, i.e.  $N^{CDS} \leq N^{Bond}$ .

In case both conditions are violated, we consider a CDS position to be uncovered, and therefore not allowed.

**References** G. Bernhart, J.-F. Mai, *Negative Basis Measurement: Finding the Holy Scale*, XAIA homepage article (2012).

ESMA circular 263/2012, *ESMA's technical advice on possible Delegated Acts concerning the regulation on short selling and certain aspects of credit default swaps ((EC) No 236/2012) (2012)*.