Box 9

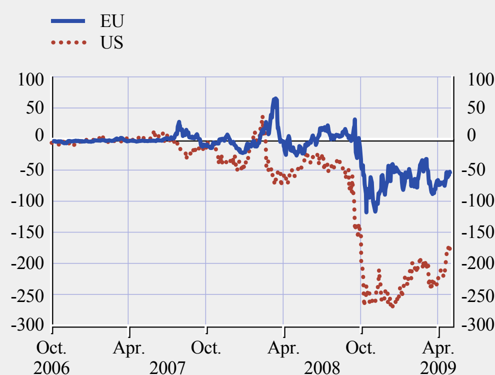
THE BOND-CDS BASIS AND THE FUNCTIONING OF THE CORPORATE BOND MARKET

Over the few months following the default of Lehman Brothers, conditions in the European corporate bond market deteriorated significantly. This box, after discussing the concept and the main drivers of the bond-CDS basis, examines why this measure may be a good indicator of overall conditions in the corporate bond market. In view of the persistence of the negative basis in the investment-grade segment of the market, the box also discusses the main reasons for the failure of arbitrage and its consequences for the investors that used basis-related investment strategies.

The pricing differential between a CDS spread and an asset swap spread implied by bond prices is called a bond-CDS basis. In normal times the basis tends to be positive and since the relative liquidity of the CDS and bond markets does not change significantly, CDS spread movements tend to lead bond spread movements.[1] However, sudden changes in the conditions in the cash market, mostly owing to a worsening of bond issuance conditions, an increase in funding costs or a larger deterioration in liquidity in the corporate bond market in relation to the CDS market, may cause the basis to suddenly enter negative territory. Thus, since a negative basis tends to be driven by shocks to the cash market, a negative bond-CDS basis may be a good indicator of overall credit conditions in the corporate bond market. In particular, sudden movements of the basis towards negative territory would be an indication of liquidity or funding shocks to the cash market.[2]

Investment-grade aggregate bond-CDS basis in the EU and the United States

(Oct. 2006 – May 2009; basis points)



Source: JPMorgan Chase & Co.

The chart shows that the basis abruptly turned negative following the default of Lehman Brothers in mid-September 2008. At that time, the corporate bond market experienced severe stress, whereby issuance conditions deteriorated significantly, funding costs increased markedly, as evidenced by the shift in the average investment-grade bond spread of 100 basis points, and liquidity in the secondary market dried up.

The widening of the difference between asset swap spreads implied by bond prices and CDS spreads encouraged some investors to enter into so-called "basis trades" in order to benefit from the expected convergence of the discrepancy between the prices of bonds and CDSs. There are several basis trade strategies, which are all based on the assumption that the underlying credit risks are similar and that arbitrage in an efficient market should eventually lead to a closing-up of the negative bond-CDS basis.

However, the negative basis in the investment-grade segment of the bond market proved to be persistent, which indicates that arbitrage opportunities could not be exploited by market participants (see Chart). There are several explanations for the persistence of the negative basis. First, an investor may face credit constraints owing to a worsening of funding conditions. Since banks and hedge funds, important potential investors, were under pressure to deleverage, they may have avoided such trades, which imply the use of leverage, whereby the investor borrows funds to buy the corporate bond and simultaneously to buy default protection on the underlying

1 See R. Blanco, S. Brennan and I. W. Marsh, "An empirical analysis of the dynamic relation between investment-grade bonds and credit default swaps", *Journal of Finance,* 60 (5), October 2005.

2 Some recent studies by ECB staff on the relationship between CDS spreads and bond spreads for euro area banks suggest that the outbreak of the financial turmoil in the summer of 2007 induced a substantial increase in risk aversion and a shift in the pricing of credit risk, with CDS markets becoming more sensitive to systematic risk while cash bond markets priced in more information about liquidity and idiosyncratic risk. The long-run relationship between the two spreads holds; however, a significant change in the lead-lag relationship has been identified. For more details, see I. Alexopoulou, M. Andersson, O. M. Georgescu, "An empirical study on the decoupling movements between corporate bond and CDS spreads", *ECB Working Paper*, forthcoming.

bond in the CDS market. Second, there is a non-negligible risk of marking-to-market losses. If the basis shifts further into negative territory after an investor has entered into the basis trade, this implies that unrealised losses from such an investment have to be booked on investors' profit and loss accounts. Since movements in the basis were substantial and volatile, this may have initiated internal stop-losses set by investors. Third, since bonds and CDSs are not perfect substitutes, there may be a minor risk of suffering losses from the trade as a result of the materialisation of risks embedded in one product but not existing in another. In an environment of extreme risk aversion, investors may avoid taking these risks and would not exploit opportunities of such approximate arbitrage. Fourth, low liquidity in one or both markets may boost bid-ask spreads to levels that would make arbitrage opportunities less profitable than they appear.

Market intelligence suggests that the first two reasons were the most significant factors behind the persistence of the basis. Moreover, some banks may have made losses owing to the persistence of the negative basis.