Liquidity Signals in the CDS Markets

Enhancing CDS Market Monitoring Using OTC Market Specific Quoting Patterns

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Introduction

On the day when KfW wired €300m to the defaulted Lehman Bros, it became clear that a new regime for risk control and counterparty risk assessment was imminent. No longer could the middle office operate in an end-of day or end-of-week environment whilst the front office operated in real-time. There was a requirement to extend dynamic environments from the front office into departments responsible for managing counterparty credit risk.

This article illustrates how an institution can significantly enhance their ability to actively manage their counterparty credit exposures by using CDS market activity information provided by CMA's independent CDS data service. This article will also introduce CMAs market activity indicators, which provide CDS market information that is not contained in CDS price levels but can have a significant and valuable impact on counterparty credit assessment.

The Evolution of Counterparty Credit Risk Assessment

For a long time, counterparty credit assessment was largely outsourced to the big three credit rating agencies and was subject to a rather static approach in its implementation. Recent credit market turmoil exposed some potential shortcomings of this practice. Credit ratings alone simply did not satisfy the increasing need for enhanced transparency and close to real-time risk monitoring. Their long credit evaluation cycles could not provide a timely and responsive flow of relevant information to market participants who had found themselves holding large exposures on rapidly deteriorating credits. So institutions that needed an up-to-the-minute picture of credit risk began to look beyond the rating agencies for other methods to assess their credit and counterparty exposures.

In the pursuit for a more timely and accurate assessment of their credit and counterparty risks, institutions turned their attention to the credit derivatives markets. Here the strength of individual credit is evaluated on a close to real-time basis and opinions are backed by the capital exposure of those who buy or sell exposure in the reference credit. While the limited outstanding debt notionals in the corporate bond market often mitigate its pricing efficiency, the CDS market, with its ability to write protection on gross notionals multiple of the reference entity's outstanding debt, became the natural venue for firms who needed a responsive and reliable source of credit assessment information.

Understanding the CDS Market

Due to the OTC mechanics of the CDS market, the ability to access reliable pricing data and trading information is a challenge for market participants. In contrast to exchange-traded markets, the mechanics of CDS data collection plays a significant role in the value of the information that may be extracted from CDS market data.

While genuine transactional data (so called "Level 1" pricing) is available for only a very limited number of single name credits, trading of a majority of single name credits is transacted without any records being made easily accessible. Although a few CDS data vendors provide aggregations of book and record figures, these figures lack a direct connection to CDS front office activity. Assessment of the reference credit then relies on using CDS price figures alone, without transparency on the underlying market activity. So "Level 3" data may not say much about the market's perception of the underlying entity's probability of default, or provide comprehensive indications of its potential evolution.

"Level 2" CDS pricing data is available from CMA, originated in a close to real-time flow of executable price quotes that buy-side market participants receive from their market makers. CMA's data is one of the most commonly used market-based pricing data sources, providing a much more accurate insight into the CDS market's view on an individual entity's credit standing.

In order to fully comprehend the market dynamics surrounding specific reference entities, it is important to monitor the price of protection in conjunction with information on the size and scale of market activity around a particular credit. By monitoring sudden drops or rises in market interest in a given credit, one can gain a much better understanding of how CDS market players are reacting to new information. More importantly, one can gain this understanding in the early stages of credit deterioration, or optimally, prior to it. As we will demonstrate with a few examples below, levels of market activity can be much more reactive to new information than price levels and can provide a leading indicator of future price movements.

Understanding the market activity can help flag areas of market concern to risk managers or traders before significant shifts in price movement occur. The market activity can be tracked and monitored using reliable and transparently collected data. Alert signals can be produced bringing an affected counterparty's name to the attention of the risk managers. Such alert signals, if processed on a timely basis, can improve an institution's ability to trigger ad-hoc assessment of a particular counterparty or credit, and potentially adjust their exposure before the potential credit deterioration.

Monitoring CDS Market Activity Using OTC Market Specific Quoting Patterns

As we mentioned earlier, it is challenging to obtain a timely source of CDS transactional history, containing both price and liquidity information. When trying to track CDS market's trading activity, we must therefore rely on data that is closely related to trading patterns. The measures presented in this article, are based on patterns of information flow between CDS market makers and investors. We suggest that by looking not only at what prices are being quoted, but by looking at how often, and to how many counterparties a given credit is being quoted, one can effectively monitor levels of market interest in a particular entity.

In order to analyse the CDS market quoting patterns we use market activity indicators sourced from our dataset. The remainder of this article demonstrates how CMA's CDS price and market activity indicators can enhance market monitoring processes as well as active counterparty credit risk management.

CMA Market Activity Indicators

In contrast to other CDS data providers, CMA's dataset is collected directly from the trading desks of buy-side CDS market participants. Based on this market data, CMA produces intraday and end-of-day consensus pricing for the entire liquid CDS market.

CMA's model creates not only reliable CDS prices, but also indicators of market activity. Market activity can be measured in terms of how often and how many market makers send indicative quotes to CMA's clients or how many of CMA's clients see a minimum threshold of quoting activity in a given reference entity. These market activity indicators are published daily as an integral part of CMA's CDS pricing information service.

Quite often these market activity indicators reveal more about the market than CDS price levels themselves. CMA's market activity indicators reflect various dimensions of market makers' quoting patterns. We assume market makers will provide indicative quotes more frequently and to a wider range of clients when facing increased trading activity in a particular reference entity. Even if the consensus price of CDS protection remains generally unaffected, increased quoting activity may signal that a larger segment of the market has begun to take a view on, or an interest, in the underlying credit.

Let's take a closer look at two examples of a quoting pattern that can be used to draw inferences about a specific reference entity or a sector of reference entities. These examples should demonstrate how significant changes in quoting patterns could have raised institutions' attention to possible issues with the reference credit. We suggest that a timely analysis of what has triggered CDS market interest in those names, would have improved the overall efficiency of the counterparty credit assessment process.

1 - When did the CDS market get interested in Lehman Bros?

Both examples illustrate the use of the "Quoting Frequency" (QF) indicator. QF specifies how many price quote aggregations have been produced by contributors in a day. Each trading desk contributing data to CMA does so only if a particular CDS contract is quoted by multiple market makers within a day. Based on these quotes, an aggregation is produced. With each additional price level update from one of the market makers, or from an additional market maker, a new aggregation is produced, increasing the Quoting Frequency. The QF is therefore positively correlated with the number of indicative price updates received by CMA's clients from their market makers.

We assume that the CDS market follows normal supply and demand dynamics. Market makers will therefore quote prices more frequently if there is a higher buy-side interest in obtaining or providing protection on a given credit.

In Figure 1, the proxy for market interest (QF - solid red line) and the protection price (5-year CDS contract price - black dotted line) are plotted for the senior unsecured debt of Lehman Brothers (LB). LB's 5-year CDS price was stable until mid 2007. Following Bear Stearns' announcement on subprime related losses in July 2007, LB's CDS spiked above 50 bps for the first time, indicative of the rising concerns of credit market participants. But was this the first moment when the CDS market started to sit up and take notice of LB?

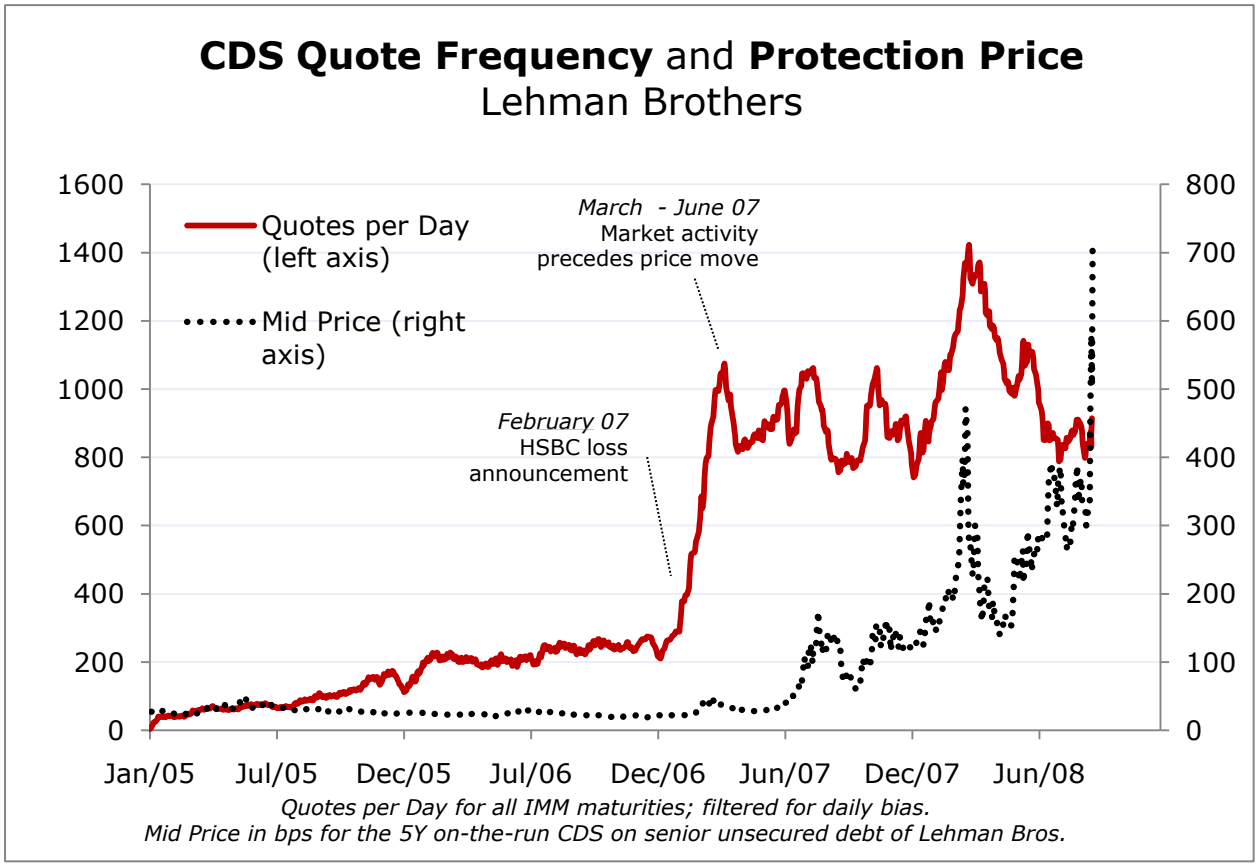


Figure 1

No. The QF indicator signalled a sharp rise in the market's interest in gaining protection on LB six months ahead of its CDS price hike. The sharp rise in QF coincided with losses announced by HSBC in February 2007. We may speculate that CDS market participants were sensitive to the implications of the HSBC announcement for other financial firms with large sub-prime exposures. Hence they became actively concerned about the credit standing of these firms and began to research and examine CDS protection.

The implications the announcement had on individual credits becomes more obvious when looking at Figure 2. While the QF indicator for Deutsche Bank remained stable after January 2007, LB's QF spiked five-fold, a pattern also repeated for Merrill Lynch and Morgan Stanley. During the following two years, these three firms either went bankrupt, sought emergency rescue or accepted multiple capital injections from the private and public sectors.

NOTE: In Figure 3, we can review CDS prices for all four selected banks. While protection prices for the latter three banks were above Deutsche Bank's levels, the returns on those prices were highly correlated with Deutsche Bank. In contrast, the Quoting Frequencies for the three latter banks exhibited a pattern that substantially differentiated them from Deutsche Bank as early as in February 2007.

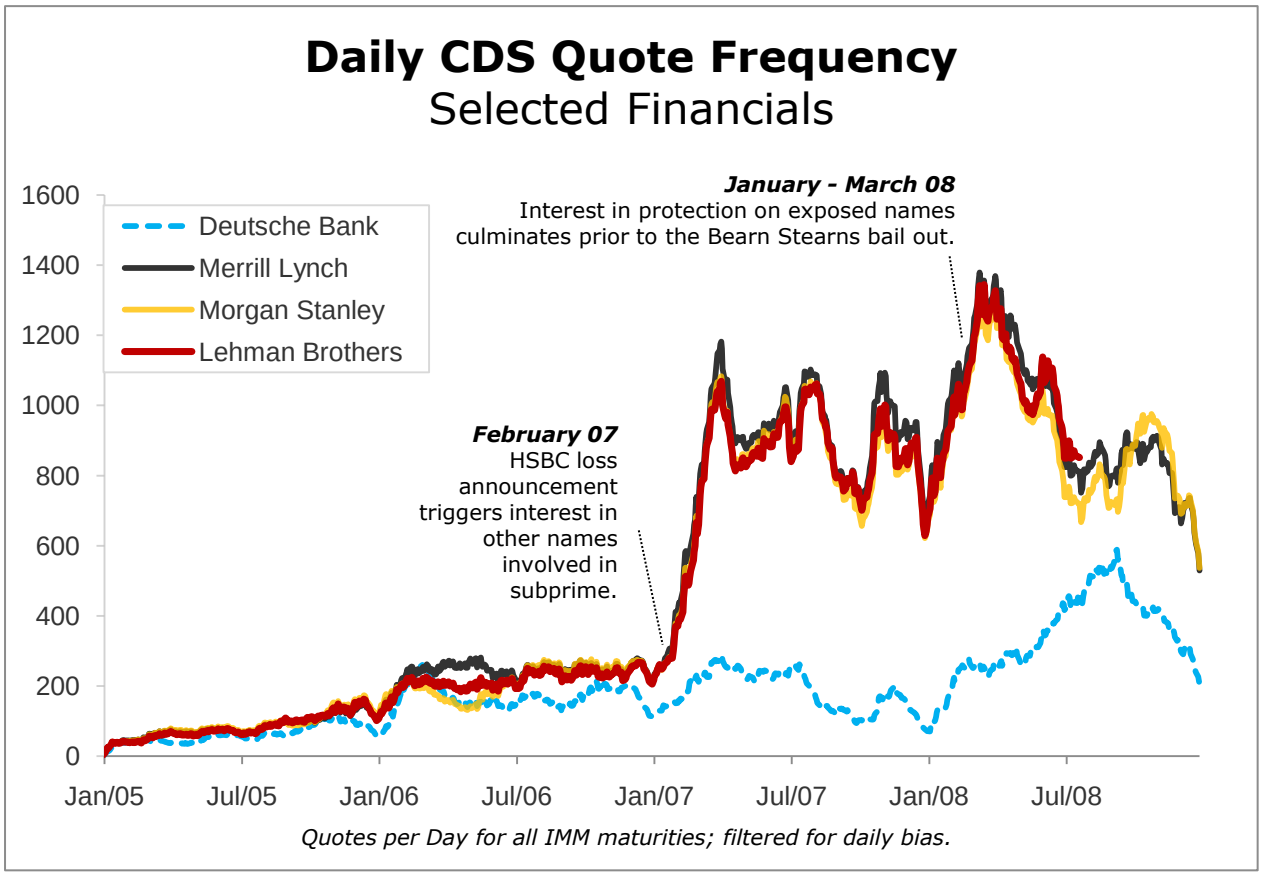


Figure 2

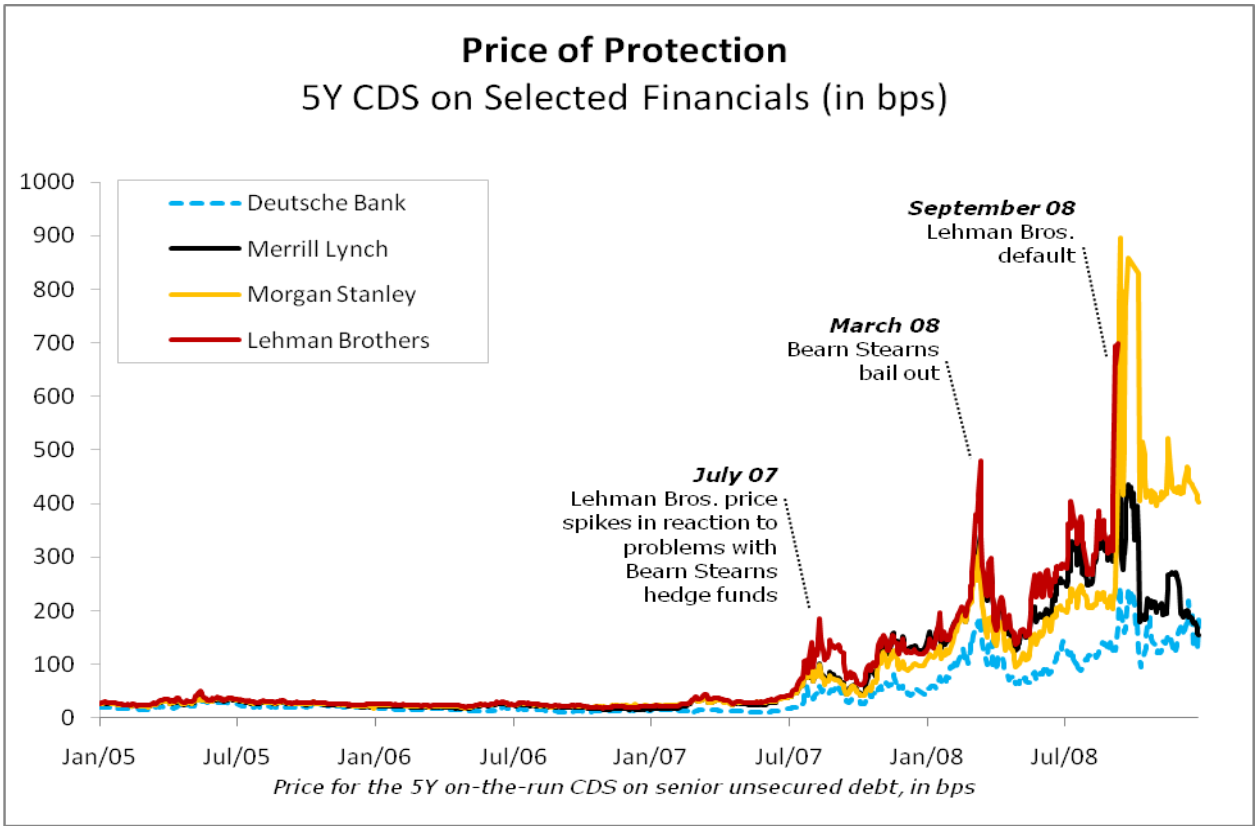


Figure 3

This data suggests that a sizeable portion of the CDS market began to anticipate the risks related to the sub-prime market as early as February 2007. By identifying the escalating CDS market activity in those names, a client monitoring CDS market activity indicators would have had a head start in analysing the underlying motivation and addressing relevant counterparty exposure.

Further breakdown of the market activity indicators by maturities would have shown a substantial increase in the QF levels for non-5-Year maturities over the first half of 2007. This suggests that market participants were choosing contracts with maturities specific to their existing exposure in order to hedge that exposure, rather than taking a speculative view- a speculative view on the affected credits would have typically induced activity in the on-the-run 5Y contract.

NOTE: In Figures 1 and 2, the market activity indicator is filtered for daily bias by exponential smoothing. The underlying data for LB show that an all-time QF high was established during the Bear Stearns crisis on March 11, 2008 at 2193 quotes per day. The price of protection on LB rose during the next three days by 30%, reaching a high of 472bps on March 14, 2008. This was the highest quoted CDS level for LB until the week prior to LB's bankruptcy declaration.

2 - Greece

In order to provide a more recent example, we have chosen to analyse the CDS data on Greek sovereign credit. For some years Greece has experienced severe difficulties managing its fiscal position, resulting in a massive level of national debt. Most recently there have been concerns regarding Greece's ability to refinance itself in public markets and concerns that it would need to seek the support of either the E.U. or the IMF. Intense media scrutiny of Greece's fiscal position started in early December as the price of Greek government bonds began plunging. As a result, many institutional investors exposed to Greek sovereign credit suffered substantial losses.

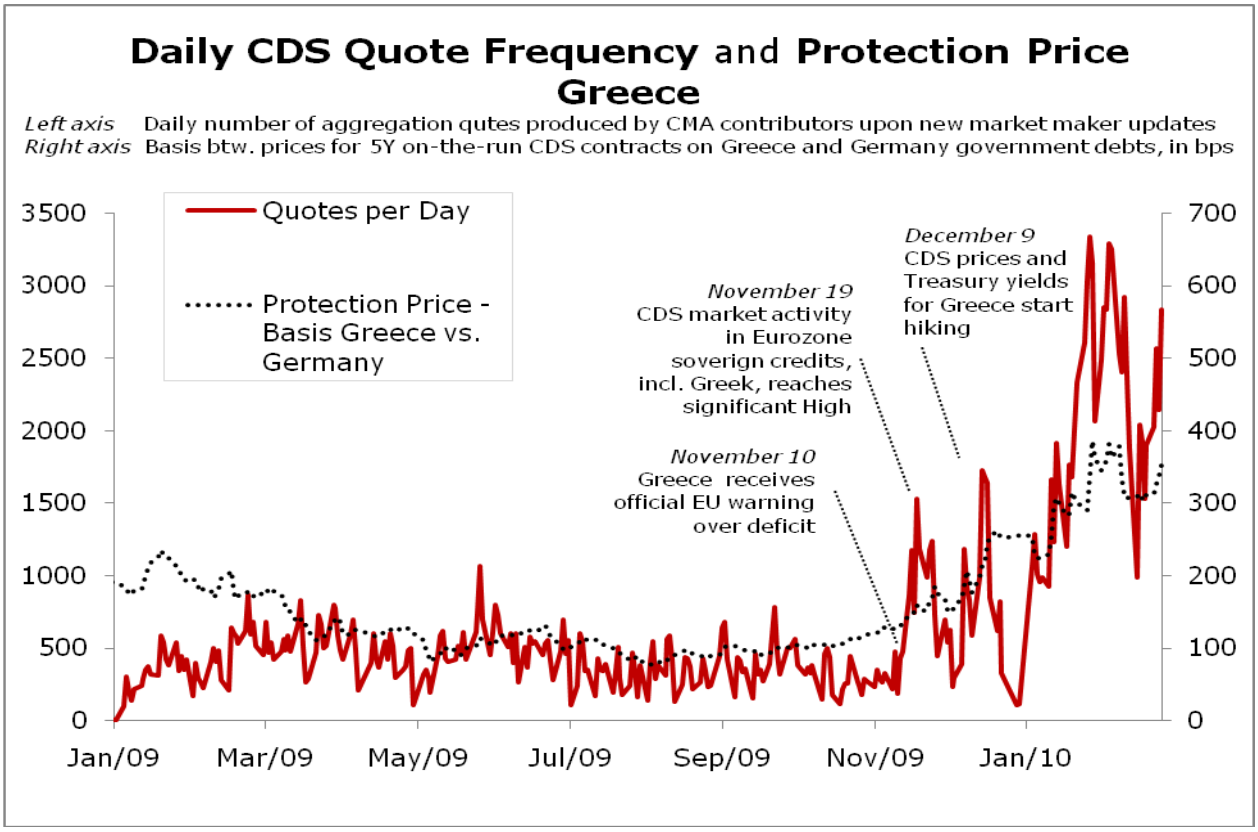


Figure 4

In Figure 4 we can see how the protection price for Greece (black dotted line) started gradually rising in early November, slowly reacting to the first news about the EU's concerns about Greece's debt problems. However, a much clearer picture about CDS market reaction over the period of November is provided by the QF indicator (solid red line). We can see that QF for contracts on Greece rose fivefold through the nine days (November 10th-19th) after the first news on EU's concerns were made public. The QF rose from 477 quotes a day, to an enormous 1529 quotes a day. In Figure 5 we can see that through this period quoting activity increased around Germany as well, as it had indeed for most of Eurozone countries. However, Greece saw the biggest increase in QF levels by a significant margin, followed by Portugal (and Spain - not plotted). Notice that QF levels on countries outside Eurozone, such as Poland, remained unaffected.

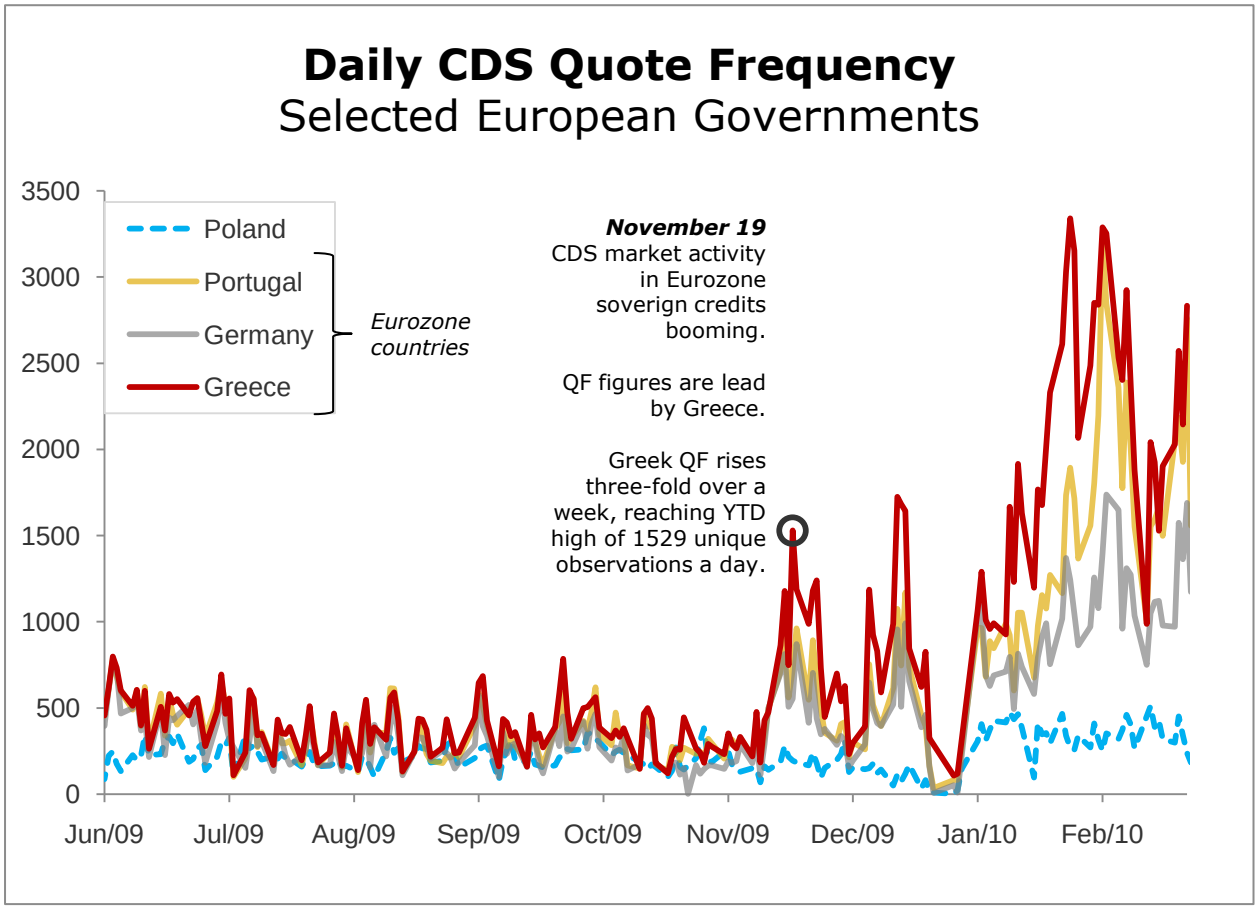
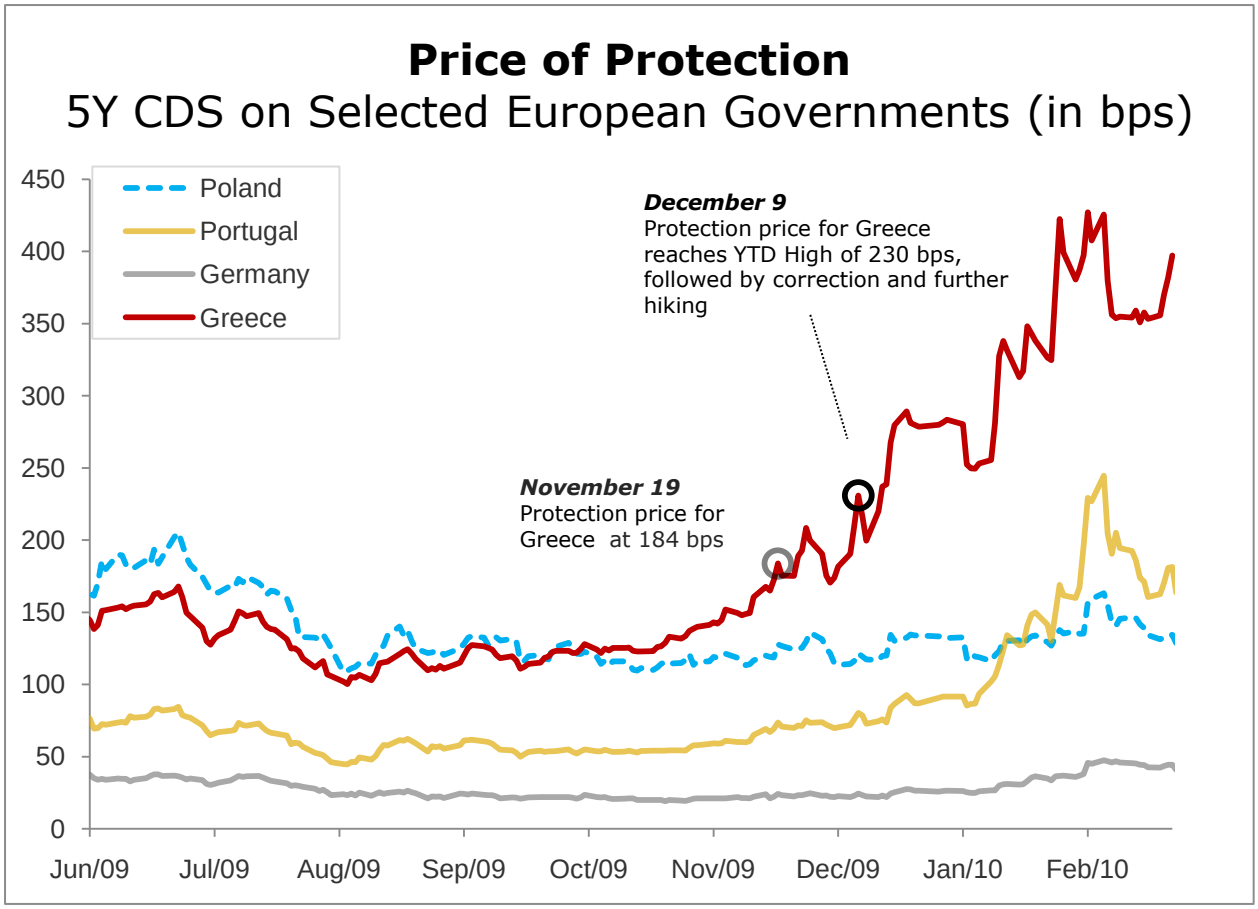


Figure 5

The QF figures suggest that substantial market interest in Greece and other Eurozone countries developed during the week prior to November 19. Over the two or three weeks following November 19, we can observe further widening of the basis between Greece and Germany CDS spreads in Figure 6. The period was concluded with a substantial widening of the bond yield basis in early December.

We can conclude that the QF figures provided an early and strong signal on the changing market perception of Eurozone credits, particularly Greece, as early as on November 19. This change of perception was most clearly seen around countries with high debt to GDP ratios. However, it took almost three weeks until the CDS spread for Greece broke through the 200 bps level and started rocketing towards 400. During the three weeks leading up to December 9, any investor monitoring signals from the CDS market could have taken the opportunity to assess the magnitude of the issues that Greece was starting to face, draw relevant conclusions, and apply active measures to mitigate the increasing risk of credit deterioration.



Conclusion

In this article we have discussed the new challenges for active risk management that have been exposed by recent market turmoil. These challenges include finding a more dynamic way of monitoring and responding to changes in counterparty credit. We have proposed that previously unavailable information on CDS markets can provide reasonable support for those needs.

In order to track CDS market activity in individual credits, we chose to analyse CDS market quoting patterns using data sourced from CMA's unique dataset. Through a combination of CDS price data and market activity indicators, risk managers can develop a more complete risk profile of specific reference entities.

CMA's data can help identify changing market interest in a given credit by highlighting changes in CDS quoting patterns, before these changes translate into price movements. The examples of Lehman Brothers and Greece demonstrate how these market activity indicator changes provided additional signals on those entities before a significant price shift took place.

Monitoring these changes can trigger early warning signals, leading to a qualitative review on the underlying reference entity. This can lead to a better understanding of the motivation behind CDS market reactions, improving the efficiency of counterparty credit assessment, and adjusting exposures before potential issues escalate, negatively affecting an institution's balance sheets.

About the Author

Michal Koblas is Head of Quantitative Research for Credit Market Analysis (CMA). Michal has previously worked at the Czech National Bank and European Central Bank as a risk management expert, and has provided consulting services to CME Group during the development of their CDS clearing platform. Michal has a degree in Mathematics from the Czech Technical University.
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About CMA

CMA combines independent intra-day data with innovative technology solutions to increase the transparency and efficiency of OTC markets. CMA is a wholly owned subsidiary of CME Group, the world's largest and most diverse derivatives exchange.

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