

THE ENERGY FACTOR IN CREDIT RISK



KARLIEN PORRÉ OF DELOITTE & TOUCHE HIGHLIGHTS THE CHALLENGES FACED IN DEVELOPING THE CREDIT RISK MANAGEMENT DEPARTMENT FOR AN ENERGY TRADING COMPANY.

Most corporate treasury departments are responsible for managing the credit risks arising from wholesale financial activities – that is, from treasury transactions with financial institutions. Business-related (retail) credit risks are typically managed by the finance departments of the business divisions. In some industries, though, the underlying business credit risks are similar to those in the treasury department and hence the distinction becomes less clear. Take the energy industry, where wholesale energy trading results in credit risks that require management techniques similar to those in the financial markets.

To follow, we will go through the steps it took to set up a credit risk management department for an energy marketing and trading company and highlight the challenges we encountered on the way.

WHY IT WAS IMPORTANT TO SET UP A CREDIT RISK

DEPARTMENT. The client in question was a leading US energy company, ranking among the five largest US electricity and gas suppliers, with substantial assets and trading operations outside the US. The firm had recently bought significant generation assets in Europe and was developing its commercial activities in parallel. These activities covered both marketing and sales of electricity to wholesale customers and pure trading, both activities in a number of European countries. The commercial department (marketers and traders) started with about seven people but within 18 months it had grown to more than 20 individuals.

The group had a dedicated credit risk management team in its US operations but did not have the resource to develop this function for this new European subsidiary. Deloitte was therefore retained to set up the credit risk management department, under the supervision of the US Credit Risk Manager and Chief Risk Officer.

ACTIVITIES REQUIRED. The company had not yet started trading and no aspect of the credit risk management department had yet been developed. The only information available was a list of the potential trading counterparties which imposed some priorities. As a result, all activities necessary to develop and implement a credit risk management department were required:

- **Assessing counterparties and assigning credit limits.** Each of the counterparties on the traders' desired list had to be vetted and trading credit limits allocated; although most counterparties were energy companies, some were not, and they covered a wide range of nationalities. We developed an 'authorised limit-vs-credit rating matrix' that, once approved by the company's Risk Oversight Committee, authorised the European Head of Risk Management to assign limits in line with the counterparty's credit rating.
- **Defining the credit exposures.** In line with market practice, we split the credit exposures between 'current' and 'potential' exposures. The current exposure consists of the settlement risk (amounts receivable plus the value of energy already delivered but not yet invoiced) and the replacement costs (the mark-to-market value of the contract – that is, the cost to replace the contract at current market prices). The potential exposure captures the potential incremental replacement cost that may arise if market prices move further and turn the trades more profitable.
- **Developing the risk quantification methodologies and tools.** This step, effectively implementing the above definition, required various procedures to be set up and tools to be developed. Examples included determining how the forward price curves would be established; how the deals would be captured in the quantification model; how much volatility should be reflected to determine the potential exposure; whether or not long and short exposures could be netted off, both for settlement and mark-to-market exposures and the like. As the timescales for implementing the middle office risk management package were beyond those for the credit project, we initially developed an in-house spreadsheet model before integrating it with the deal capture and risk management system.
- **Credit reserve calculations.** Once the credit department was up and running, and trading had begun, accounting rules required us to establish credit reserves on a quarterly basis. These were based on outstanding exposures, and default and recovery rates for each credit rating band.

The initial phase of this project, which involved developing and obtaining approval for all policies, assessing and assigning limits for all firms on the target list, and developing the deal capture and risk quantification model, took three months with a team of four. During the following year, most tools and procedures were refined, for example, to benefit from the middle office's risk management package.

CHALLENGES. The activities set out above are similar to those required in the financial services industry and, to some extent, those in corporate treasury credit risk management, too. On closer inspection, however, the nature of energy trading provided some challenges that were not present, or were less significant, in the financial industry. The key challenges were as follows:

- **Lack of credit ratings.** Unlike a treasury environment, where most (if not all) counterparties have an external credit rating (for example, from Moody's or S&P), many of the European energy players are not rated. Most counterparties therefore needed to be assessed and assigned an in-house credit rating, which required a dedicated team of credit analysts and an agreed approach to setting limits. In view of the tight deadlines, we initially developed a simple spreadsheet model that calculated eight key financial ratios, and these, taken together with absolute financial indicators such as shareholders' funds and general knowledge about the companies, were used to assign an internal credit rating. As part of this analysis, we faced the challenge of needing to allow for different accounting standards in different countries.

This relatively subjective method was later refined when we built a more robust in-house rating model. We modelled the financial ratios of a sample of comparable companies (about 100, spread over the countries where we were expecting to trade) and developed a distribution of ratings for each ratio. Each counterparty was then assessed against these distributions, giving an implied credit rating. Developing the distributions required us to make a number of assumptions (such as whether the population was spread evenly over all ratings or whether some ratings had a higher probability of occurring). These were tested by determining the rating for externally-rated companies and comparing this with the external rating. These tests showed that our model consistently resulted in a marginally more prudent rating and accordingly the model was approved for setting limits.

- **High concentration risk.** One of the pillars of effective credit risk management in banks is industry diversification. This option, for obvious reasons, is not available to energy traders to the same extent. Except where the company has material sales contracts to users in other industries, it will be heavily exposed to the one industry. This is unavoidable without the use of external credit mitigation tools such as credit derivatives, and makes all other aspects of credit risk management even more important.

- **Shortcomings of risk quantification packages.** Given the relatively recent development of the European energy trading markets and of the related risk management systems (when compared with systems in the financial markets), few of the trade capture and risk management packages available had full credit risk management capabilities. We therefore had to develop in-house models to quantify and report the exposures. These models were initially spreadsheet based (which were adequate for initial trading volumes) but were subsequently upgraded to a database structure with direct data-feed from the trade capture system.

'ENERGY TRADING PROVIDED SOME CHALLENGES THAT WERE NOT PRESENT, OR WERE LESS SIGNIFICANT, IN THE FINANCIAL INDUSTRY'

- **Different approaches were required for trading and sales-related exposures.** In spite of the similarities between sales and pure trading activities (both create market and credit exposures), they required a different approach to managing the credit risks. For example, in order to gain a foothold in the local market, the company was in negotiations to supply a local distribution firm with its electricity requirements for one year. Commercially, this was an important contract, but it created credit exposures above what would be normally acceptable for the credit standing of the customer concerned. Normal tools such as setting credit limits were not adequate. Instead, a combination of using bank guarantees, protective clauses in the contract, and approval at top management level (reflecting the positive decision that the risk was necessary to grow the business) were required.

- **Subjective decisions were needed when implementing the policies.** Implementing the agreed policies raised several questions for which there often was not one correct answer. Judgmental calls were required. One of these was how to manage settlement exposures for future months. For example, as traders would trade the month of August during January, the resulting mark-to-market and add-on (potential) exposures would be included in the credit risk reported for January. However, the settlement exposures arising from such sales trades would only effectively occur in August, and should therefore only be reported against the August limit, not the January one. Prudence therefore suggested that all forward settlement exposures should be reported (to avoid breaching future limits), but the logistics of showing more than 12 exposures per counterparty (one per month for one year forward trading) argued against this. We adopted an approach of reporting up to six months forward, but developed the model to flag future exposures that neared the limit. This allowed us to provide exception reporting for those months not routinely reported on.

- **Support an ailing counterparty or let it sink?** One final question, which fortunately we did not face during this project (which finished some time before the Enron debacle), relates to the dreaded 'domino' effect – the risk that the default of one energy company pulls others down with it. Contrary to first instincts, it may in some circumstances be preferable to continue supporting a counterparty in trouble (by continuing to deal with it rather than withdrawing all trading lines). Other precautions can be taken (for example, through including netting clauses in the contracts and minimising the net exposures) and it may allow the counterpart to pull through and avoid losses and damage to the industry. However, this approach may not always be advisable, and hence the skill lies in making the correct judgement call on when to pull the credit lines.

Karlién Porré is a Director in the Financial Markets Consulting practice of Deloitte & Touche.
kporre@deloitte.co.uk
www.deloitte.co.uk