PUTTING DATA ON THE MAP

Heat mapping provides a highly visual way of viewing real-time market information and spotting historical trends as JPMorgan's investment bank discovered.

They say a picture paints a thousand words, which may be true in the worlds of painting and photography, but a 20-year-old technology, "heat mapping" also uses 'pictures' to impart information to users. Heat mapping or tree mapping, as it is otherwise known, was invented by University of Maryland computer science professor Ben Shneiderman, based on research he conducted around facilitating human and computer interaction. Unlike the humble, yet ubiquitous spreadsheet, which displays information as rows of figures, heat mapping uses visual aids such as colour coded boxes, graphs and pie charts so that users can more easily digest and analyse the reams of data and information they are being bombarded with on an almost daily basis.

This is what first attracted JPMorgan investment bank to the technology four years ago. For its fixed-income clients, JPMorgan had developed a website where market research could be downloaded, but it wanted to present this information in a more dynamic and intuitive way. "In the beginning we were trying to search and map a group of bonds and track their performance," says Silvio Oliviero, head of marketing, fixed income, JPMorgan.

As Oliviero explains, using spreadsheets or computer printouts it was difficult to get a real-time view of the market. "Our sales staff had to sort through numerous pages of prices and look at historical research to see where the market was going." Using Stockholm-based Panopticon's "tree mapping" visualization tool, which JPMorgan integrated into its database of market rates for fixed income and CDS levels, it was able to output the information in a way that portfolio managers and sales staff could easily digest and analyse. "It [tree mapping] gives you a quick view across the market or whatever you are trying to monitor," Oliviero explains. Panopticon's technology formed the basis of JPMorgan's heat mapping solution CreditMap, which is used by its European credit departments and everyone looking at credit markets including analysts, as well as the bank's premier clients.

On the JPMorgan map the colours are customisable. So, for example, blue indicates that the price of a bond has increased substantially, and red indicates that the price has decreased. "Price movements are not always easy to visualise when there are a lot of bonds in a portfolio," Oliviero explains. "If you have a broad sector of bonds in one place and you want to know what is happening, rather than monitoring 500 bonds, using tree mapping very quickly you can see if 75 out of 500 bonds, for example, have shifted in price."

Different colours can be used to portray market shifts across a number of factors such as portfolio rating, sector performance and risk concentration. The type of analysis can also be changed. For example, bonds can be aggregated based on ticker (Ford Motors for example) or categorised by currency. By inputting real-time streaming prices, JPMorgan clients can also more easily see how their fixed income and CDS portfolios shift throughout the day. "You can easily switch from a real-time view to a view of the last three months or the last year. That saves a lot of time in pre-analysis," Oliviero explains. //

Project overview

SUMMARY:

- Using "heat mapping" the investment banking division of JPMorgan wanted to display important pricing and portfolio information pertaining to fixed income and CDS stocks in a format that allowed clients to more easily monitor and track market movements in pricing and portfolio values. It also wanted to combine historical market data with real-time streaming data in one application

IMPLEMENTATION:

- JPMorgan started by developing maps of European and North American credits
- Integrating Panopticon's visualisation technology into its database was a one month project
- In March 2003 JPMorgan launched its CreditMap solution based on Panopticon's technology
- Today, Panopticon's tree mapping technology is used by approximately 100 to 200 people within JPMorgan

BUSINESS BENEFITS:

- Panopticon's technology enables JPMorgan to easily drill down into an industry sector
- It can handle real-time as well as historical data
- CreditMap allows JPMorgan and its clients to monitor all aspects of the credit market in one application
- Before implementing CreditMap, it was not possible to integrate live pricing, historical pricing, credit research and JPMorgan's online trading system.
- CreditMap ties all systems together and makes it easy for the user to switch from one view (real-time) to another
- When looking at the visualisation, users can point out important values in a matter of seconds