Business challenge

To help its trading desks make better, more risk-aware decisions, BBVA wanted to give them accurate insight into counterparty credit risk (CCR) and check the limits for each trade in real time.

Transformation

A real-time, pre-trade limit checking workflow helps traders avoid breaches and seize opportunities while keeping exposure to risk under control.

Óscar Gil Flores
Executive Director, Quant and Process Support
BBVA

Business benefits:

Helps
traders avoid high-risk trades and make smarter choices about counterparties

Reveals
trends and patterns in trading while reducing manual analysis work

Increases
consistency of decision-making with one methodology to model trades

BBVA

Optimizing counterparty risk capital with real-time simulation-based exposure and limits management

Headquartered in Spain, BBVA is a multinational banking group that operates in Europe, North, Central and South America, and the Asia-Pacific region. The group employs over 114,000 people, owns assets of EUR 689 billion, and reports annual net income of approximately EUR 7.5 billion.

"Pre-trade limit checking helps us manage our CCR exposure more proactively than ever before."

Óscar Gil Flores

Executive Director, Quant and Process Support

BBVA

Share this

Gaining insight pre-trade

For banks, it is becoming increasingly important to have more accurate and up-to-date insight into counterparty credit risk (CCR). It is no longer sufficient to rely on retrospective analysis of how each day's trades have affected the overall risk profile—banks need to start using CCR measures proactively to help the front office make smarter, risk-aware decisions about which trades to make with which counterparties.

BBVA's philosophy is that risk is a fundamental part of every business decision, not only at a strategic level, but also on tactical and operational levels. The bank wanted to position risk management in a new way within its organization – managing risk more proactively by moving from an ex-post to an ex-ante model. This would require the ability to obtain a precise valuation of CCR and other risk measures even before closing deals.

BBVA's risk team has been using sophisticated CCR models to help its risk team set appropriate limits on trades with each of its counterparties for nearly 10 years. However, until recently, these sophisticated models could only be run in a batch process at the end of each day.

For pre-deal limit checking, the only option for traders was to use a much simpler "add-on" modeling approach, which did not take some of the important factors (such as netting effects) into account. Moreover, the add-on model was only used in some geographies: in others, there was no pre-deal limit checking at all.

What BBVA needed was a solution that could provide real-time, full multi-step Monte Carlo simulation, the gold standard of credit exposure and xVA measurement. This would enable it to account for portfolio diversification, netting and collateral, and would represent the true economic risk and capital of the trade.

"We wanted a pre-deal limit checking capability that would be just as sophisticated and accurate as our daily batch process, and that could be used as standard in all geographies," says Óscar Gil Flores, Executive Director, Quant and Process Support. "This would help us understand the effect of a new trade on our risk profile before closing the deal, so we could fix potential problems before the trade went ahead."

Realizing the vision

Working with IBM was a natural choice, as BBVA was already using IBM® Algorithmics® software to power its end-of-day batch model for CCR exposure measures.

BBVA also recognized that the real-time credit engine provided by IBM Algorithmics Integrated Market and Credit Risk was an ideal platform for the new solution. Moving to a real-time engine that would support full Monte Carlo simulation rather than a simple add-on approach required close collaboration between BBVA's risk and IT teams and IBM.

The new IT infrastructure needed to be highly available in order to support trading desks seamlessly throughout the day. And from a user's perspective, the pre-trade limit checking workflow needed to be clear, simple and intuitive for the risk managers and traders who would interact with it.

"This was a first-of-its-kind project at BBVA, which would require several innovations along the way towards reaching key objectives such as automatically blocking trades when a limit breach occurs, and automating the authorization workflow for bypassing the block," says Cristina Ortiz, Senior Manager, IT CIB Risk.

"Reaching these goals required a solution design that could efficiently leverage key pieces of existing infrastructure, and add new components where needed. We worked closely with IBM to resolve the challenges we faced, and both organizations have learnt a lot from the experience. Today, our relationship with the IBM team is stronger than ever."

Identifying problems before they occur

"With end-of-day insight into limits and breaches, we could only see problems after they had occurred," says Óscar Gil Flores. "Now that we have pre-deal limit checking, we can not only see potential problems while a deal is on the table, we can solve them before the trade hits the books."

Cristina Ortiz
Senior Manager, IT CIB Risk
BBVA

Besides giving BBVA real-time insight into limit breaches, the solution also has a number of other advantages. For example, utilizing a consistent methodology for CCR exposure calculation across both its batch and its real-time systems – which follows the gold standard of using multi-step Monte Carlo simulation that incorporates the impacts of netting and collateral within the margin period of risk – means that there is no risk of a trade seeming to be within the limits when the deal is made, and then appearing as a breach in the end-of-day analysis.

The new solution also ensures that the trading data that is input into both models is consistent. Previously, it was possible for a trade to get temporarily "lost" between the front office and the risk team, so that it wasn't included in the end-of-day batch process.

Now, the vast majority of trades are automatically logged in the solution, which means that both the front office and the risk team are operating with exactly the same information.

To take additional advantage of this consistent data on its trades, BBVA has also introduced an automated reporting platform that generates statistics and trends about daily trading patterns, filtered by trading desk, counterparty, product, and many other factors. This helps the risk team make better strategic decisions about where to focus its resources and which projects to prioritize.

Looking to the future

As well as checking limits pre-trade, BBVA will soon begin using the solution to automatically block limit-breaching trades — eliminating any risk of mistakes or misunderstandings that could lead to a trade being completed without approval.

In the near future, the bank also wants to implement additional measures that are available for IBM Algorithmics Integrated Market and Credit Risk, such as credit valuation adjustment (CVA) and other xVA measures for risk-adjusted return and profitability. These will give traders even greater insight into the advantages and risks of each trade before they finalize the deal.

Óscar Gil Flores concludes: "The ability to accurately and consistently model counterparty credit risk at pre-trade speeds is a significant step forward: it helps our corporate and investment banking division seize opportunities to make more profitable trades with the confidence that the exposure to each counterparty is acceptable and within the bank's risk appetite.

"As we extend the solution to provide the same level of insight into other metrics and scenarios, we will be able to trade even more intelligently, with an accurate deal-time understanding of risk, return and profitability for every trade."

Solution components

- IBM® Algorithmics® Integrated Market and Credit Risk
- IBM Software Services for Analytics

Take the next step

IBM Analytics offers one of the world's deepest and broadest analytics platform, domain and industry solutions that deliver new value to businesses, governments and individuals. For more information about how IBM Analytics helps to transform industries and professions with data, visit ibm.com/analytics. Follow us on Twitter at @IBMAnalytics, on our blog at ibmbigdatahub.com and join the conversation #IBMAnalytics.

Connect with us

YTC04038-USEN-00