

Alice Beatrice is VP, Market Risk, for a leading commercial bank. Her bank has operations across the globe and is a major player in the over the counter derivatives market. Of late, there has been a general trend towards automated trading systems, and she has witnessed an increasing number of market places come alive, offering deal matching and settlement facility for varied instruments.

Alice is responsible for controlling market risk for the entire bank. This morning she was just out of a two hour long meeting with the senior management of the bank, the treasury head the compliance department. Alone over a cup of and tea, she mulled over the pulls and pressures on her job.

Traders were taking a variety of positions in a range of instruments in the hope of making more profits for the bank, which directly impacted their bonuses. They were tired of the numerous artificial limits placed on their activities (like the maximum Euro bond position that they could carry, and so on), which they felt was too restrictive and intrusive. Instead, they wanted limits to be linked to the risk that their positions exposed the bank to, not on the constitution of the position. They argued that a large foreign bond position suitably hedged by other large positions in the currency swap market and in the local interest rate futures market put the bank to no risk so why should the bank insist on limits on the maximum foreign bond position that the trader can take? They felt that the existing limits hampered their style, and only served as an irritant that made profitable trades impossible.

The top management, already sensitized by the large trading losses that have been publicized, was concerned about hidden risk that the bank was taking, and wanted to clearly know and control their risk. They were aware of certain traders making large sums of money for the bank by taking very risky bets, and also knew that such traders were being awarded huge bonuses. They worried that this would set an example for all traders to take risky positions, putting the bank to great danger.

The CEO was concerned if the bank was using it's capital in the most profitable manner. He wanted a product wise and division wise profitability report, that not only considered the revenues and expenses related to the product or the division, but also the capital allocated to the division on account of the risk assumed. Given two products that were equally profitable, but one requiring a lesser capital than the other, the CEO would like more capital allocated to the former.

The compliance manager wanted capital to be allocated to every trading activity, in line with Basel norms, which has an effect on the total trading space available to the bank.

Alice had to be careful while weighing the demands placed on her. Her primary job was to ensure that the bank did not harm itself by risky bets, while also ensuring that the bank continued to make profitable trades. She realized that she had to:

- ① Replace the existing system of myriad limits with that of single capital limits. All that Alice or any one else was concerned was the amount of capital a trader used, and as long as this capital was allocated on the basis of the actual risk in the trader's position, she could exercise good control by g the capital that could be used. She really did not care about what the individual positions of the trader was she would only worry about computation of risk in a logical manner and to peg capital to cover that risk.

- Φ Temper the profits made by the traders with the amount of risk that they took for the position, thereby normalizing the profitability achieved by various traders, and acting as a disincentive against taking very risky positions. Resolving the first point above, would help solving this issue.
- Φ Compute the product-wise and division-wise risk assumed, and allocate capital in proportion to this activity, and produce a report in conjunction with the product/division profitability report that she could get from the bank's existing system.
- Φ Correctly estimate risk for the bank as a whole, so as to allocate the least possible, yet acceptable regulatory capital for the positions carried by the bank.

Alice lists her action points.

- Φ First, she required a system that could monitor the risk in trader's positions in real time, across all asset classes and at every level in the trading hierarchy. For instance she needed to know the value-at-risk for every division, desk and trader separately, and in real-time. If she could replace the existing limit systems with a single VaR check facility, her first problem would be solved. There would be concerns that the pre-trade limit checking could severely affect the trading space, so she should take care to provide the highest trading space possible without breaching the limit in any case. This addresses the concerns of both the traders and the top management provide maximum trading space, while ensuring that 'over trading' is nipped in the bud i.e., at the time of deal request.
- Φ Second, she needed to maintain a daily log of the profit and loss and the VaR figures at each level. She could use the VaR (or a multiple of the VaR) as a proxy for the capital allocated to the position, and arrive at the risk adjusted capital for each trading entity. If bonuses could be paid based on this normalised figure, rather than on the simple P&L, there would be a disincentive to take disproportionate risks.
- Φ Third, she required risk figures for each product or division or any grouping of positions, which would be used to compute capital allocation for that particular activity.
- Φ Fourth she needed to follow the internal model approach to market risk, rather than the standardised approach of Basel, because the former could significantly reduce the capital allocation for the positions taken by her treasury. This would mean a system that handles all asset classes, and is flexible enough to tune every parameter to pass the back testing that is mandated for this approach.

Chella Software's ActiveMargin™ Risk Management System is the only software that comprehensively handles Alice's requirements. By acting as an integrated Risk Management System covering a wide variety of instruments and computing margins on the worst case portfolio on a pre-trade real-time basis, FORMS™ provides a perfect solution.

- Φ Compute Value-at-Risk of a portfolio over multiple entity levels
- Φ Serve as a real-time rules engine to regulate trades
- Φ Validate deal requests and orders before they are allowed to be executed, while providing the highest trading space
- Φ Provide real-time reports on exposure to different types of risks
- Φ Provide real-time risk analytics to traders and to risk managers including
  - What-if analysis
  - Stress testing
  - Sensitivity analysis
  - Incremental VaR
- Φ Supports a wide variety of instruments covering equities, equity derivatives, commodities, commodity futures, interest rate swaps, forex spot, forex derivatives, fixed income and exotic options.

## About Chella Software

Chella Software is a capital markets specialist. All of our business has come from this domain, since inception. The combined experience of the team in the areas of front, middle and back office operations is probably unmatched. Highly respected as consultants and solution providers, enterprises rely on our products to run their mission critical business processes.

For more information visit us at [www.chelsoft.com](http://www.chelsoft.com) or write to [subbu@chelsoft.com](mailto:subbu@chelsoft.com).



Intel and the Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.