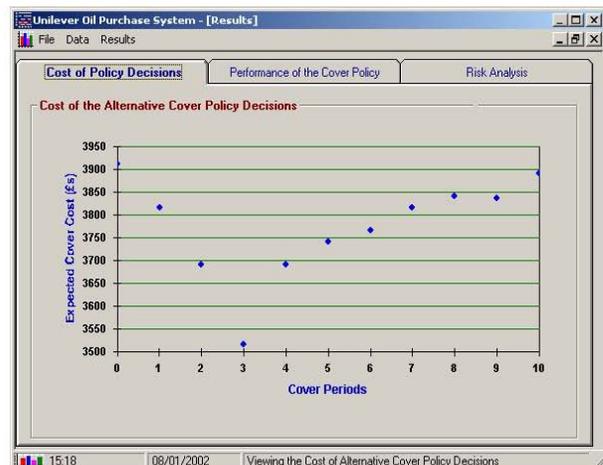
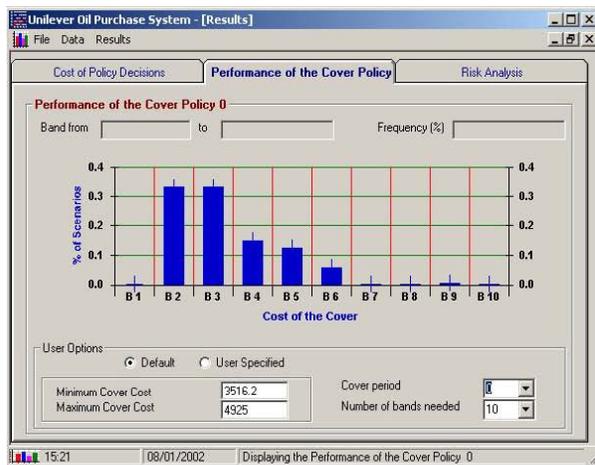


Natural Oil Purchase Cover Policy: Using Futures and Spot Prices

Client: Unilever Research, Port Sunlight, UK

Project Scope: Unilever purchases natural oils from a number of global vendors. These natural oils are used as raw material in the production of a range of consumer goods, which are sold world-wide. The volatility in the international prices of the natural oils has significant impact on the planning and budget decisions. Since these oils are bought and the finished products are sold in markets throughout the world, the manufacturer is exposed to a variety of market uncertainties and the resulting risks. These uncertainties include the raw material prices, the demand and hence the selling prices for the finished goods—all of which influence the profitability of the manufacturing firm. These risks can be minimised by entering into futures contracts of appropriate duration, that is, by following a schedule of “forward” purchase of oil (with specific series of future delivery dates) with the oil suppliers.

Project Achievement: This problem was formulated as a two-stage Stochastic Program (SP) using the futures and the spot prices for the natural oil. This SP model gives robust decisions/solutions that hedge against the uncertainties in the natural oil prices and the demand for the finished products. The uncertainty in the oil prices and the demand are modelled through a scenario generator. A decision support system (DSS) was developed that integrates the SP model, the scenario generator and the solution algorithm. This DSS also provides the decision maker a profile of the risk and return exposures for different policies.



Client Feedback: Our client, Mr. Michael Briggs, used this software in their strategic decision making process. The company focussed more on ROI achieved in this project.

References

C A Poojari, C A Lucas, G Mitra, A decision model for Natural Oil buying policy under uncertainty, CARISMA Ref CTR/06/03.

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