Abstract

In this paper, we focus on designing a real-time risk management system. The system will be using CME SPAN and will consist of a multithreaded daemon process to evaluate portfolios using SPAN calculation engines and programs to determine parameters fed to SPAN. SPAN parameters can be estimated by several methods using historical data. One of the goals is to
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determine the best method for each parameter for every asset class. The other goal is to
develop a responsive system to analyze portfolios and orders in real-time and to update the
portfolio risks accordingly. Ultimately when these two parts are combined, we'll be constructing
a real-time system to evaluate portfolio risks and to determine optimum margin requirements.

Reference

- Tapiero C., Risk and Financial Management: Mathematical and Computational Methods,
  Management by US Non-Financial Firms," Financial Management, Vol. 27, No. 4, pp. 70-91,
  1998.
- Basak S., Shapiro A., “Value-at-Risk-Based Risk Management: Optimal Policies and
- Longin F., “Optimal Margin Level in Futures Markets: Extreme Price Movements,” The
  March 07, 2011.
- Introductory information and outline about what SPAN is and how it works. Available:
  2011.
- Bear R. M., “Margin Levels and the Behavior of Futures Prices,” Journal of Financial and
- Fishe R. P. H., Goldberg L. G., “Margin requirement in futures markets: Their relationship
- Furbush D., Poulsen A., “Harmonizing Margins: The Regulation of Margin Levels in
- Dutt H. R., Wein, I. L., “Revisiting the empirical estimation of the effect of margin changes
- Figlewski S., “Margins and market integrity: Margin setting for stock index futures and
- Tomek W. G., “Margins on Futures Contracts: Their Economic Roles and Regulation”, in
- Edwards F. R., Neftci S. N., “Extreme price movements and margin levels in futures
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Index Terms

Computer Science Applications

Key words

Financial risk management Derivatives
Portfolio analysis

Estimation methods

SPAN