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Support

Sales

Solvers

Documentation

Model Library

Search

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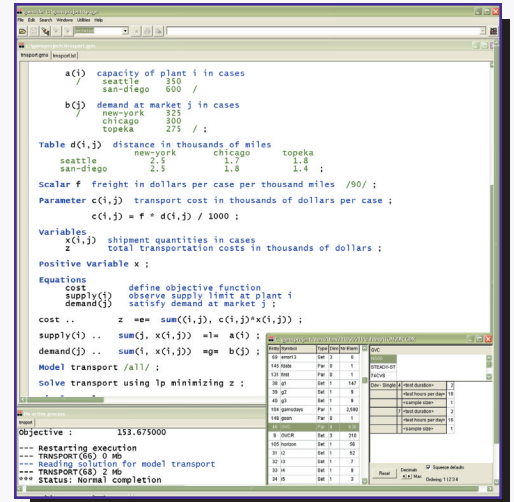
High-Level Modeling

The General Algebraic Modeling System (GAMS) is a high-level modeling system for mathematical programming problems. GAMS is tailored for complex, large-scale modeling applications, and allows you to build large maintainable models that can be adapted quickly to new situations. Models are fully portable from one computer platform to another.

Multiple Model Types

GAMS allows the formulation of models in many different problem classes, including

- Linear (LP) and Mixed Integer Linear (MIP)
- Nonlinear (NLP) and Mixed Integer Nonlinear (MINLP)
- Quadratically Constrained (QCP) and Mixed Integer QCP (MIQCP)
- Mixed Complementary (MCP)
- Programs with Equilibrium Constraints (MPEC)
- Stochastic Linear Programming (SP)



GAMS Integrated Developer Environment for editing, debugging, solving models, and viewing data.

State-of-the-Art Solvers

GAMS incorporates all major commercial and academic state-of-the-art solution technologies for a broad range of problem types, including a range of global and quadratic programming solvers.

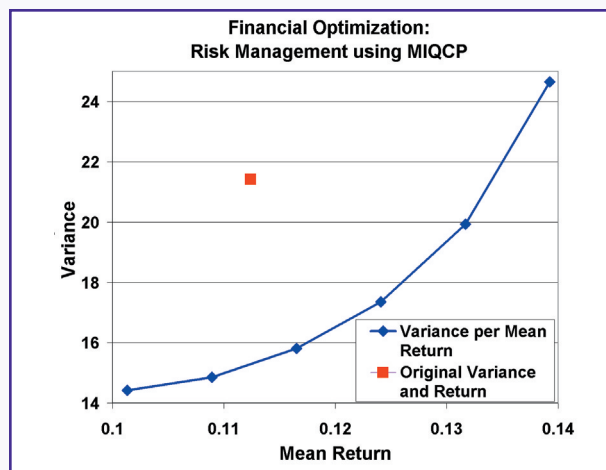
Quadratically Constrained Programs (QCP and MIQCP)

Quadratically Constrained Programs (QCP) involve linear programs with the addition of quadratic constraints both in the objective and in the constraints. Recently, QCP as well as Mixed Integer Quadratically Constrained Programming (MIQCP) capabilities have been added to the GAMS modeling language, thus providing convenient access to the latest solver technologies.

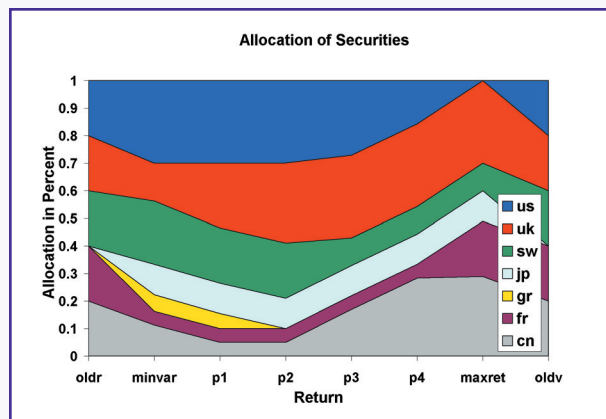
QCP/MIQCP Applications

Quadratic programming techniques have been successfully applied to a wide variety of application areas, including problems in:

- Finance and Portfolio Management
- Agricultural Economics
- Statistics
- Image Restoration
- FIR Filter Design



Financial optimization (risk analysis) using the GAMS Model Library model QMEANVAR.GMS.



Corresponding securities allocation per return.