Project One : Benchmark Relative Portfolio Optimization DOW JONES Industrial Average Index (Active Investment)

Creating the system :

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Maximize alpha.T \* X - delta \* s

subject to (s, 1, G.T \* (X - X(bm))) belongs to Quadratic Cone (Q)

X - X(bm) >= L(H)

X - X(bm) <= U(H)

(B - 1) >= L(B)

(B - 1) <= U(B)

SUM(X) <= 1 (Standard Constraint)

x = array of weights allocated to each scrip

delta = risk Coeficient

G = Cholesky’s Decomposition Matrix

X(bm) = Benchmark Index Weight Distribution array

L(H) = Lower bound on fractional change in weights from benchmark index

U(H) = Higher bound on fractional change in weights from benchmark index

B = B.T \* X (Benchmark index return regression coeficient)

L(B) = Lower bound on correlation between benchmark index return and individual stock return

U(B) = Higher bound on correlation between benchmark index return and individual stock return

alpha = Expected combination of the intercept and residual of the factor model regression.

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