Deutsche Bank
Equity

Autobahn
Insight

Optimizer
User guide

http://autobahn.db.com

Autobahn
Insight

Autobahn is Deutsche Bank's award-winning electronic distribution service.

Since 1996, Autobahn has been connecting clients to Deutsche Bank's innovative Capital Markets products and insights. Having started life primarily as an execution tool, Autobahn now provides electronic access to services harnessing our Sales, Trading and Research expertise and, ultimately creates an integrated experience with our voice services.

Autobahn is a simple, intuitive and consistent way for you to:

- Gain unparalleled access to Markets and Liquidity
- Electronically trade quickly and easily
- Intuitively access Deutsche Bank's powerful analytics and published content

Autobahn. Evolving Intelligent Trading.

http://autobahn.db.com

Insight Global Pre-Trade System is the Deutsche Bank Global Markets electronic Analytics service.

Through Insight's simple and intuitive features, you now have access to Deutsche Bank's (DB) Equity analytical tools.

Quickly find the right analytics tool or published content across multiple asset classes to assist you in making the intelligent choice.

The key services are organised into: Summary views by asset class (including Trading desk commentaries, company and economic DB Research and Benchmark data), Market Data, Calendar of key corporate and specialised product events, Charting and Tools for analysing trades or portfolios.

The Optimizer tool is Deutsche Bank's comprehensive portfolio analytics and hedging web tool.

Fig. 1.1 Insight main view

DB's Optimizer is a comprehensive portfolio analytics and hedging tool

- Tracking Error Minimization with or without transaction costs
- "Configurable" hedge design based on Index, ETF or sector composition
- Multiple optimization comparison capability
- Full suite of portfolio metrics
- Direct pass-through-to-trading and full integration with the Insight Pre-Trade Analytics Tool

DB's Optimizer provides solutions to various problems within the portfolio analytics framework

- Can I create a hedge for my current portfolio based on criteria that I select?

  Create a custom basket that aims to minimize tracking error to your current portfolio, based on constituents of an Index/ETF/Sector

- What if I am looking to make my current ETF based hedge cheaper?

  Create a custom basket that tracks the ETF closely but excludes hard-to-borrow stocks* or are overlapping with existing positions

  *As determined by Deutsche Bank

- Can I impose restrictions on position weights, market impact, liquidity, exclusion of overlapping stocks and hard-to-borrow names?

  Yes, to all the above

- Future functionality

  What if I want to re-balance my existing portfolio against specified risk targets?

  What if I want to optimize a portfolio of global stocks?

The Optimizer has comprehensive input functionality...

- Choose securities from Index/ETF/GICs Sectors or upload custom holdings
- Refine further based on high correlation names
- Allow for various data filters: filter securities with missing price data, that are hard-to-borrow* or are overlapping with existing positions

  *As determined by Deutsche Bank
- Optimization choices: tracking error and tracking error with transaction costs
- Flexibility in choosing maximum weight, liquidity and market impact constraints
- Future Functionality

  Mean-variance optimization

...and Output Functionality

- Reporting includes

  Comparison of multiple optimizations side-by-side

  Equal-weight and market-cap weighted portfolios for comparison

  Portfolio level summary and position level data

  Optimized weights

  Industry standard risk attributes
- Download to Excel and direct order flow to trading
- Future Functionality

  Graphical output: Price performance, rolling tracking error and rolling correlation

  Direct order flow to Pre-Trade analysis

  Stored workspace history to retrieve previously conducted analysis

Getting Started

How do I access Insight?

– Type http://autobahn.db.com/insight into your web browser

– Enter your email address and password

– Press Submit

Figure 1.1 shows the resulting default screen

Note: For access issues, contact the dedicated Insight Support desk (the numbers appear at the end of this guide)

Fig. 1.1 Insight main view

Navigation

– Use the left-hand navigation menu to select the Equities asset class

– Within each asset class, select a tab at the top of the page to access the data

If a tab is not active for that given asset class, you will be redirected to the Summary tab

– Select the Tools tab and click on the Optimizer icon to launch the tool (see Figure 1.2)

Figure 1.3 shows the Optimizer input screen once the tool is launched

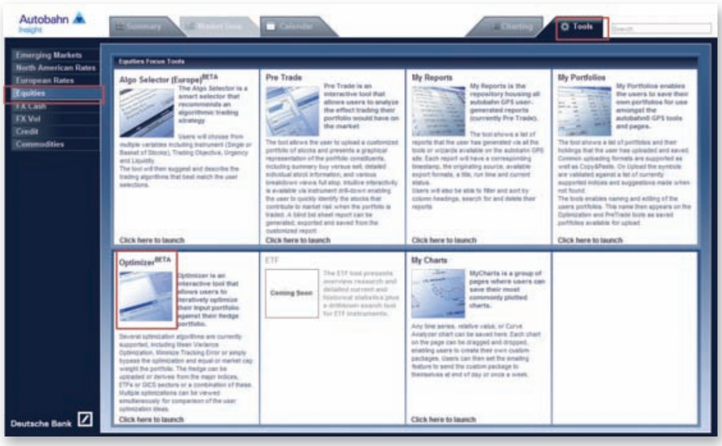

Fig. 1.2 Accessing the Optimizer from the Equities Tools page

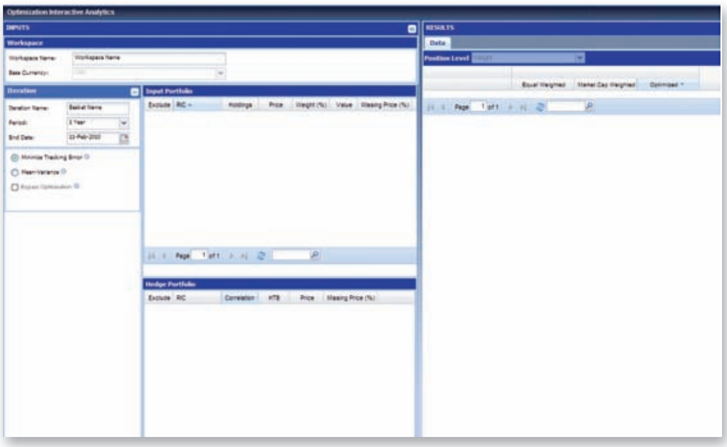

Fig. 1.3 The Optimizer Tool

Start with the Optimizer

Input Step 1:

– Choose Workspace inputs (see Figure 1.4)
  Name your workspace
  Name the iteration
  Set the appropriate time period
  Choose the type of optimization

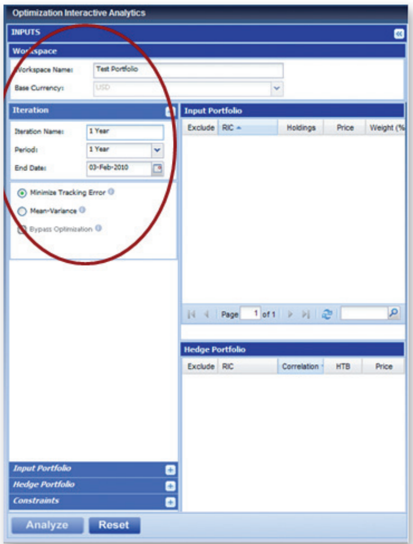

Fig. 1.4 Entering the Workspace Name and Iteration Details

Input Step 2:

– Upload your Input Portfolio (see Figure 1.5)
  Either, upload a saved portfolio
  Or, upload a CSV
  Or, cut and paste tickers and holdings

– Choose Upload Template
  i.e. the format of data uploaded, e.g. (Instrument, Holdings)
  Choose whether to Append or to Replace existing positions
  Click Upload
  Future Functionality

– Choose constituents from an Index/ETF

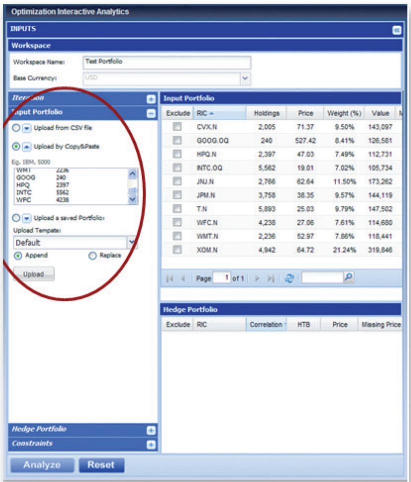

Fig. 1.5 Uploading your Input Portfolio
Screenshots for illustration purposes only

Input Step 3:

- Upload your Hedge Portfolio (see Figure 1.6)
  Either, upload a saved portfolio
  Or, upload a CSV file
  Or, cut & paste tickers and holdings
  Or, choose constituents from a GICS Sector/an Index/ETF
- Choose Data Filters
  Top N names with highest correlation to Input Portfolio
  Missing Price Threshold
  Borrow Cost Limit
  Allow Overlaps
- Choose Upload Template
  i.e. the format of data uploaded, e.g. (Instrument, Holdings)
- Choose whether to Append or to Replace existing positions
  Click Upload

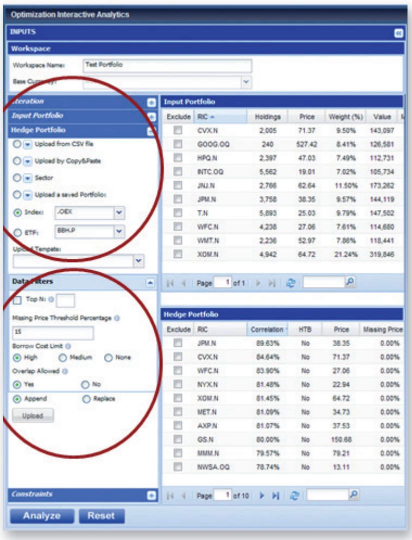

Fig. 1.6 Uploading your Hedge Portfolio
Screenshots for illustration purposes only

Input Step 4:

- Choose Constraints (see Figure 1.7)
  Maximum weight in any name
  Maximum liquidity in any position (in percent of average 20-day trading volume)
  Market impact (in percent of notional)

Future Functionality:

- Charting Tools
  Specify a time sample for graphical output
  Specify a benchmark to compare your hedge against
  Choose whether to calculate the efficient frontier

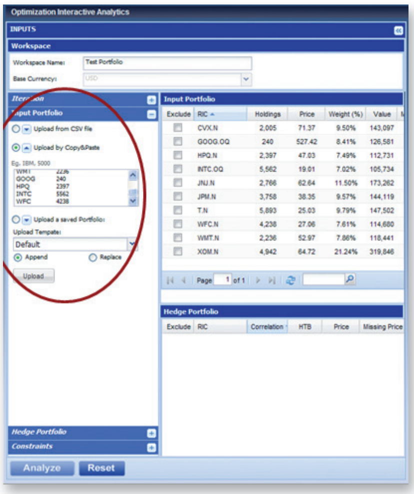

Fig. 1.7 Choosing your Constraints
Screenshots for illustration purposes only

Input Step 5:

- Review Input Holdings and Hedge Universe before Optimizing (see Figure 1.8)

  Sort by RIC, Weight, Holdings, Missing Price, Correlation, Hard-to-Borrow

  Exclude names on a one-off basis

  Change Hedge securities via the Append/Replace functionality in Step 3

  Click Analyze

  Or, click Reset to start over with a new workspace

- Future Functionality

  Apply max weight constraints to individual names

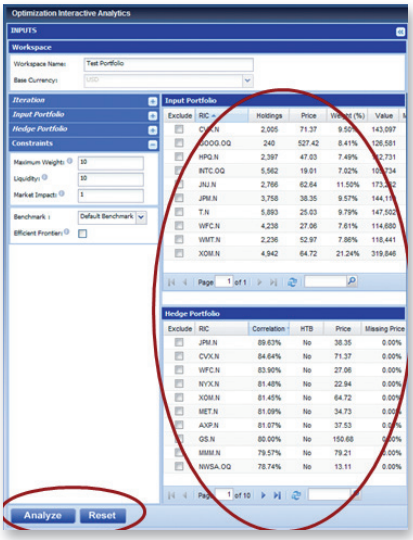

Fig. 1.8 Review Input Holdings and Hedge Universe before Optimizing
Screenshots for illustration purposes only

Optimization Results

- View up to 5 optimizations simultaneously

  Movable columns allow easy comparison

- Portfolio level results include:

  Tracking error, correlation, hedge ratio, realized volatilities, historical market beta, beta versus input portfolio

- Position level results include:

  Optimal weights, contribution to risk, contribution to tracking error, contribution to correlation, historical market beta, liquidity

  Sort results in increasing/decreasing order of these attributes

- Export optimized portfolio to Excel or send to trading desk for pricing

  Export portfolio level results

  Export tickers and optimal shares

  Export all risk attributes

- Future Functionality

  Send optimized portfolio to Pre-Trade

  See Figure 1.9 for an illustration

Fig. 1.9 The Optimization Results
Screenshots for illustration purposes only

Future Functionaility will allow users to...

- Optimize global portfolios
- Rebalance portfolios against specific risk targets via explicit constraint thresholds
- Conduct mean-variance optimization by uploading their own alphas
- Filter hedge portfolio candidates based on market cap
- Retrieve previously conducted analysis, change constraints and re-optimize
- View charts with price history and rolling tracking error, correlation and beta
- Export results in PDF format and link to Pre-Trade

Deutsche Bank
Equity

http://autobahn.db.com

Autobahn
Insight

Support desk numbers:

Insight Europe +44 (0) 207 547 3030
Insight US +1 (212) 250 8651
Insight Asia Pacific +65 6423 5660

Email autobahn.insight@db.com
Web http://autobahn.db.com

Equity Derivatives and Quantitive Strategy:

Scott Weiner +1 (212) 250 1632
Freyan Panthaki +1 (212) 250 7769
Miguel A Alvarez +1 (212) 250 8983

Sales:

Matthew Roux +1 (212) 250 8802

Trading:

Natalie Horton +1 (212) 250 8887