Gavekal-IS

TrackRisk User Guide

October 2020

WELCOME TO TRACKRISK

TrackRisk is a global portfolio simulation tool. It addresses three areas of portfolio management:

Asset selection
Compares investments' risks, returns, and dependencies to major risk factors.

Strategic asset allocation
Combines assets and optimize allocations under constraints.

Tactical asset allocation and risk management
Simulates dynamic reallocation methods to adjust risk exposures to macro, monetary, and other changing environments.

GENERAL INSTRUCTIONS

This notice is designed to help you discover the numerous functionalities offered in TrackRisk. Screenshots are filled with fields' descriptions as well as specific actionable buttons. The buttons will help you navigate between screenshots and get detailed information of their contents. Please find below an explanation of each button utility.

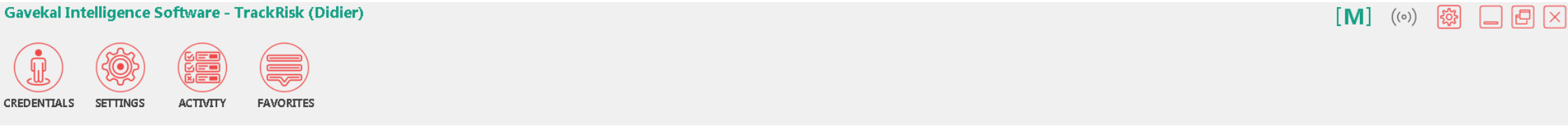
Gives additional field information or takes you to the next level

Detailed descriptions of the screen

Takes you back to the Content page

Takes you back to the previous page

CONTENTS



Credentials — Login and select your data frequency (monthly, weekly, or daily)

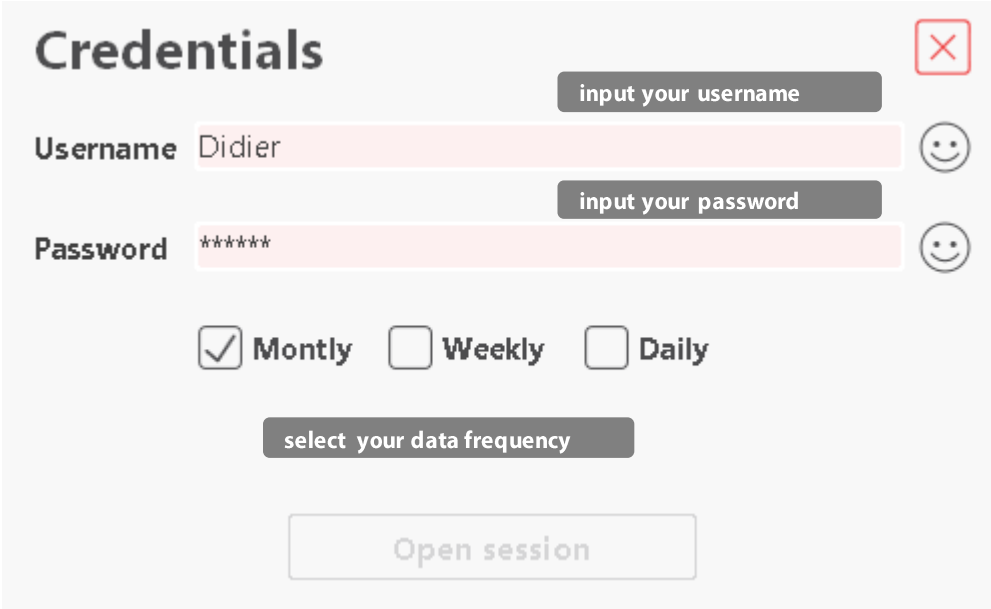
Settings — Create your portfolios, strategies, and setup your parameters and workspace

Activity — Select and analyse your assets, portfolios, and strategies

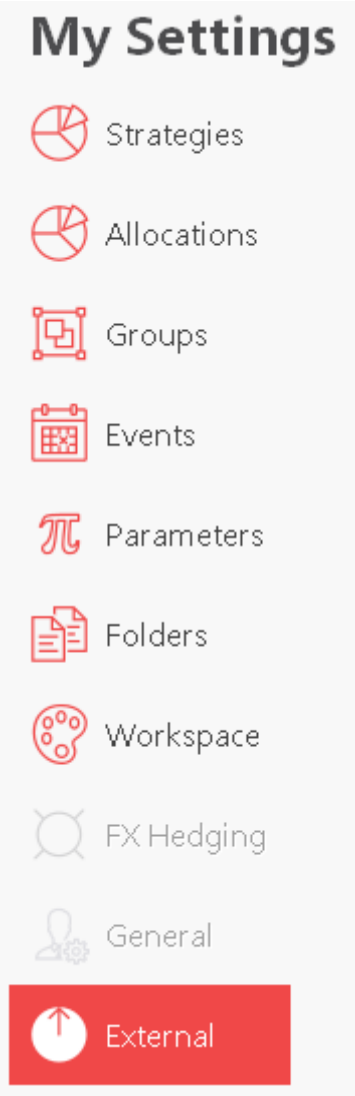
Favorites — Save your analysis

CREDENTIALS

Input your username & password and select your data frequency to launch a session



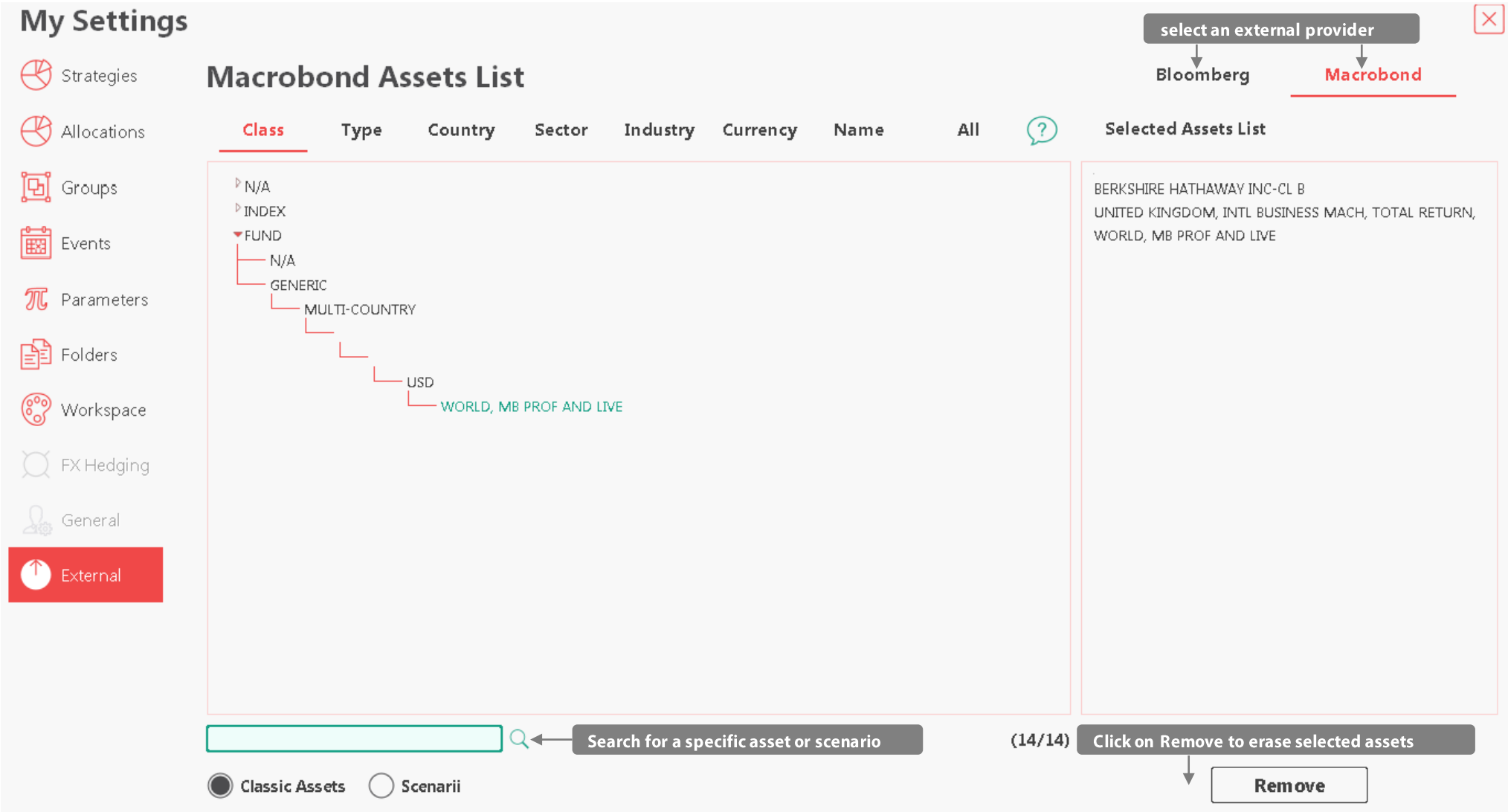
SETTINGS



Strategies	Create dynamic strategies controlled by market scenarios
Allocations	Create portfolios with fixed weighting, automatically rebalanced
Groups	Create peer groups of assets
Events	Setup markets' stressed periods
Parameters	Setup VaR and drawdown levels, transaction costs etc.
Folders	Setup reporting folders
Workspace	Chose your colours
External	Remove undesired assets

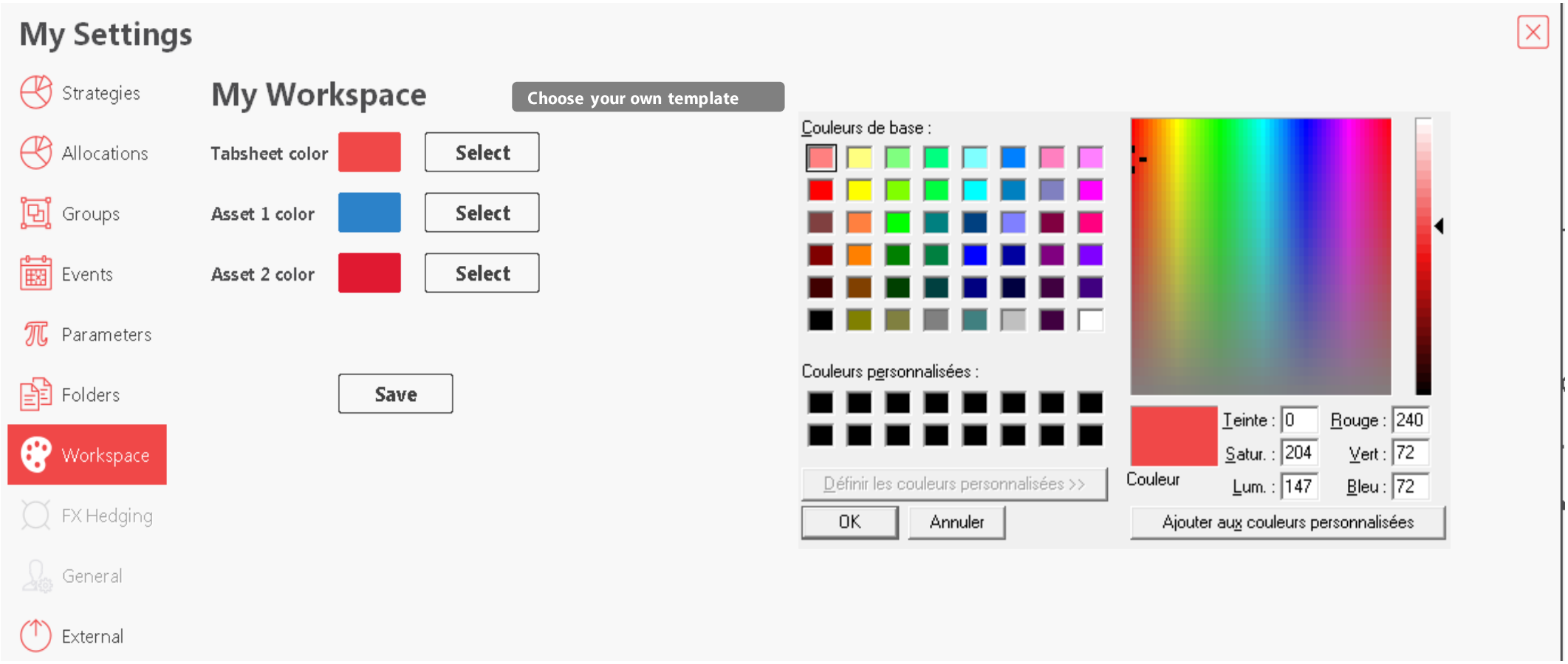
SETTINGS: EXTERNAL

Erase assets or scenarii uploaded from external providers (Bloomberg-MacroBond) by selecting your asset/scenario and click Remove



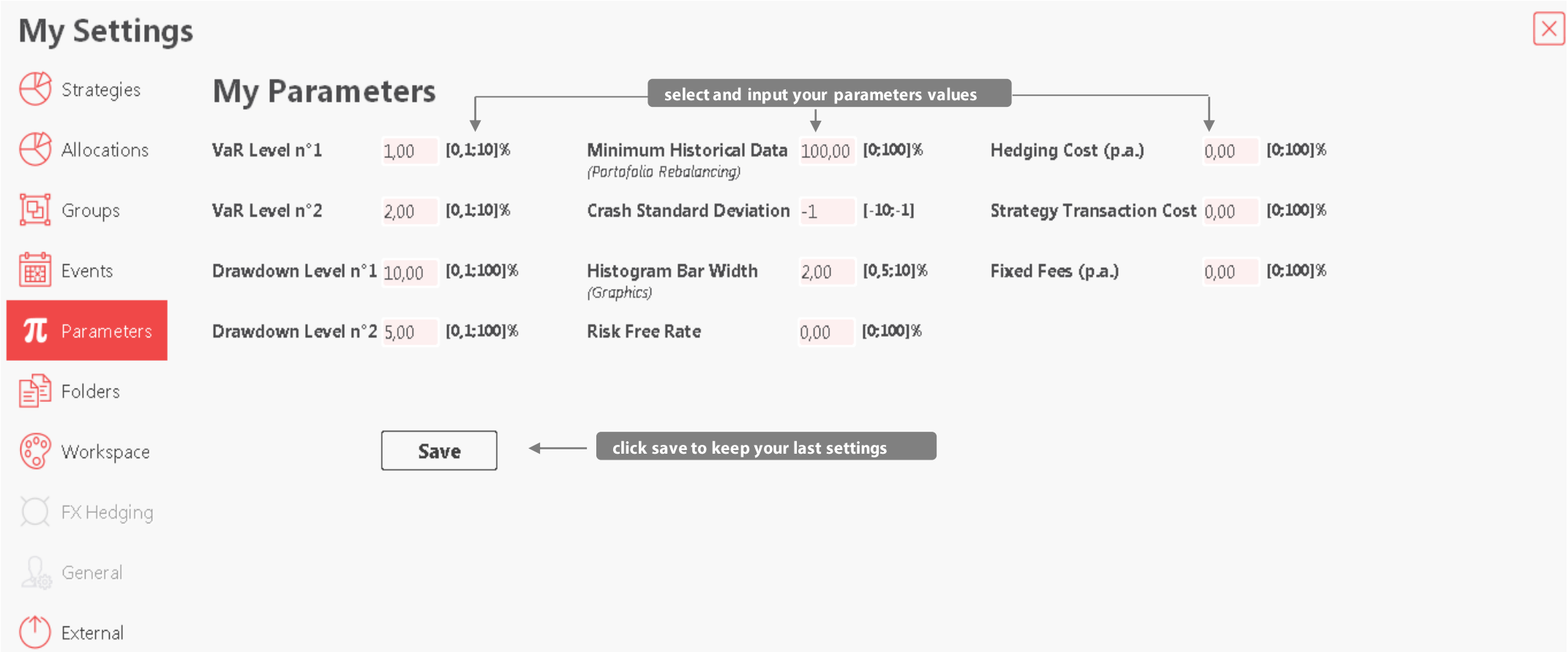
SETTINGS: WORKSPACE

Create your template colours for texts and graphs



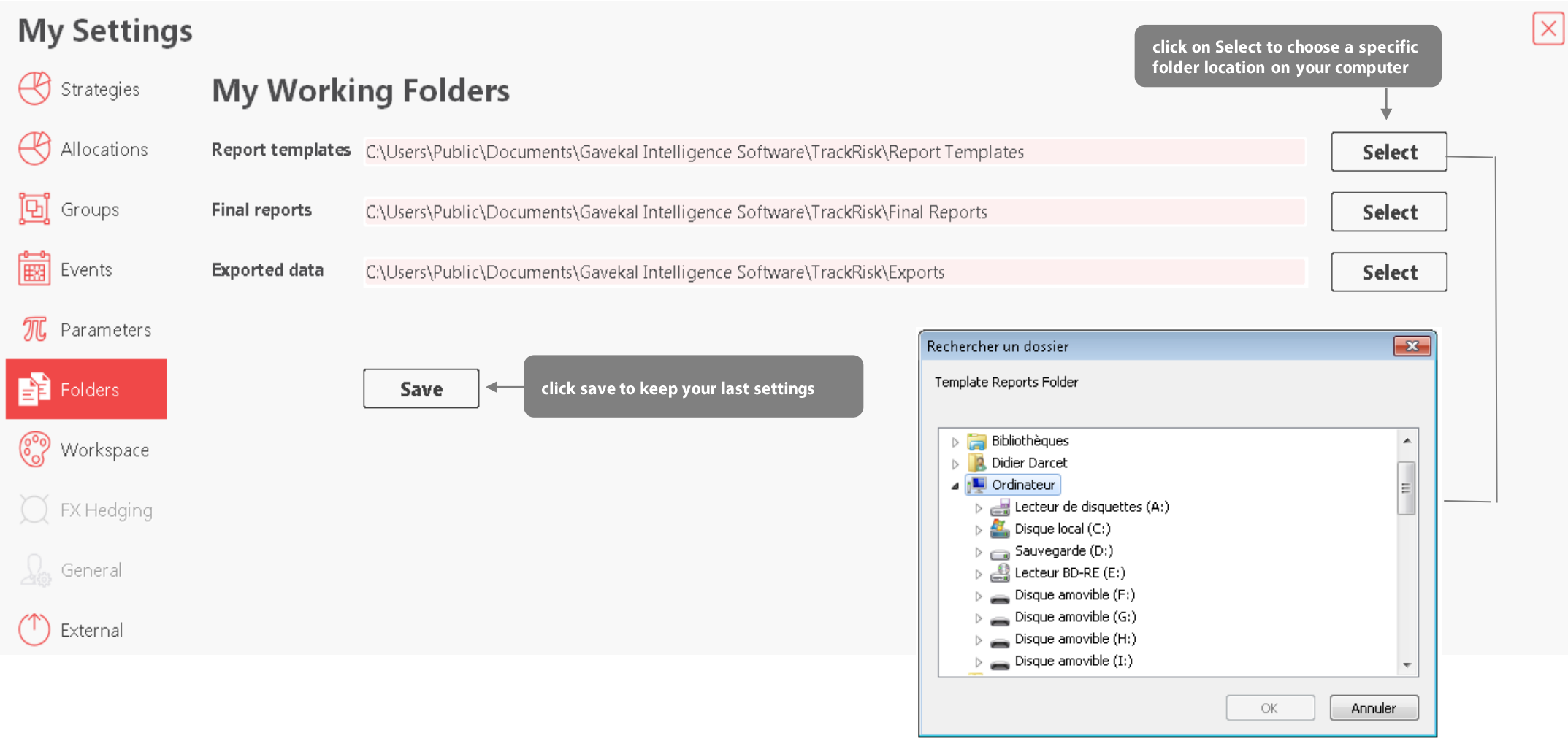
SETTINGS: PARAMETERS

Set your parameters which will be used in your portfolio and strategy analyses:
VaR levels, Drawdown Levels, Hedging Costs, etc..



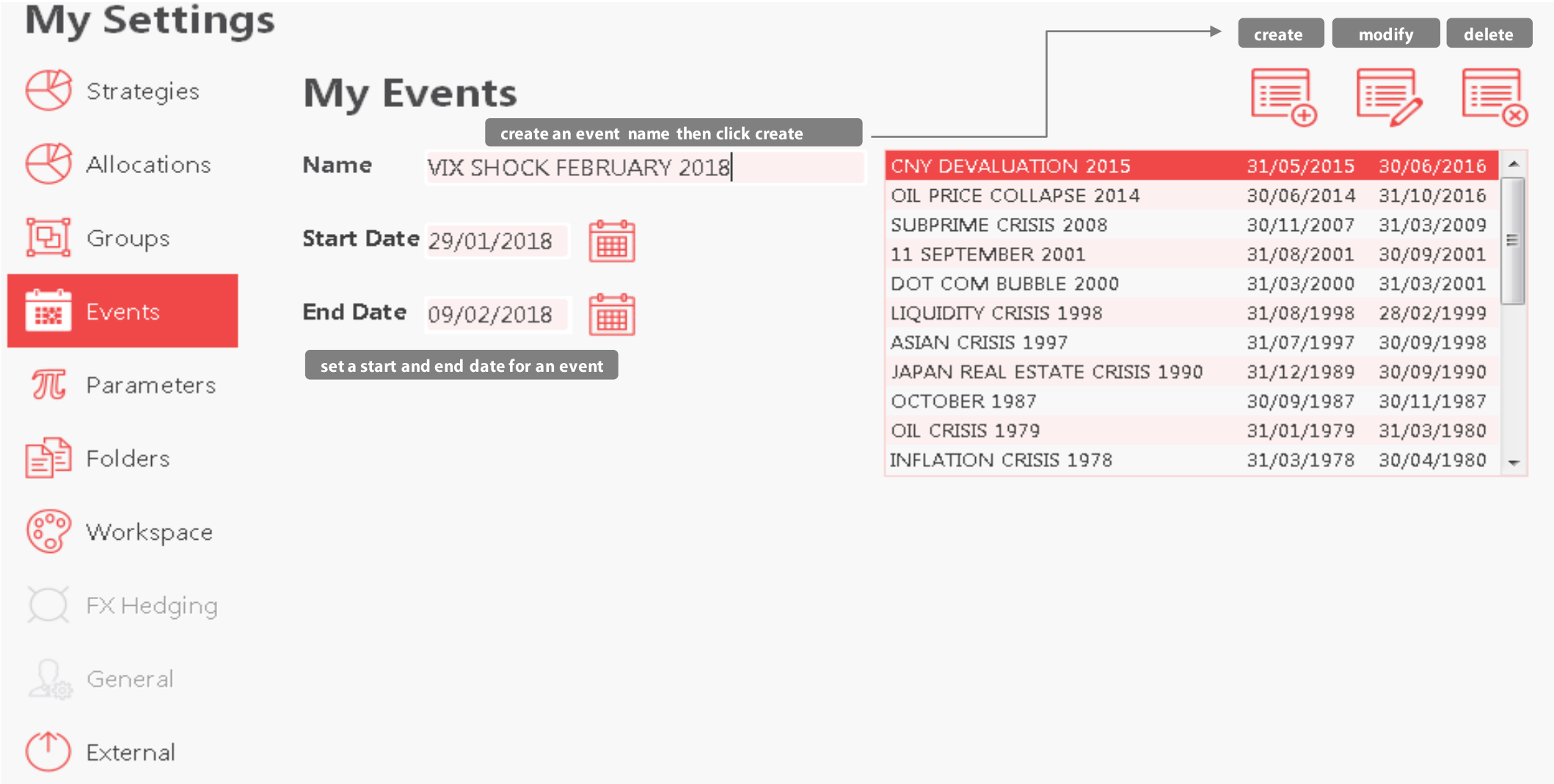
SETTINGS: FOLDERS

Select a specific place on your computer to lodge reports and exported data



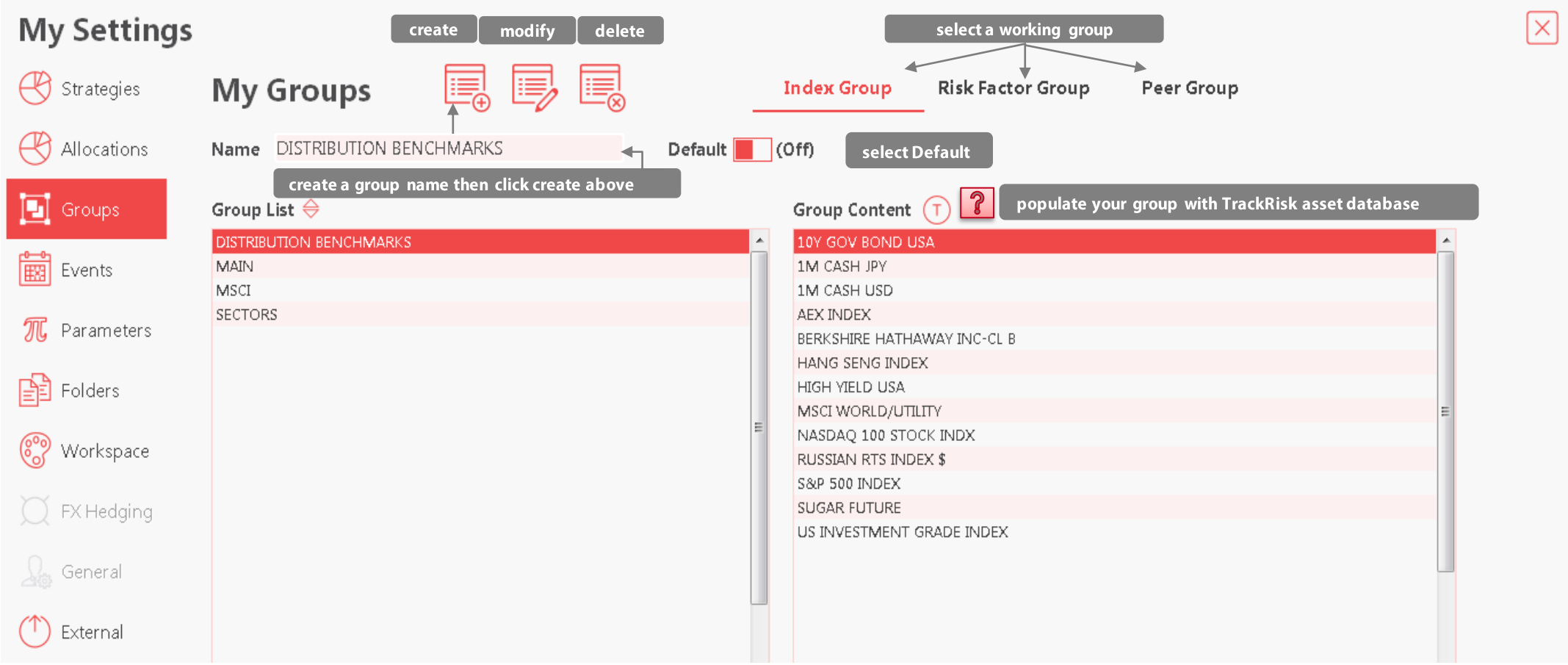
SETTINGS: EVENTS

Setup your own historical time periods to stress test assets, portfolios or strategies



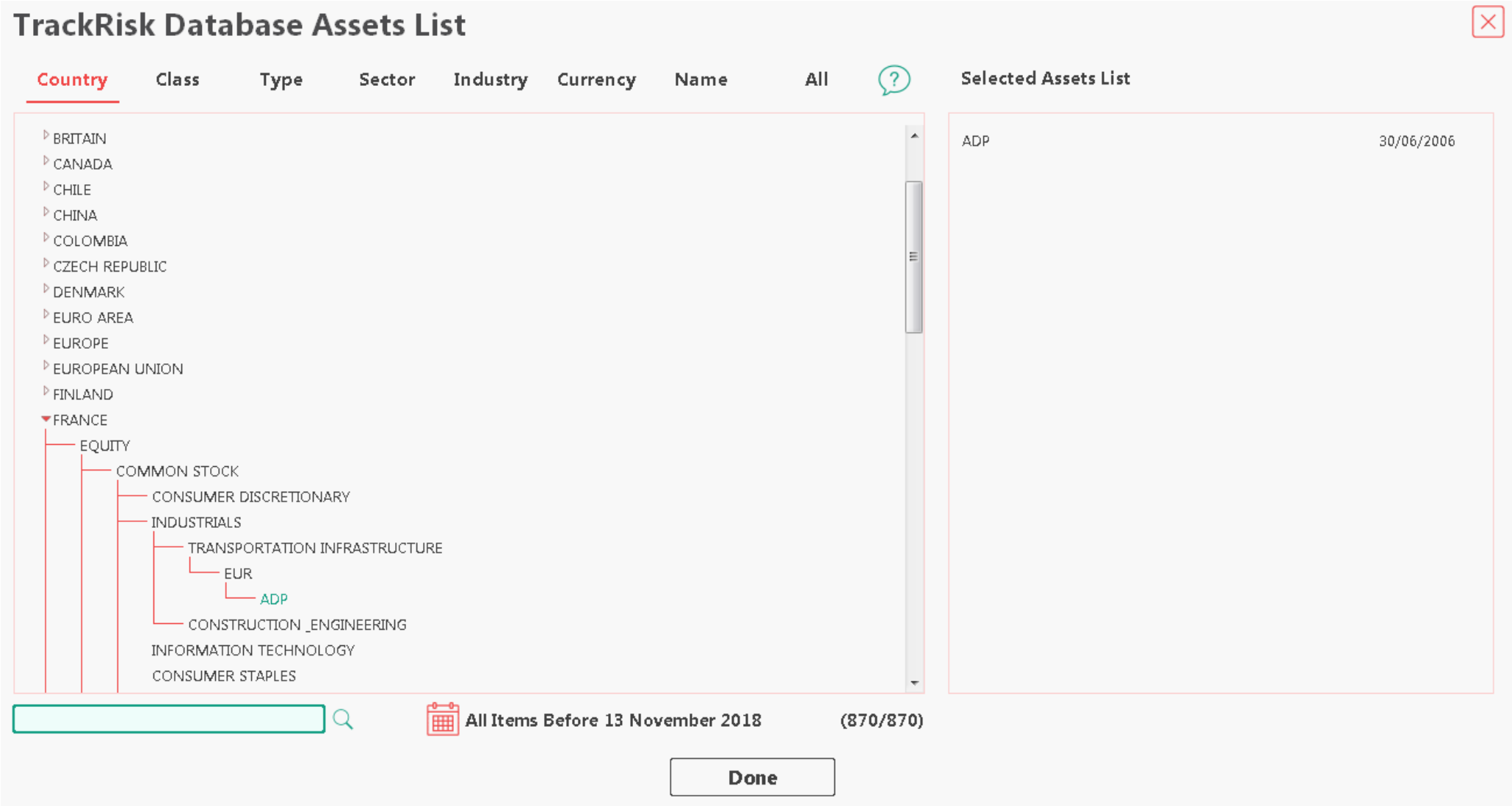
SETTINGS: GROUPS

Construct your own indices, risk-factor groups or peer groups to calculate correlations, betas & alphas between a group and other selected assets, portfolios or strategies



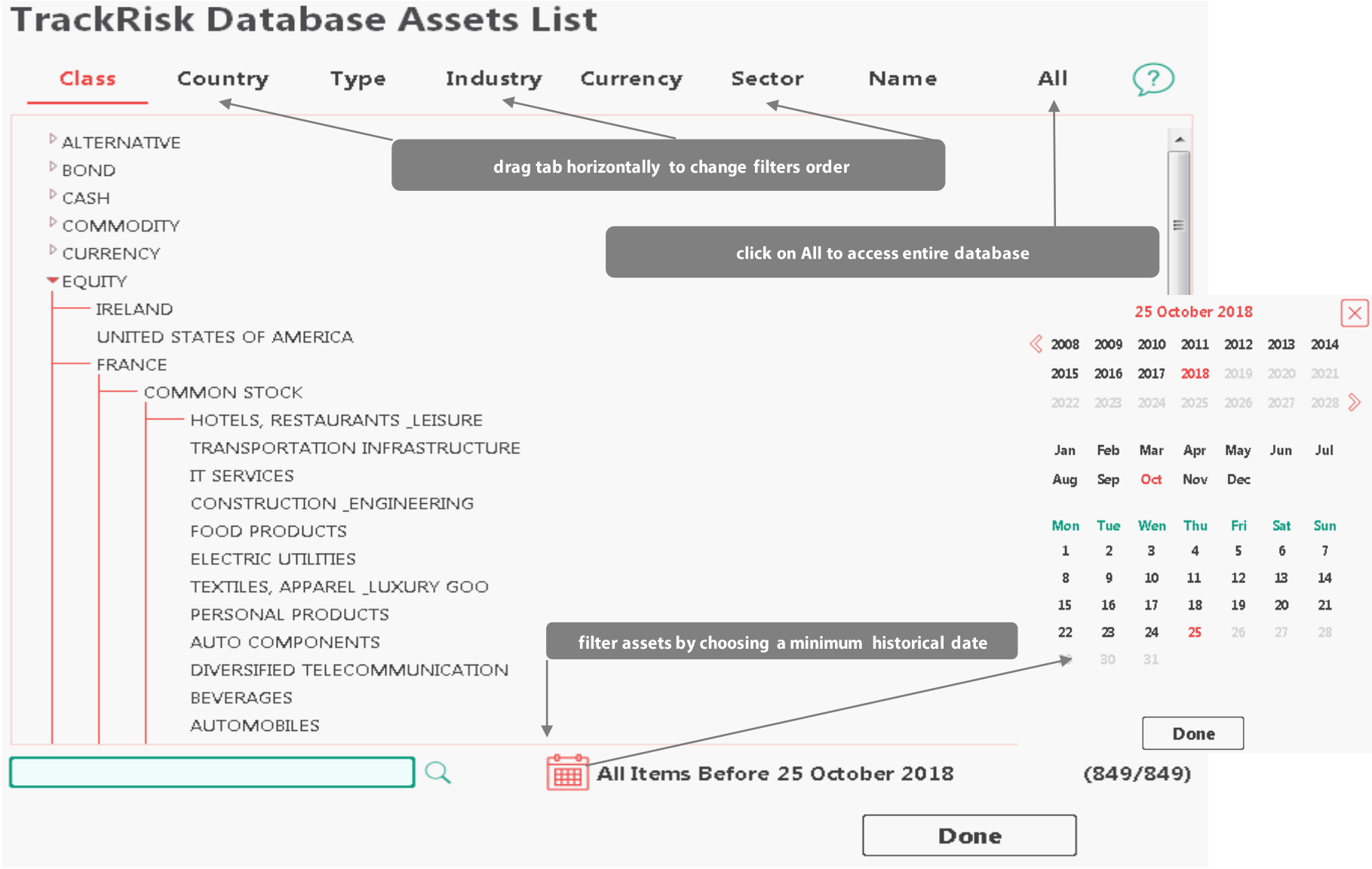
SETTINGS: GROUPS

Find your assets, double click to select them, then click on "Done" to export to your portfolio



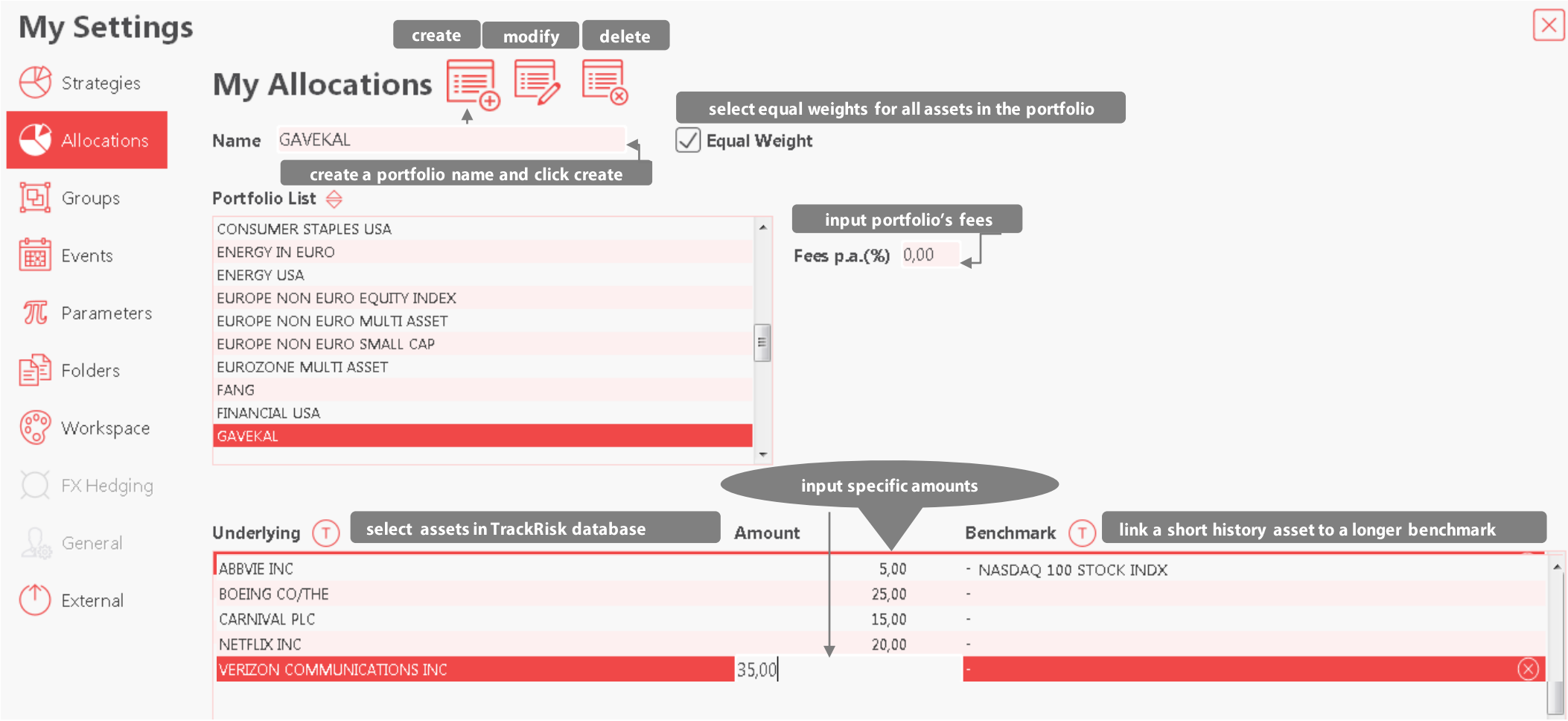
SETTINGS: GROUPS DATABASE

Use TrackRisk filter module to find your assets quickly



SETTINGS: ALLOCATIONS

Create a portfolio by selecting assets, weights, fees and benchmarks



SETTINGS: STRATEGIES

Create a multi-assets' portfolio with dynamic reallocations depending on market scenarios

My Settings

create | modify | delete

- Strategies
- Allocations
- Groups
- Events
- Parameters
- Folders
- Workspace
- FX Hedging
- General
- External

My Strategies

Name GAVEKAL

Equal Weight ← select equal weights for quick equal allocation among all assets in the portfolio

create a portfolio name and click create

Portfolio List

- ASIA SMALL CAP
- BEST CASH
- GAVEKAL
- GLOBAL STOCKS WITH TM
- TM ENERGY STOCKS
- TRY
- WORST CASH

set up cash asset in TrackRisk database

Cash Asset 10Y GOV BOND GERMANY

Final Currency USD | Hedging Cost p.a.(%) 0,00 | Hedging

Leverage Cost p.a.(%) 0,00 ← input leverage cost

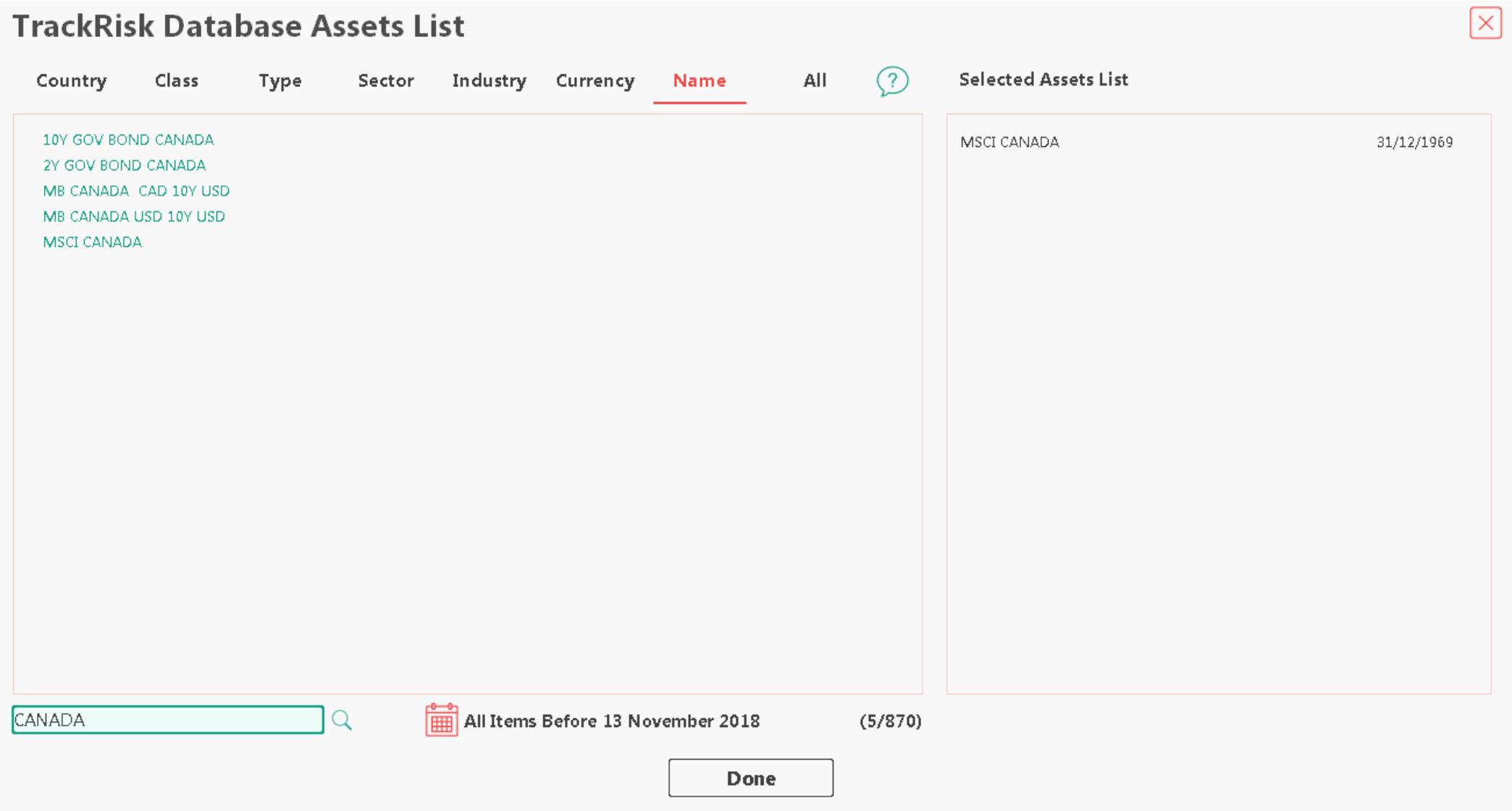
Fees p.a.(%) 0,00 ← input strategy's fees

select assets in TrackRisk database | select scenario in TrackRisk database | link a short history asset to a longer benchmark

Portfolio Content	Weight	Scenario	Cost	Benchmark
ASML HOLDING NV	33,3 %	INFLATION NETHERLANDS	0,00 %	AEX INDEX
KONINKLIJKE KPN NV	33,3 %	INFLATION NETHERLANDS	0,00 %	AEX INDEX
RANDSTAD NV	33,3 %	INFLATION NETHERLANDS	0,00	AEX INDEX

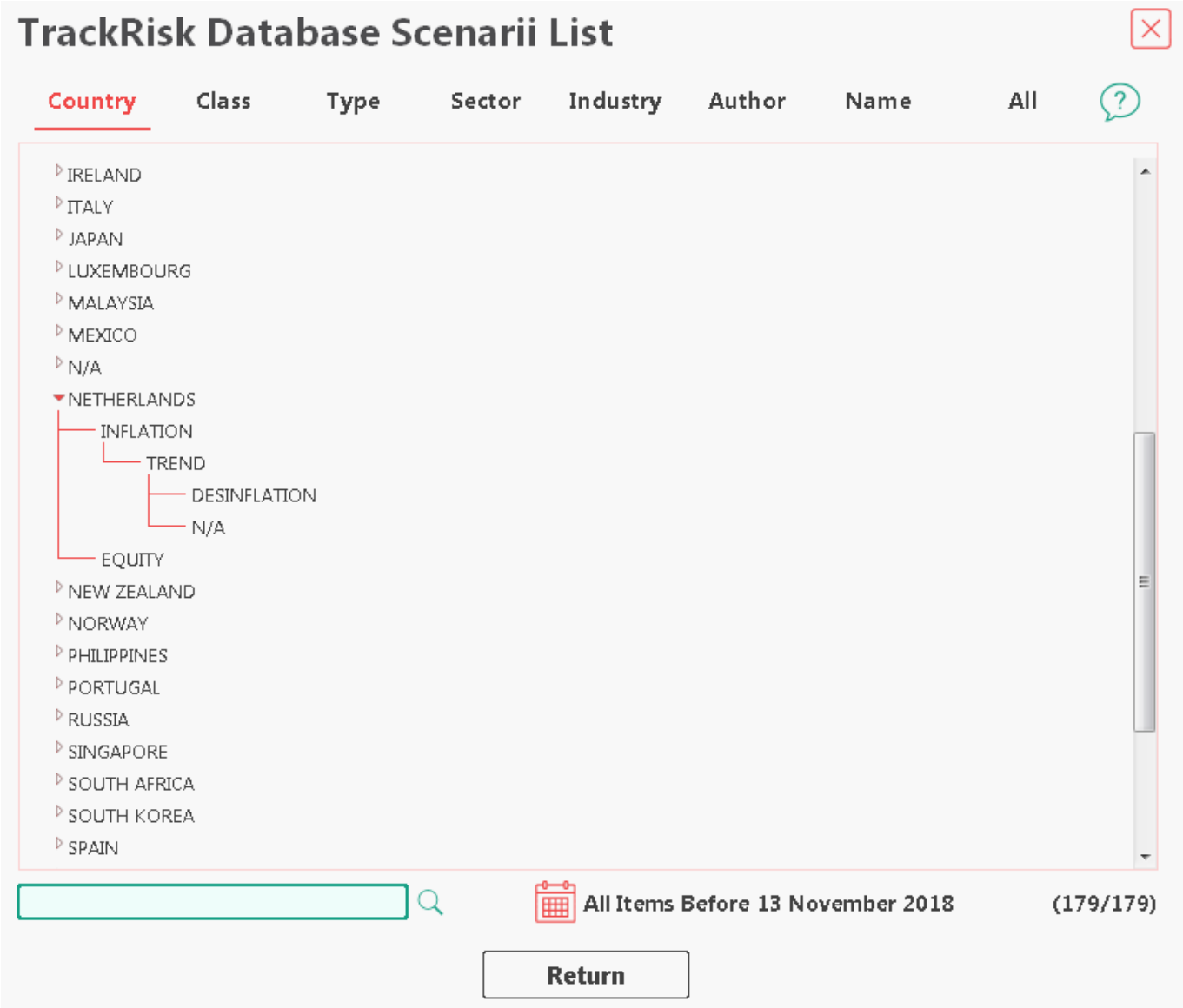
SETTINGS: PORTFOLIO CONTENT

Select your assets to populate your portfolio



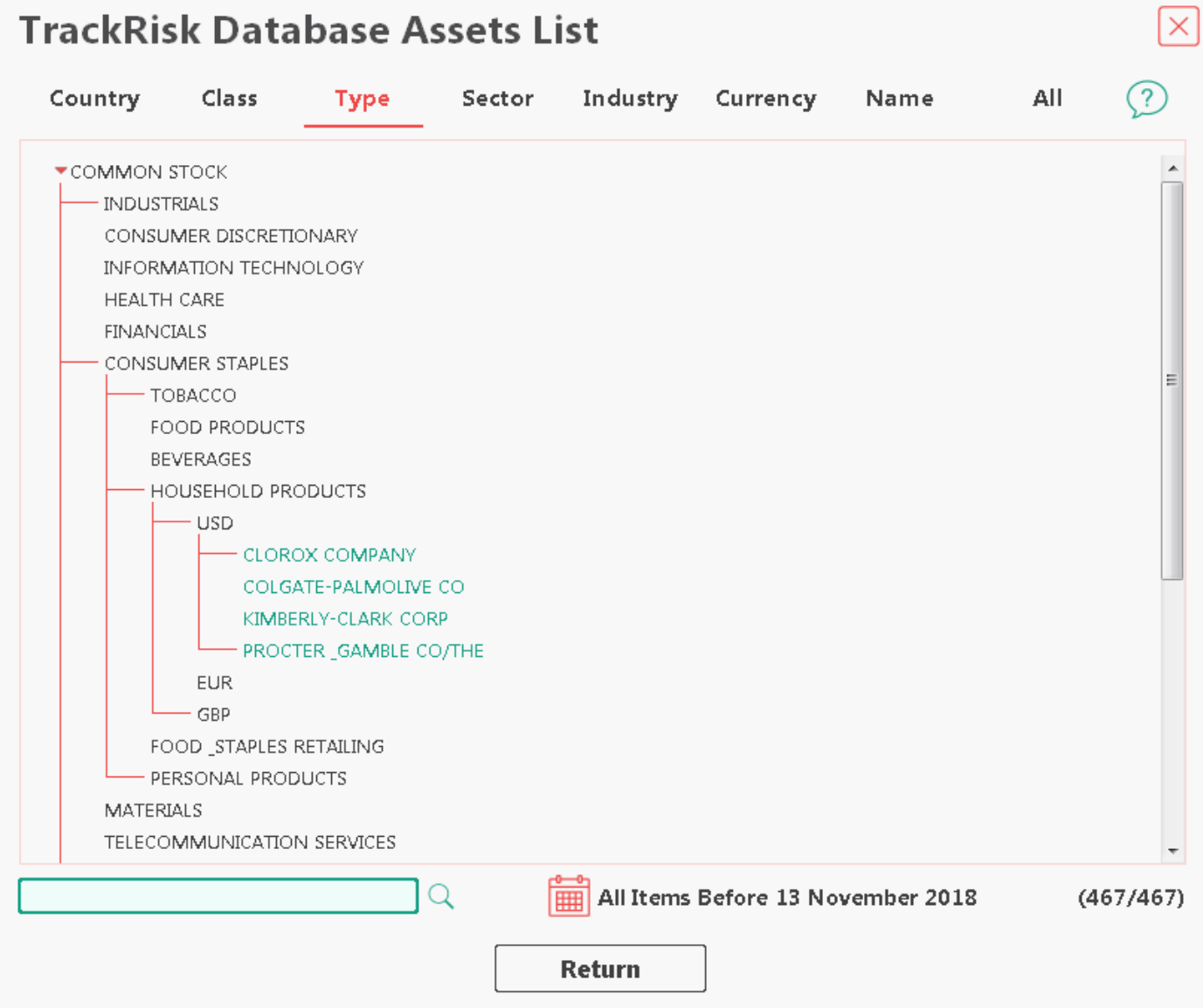
SETTINGS: SCENARIO

Select your investment scenario for each asset



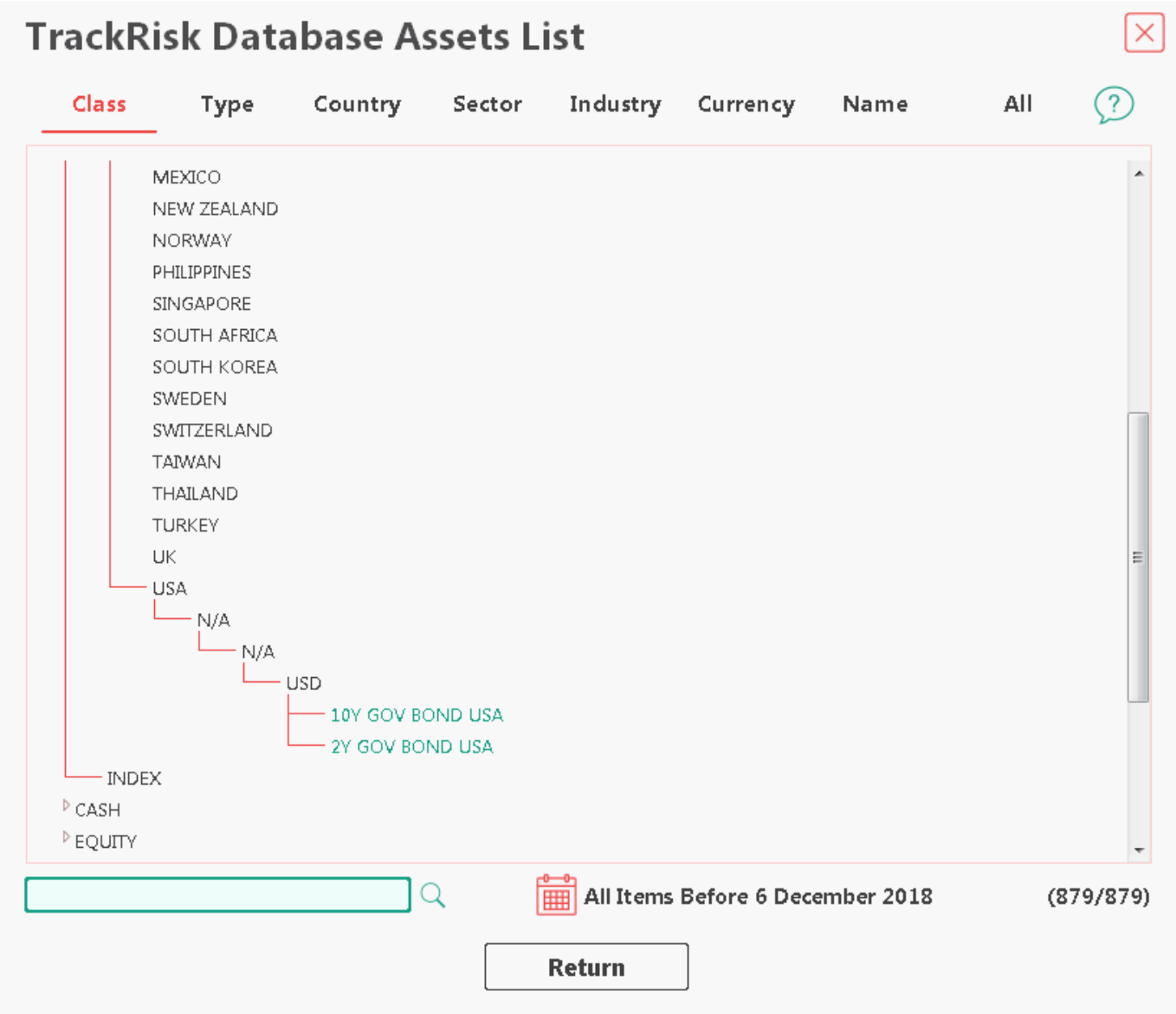
SETTINGS: STRATEGIES BENCHMARK

Select you benchmark for each asset to extend the historical analysis back in time



SETTINGS: CASH ASSET

Select your cash investment used by default when assets' scenarii are risk off



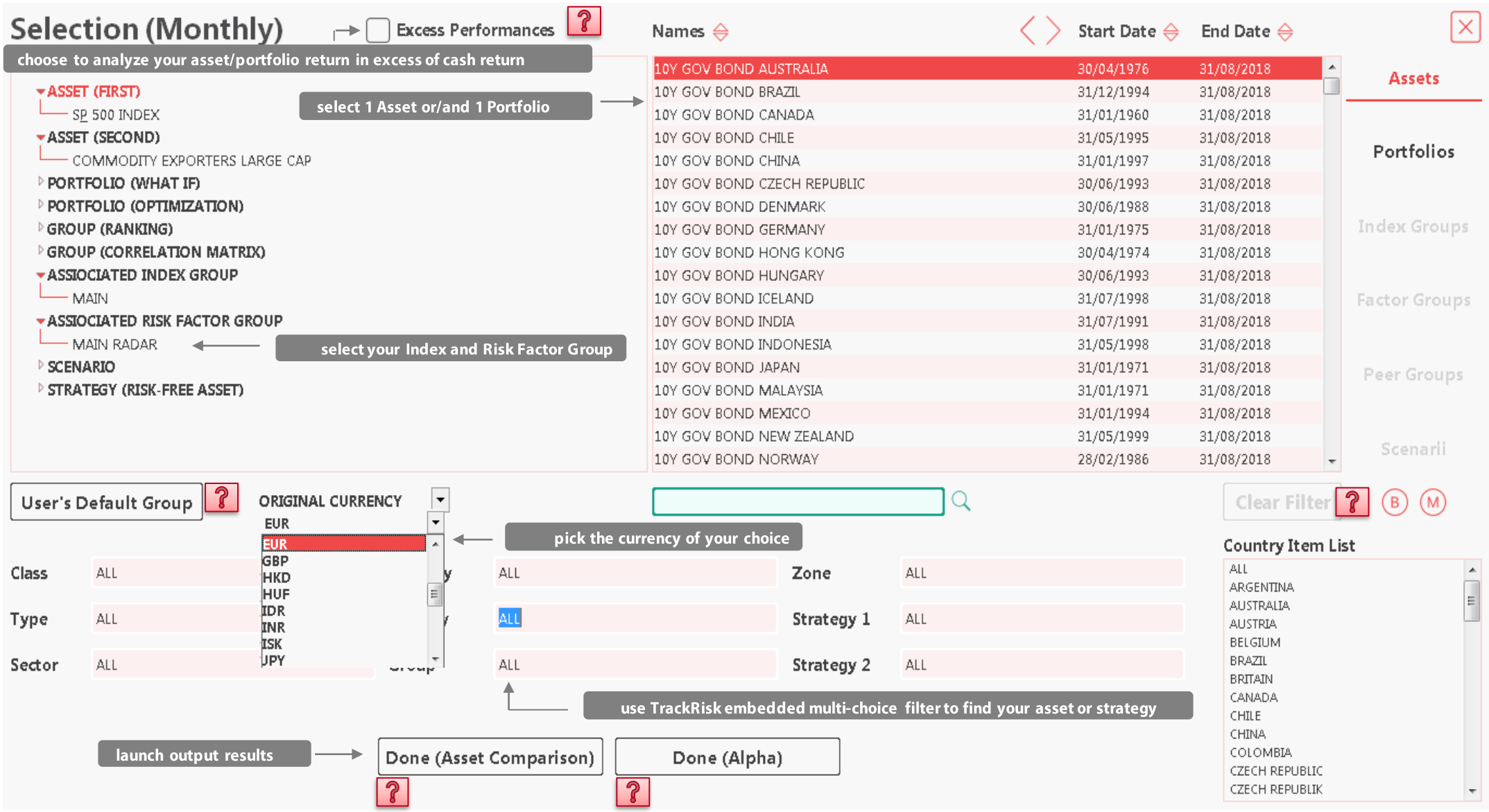
ACTIVITY

start on this page to select asset(s), portfolio(s), strategie(s) and specific quantitative analyses

- ASSET (FIRST)
  - 10Y GOV BOND CZECH REPUBLIC
- ASSET (SECOND)
- PORTFOLIO (WHAT IF)
- PORTFOLIO (OPTIMIZATION)
- GROUP (RANKING)
- GROUP (CORRELATION MATRIX)
- ASSIOCIATED INDEX GROUP
  - MAIN
- ASSIOCIATED RISK FACTOR GROUP
  - EUROPE RADAR
- SCENARIO
- STRATEGY (RISK-FREE ASSET)

Asset	Compare assets, portfolios, or strategies
Portfolio (What If)	Analyse portfolio's components
Portfolio (Optimization)	Optimize portfolio
Group Ranking	Compare series of assets
Group (Correlation Matrix)	Correlation matrix
Associated Index Group	Alphas, betas etc. with indices
Associated Risk Factor Group	Multi-regression
Scenario	Filtering of specific past periods
Strategy (Risk-Free Asset)	Asset 1 if scenario, otherwise risk-free

ACTIVITY: SELECT ASSET(S) & ANALYSES



ACTIVITY: USER'S DEFAULT GROUP

Quickly filter your access to specific assets, sectors, strategies, etc…

Industry	ALL
Country	ALL
Group	AIRPORT SERVICES

select a field and choose a sector

Group Item List

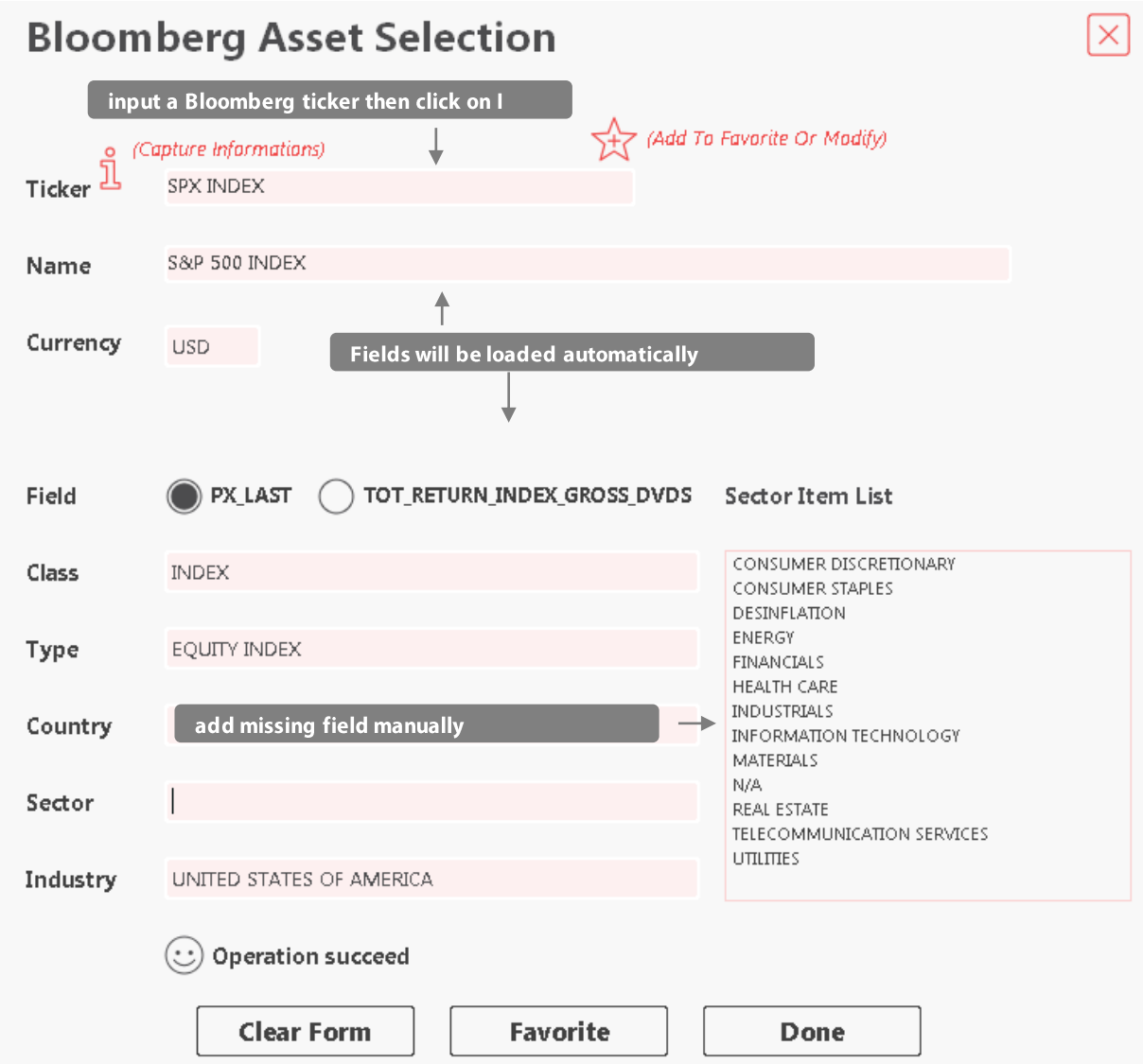
AGRICULTURAL _FARM MACHINERY
AGRICULTURAL PRODUCTS
AIR FREIGHT _LOGISTICS
AIRLINES
AIRPORT SERVICES
ALL
ALUMINUM
APPAREL, ACCE
APPLICATION S
ASSET MANAGI
AUTOMOBILE I
BIOTECHNOLO
BREWERS

select an asset from the list linked to the selected Group list

Names	Start Date	End Date
ADP	30/06/2006	31/10/2018
AUCKLAND INTL AIRPORT LTD	31/07/1998	31/10/2018
BEIJING CAPITAL INTL AIRPO-H	29/02/2000	31/10/2018
FLUGHAFEN ZURICH AG-REG	31/12/1990	31/10/2018
FRAPORT AG FRANKFURT AIRPORT	30/06/2001	31/10/2018
GRUPO AEROPORT DEL SURESTE-B	30/09/2000	31/10/2018
GRUPO AEROPORTUARIO PAC-ADR	28/02/2006	31/10/2018
JAPAN AIRPORT TERMINAL CO	28/02/1990	31/10/2018
SATS LTD	31/05/2000	31/10/2018
SYDNEY AIRPORT	31/08/2002	31/10/2018
TAV HAVALIMANLARI HOLDING AS	28/02/2007	31/10/2018

ACTIVITY: BLOOMBERG-MACROBOND ASSET SELECTION

Input a Bloomberg/MacroBond Ticker to import historical prices



ACTIVITY: MAIN SCREEN

Start from this page to perform the multiple quantitative analyses that TrackRisk proposes

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

31 JANUARY 1960 | 30 SEPTEMBER 2020 | YtD | 1Y | 3Y | 5Y | 10Y | 20Y | Max | Common

S&P 500 INDEX

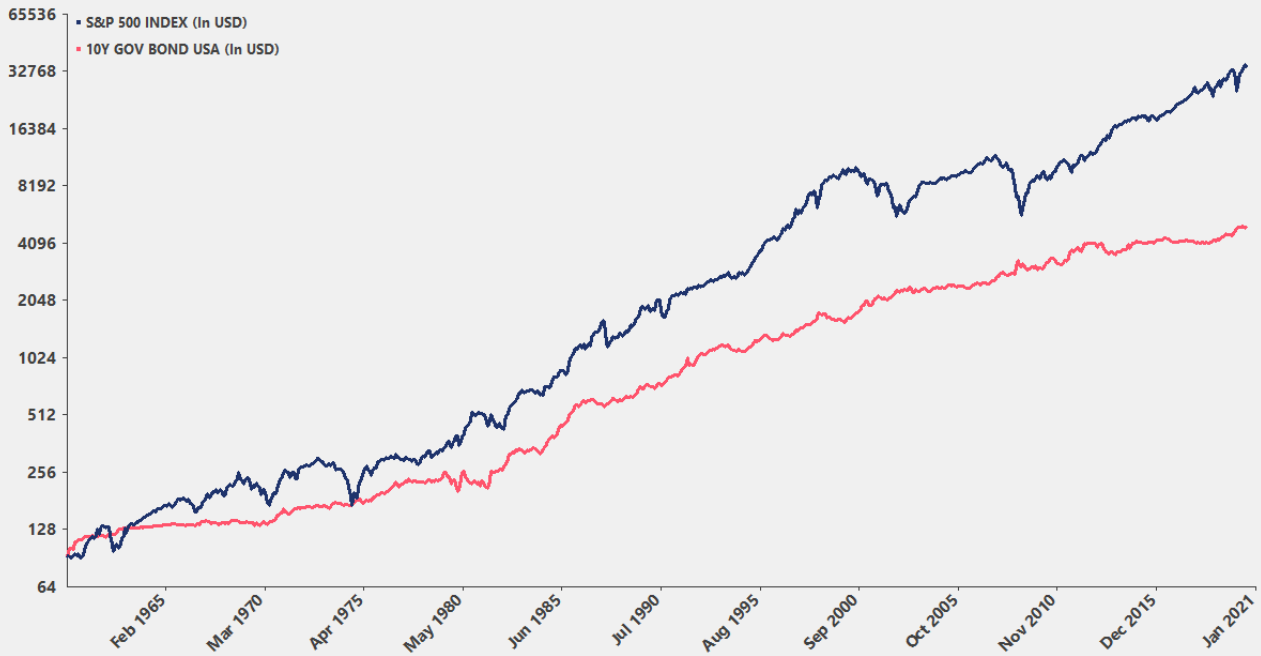
10Y GOV BOND USA

MONTHLY (31 January 1960 : 30 September 2020)

adjust dates manually or with pre-defined periods

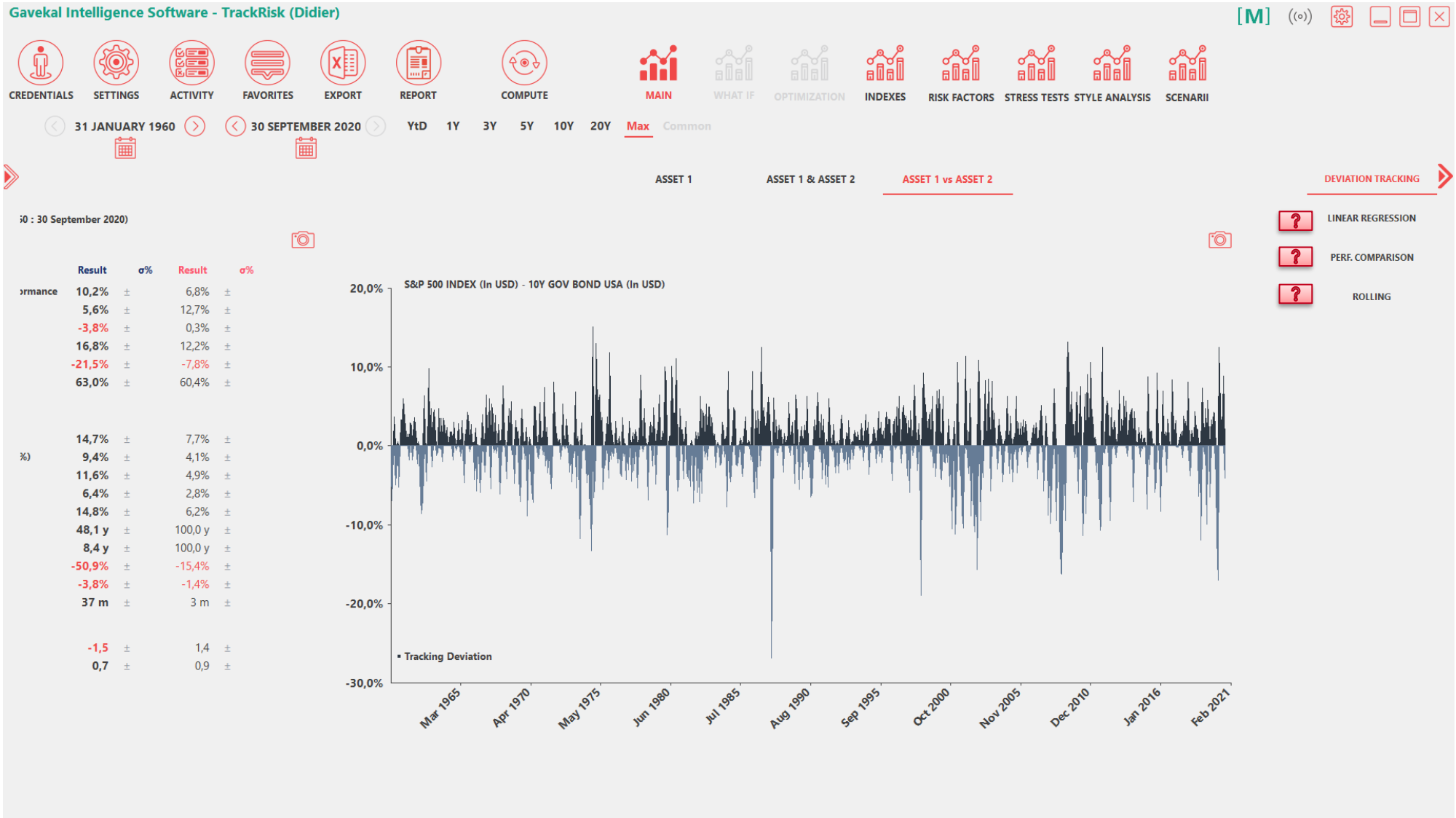
ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

	Result	σ%	Result	σ%
Annual compounded performance	10,2%	±	6,8%	±
Year to date	5,6%	±	12,7%	±
Last performance	-3,8%	±	0,3%	±
Best performance	16,8%	±	12,2%	±
Worst performance	-21,5%	±	-7,8%	±
Success rate	63,0%	±	60,4%	±
Annualized volatility	14,7%	±	7,7%	±
Annual downside risk (0,0%)	9,4%	±	4,1%	±
VaR(99,0%)	11,6%	±	4,9%	±
VaR(95,0%)	6,4%	±	2,8%	±
Expected shortfall(99,0%)	14,8%	±	6,2%	±
Drawdown(50,0%)	48,1 y	±	100,0 y	±
Drawdown(20,0%)	8,4 y	±	100,0 y	±
Maximum drawdown	-50,9%	±	-15,4%	±
Current drawdown	-3,8%	±	-1,4%	±
Time to recovery	37 m	±	3 m	±
Fragility	-1,5	±	1,4	±
Sharpe ratio(0,0%)	0,7	±	0,9	±



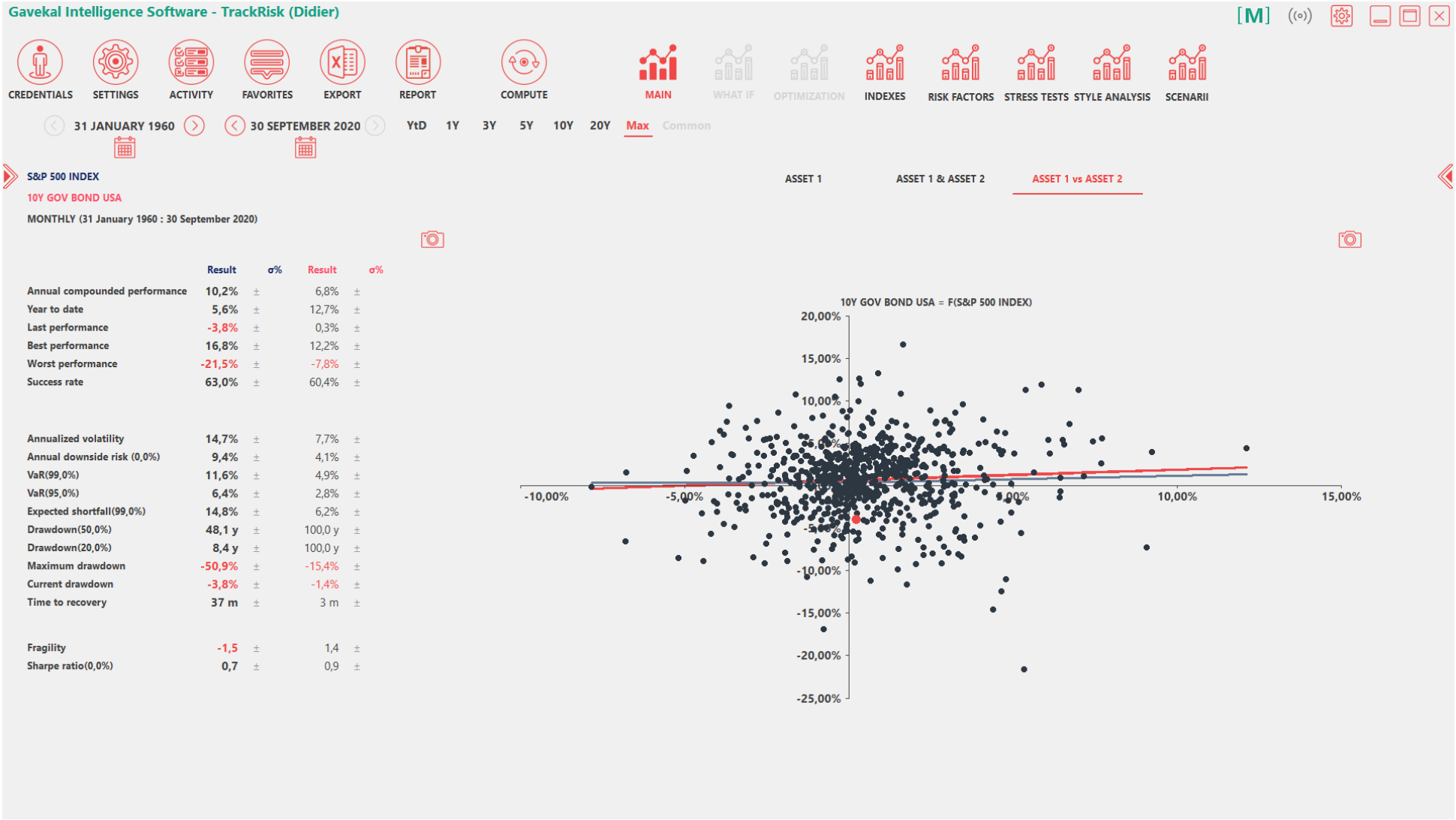
ACTIVITY: ASSET 1 vs ASSET 2

Displays graph of Asset 1 minus Asset 2 monthly returns



ACTIVITY: ASSET 1 vs ASSET 2

Shows the regression graph of asset 1 and asset 2



ACTIVITY: ASSET 1 vs ASSET 2

Shows the 12 best/worst returns of asset 1 and the associated returns from asset 2

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

31 JANUARY 1960 — 30 SEPTEMBER 2020 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

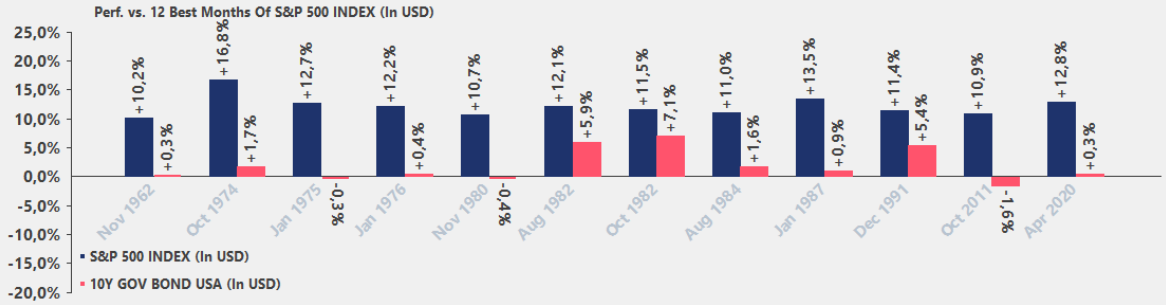
S&P 500 INDEX

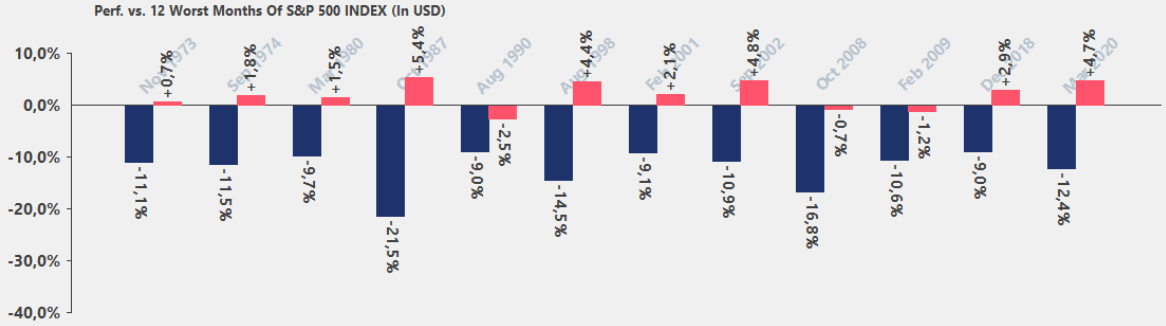
10Y GOV BOND USA

MONTHLY (31 January 1960 : 30 September 2020)

ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

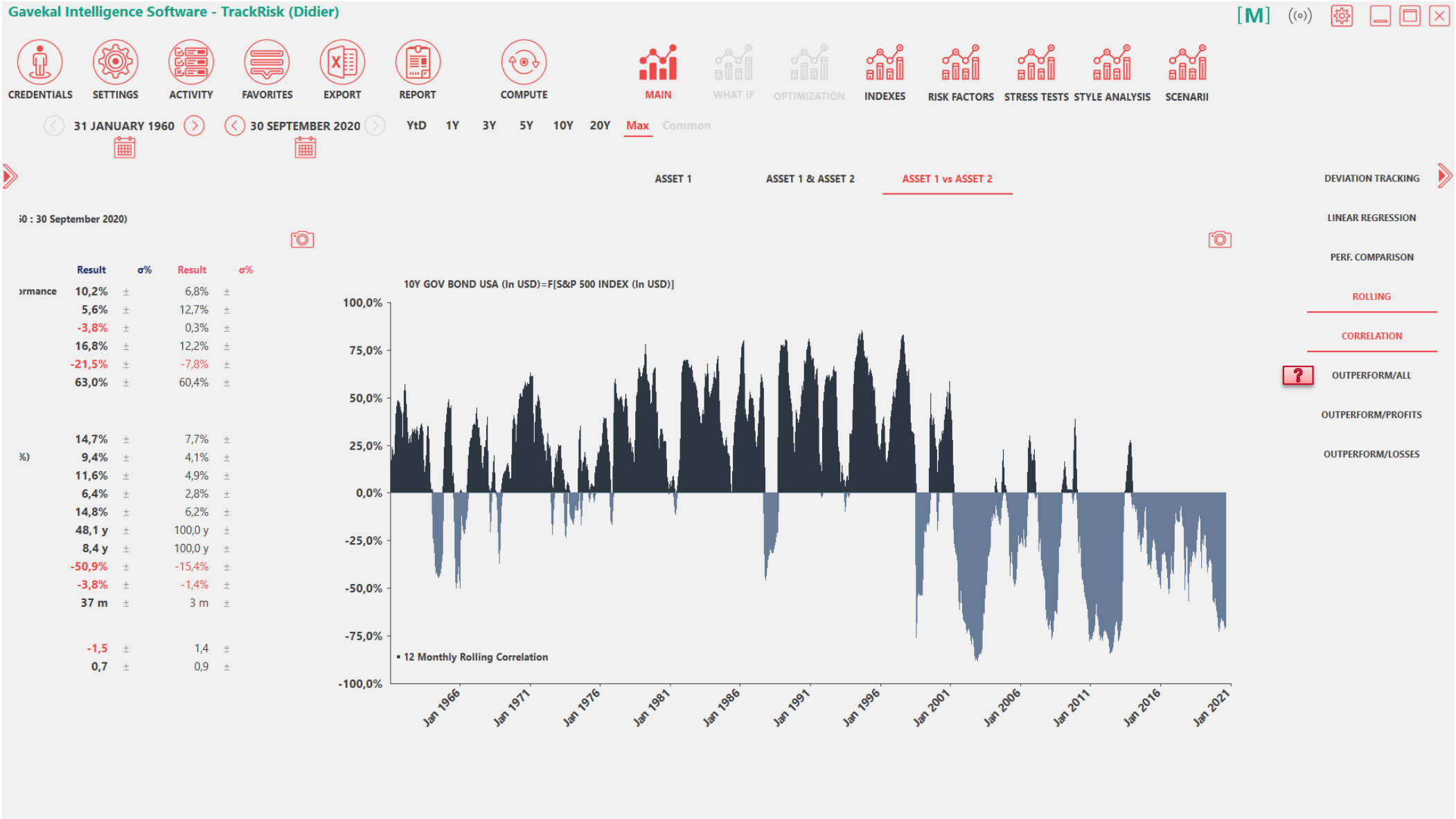
	Result	σ%	Result	σ%
Annual compounded performance	10,2%	±	6,8%	±
Year to date	5,6%	±	12,7%	±
Last performance	-3,8%	±	0,3%	±
Best performance	16,8%	±	12,2%	±
Worst performance	-21,5%	±	-7,8%	±
Success rate	63,0%	±	60,4%	±
Annualized volatility	14,7%	±	7,7%	±
Annual downside risk (0,0%)	9,4%	±	4,1%	±
VaR(99,0%)	11,6%	±	4,9%	±
VaR(95,0%)	6,4%	±	2,8%	±
Expected shortfall(99,0%)	14,8%	±	6,2%	±
Drawdown(50,0%)	48,1 y	±	100,0 y	±
Drawdown(20,0%)	8,4 y	±	100,0 y	±
Maximum drawdown	-50,9%	±	-15,4%	±
Current drawdown	-3,8%	±	-1,4%	±
Time to recovery	37 m	±	3 m	±
Fragility	-1,5	±	1,4	±
Sharpe ratio(0,0%)	0,7	±	0,9	±





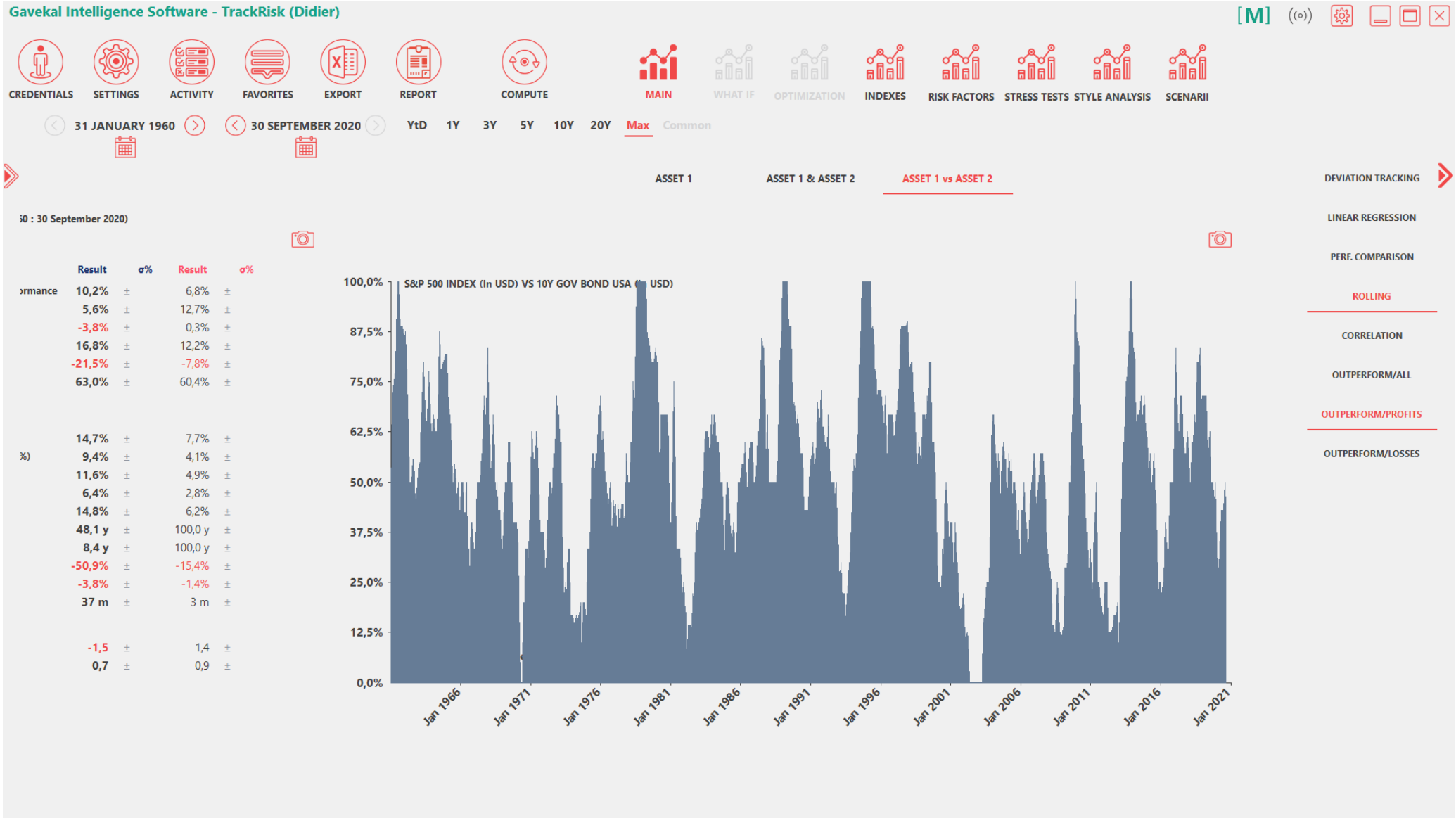
ACTIVITY: ASSET 1 vs ASSET 2

Shows the rolling 12-months' correlation between asse1 & asset 2



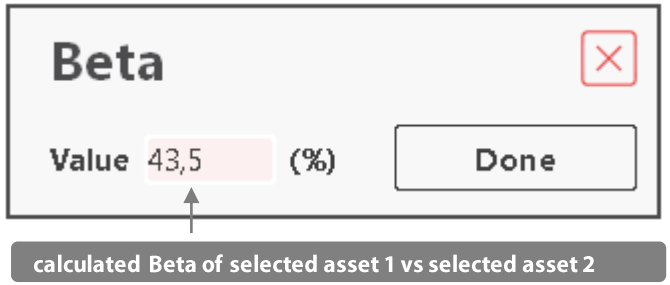
ACTIVITY: ASSET 1 vs ASSET 2

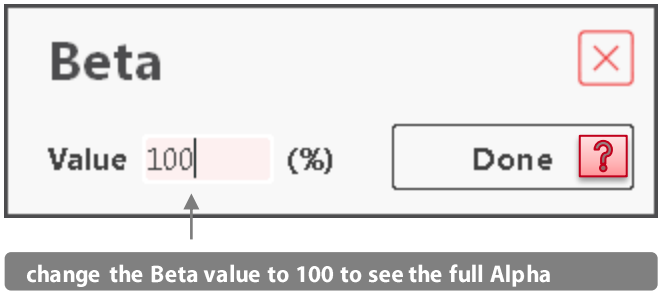
Shows when asset 1 outperforms asset 2 in times of asset 2 positive returns



ACTIVITY: DONE ALPHA

Change the long run Beta to 100% and click Done to get data on the historical Alpha of asset 1 vs asset 2





ACTIVITY: DONE ALPHA

Displays graph and risk-return data of the alpha of asset 1 versus asset 2

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

29 FEBRUARY 1996 — 31 OCTOBER 2018 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

S&P 500 INDEX

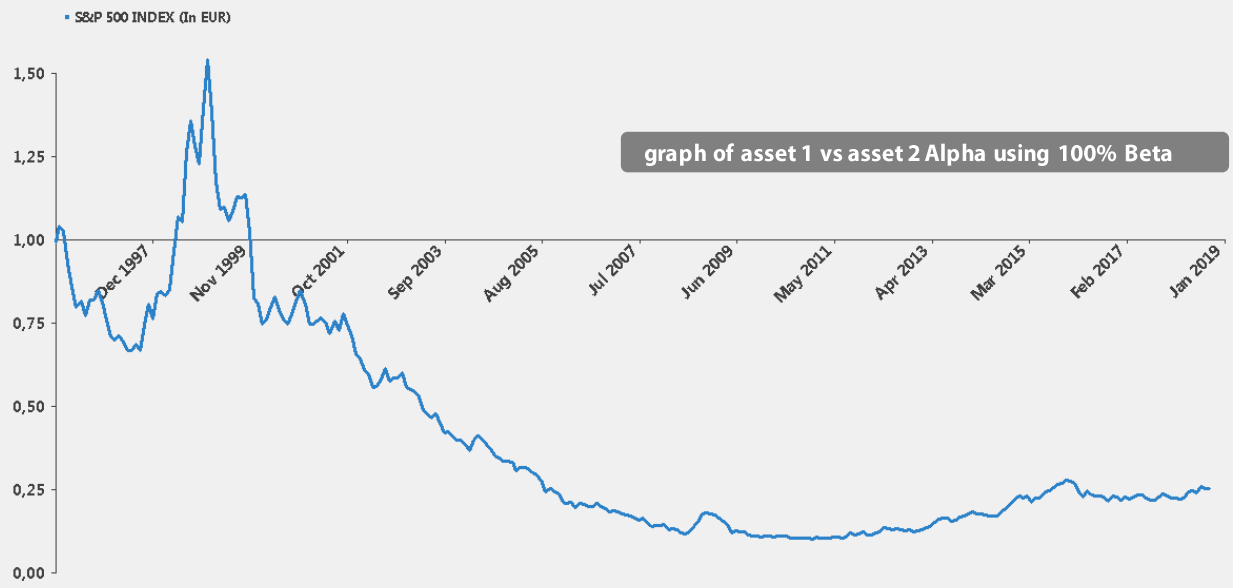
Beta input = 100%

ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

EUR ¤ Alpha versus COMMODITY EXPORTERS LARGE CAP (100,0 %)

MONTHLY (29 February 1996 : 31 October 2018)

	Result	σ%
Annual compounded performance	-6,0%	± 4,4%
Year to date	5,0%	±
Last performance	-4,9%	±
Best performance	19,8%	±
Worst performance	-19,6%	±
Success rate	41,4%	± 3,0%
Annualized volatility	18,3%	± 1,3%
Annual downside risk (0,0%)	13,1%	± 1,3%
VaR(99,0%)	13,9%	± 1,9%
VaR(98,0%)	11,6%	± 1,4%
Expected shortfall(99,0%)	17,3%	± 3,1%
Drawdown(10,0%)	7,4 y	± 2,6 y
Drawdown(5,0%)	6,5 y	± 2,4 y
Maximum drawdown	-93,2%	±
Current drawdown	-84,3%	±
Time to recovery	>=95 m	±
Fragility	0,1	±
Sharpe ratio(0,0%)	-0,3	± 0,2



ACTIVITY:

PROFILE	Profile
RISK/RETURN	Risk/Return
PRICES & RETURNS	Prices - Returns
TRACK RECORD	Track Record
TRACKING DEVIATION	Tracking Deviation
BETA	Beta
REGRESSIONS	Regressions
RADAR	Radar
ADVANCED	Advanced

ACTIVITY: PROFILE

Shows some basic characteristics of the selected asset 1 and asset 2

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX

COMMODITY EXPORTERS LARGE CAP

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Profile (271 Months)

Class	EQUITY
Type	INDEX
Sector	
Industry	
Group	
Zone	NORTH AMERICA
Strategy 1	
Strategy 2	
Country	UNITED STATES
Original currency	USD
Final currency	EUR

underlying characteristics of selected asset 1

Profile (271 Months)

Class	
Type	
Sector	
Industry	
Group	
Zone	
Strategy 1	
Strategy 2	
Country	
Original currency	(Not defined - USD currency is Imposed by default)
Final currency	EUR

if asset 2 is a portfolio, some of its underlying characteristics won't be displayed in the profile.

ACTIVITY: RISK-RETURN

Displays several risk and returns measures of selected asset(s) or portfolio(s)

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

MSCI WORLD — Asset 1

10Y GOV BOND USA — Asset 2

MONTHLY (31 January 1970 : 31 August 2018)

return measures for selected asset(s), portfolio(s) or strategy(s)	Result	σ%	Result	σ%
Annual compounded performance	7,7%	± 2,0%	7,3%	± 1,1%
Year to date	5,3%	±	-2,1%	±
Last performance	1,3%	±	1,1%	±
Best performance	14,3%	±	12,2%	±
Worst performance	-18,9%	±	-7,8%	±
Success rate	61,3%	± 1,8%	60,1%	± 2,1%

risk measures for selected asset(s), portfolio(s) or strategy(s)				
Annualized volatility	14,5%	± 0,6%	8,1%	± 0,3%
Annual downside risk (0,0%)	9,7%	± 0,8%	4,4%	± 0,3%
VaR(99,0%)	12,0%	± 1,2%	5,1%	± 0,4%
VaR(98,0%)	9,7%	± 0,8%	4,2%	± 0,3%
Expected shortfall(99,0%)	15,3%	± 2,1%	6,4%	± 0,7%
Drawdown(10,0%)	4,0 y	± 5,1 y	9,6 y	± 4,0 y
Drawdown(5,0%)	2,3 y	± 4,9 y	2,4 y	± 3,7 y
Maximum drawdown	-53,6%	±	-15,4%	±
Current drawdown	0,0%	±	-7,3%	±
Time to recovery	50 m	±	3 m	±
Fragility	-1,8	±	1,0	±
Sharpe ratio(0,0%)	0,5	± 0,1	0,9	± 0,1

ACTIVITY: PRICE & RETURNS

Shows the dates, performances, and NAVs of selected asset(s)

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Dates	Performance	Prices	Performance	Prices
31/01/1996		100,0		100,0
29/02/1996	-0,5%	99,5	-5,3%	94,7
31/03/1996	1,4%	100,9	2,9%	97,5
30/04/1996	4,6%	105,5	13,9%	111,0
31/05/1996	2,0%	107,6	9,8%	121,9
30/06/1996	0,0%	107,6	6,9%	130,3
31/07/1996	-7,0%	100,1	-9,4%	118,0
31/08/1996	2,4%	102,4	7,7%	127,2
30/09/1996	8,3%	110,9	2,3%	130,0
31/10/1996	1,9%	113,1	2,1%	132,7
30/11/1996	9,1%	123,4	5,6%	140,1
31/12/1996	-1,9%	121,0	2,2%	143,2
31/01/1997	12,9%	136,6	19,3%	170,9
28/02/1997	4,2%	142,3	10,8%	189,4
31/03/1997	-4,8%	135,6	-3,3%	183,2
30/04/1997	9,3%	148,1	7,4%	196,7
31/05/1997	4,6%	154,9	7,1%	210,7
30/06/1997	6,4%	164,8	10,3%	232,4
31/07/1997	13,8%	187,6	13,9%	264,6
31/08/1997	-7,4%	173,7	-10,7%	236,4
30/09/1997	3,4%	179,6	6,3%	251,3
31/10/1997	-5,7%	169,3	-16,9%	208,8
30/11/1997	7,1%	181,3	-1,6%	205,4
31/12/1997	3,7%	188,0	9,5%	224,9
31/01/1998	3,0%	193,7	-7,2%	208,8
28/02/1998	6,5%	206,2	5,5%	220,4
31/03/1998	7,1%	220,7	8,6%	239,3
30/04/1998	-1,9%	216,5	-4,0%	229,6

click on any of the columns titles to filter the columns by first and last (Dates) or from best to worst (Performance) or from the highest to the lowest (Prices)

ACTIVITY: TRACK RECORD

Shows the monthly track-record of selected asset(s)

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Years	YtD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	21,0		-0,5	1,4	4,6	2,0	0,0	-7,0	2,4	8,3	1,9	9,1	-1,9
1997	55,4	12,9	4,2	-4,8	9,3	4,6	6,4	13,8	-7,4	3,4	-5,7	7,1	3,7
1998	19,5	3,0	6,5	7,1	-1,9	-2,4	5,3	-2,4	-14,6	0,2	7,2	8,3	4,2
1999	41,2	7,6	-0,2	6,6	5,8	-1,0	6,3	-6,4	0,9	-3,8	7,7	6,6	6,2
2000	-3,0	-1,6	-1,2	10,8	1,6	-4,8	0,9	1,2	10,9	-4,7	3,6	-10,4	-7,0
2001	-6,6	4,2	-7,8	-1,3	6,3	5,9	-2,9	-4,1	-10,0	-8,0	3,1	8,2	1,7
2002	-34,0	2,0	-3,1	3,5	-9,1	-4,3	-12,5	-6,5	0,2	-11,3	8,4	5,5	-10,8
2003	7,2	-5,1	-1,9	0,0	5,6	-0,1	3,7	4,3	4,3	-6,8	6,2	-2,5	0,2
2004	3,0	2,8	1,3	-0,1	1,2	-0,4	1,8	-1,9	-1,0	-1,0	-1,3	0,3	1,3
2005	20,0	1,4	0,7	0,2	-1,2	8,0	1,8	3,6	-2,7	3,5	-1,4	5,6	-0,5
2006	4,0	0,1	2,3	-0,4	-2,8	-4,2	0,3	0,8	2,0	3,7	2,6	-1,8	1,7
2007	-4,5	2,8	-3,4	0,2	2,2	5,0	-2,3	-4,1	1,9	-0,9	0,1	-5,1	-0,4
2008	-34,2	-7,7	-5,3	-4,3	6,0	1,7	-9,6	0,1	7,9	-5,2	-7,9	-6,9	-8,2
2009	23,4	-0,2	-9,6	4,0	9,7	-1,3	1,1	5,9	3,1	1,6	-2,4	4,0	6,8

Years	YtD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	43,2		-5,3	2,9	13,9	9,8	6,9	-9,5	7,7	2,3	2,1	5,6	2,2
1997	57,1	19,3	10,8	-3,3	7,4	7,1	10,3	13,9	-10,7	6,3	-16,9	-1,6	9,5
1998	-43,7	-7,2	5,6	8,6	-4,1	-15,9	-5,4	-0,9	-34,4	-7,4	12,8	12,7	-9,3
1999	110,4	-3,1	10,1	21,6	12,7	-1,4	10,0	-9,2	-3,2	-3,5	6,7	16,4	25,9
2000	-3,4	0,5	6,1	9,3	-3,5	-8,8	6,0	4,5	12,9	-8,7	-2,4	-13,5	-2,4
2001	10,2	11,8	-7,8	-2,4	4,7	8,4	0,9	-9,3	-6,3	-14,7	7,5	12,5	9,2
2002	-23,3	4,3	2,0	5,8	-2,6	-4,6	-16,3	-12,0	6,4	-13,3	8,7	2,9	-3,4
2003	46,2	-4,0	-0,7	2,8	13,5	1,7	6,2	1,6	10,0	-0,6	6,0	0,8	2,6

the track-record figures will not adapt to the underlying data frequency selected in CREDENTIALS. The output will keep a monthly frequency

ACTIVITY: TRACKING DEVIATION

Shows the monthly return of asset 1 minus asset 2

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Years	YtD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	-22,2		4,8	-1,5	-9,3	-7,8	-7,0	2,5	-5,4	6,1	-0,2	3,6	-4,1
1997	-1,7	-6,4	-6,6	-1,5	1,9	-2,5	-3,9	-0,1	3,3	-2,9	11,2	8,7	-5,8
1998	63,2	10,2	0,9	-1,5	2,1	13,5	10,7	-1,5	19,8	7,5	-5,6	-4,4	13,5
1999	-69,2	10,7	-10,3	-15,1	-6,9	0,4	-3,7	2,9	4,1	-0,4	1,0	-9,8	-19,7
2000	0,4	-2,1	-7,3	1,5	5,1	4,0	-5,1	-3,4	-2,0	4,0	5,9	3,1	-4,6
2001	-16,8	-7,6	0,0	1,0	1,6	-2,5	-3,7	5,2	-3,7	6,8	-4,4	-4,3	-7,5
2002	-10,6	-2,3	-5,0	-2,3	-6,5	0,2	3,8	5,5	-6,2	2,1	-0,3	2,6	-7,4
2003	-39,0	-1,1	-1,2	-2,8	-7,9	-1,8	-2,5	2,7	-5,8	-6,2	0,3	-3,3	-2,4
2004	-17,4	-0,4	-3,4	-4,9	8,7	3,6	-2,5	-3,5	-3,6	-5,7	-2,2	-2,4	-0,1
2005	-44,0	-1,2	-7,5	3,0	0,2	-0,7	-4,9	-1,9	-6,8	-10,9	4,2	-3,4	-3,5
2006	-24,8	-9,8	-2,3	1,5	-7,6	6,8	-1,8	-2,0	-0,5	4,2	-3,6	-3,9	-3,9
2007	-26,8	1,3	-1,6	-4,6	-0,5	-2,3	-4,3	-3,7	3,7	-7,0	-7,7	2,6	-1,4
2008	17,5	2,2	-9,8	1,8	-3,1	-7,4	-1,4	6,4	10,1	11,0	15,6	1,4	-0,8
2009	-69,1	-2,1	-4,9	-6,1	-7,1	-15,9	3,1	-2,1	0,6	-7,7	-2,5	-0,7	-1,6
2010	-5,7	2,5	-0,4	-2,2	1,7	2,1	-1,9	-3,6	-1,5	-1,0	-0,3	1,4	-1,5
2011	19,8	3,2	-0,4	-2,5	0,9	2,6	-0,3	-0,4	1,2	12,0	-5,2	3,7	5,0
2012	2,0	-6,9	-1,4	6,5	1,6	9,2	-1,6	-1,1	0,4	-1,9	-0,7	1,2	-4,6
2013	36,5	1,4	3,7	5,2	2,2	8,7	6,1	2,5	-1,3	-4,5	0,8	6,6	2,2
2014	31,7	3,8	2,5	-3,0	-0,5	-0,8	-1,8	-0,6	0,3	8,6	3,2	7,6	8,3

the track-record figures will not adapt to the underlying data frequency selected in CREDENTIALS. The output will keep a monthly frequency

ACTIVITY: BETA

Shows the Beta of asset 1 versus asset 2 over the whole period as well as in upward and downward markets

PROFILE
RISK/RETURN
PRICES & RETURNS
TRACK RECORD
TRACKING DEVIATION
BETA
REGRESSIONS
RADAR
ADVANCED

S&P 500 INDEX — Asset 1
COMMODITY EXPORTERS LARGE CAP — Asset 2
EUR
MONTHLY (29 February 1996 : 31 August 2018)

Beta to Benchmark (Global period)	
Beta	43,5%
Annualized alpha	4,1%
Correlation	68,7%
Determination factor	47,1%
Annualized Jensen alpha(0,0%)	4,3%

Beta to Benchmark (Up Period)	
Beta	42,1%
Correlation	67,5%
Determination factor	45,6%

Beta to benchmark (Down Period)	
Beta	44,7%
Correlation	69,6%
Determination factor	48,4%

Success Rate	
Up with Benchmark	77,5%
Down with Benchmark	63,1%
Outperforms benchmark Gain	17,5%
Outperforms benchmark Loss	76,6%

ACTIVITY: REGRESSIONS

Measures the beta, alpha, and correlation of selected asset(s) against various indices

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Indexes	Beta ß%	Alpha An. α%	Corr ρ%	ß%	An. α%	ρ%
10Y GOV BOND USA	24	9,3	18	-23	17,2	-11
CRUDE OIL BRENT SPOT	7	6,6	16	23	10,1	31
DOLLAR INDEX SPOT	36	10,0	40	7	15,4	5
GOLD SPOT	4	10,7	4	27	13,7	17
MSCI CHINA	26	4,6	48	47	9,5	57
MSCI EM	51	6,1	70	105	5,5	91
MSCI EUROPE	72	4,4	77	107	5,7	72
MSCI JAPAN	53	8,9	60	73	12,8	52
MSCI USA	99	0,6	100	108	4,0	69
MSCI WORLD	104	1,4	96	131	3,3	77

the list of Indexes comes from SETTINGS, GROU,P, INDEX GROUP

ACTIVITY: RADAR

Shows a multi-regression analysis of asset 1 and asset 2 on selected risk factors

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Risk factors	R2%	95		R2%	67	
	ß%	σ%	VIF	ß%	σ%	VIF
10Y GOV BOND USA	1	3	2,9	6	13	2,9
CRUDE OIL BRENT SPOT	-2	1	1,1	13	3	1,1
DOLLAR INDEX SPOT	11	2	3,1	-34	9	3,1
MSCI WORLD	101	2	1,2	135	7	1,2

the list of Risk Factors comes from SETTINGS, GROU,P, RISK FACTORS GROUP

ACTIVITY: ADVANCED

Measures of multiple risk-ratios on selected asset(s) or portfolio(s)

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

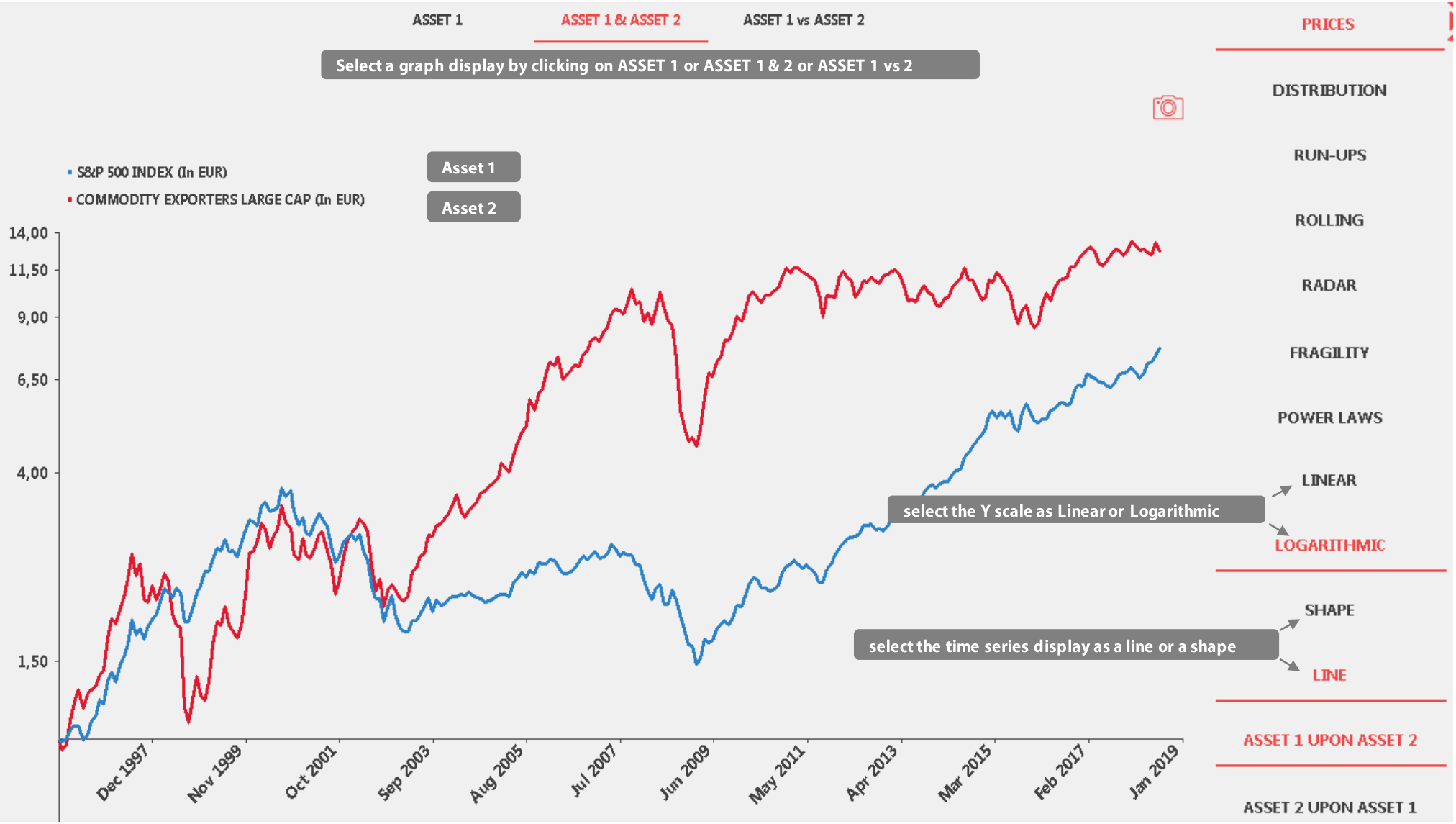
	Result		σ%	Result		σ%
Sortino ratio(0,0%)	0,9	±	0,3	0,7	±	0,2
Omega(0,0%)	1,6	±	0,1	1,6	±	0,1
Calmar ratio	0,2	±	0,0	0,2	±	0,0
Skewness	-0,4	±	0,3	-0,5	±	0,4
Excess kurtosis	0,5	±	0,8	2,4	±	1,6
Bera-Jarque (5% level)	Not normal			Not normal		
Ljung-Box (5% level)	nc			nc		

ACTIVITY:

PRICES	Prices
DISTRIBUTION	Distribution
RUN-UPS	Run-Ups
ROLLING	Rolling
RADAR	Radar
FRAGILITY	Fragility
POWER LAWS	Power Laws
LINEAR	Linear
LOGARITHMIC	Logarithmic
SHAPE	Shape
LINE	Line
ASSET 1 UPON ASSET 2	Asset 1 Upon Asset 2
ASSET 2 UPON ASSET 1	Asset 2 Upon Asset 1

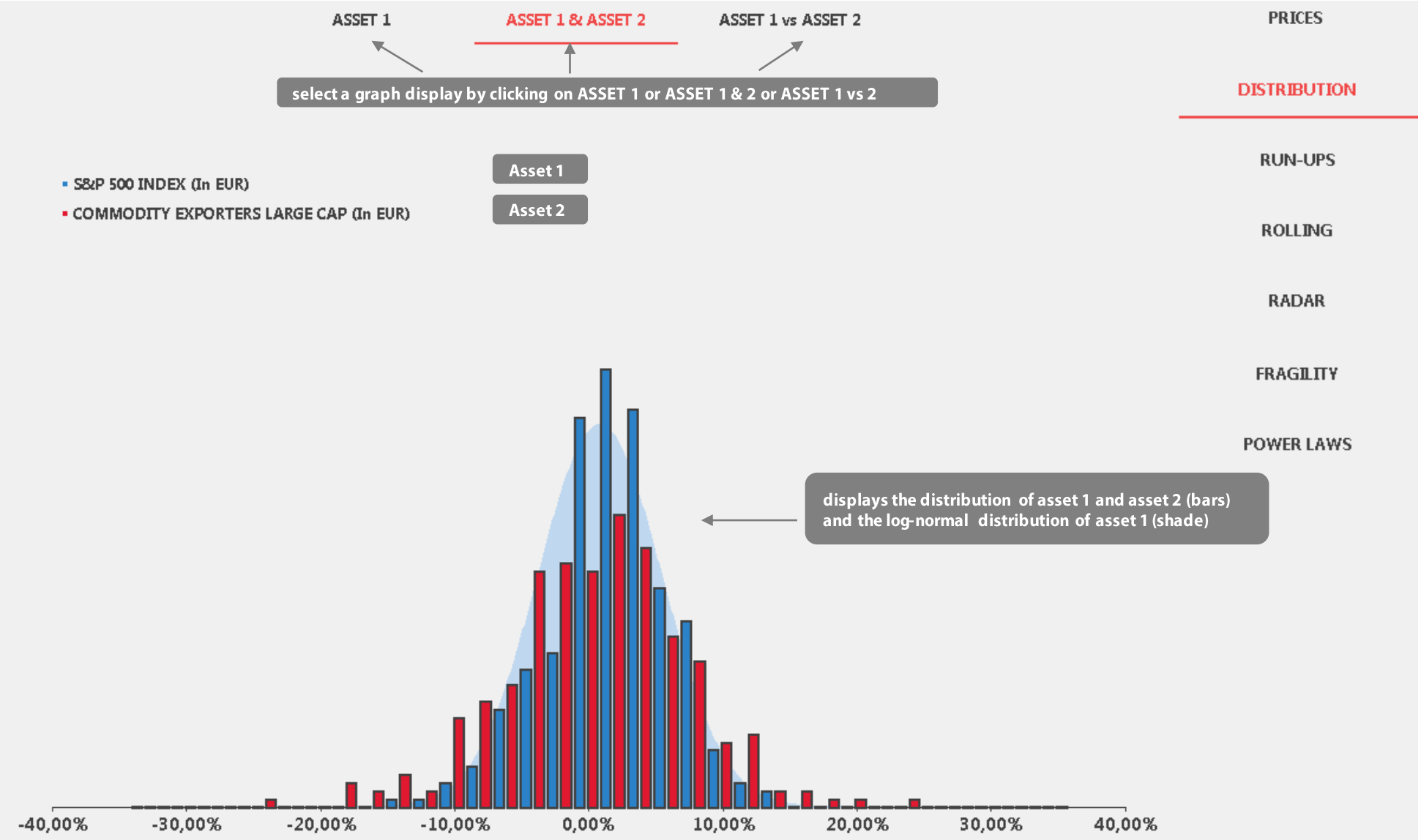
ACTIVITY: PRICES

Displays the NAVs of asset 1 and asset 2



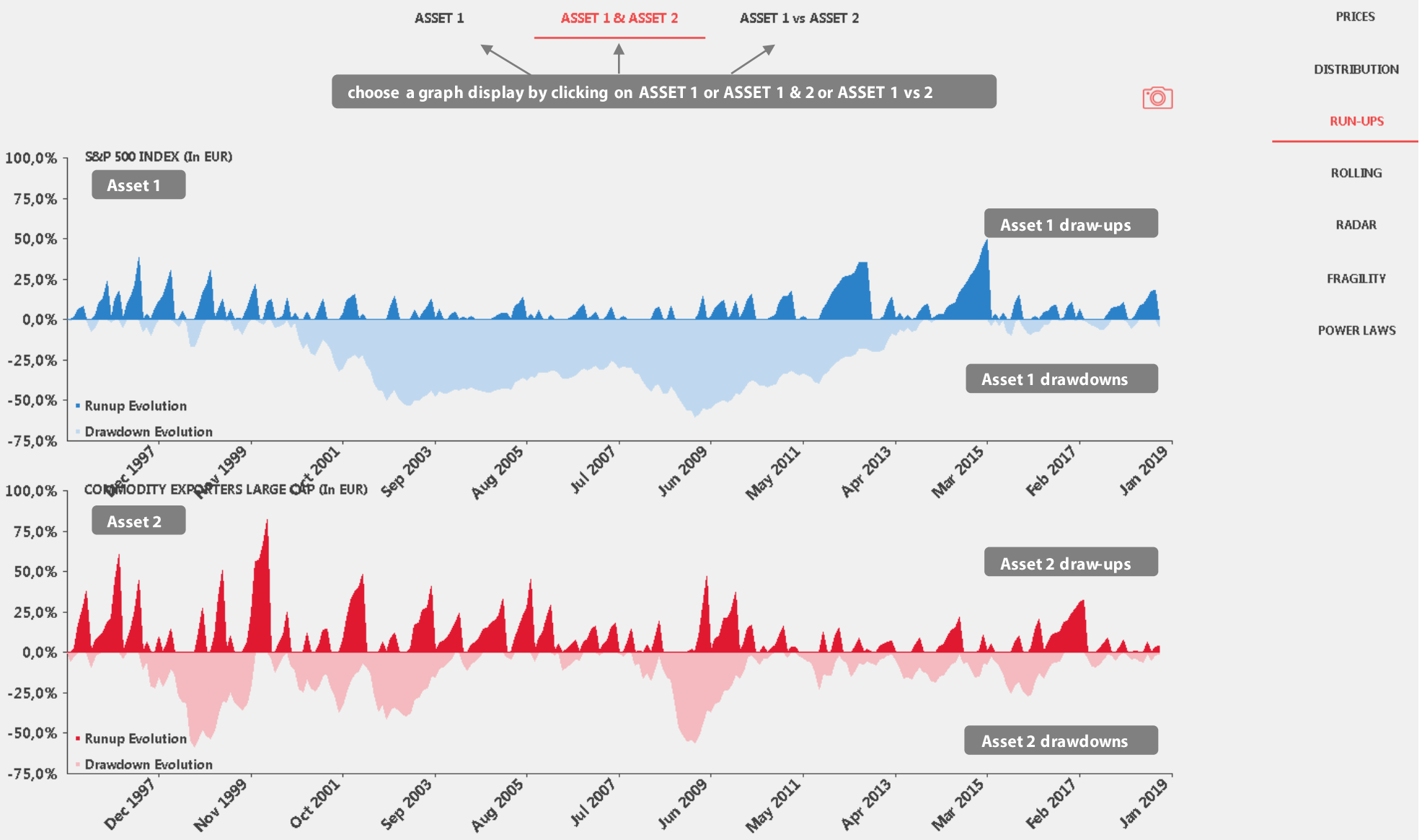
ACTIVITY: DISTRIBUTION

Displays the return distribution of asset 1 and asset 2 in comparison to a normal law (light blue)



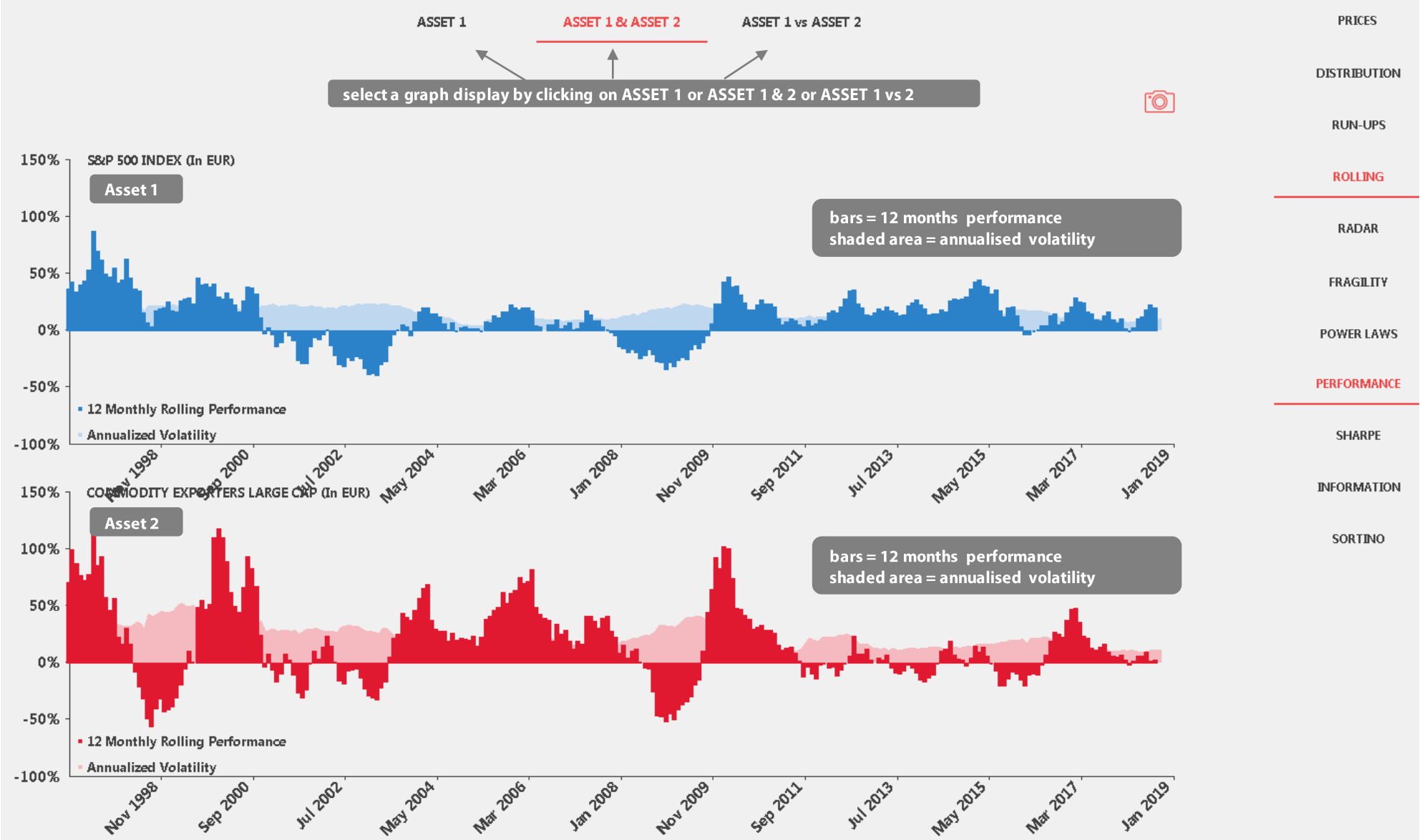
ACTIVITY: RUN-UPS

Displays the run-ups and drawdowns evolution of your asset 1 and asset 2



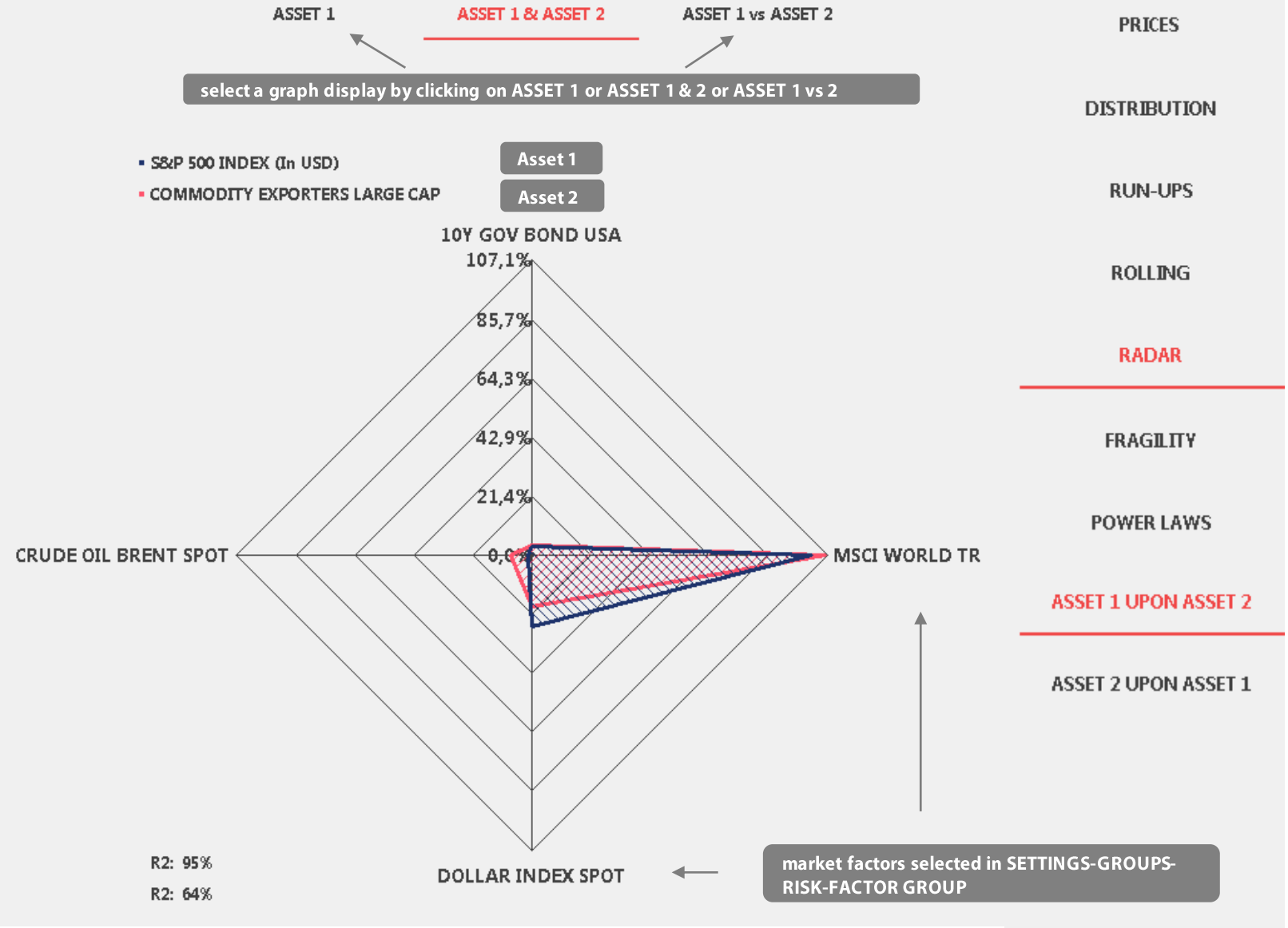
ACTIVITY: ROLLING

Displays the 12-months rolling return and volatility of your selected asset(s))



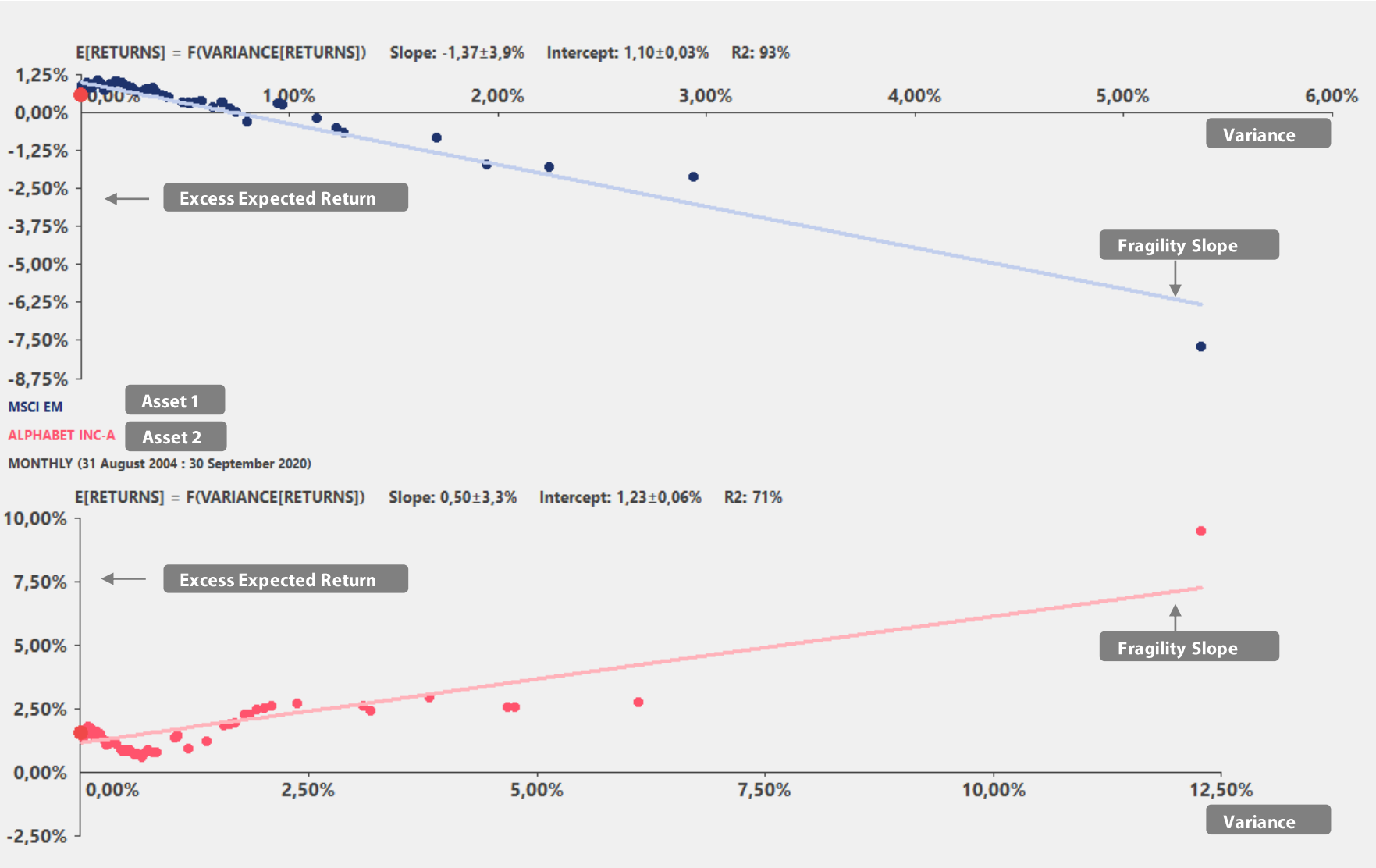
ACTIVITY: RADAR

Multi-regression factors of assets 1 and 2



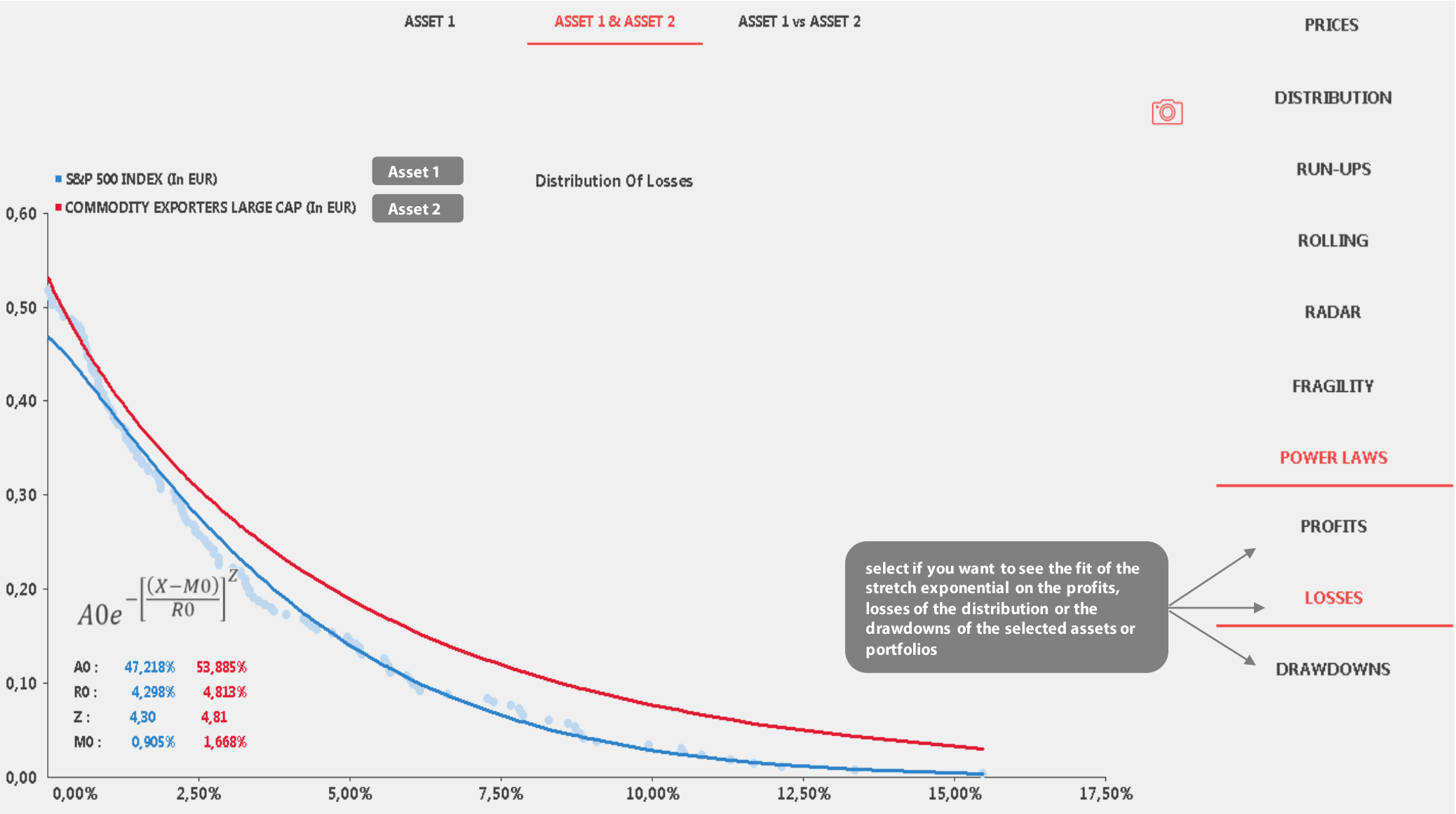
ACTIVITY: FRAGILITY

Asset returns as a function of their own variance. A fragile assets (such as the MSCI EM) dislikes stress, an antifragile asset (such as Alphabet) benefits from stress



ACTIVITY: POWER LAWS

Displays the cumulative probability distribution of asset returns as a function of return levels



ACTIVITY: LINEAR…

Gives a choice of graphic and scales display

PRICES

DISTRIBUTION

RUN-UPS

ROLLING

RADAR

FRAGILITY

POWER LAWS

LINEAR ← Y scale graduation is linear

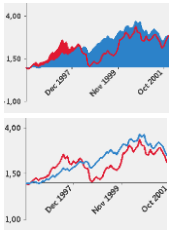
LOGARITHMIC ← Y scale graduation is logarithmic

SHAPE ← Shaded graph

LINE ← Line graph

ASSET 1 UPON ASSET 2 ← Select asset 1 as the main shade

ASSET 2 UPON ASSET 1 ← Select asset 2 as the main shade



ACTIVITY: INDEXES

Asset beta versus a selected risk factor (click on left table) as a function of the risk factor deviation

ACTIVITY: BETA SMILE

Shows the beta sensitivity of asset 1 and asset 2 against a specific benchmark

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Indexes	-3σ%	-2σ%	-1σ%	-0σ%	-1σ%	-2σ%	-3σ%
MSCI WORLD	105	99	105	84	106	110	94
MSCI USA	101	99	100	101	100	99	98
MSCI JAPAN	71	71	37	80	52	50	29
MSCI EUROPE	68	84	77	124	65	76	57
MSCI EM	46	59	54	46	51	47	55
MSCI CHINA	37	33	30	-9	33	16	17
GOLD SPOT	44	44	14	-61	-22	-7	-11
DOLLAR INDEX SPOT	61	44	35	178	53	43	-21
CRUDE OIL BRENT SPOT	23	5	-1	96	3	1	15
10Y GOV BOND USA	23	1	33	63	34	47	2

beta of asset 1 conditional to MSCI World N standard deviation

beta of asset 2 conditional to MSCI World N standard deviation

Indexes	-3σ%	-2σ%	-1σ%	-0σ%	-1σ%	-2σ%	-3σ%
MSCI WORLD	186	126	119	103	84	152	142
MSCI USA	198	104	108	52	84	87	110
MSCI JAPAN	102	102	42	-7	63	66	92
MSCI EUROPE	125	105	99	12	86	109	125
MSCI EM	113	101	100	104	98	112	97
MSCI CHINA	30	64	43	51	48	46	33
GOLD SPOT	88	88	58	-23	21	10	-20
DOLLAR INDEX SPOT	58	17	21	186	28	15	-66
CRUDE OIL BRENT SPOT	35	6	20	171	20	18	42
10Y GOV BOND USA	-141	-56	16	-43	-25	18	-67

ASSET 1 | ASSET 1 & ASSET 2

Sampling period 1

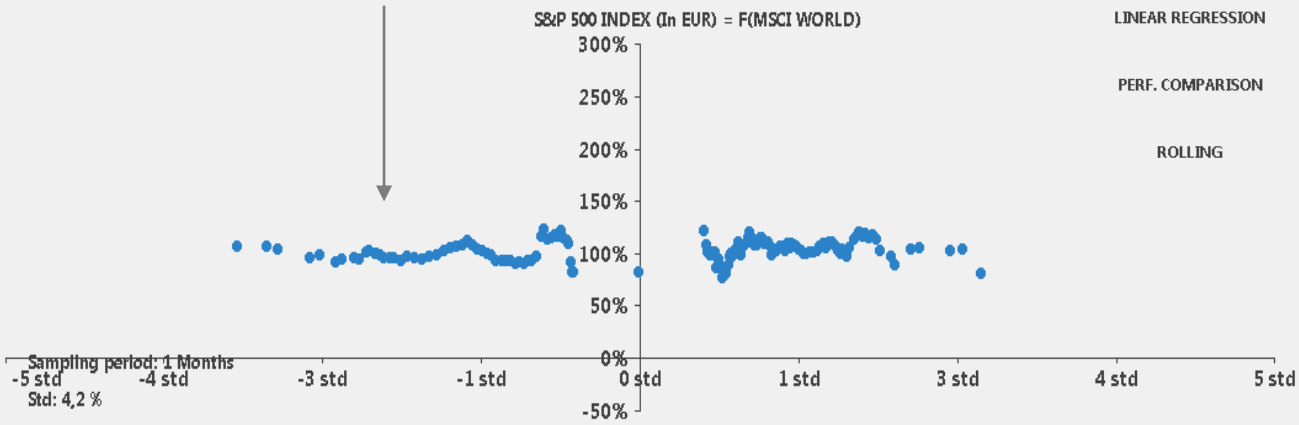
BETA SMILE

LINEAR REGRESSION

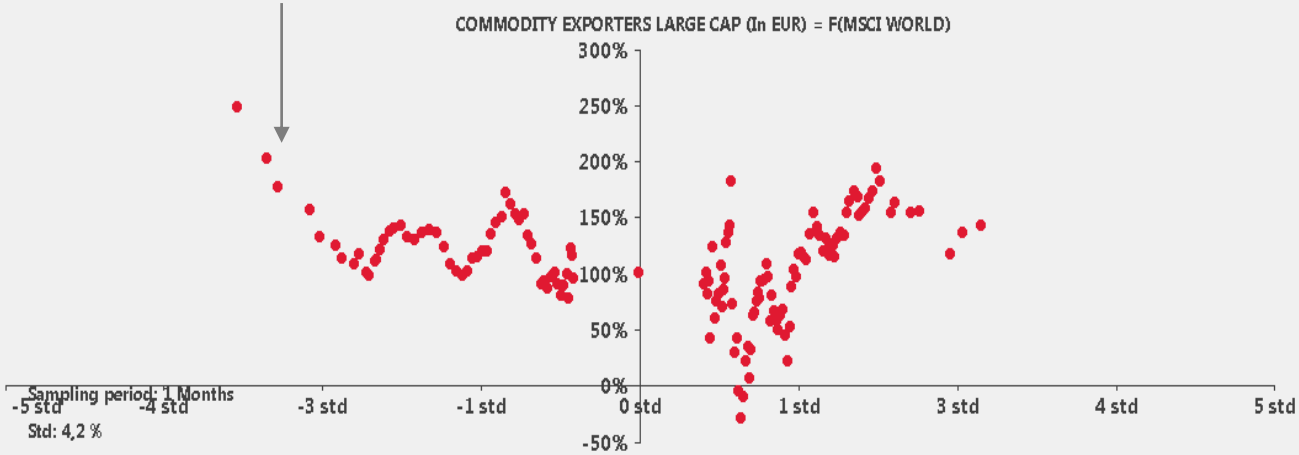
PERF. COMPARISON

ROLLING

S&P500 shows a relatively stable beta to the MSCI World



Commodity Exporters Portfolio high Beta sensitivity to negative variations in the MSCI World



ACTIVITY: LINEAR REGRESSION

Shows the linear regressions of asset 1 and asset 2 returns against a selected risk factor

Gavekal Intelligence Software - TrackRisk (Didier)

MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

MSCI EM — Asset 1
ALPHABET INC-A — Asset 2
MONTHLY (31 August 2004 : 30 September 2020)

ASSET 1 | ASSET 1 & ASSET 2

Sampling period 1

BETA SMILE

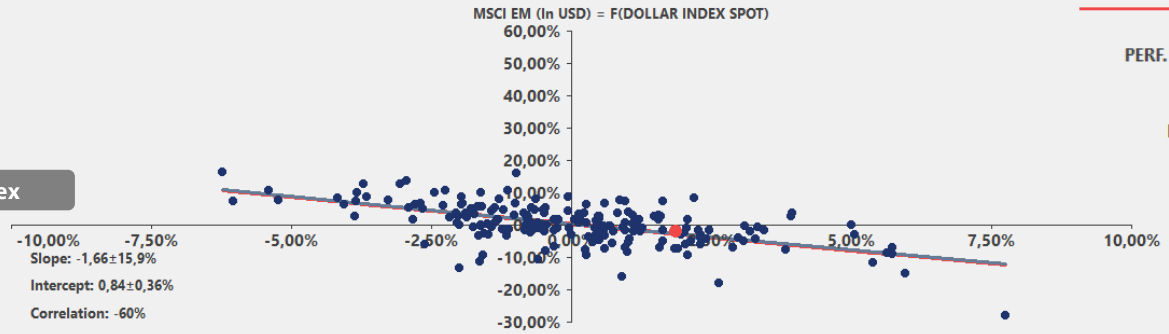
LINEAR REGRESSION

PERF. COMPARISON

ROLLING

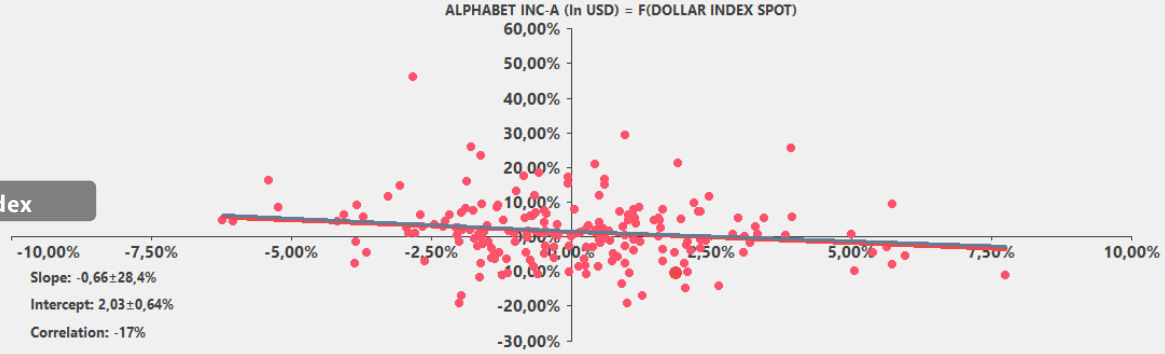
Indexes	β%	β+%	β-%	α%	ρ%	ρ+%	ρ-%
MSCI WORLD TR	121	124	120	-1,1	86	81	90
MSCI EM	100	100	100	-1,6	100	100	100
GOLD SPOT	40	30	51	4,8	32	23	42
DOLLAR INDEX SPOT	-166	-162	-171	10,6	-60	-61	-60
10Y GOV BOND USA	-75	-96	-48	13,5	-24	-33	-15

beta, annualised alpha and correlation of MSCI EM vs Dollar Index



Indexes	β%	β+%	β-%	α%	ρ%	ρ+%	ρ-%
MSCI WORLD TR	103	107	100	16,4	50	43	59
MSCI EM	61	57	64	18,9	42	35	50
GOLD SPOT	-4	-12	4	27,3	-2	-6	3
DOLLAR INDEX SPOT	-66	-55	-79	27,3	-17	-15	-19
10Y GOV BOND USA	-100	-123	-71	33,0	-23	-25	-20

beta, annualised alpha and correlation of Alphabet vs Dollar Index



ACTIVITY: PERFORMANCE COMPARISON

Compares 10 best/worst returns of assets 1 and 2 and selected risk factor

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 August 2018)

Indexes

- MSCI WORLD
- MSCI USA
- MSCI JAPAN
- MSCI EUROPE
- MSCI EM
- MSCI CHINA
- GOLD SPOT
- DOLLAR INDEX SPOT
- CRUDE OIL BRENT SPOT
- 10Y GOV BOND USA

Risk Factors

the list of Indexes comes from SETTINGS, GROU,P, INDEX GROUP

ASSET 1 | ASSET 1 & ASSET 2

select a graph display by clicking on ASSET 1 or ASSET 1 & 2

BETA SMILE

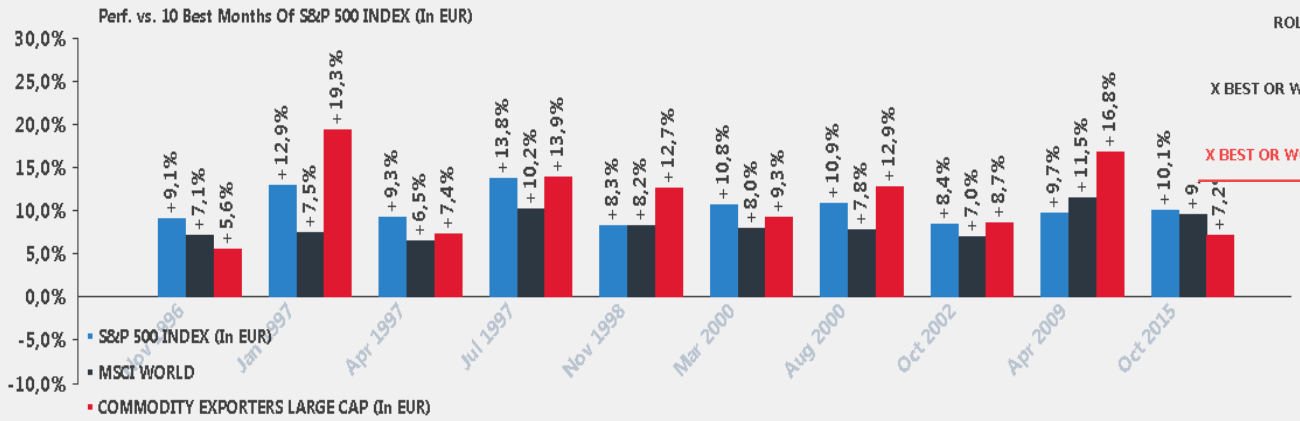
LINEAR REGRESSION

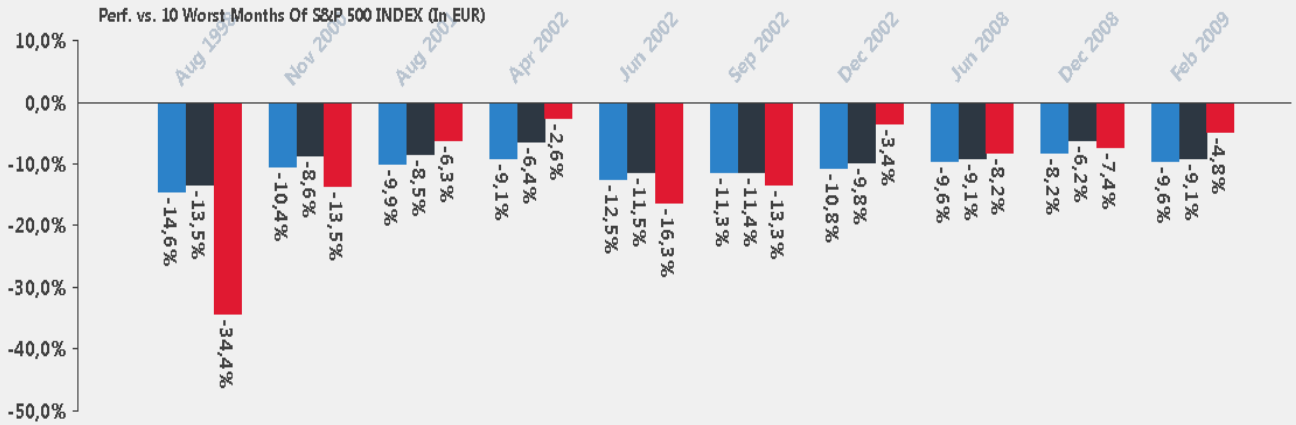
PERF. COMPARISON

ROLLING

X BEST OR WORSE / INDEX

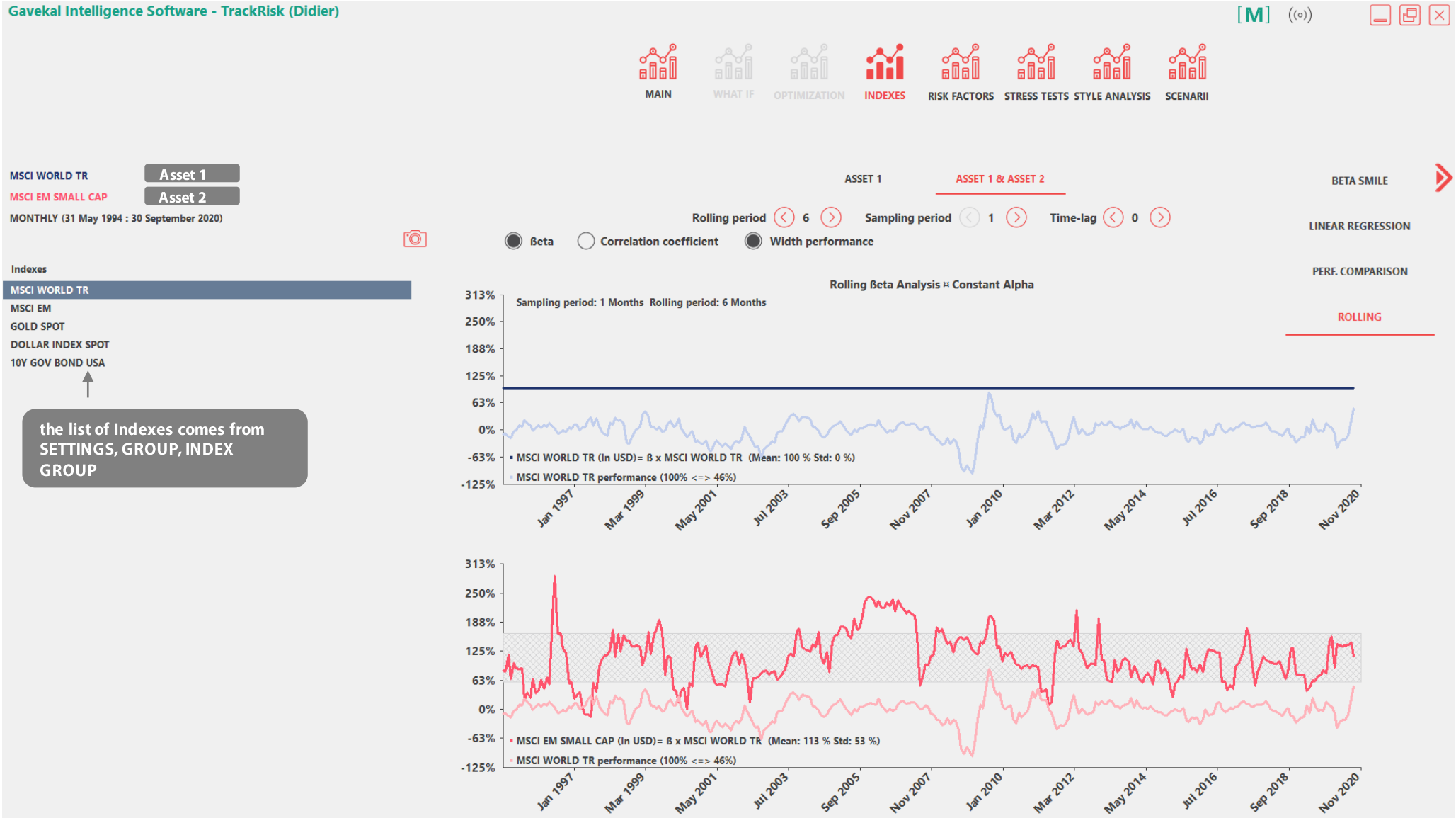
X BEST OR WORSE / ASSET 1





ACTIVITY: ROLLING

Dynamic multi-regression over a rolling window of asset 1 and asset 2.
Select risk factor by clicking on the left table.



ACTIVITY: RISK FACTORS

Menu for the RISK FACTORS is similar to the menu for INDEXES. Please refer to INDEXES for explanations.

Beta Smile

Linear Regression

Perf. Comparison

Rolling

ACTIVITY: STRESS TESTS

Displays the performance of asset1 & asset2 during pre-defined stressed periods

MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

ASSET 1 | ASSET 1 & ASSET 2

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

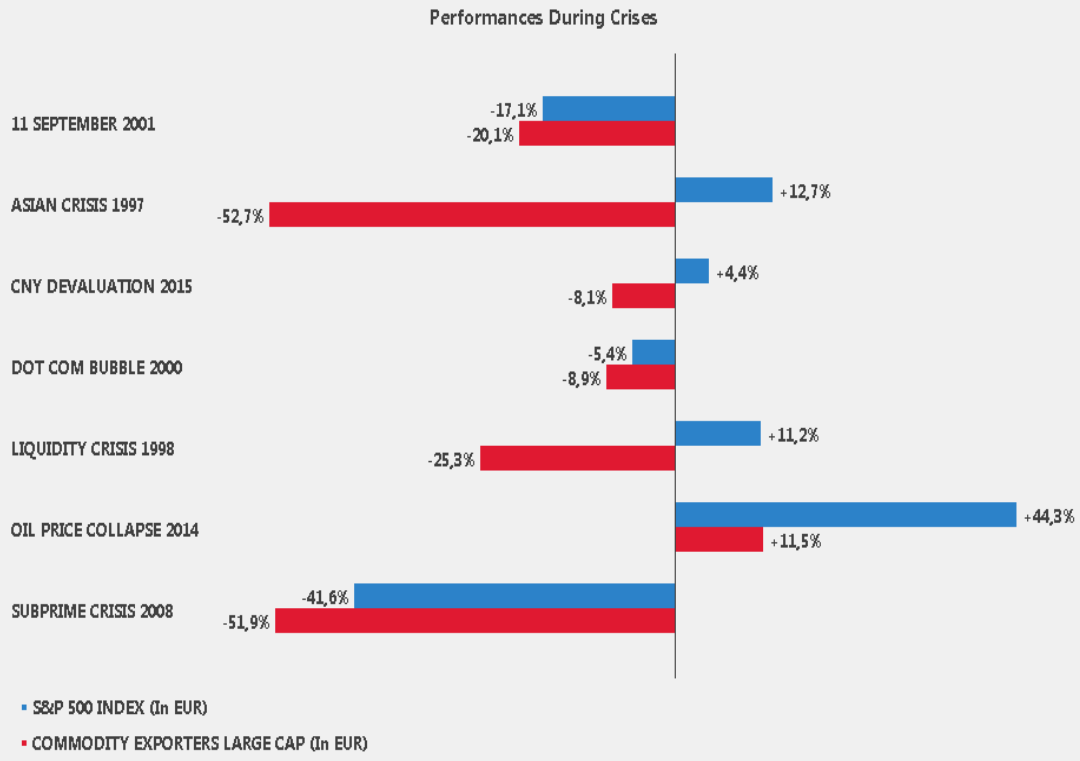
MONTHLY (29 February 1996 : 31 August 2018)

Performance | Maximum Drawdown

Events	Begin	End	Perf.%	M DD%	Recovery
11 SEPTEMBER 2001	31/08/2001	30/09/2001	-17,1	-17,1	130 m
ASIAN CRISIS 1997	31/07/1997	30/09/1998	12,7	-16,7	4 m
CNY DEVALUATION 2015	31/05/2015	30/06/2016	4,4	-9,9	2 m
DOT COM BUBBLE 2000	31/03/2000	31/03/2001	-5,4	-22,1	152 m
LIQUIDITY CRISIS 1998	31/08/1998	28/02/1999	11,2	-14,6	4 m
OIL PRICE COLLAPSE 2014	30/06/2014	31/10/2016	44,3	-9,9	2 m
SUBPRIME CRISIS 2008	30/11/2007	31/03/2009	-41,6	-43,9	35 m

the list of specific periods is defined in SETTINGS, EVENTS

Events	Begin	End	Perf.%	M DD%	Recovery
11 SEPTEMBER 2001	31/08/2001	30/09/2001	-20,1	-20,1	3 m
ASIAN CRISIS 1997	31/07/1997	30/09/1998	-52,7	-58,5	15 m
CNY DEVALUATION 2015	31/05/2015	30/06/2016	-8,1	-25,6	9 m
DOT COM BUBBLE 2000	31/03/2000	31/03/2001	-8,9	-24,7	38 m
LIQUIDITY CRISIS 1998	31/08/1998	28/02/1999	-25,3	-39,2	7 m
OIL PRICE COLLAPSE 2014	30/06/2014	31/10/2016	11,5	-27,1	9 m
SUBPRIME CRISIS 2008	30/11/2007	31/03/2009	-51,9	-56,3	20 m



ACTIVITY: STRESS TESTS

Displays the maximum drawdown of asset 1 & asset 2 during pre-defined stressed periods

S&P 500 INDEX — Asset 1

COMMODITY EXPORTERS LARGE CAP — Asset 2

EUR

MONTHLY (29 February 1996 : 31 October 2018)

Events	Begin	End	Perf.%	M DD%	Recovery
11 SEPTEMBER 2001	31/08/2001	30/09/2001	-17,1	-17,1	130 m
ASIAN CRISIS 1997	31/07/1997	30/09/1998	12,7	-16,7	4 m
CNY DEVALUATION 2015	31/05/2015	30/06/2016	4,4	-9,9	2 m
DOT COM BUBBLE 2000	31/03/2000	31/03/2001	-5,4	-22,1	152 m
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SUBPRIME CRISIS 2008	30/11/2007	31/03/2009	-41,6	-43,9	35 m

the list of specific periods is defined in SETTINGS, EVENTS

Events	Begin	End	Perf.%	M DD%	Recovery
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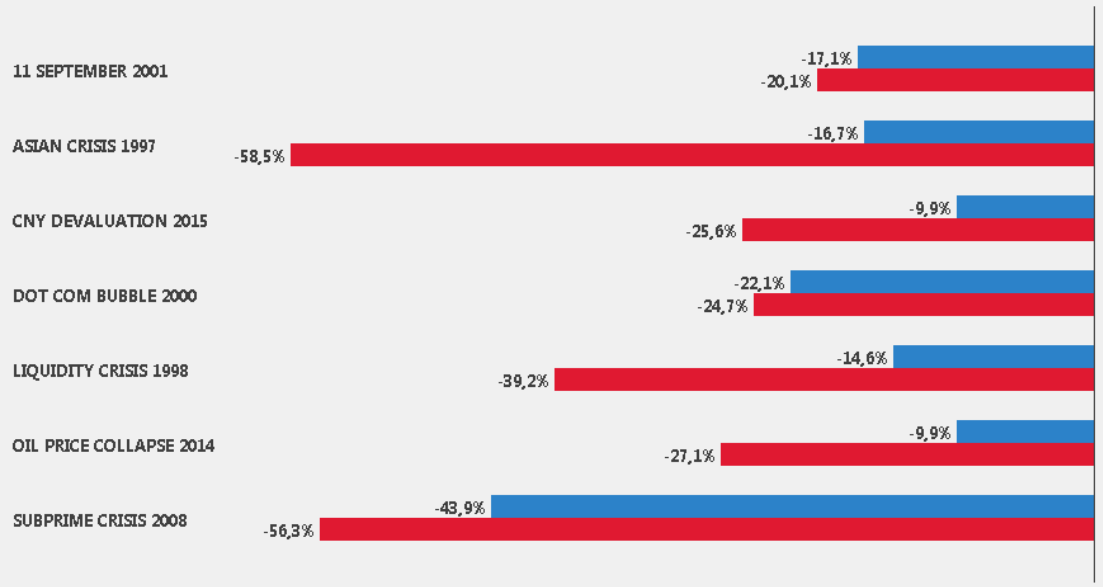
ASIAN CRISIS 1997	31/07/1997	30/09/1998	-52,7	-58,5	15 m
CNY DEVALUATION 2015	31/05/2015	30/06/2016	-8,1	-25,6	9 m
DOT COM BUBBLE 2000	31/03/2000	31/03/2001	-8,9	-24,7	38 m
LIQUIDITY CRISIS 1998	31/08/1998	28/02/1999	-25,3	-39,2	7 m
OIL PRICE COLLAPSE 2014	30/06/2014	31/10/2016	11,5	-27,1	9 m
SUBPRIME CRISIS 2008	30/11/2007	31/03/2009	-51,9	-56,3	20 m

MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

ASSET 1 | ASSET 1 & ASSET 2

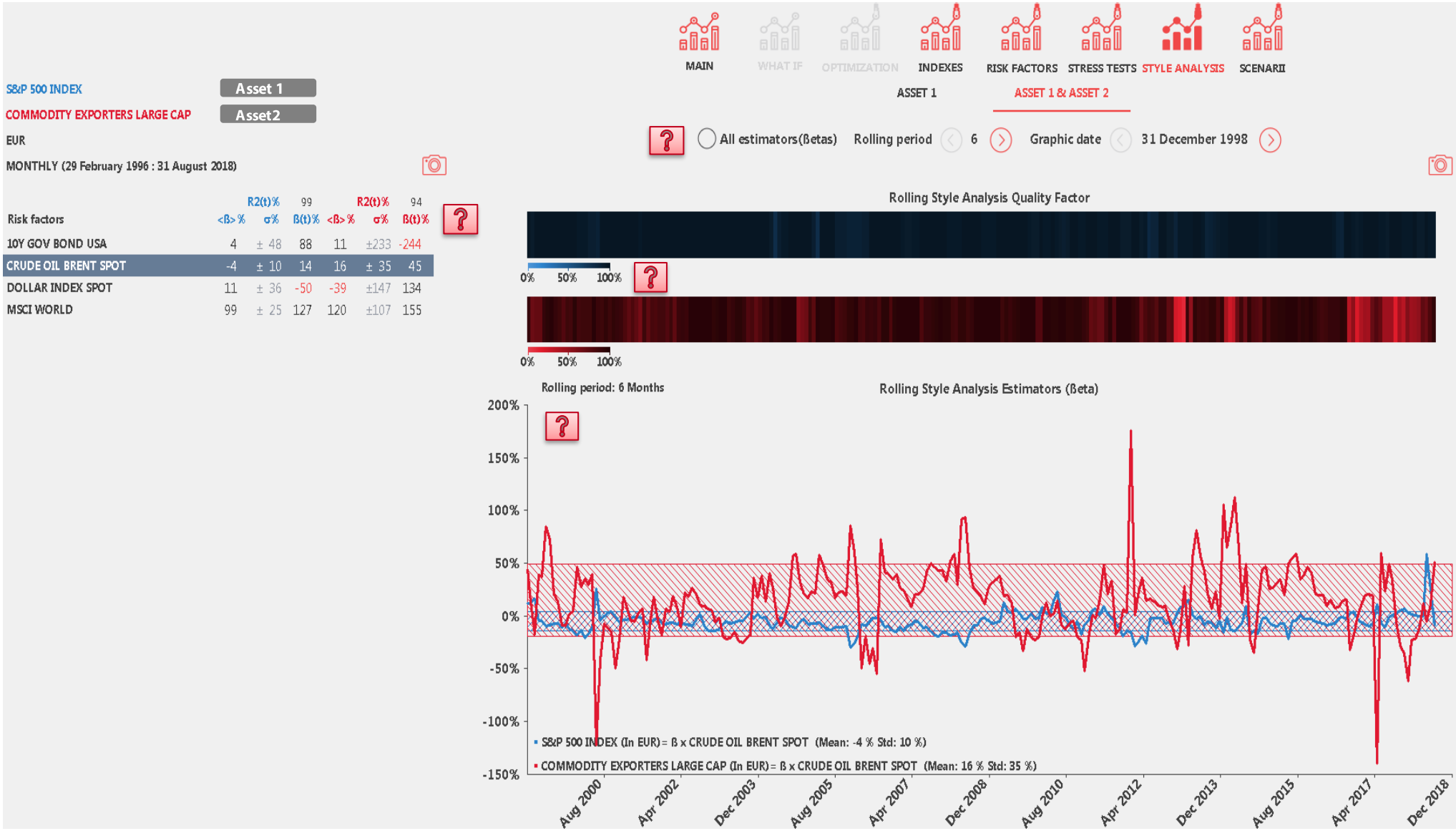
Performance | Maximum Drawdown

Drawdowns During Crises



ACTIVITY: STYLE ANALYSIS

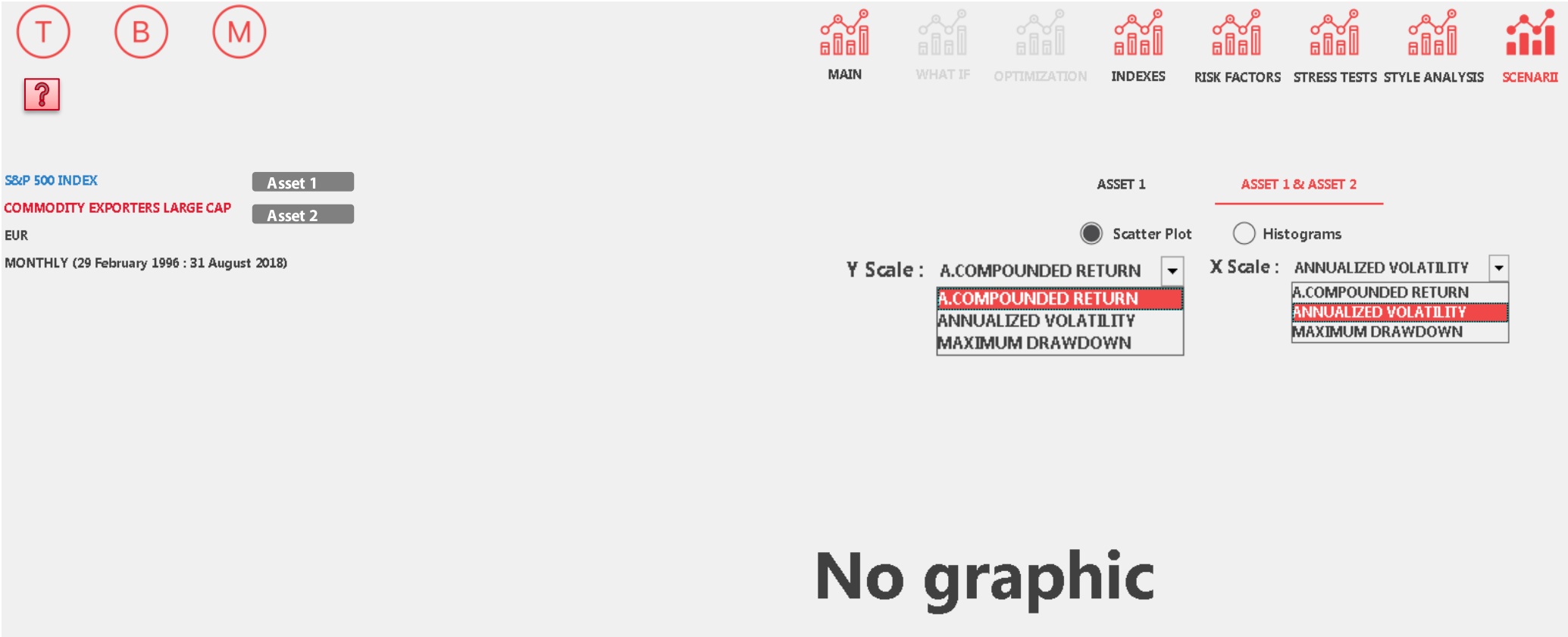
Dynamics of assets 1 and 2 multi-regression factors. Select factor by clicking on the let table



Risk factors	R2(t)% <ß> %	σ%	99 ß(t)%	R2(t)% <ß> %	σ%	94 ß(t)%
10Y GOV BOND USA	4	± 48	88	11	±233	-244
CRUDE OIL BRENT SPOT	-4	± 10	14	16	± 35	45
DOLLAR INDEX SPOT	11	± 36	-50	-39	±147	134
MSCI WORLD	99	± 25	127	120	±107	155

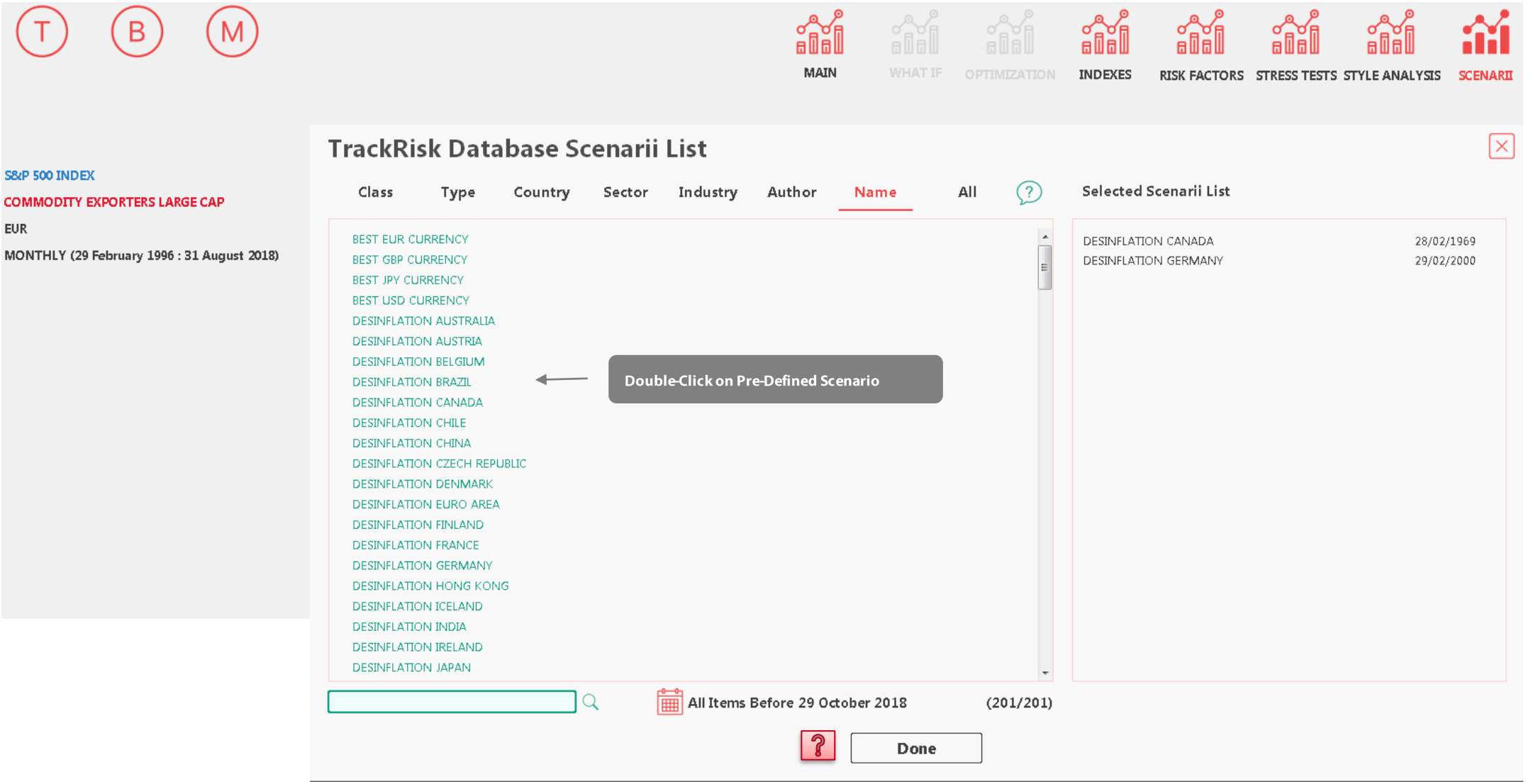
ACTIVITY: SCENARII

Displays annual compounded returns, volatility and drawdowns of an asset or portfolio during periods of pre-defined macroeconomic or quantitative scenario.



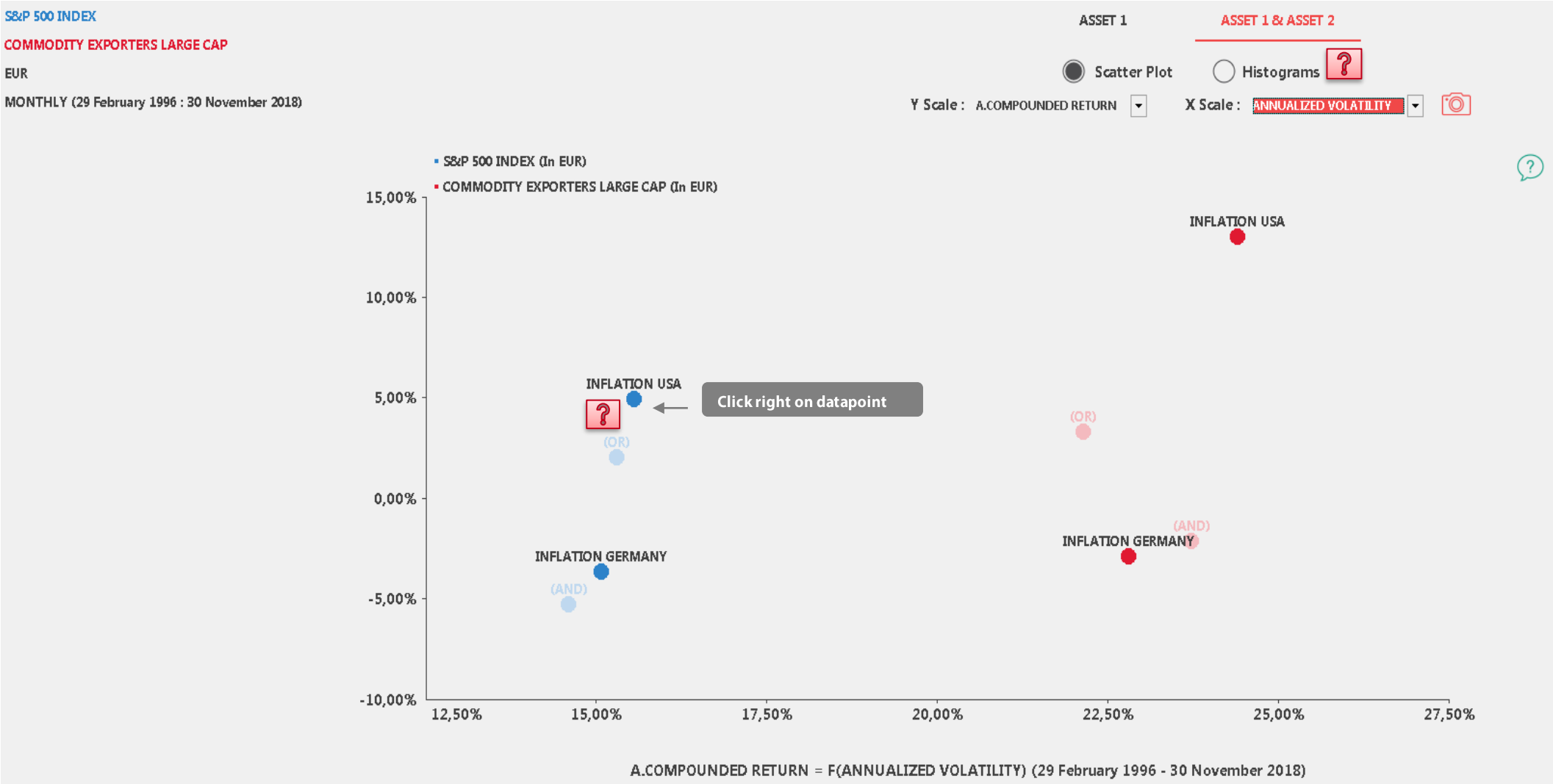
ACTIVITY: SCENARII

Select 1 or more scenario and plot your risk/return graph



ACTIVITY: SCENARII

Scatter plot of selected assets and scenarii

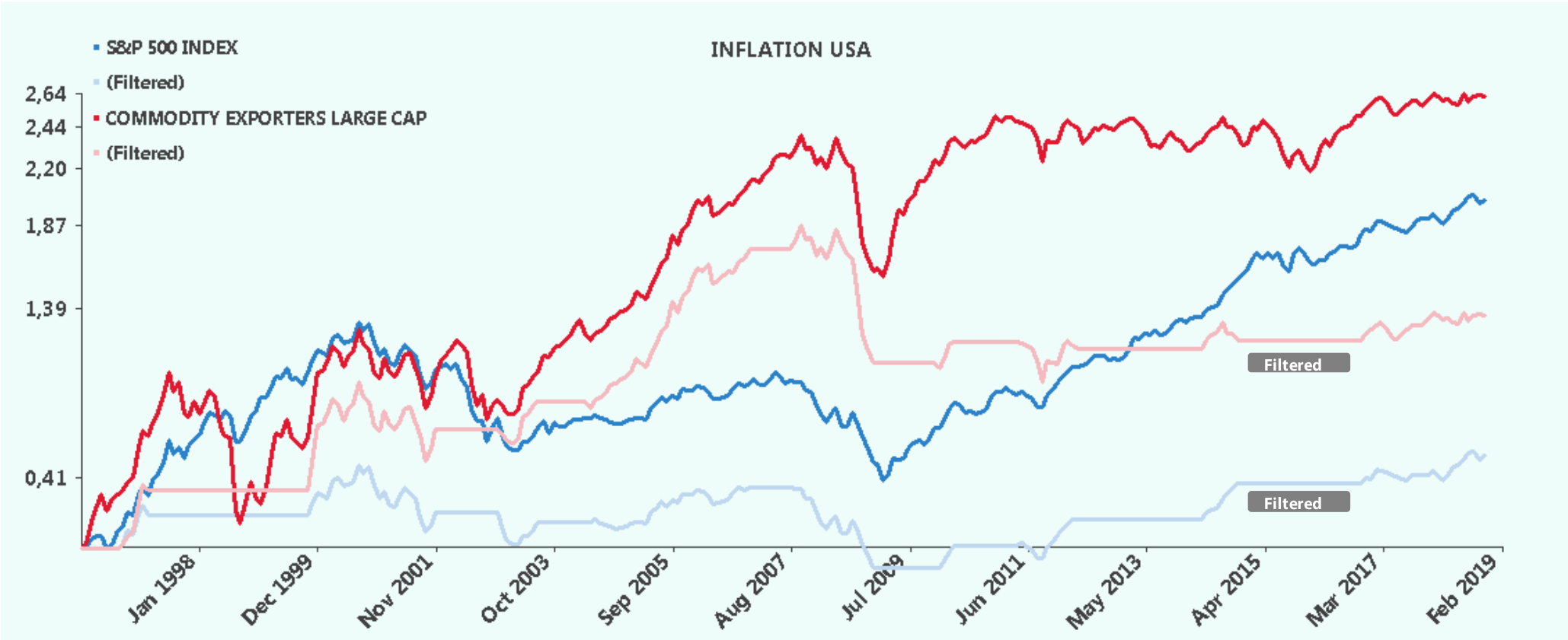


ACTIVITY: SCENARII

Displays an histogram view of the annual compounded performance, annual volatility, and maximum drawdown of the selected assets and scenario.

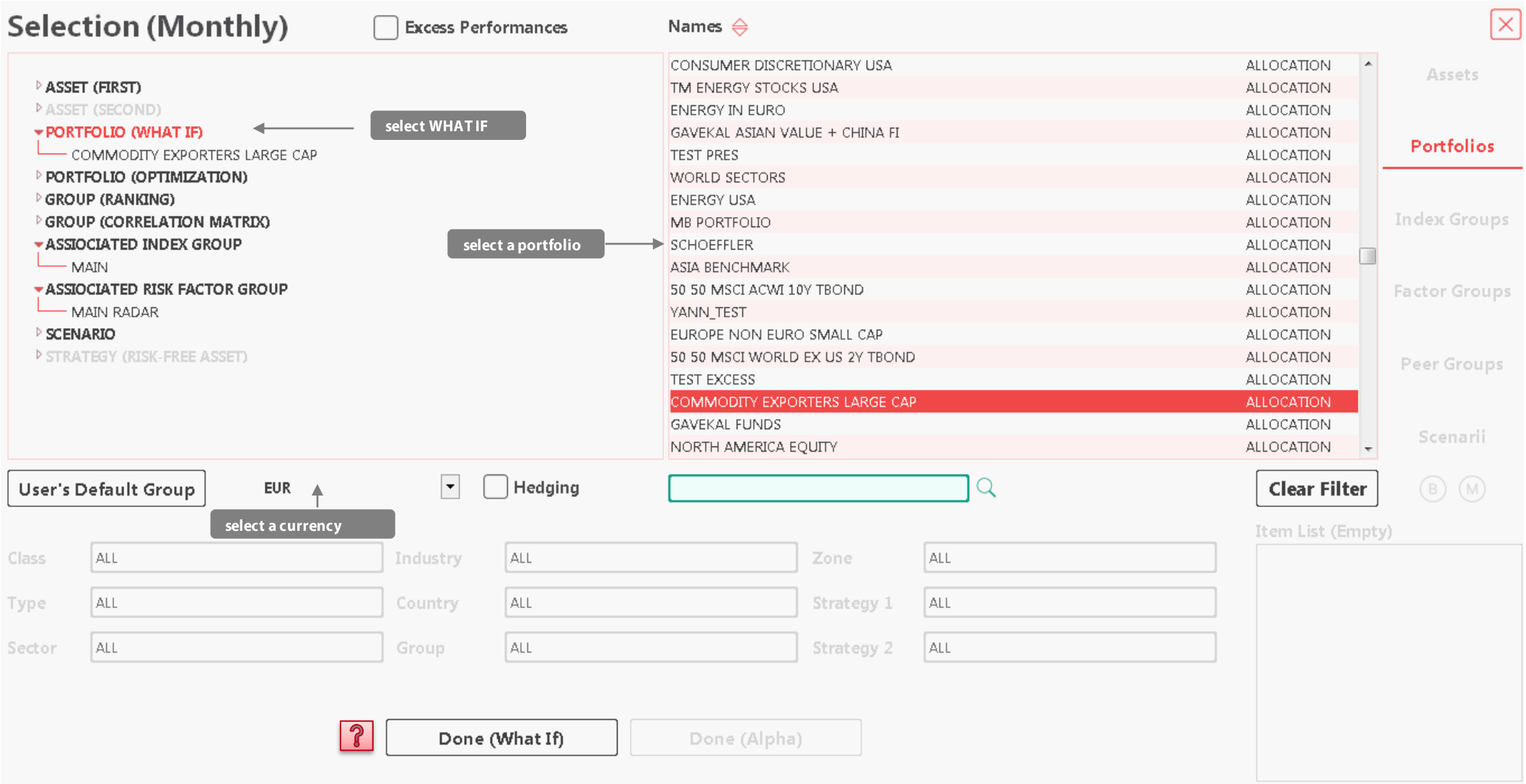
ACTIVITY: SCENARII

Displays the NAVs of each selected asset through their whole dataset and the periods matching the scenario conditions (#Filtered)



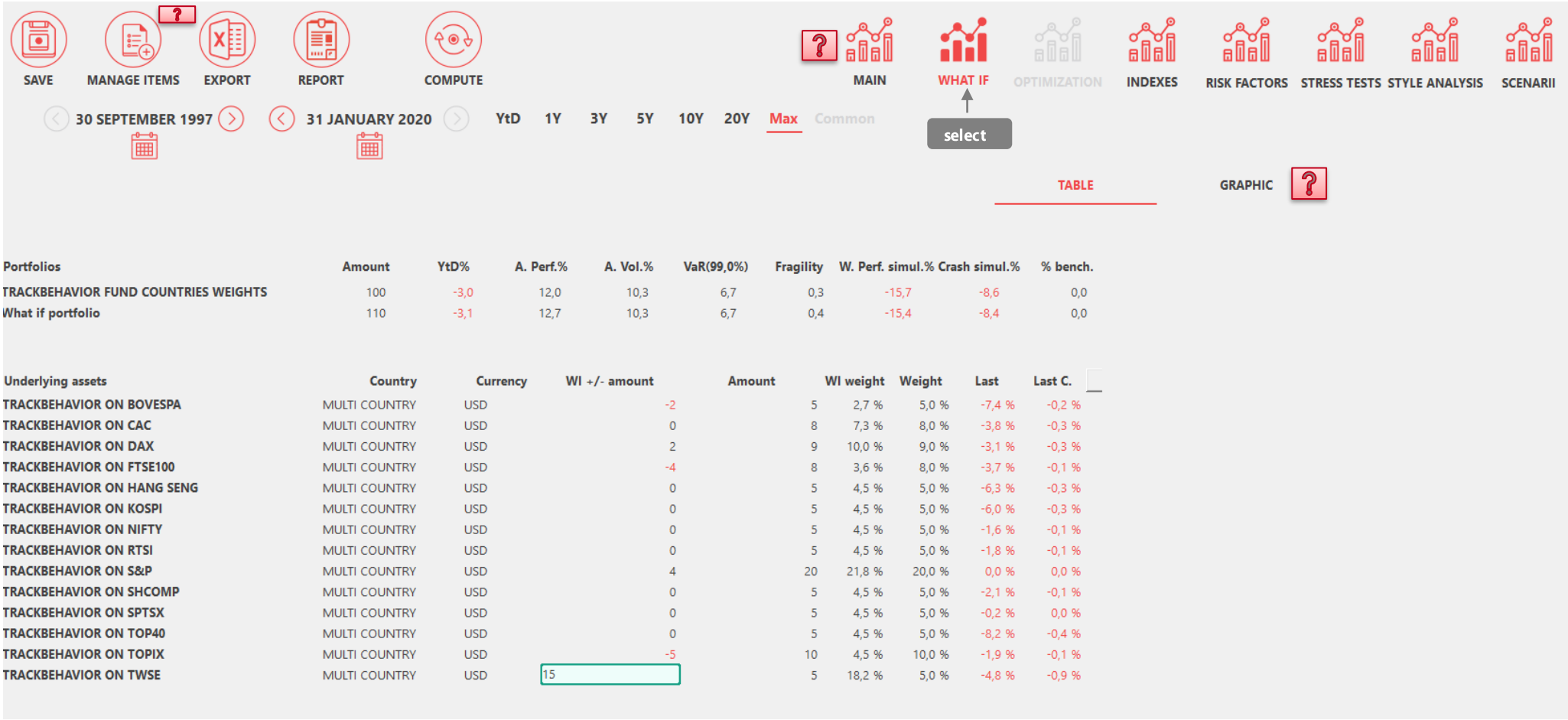
ACTIVITY: WHAT-IF

What-If enables to change the weights of assets in a portfolio and to compare the new portfolio risk-return measures vs. the original portfolio.



ACTIVITY: WHAT-IF

Click on "MANAGE ITEMS" to choose the Underlying Assets columns
Click on "MAIN" to display a graph of the original and what-if portfolio
Click on "GRAPHIC" to display the risk returns graphs of the portfolio sub-components



Portfolios	Amount	YtD%	A. Perf.%	A. Vol.%	VaR(99,0%)	Fragility	W. Perf. simul.%	Crash simul.%	% bench.
TRACKBEHAVIOR FUND COUNTRIES WEIGHTS	100	-3,0	12,0	10,3	6,7	0,3	-15,7	-8,6	0,0
What if portfolio	110	-3,1	12,7	10,3	6,7	0,4	-15,4	-8,4	0,0

Underlying assets	Country	Currency	WI +/- amount	Amount	WI weight	Weight	Last	Last C.
TRACKBEHAVIOR ON BOVESPA	MULTI COUNTRY	USD	-2	5	2,7 %	5,0 %	-7,4 %	-0,2 %
TRACKBEHAVIOR ON CAC	MULTI COUNTRY	USD	0	8	7,3 %	8,0 %	-3,8 %	-0,3 %
TRACKBEHAVIOR ON DAX	MULTI COUNTRY	USD	2	9	10,0 %	9,0 %	-3,1 %	-0,3 %
TRACKBEHAVIOR ON FTSE100	MULTI COUNTRY	USD	-4	8	3,6 %	8,0 %	-3,7 %	-0,1 %
TRACKBEHAVIOR ON HANG SENG	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-6,3 %	-0,3 %
TRACKBEHAVIOR ON KOSPI	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-6,0 %	-0,3 %
TRACKBEHAVIOR ON NIFTY	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-1,6 %	-0,1 %
TRACKBEHAVIOR ON RTSI	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-1,8 %	-0,1 %
TRACKBEHAVIOR ON S&P	MULTI COUNTRY	USD	4	20	21,8 %	20,0 %	0,0 %	0,0 %
TRACKBEHAVIOR ON SHCOMP	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-2,1 %	-0,1 %
TRACKBEHAVIOR ON SPTSX	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-0,2 %	0,0 %
TRACKBEHAVIOR ON TOP40	MULTI COUNTRY	USD	0	5	4,5 %	5,0 %	-8,2 %	-0,4 %
TRACKBEHAVIOR ON TOPIX	MULTI COUNTRY	USD	-5	10	4,5 %	10,0 %	-1,9 %	-0,1 %
TRACKBEHAVIOR ON TWSE	MULTI COUNTRY	USD	15	5	18,2 %	5,0 %	-4,8 %	-0,9 %

ACTIVITY: WHAT-IF

Displays a more complete view of the What-If portfolio (Table & Graphs)

Gavekal Intelligence Software - TrackRisk (Didier)

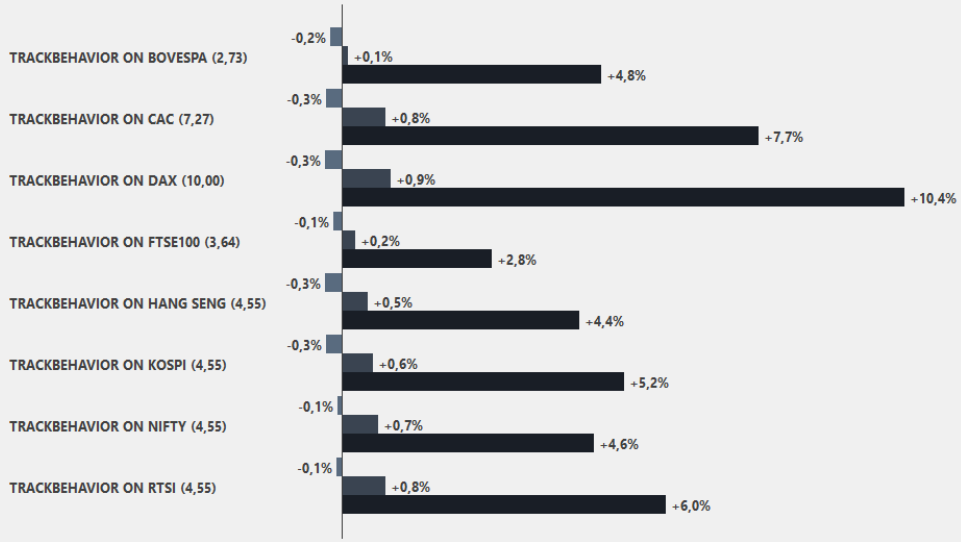
SAVE | MANAGE ITEMS | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

30 SEPTEMBER 1997 — 31 JANUARY 2020 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

TABLE | GRAPHIC

CLASS	Weight%	YtD%	A C Perf.%	A Vol. C%	Crash 1M%
TRACKBEHAVIOR ON BOVESPA	2,7	-0,2	0,11	4,8	-0,60
TRACKBEHAVIOR ON CAC	7,3	-0,3	0,79	7,7	-0,57
TRACKBEHAVIOR ON DAX	10,0	-0,3	0,90	10,4	-0,88
TRACKBEHAVIOR ON FTSE100	3,6	-0,1	0,24	2,8	-0,22
TRACKBEHAVIOR ON HANG SENG	4,5	-0,3	0,47	4,4	-0,37
TRACKBEHAVIOR ON KOSPI	4,5	-0,3	0,56	5,2	-0,49
TRACKBEHAVIOR ON NIFTY	4,5	-0,1	0,66	4,6	-0,44
TRACKBEHAVIOR ON RTSI	4,5	-0,1	0,79	6,0	-0,62
TRACKBEHAVIOR ON S&P	21,8	0,0	2,63	14,5	-1,07
TRACKBEHAVIOR ON SHCOMP	4,5	-0,1	0,60	2,8	-0,48
TRACKBEHAVIOR ON SPTSX	4,5	0,0	0,55	4,6	-0,33
TRACKBEHAVIOR ON TOP40	4,5	-0,4	0,41	5,0	-0,45
TRACKBEHAVIOR ON TOPIX	4,5	-0,1	0,38	1,8	-0,33
TRACKBEHAVIOR ON TWSE	18,2	-0,9	2,54	17,6	-1,59
PORTFOLIO EFFECT		0,1	0,33		
Total	100,0	-3,1	11,63	92,1	-8,45

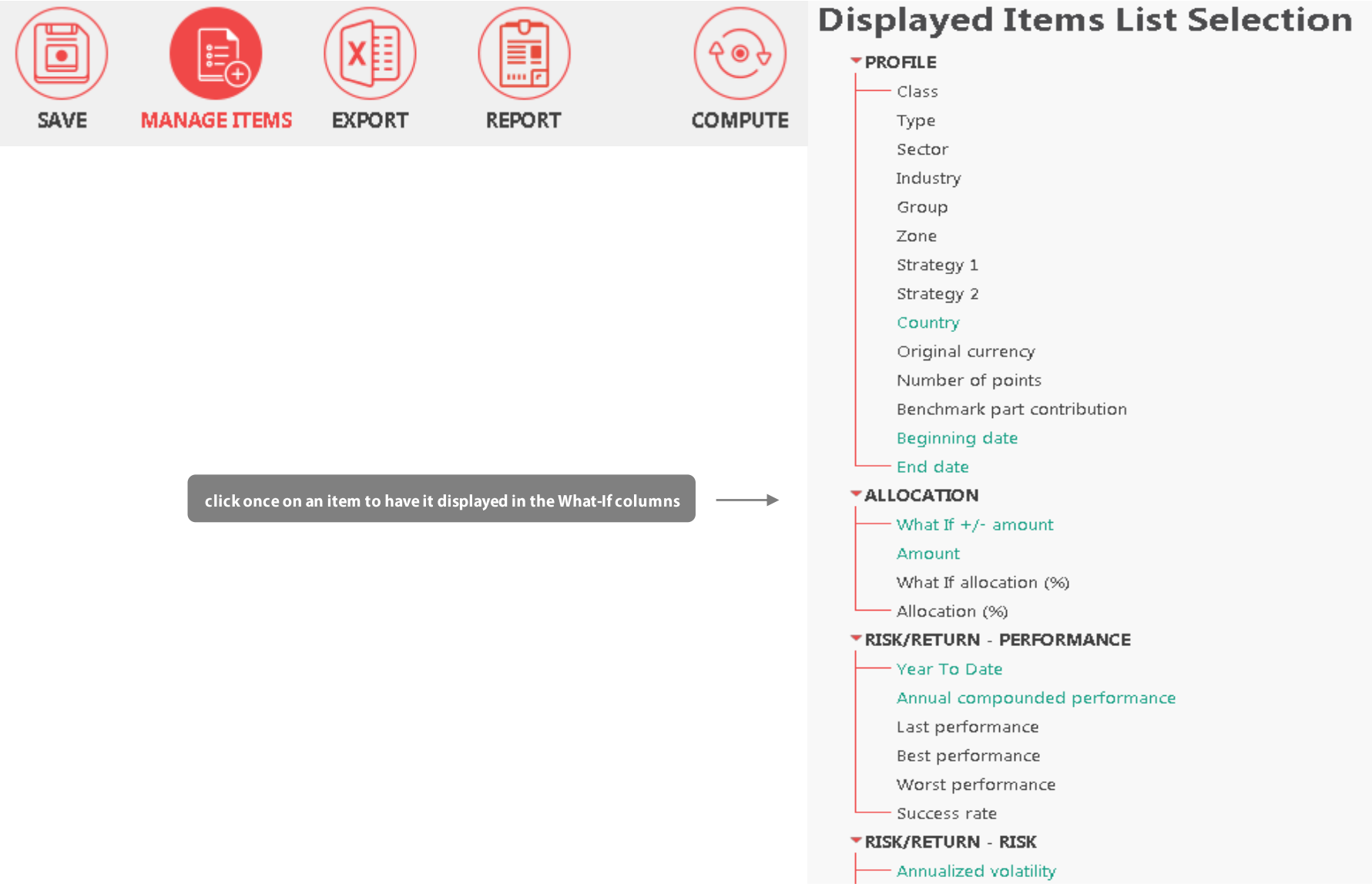
TRACKBEHAVIOR FUND COUNTRIES WEIGHTS (30 September 1997 : 31 January 2020)



- YtD Contribution
- Compound Annual Performance Contribution
- Annualized Volatility Contribution

ACTIVITY: WHAT-IF

Select items to be displayed



ACTIVITY: WHAT-IF

The "What-If" portfolio is displayed in comparison to the original portfolio and can be analysed with all other functions

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

30 SEPTEMBER 1997 — 31 JANUARY 2020 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

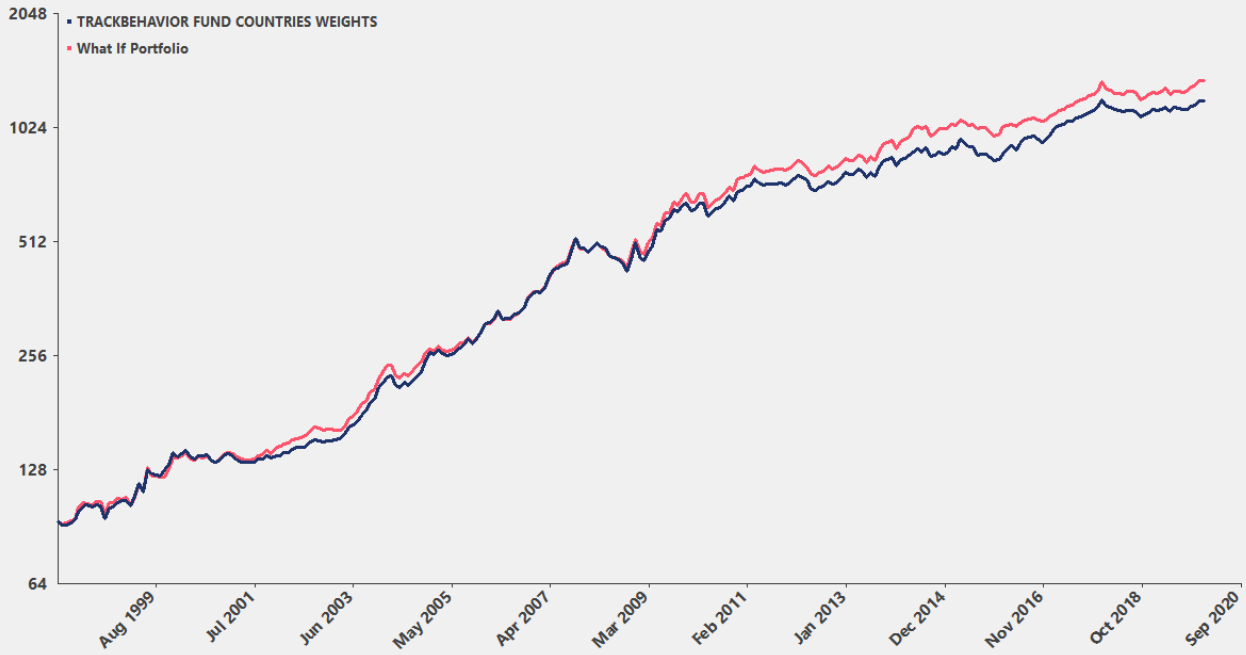
TRACKBEHAVIOR FUND COUNTRIES WEIGHTS

ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

What If Portfolio

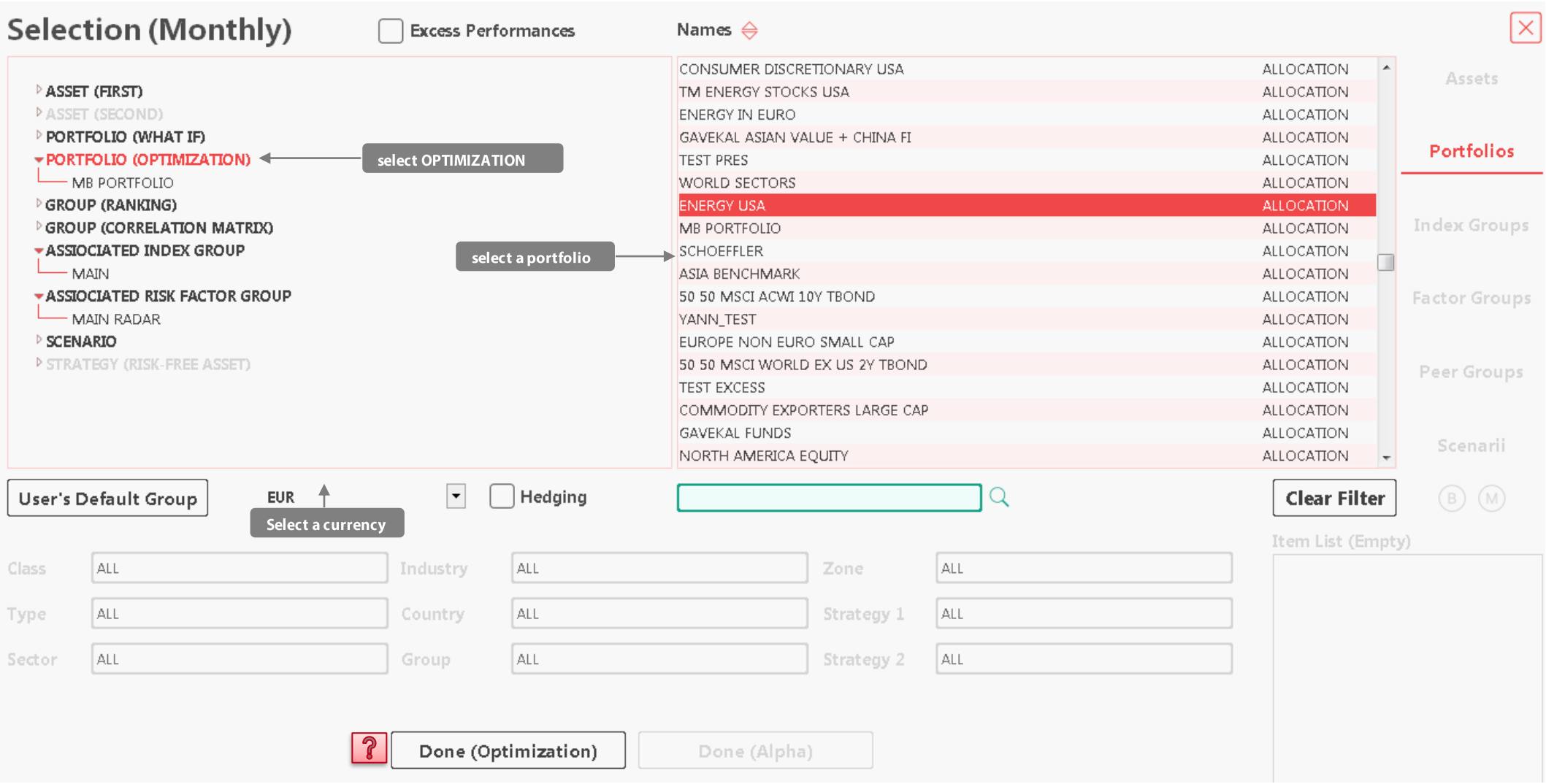
MONTHLY (30 September 1997 : 31 January 2020)

	Result	σ%	Result	σ%
Annual compounded performance	12,0%	±	12,7%	±
Year to date	-3,0%	±	-3,1%	±
Last performance	-3,0%	±	-3,1%	±
Best performance	12,0%	±	12,7%	±
Worst performance	-8,6%	±	-8,7%	±
Success rate	66,4%	±	64,6%	±
Annualized volatility	10,3%	±	10,3%	±
Annual downside risk (0,0%)	5,4%	±	5,3%	±
VaR(99,0%)	6,7%	±	6,7%	±
VaR(95,0%)	3,9%	±	3,9%	±
Expected shortfall(99,0%)	8,1%	±	8,1%	±
Drawdown(50,0%)	100,0 y	±	100,0 y	±
Drawdown(20,0%)	79,6 y	±	100,0 y	±
Maximum drawdown	-15,2%	±	-13,9%	±
Current drawdown	-4,0%	±	-3,1%	±
Time to recovery	7 m	±	6 m	±
Fragility	0,3	±	0,4	±
Sharpe ratio(0,0%)	1,2	±	1,2	±



ACTIVITY: OPTIMIZATION

TrackRisk defines a "Portfolio Scoring Function", based on selected constraints, and optimizes allocations.



ACTIVITY: OPTIMIZATION

Click on "UTILITY" to choose the optimization parameters
Tailor make your min and max allocations per asset and your expected returns in the "Underlying Assets" columns
Click on "Compute" to display the optimization output "Optimized Portfolio"
Click on "MAIN" to display an historical graph of the original and optimized portfolios

SAVE UTILITY COMPUTE MAIN WHAT IF OPTIMIZATION INDEXES RISK FACTORS STRESS TESTS STYLE ANALYSIS SCENARII

30 NOVEMBER 1996 — 31 AUGUST 2018 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

Portfolios	A. Perf.%	A. Vol.%	Concentration	VaR(99,0%)%	CVaR(99,0%)%	Max. DD%	Fragility
ENERGY USA	9,6	25,6	6,9	19,6	25,5	-55,0	-0,6
Optimized portfolio	13,7	25,6	2,1	18,8	23,6	-46,0	-0,3

Underlying assets	Minimum%	Maximum%	Historical%	Expected%	Initial%	New%	Difference%
TRANSOCEAN LTD	0,0	100,0	-3,5	-3,5	11,1	0,0	-11,1
SCHLUMBERGER LTD	0,0	100,0	6,5	6,5	11,1	0,0	-11,1
OCCIDENTAL PETROLEUM CORP	0,0	100,0	12,6	12,6	11,1	52,1	41,0
NATIONAL OILWELL VARCO INC	0,0	100,0	11,3	11,3	11,1	26,4	15,3
HALLIBURTON CO	0,0	100,0	6,4	6,4	11,1	0,0	-11,1
EXXON MOBIL CORP	0,0	100,0	8,9	8,9	11,1	21,5	10,4
CONOCOPHILLIPS	0,0	100,0	9,9	9,9	11,1	0,0	-11,1
CHEVRON CORP	0,0	100,0	9,7	9,7	11,1	0,0	-11,1
BAKER HUGHES A GE CO	0,0	100,0	2,7	2,7	11,1	0,0	-11,1

ACTIVITY: OPTIMIZATION

UTILITY

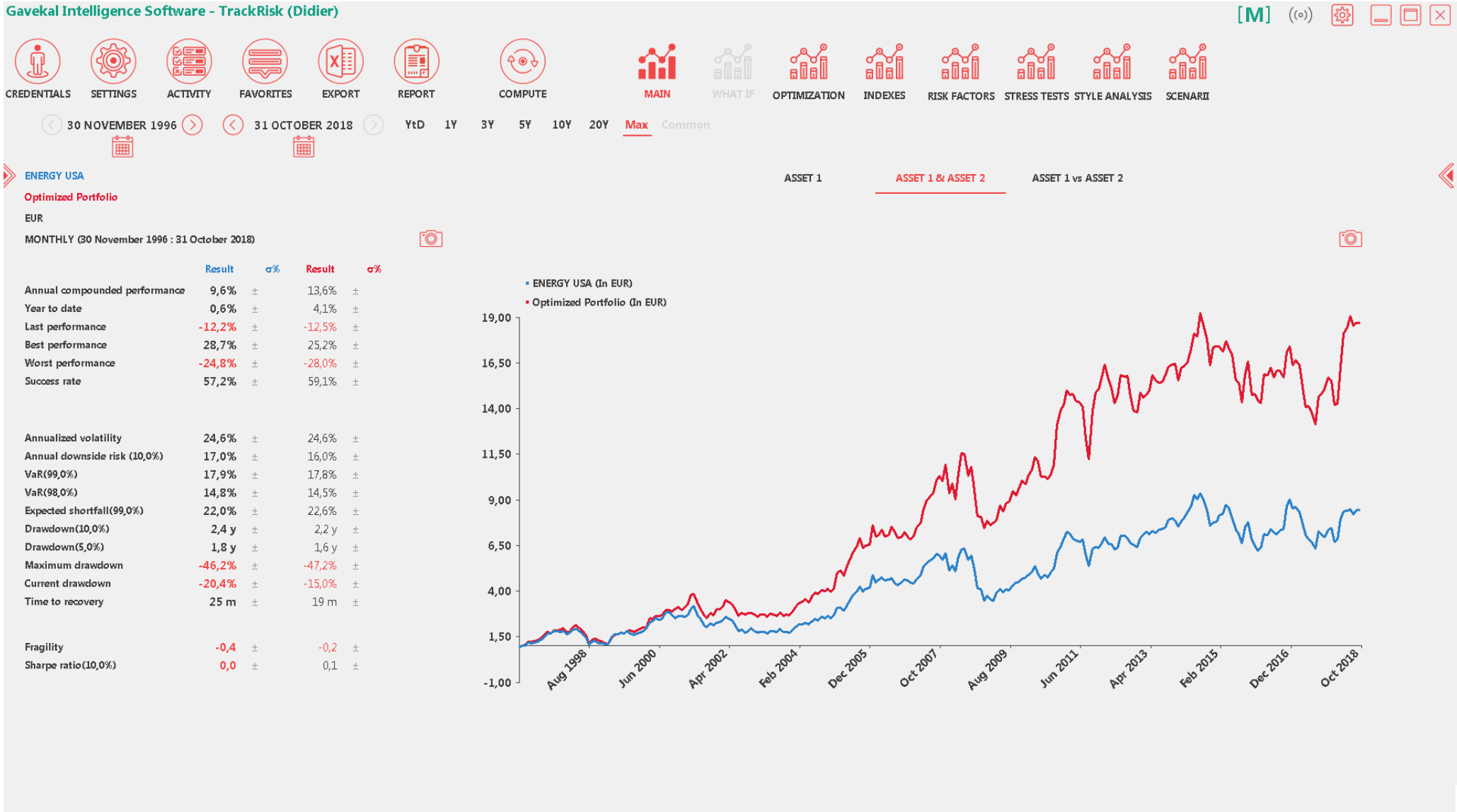
The utility function is the scoring function of a portfolio. It is defined as the portfolio return minus potential penalty costs associated with excess risk (such as too much volatility, VaR, concentration etc.)

Utility Function

		Target		Penalty cost(%) (1% excess)
Utility = Return -	☑ Excess volatility	25,6	%	100,00
-	☐ Excess 99,0% VaR		%	100,00
-	☐ Excess 99,0% CVaR		%	100,00
-	☐ Excess maximum drawdown		%	100,00
-	☐ Fragility slope			100,00
-	☐ Excess concentration			100,00
-	☐ Excess re-allocation		%	0,01
	VaR and CVaR level value	99,0		

ACTIVITY: OPTIMIZATION

Original portfolio in blue, optimized portfolio in red



	Result	σ%	Result	σ%
Annual compounded performance	9,6%	±	13,6%	±
Year to date	0,6%	±	4,1%	±
Last performance	-12,2%	±	-12,5%	±
Best performance	28,7%	±	25,2%	±
Worst performance	-24,8%	±	-28,0%	±
Success rate	57,2%	±	59,1%	±
Annualized volatility	24,6%	±	24,6%	±
Annual downside risk (10,0%)	17,0%	±	16,0%	±
VaR(99,0%)	17,9%	±	17,8%	±
VaR(98,0%)	14,8%	±	14,5%	±
Expected shortfall(99,0%)	22,0%	±	22,6%	±
Drawdown(10,0%)	2,4 y	±	2,2 y	±
Drawdown(5,0%)	1,8 y	±	1,6 y	±
Maximum drawdown	-46,2%	±	-47,2%	±
Current drawdown	-20,4%	±	-15,0%	±
Time to recovery	25 m	±	19 m	±
Fragility	-0,4	±	-0,2	±
Sharpe ratio(10,0%)	0,0	±	0,1	±

ACTIVITY: GROUP RANKING

Group Ranking is a fast way to check how selected assets perform versus their peers

Selection (Monthly)

Excess Performances

Names

ASSET (FIRST)
ASSET (SECOND)
PORTFOLIO (WHAT IF)
PORTFOLIO (OPTIMIZATION)
GROUP (RANKING)
ENERGY USA
GROUP (CORRELATION MATRIX)
ASSIOCIATED INDEX GROUP
MAIN
ASSIOCIATED RISK FACTOR GROUP
SCENARIO
STRATEGY (RISK-FREE ASSET)

select Group Ranking

select a portfolio

CONSUMER DISCRETIONARY USA	ALLOCATION
TM ENERGY STOCKS USA	ALLOCATION
ENERGY IN EURO	ALLOCATION
GAVEKAL ASIAN VALUE + CHINA FI	ALLOCATION
TEST PRES	ALLOCATION
WORLD SECTORS	ALLOCATION
ENERGY USA	ALLOCATION
MB PORTFOLIO	ALLOCATION
SCHOEFFLER	ALLOCATION
ASIA BENCHMARK	ALLOCATION
50 50 MSCI ACWI 10Y TBOND	ALLOCATION
YANN_TEST	ALLOCATION
EUROPE NON EURO SMALL CAP	ALLOCATION
50 50 MSCI WORLD EX US 2Y TBOND	ALLOCATION
TEST EXCESS	ALLOCATION
COMMODITY EXPORTERS LARGE CAP	ALLOCATION
GAVEKAL FUNDS	ALLOCATION
NORTH AMERICA EQUITY	ALLOCATION

Assets
Portfolios
Index Groups
Factor Groups
Peer Groups
Scenarii

User's Default Group
EUR
Select a currency
Hedging
Clear Filter
B M

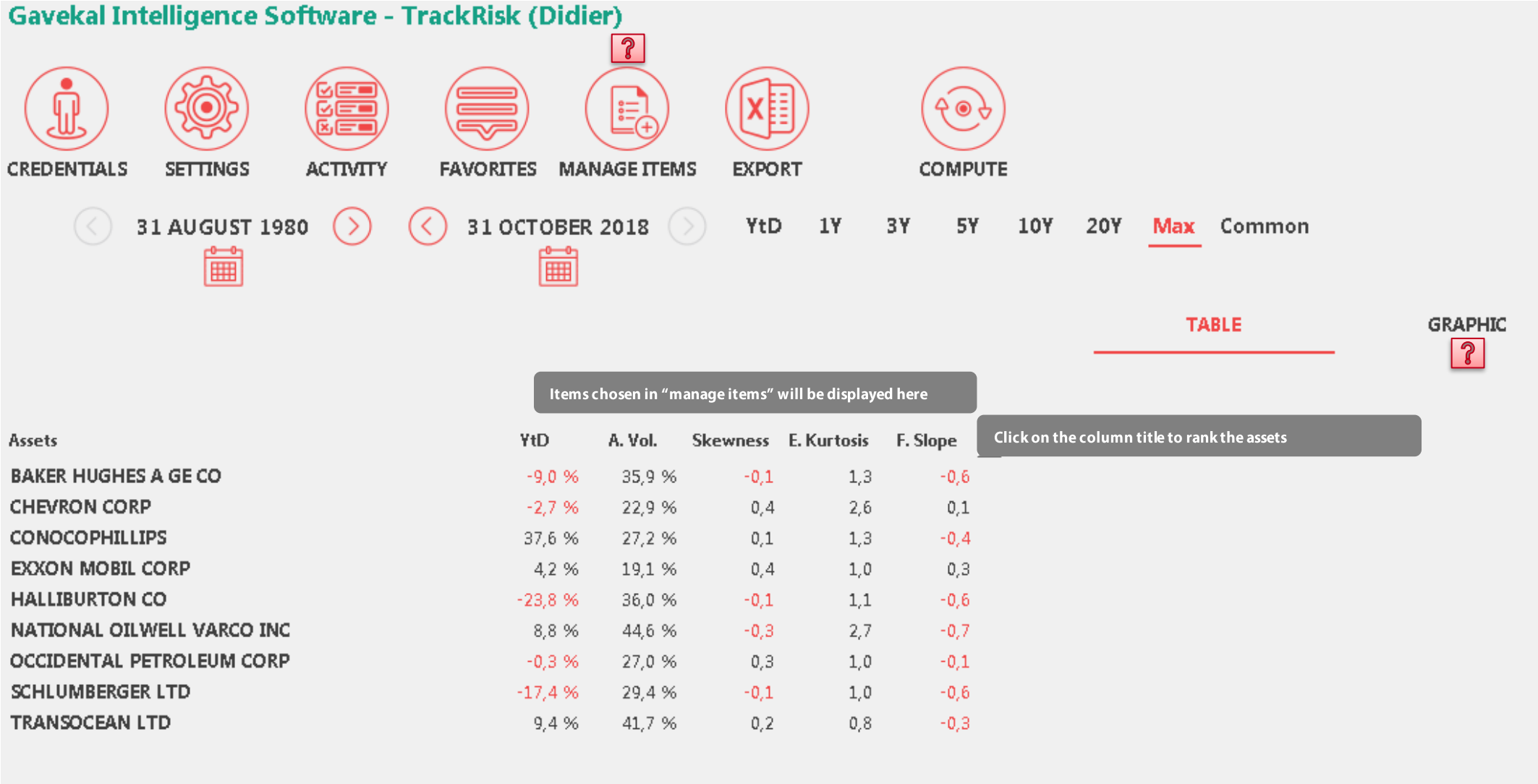
Item List (Empty)

Class	ALL	Industry	ALL	Zone	ALL
Type	ALL	Country	ALL	Strategy 1	ALL
Sector	ALL	Group	ALL	Strategy 2	ALL

Done (Ranking)
Done (Alpha)

ACTIVITY: GROUP RANKING

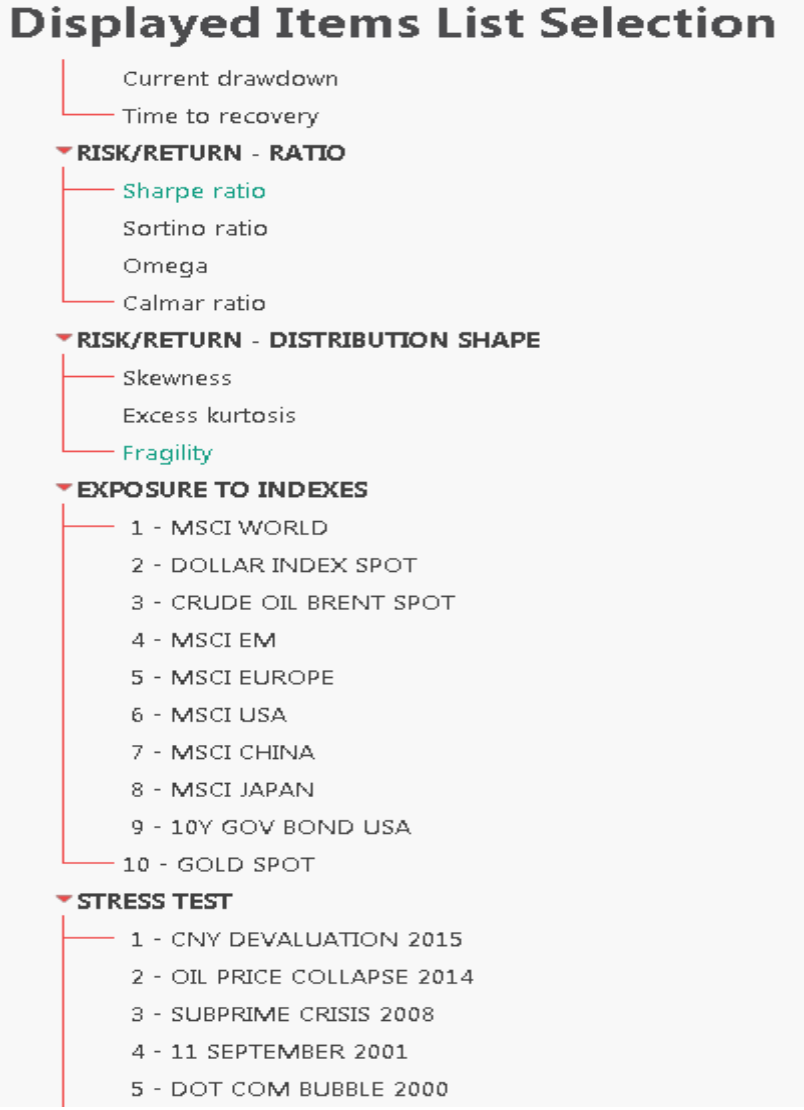
Portfolios' constituents are individually ranked with selected items from the Managed Items List



Assets	YtD	A. Vol.	Skewness	E. Kurtosis	F. Slope
BAKER HUGHES A GE CO	-9,0 %	35,9 %	-0,1	1,3	-0,6
CHEVRON CORP	-2,7 %	22,9 %	0,4	2,6	0,1
CONOCOPHILLIPS	37,6 %	27,2 %	0,1	1,3	-0,4
EXXON MOBIL CORP	4,2 %	19,1 %	0,4	1,0	0,3
HALLIBURTON CO	-23,8 %	36,0 %	-0,1	1,1	-0,6
NATIONAL OILWELL VARCO INC	8,8 %	44,6 %	-0,3	2,7	-0,7
OCCIDENTAL PETROLEUM CORP	-0,3 %	27,0 %	0,3	1,0	-0,1
SCHLUMBERGER LTD	-17,4 %	29,4 %	-0,1	1,0	-0,6
TRANSOCEAN LTD	9,4 %	41,7 %	0,2	0,8	-0,3

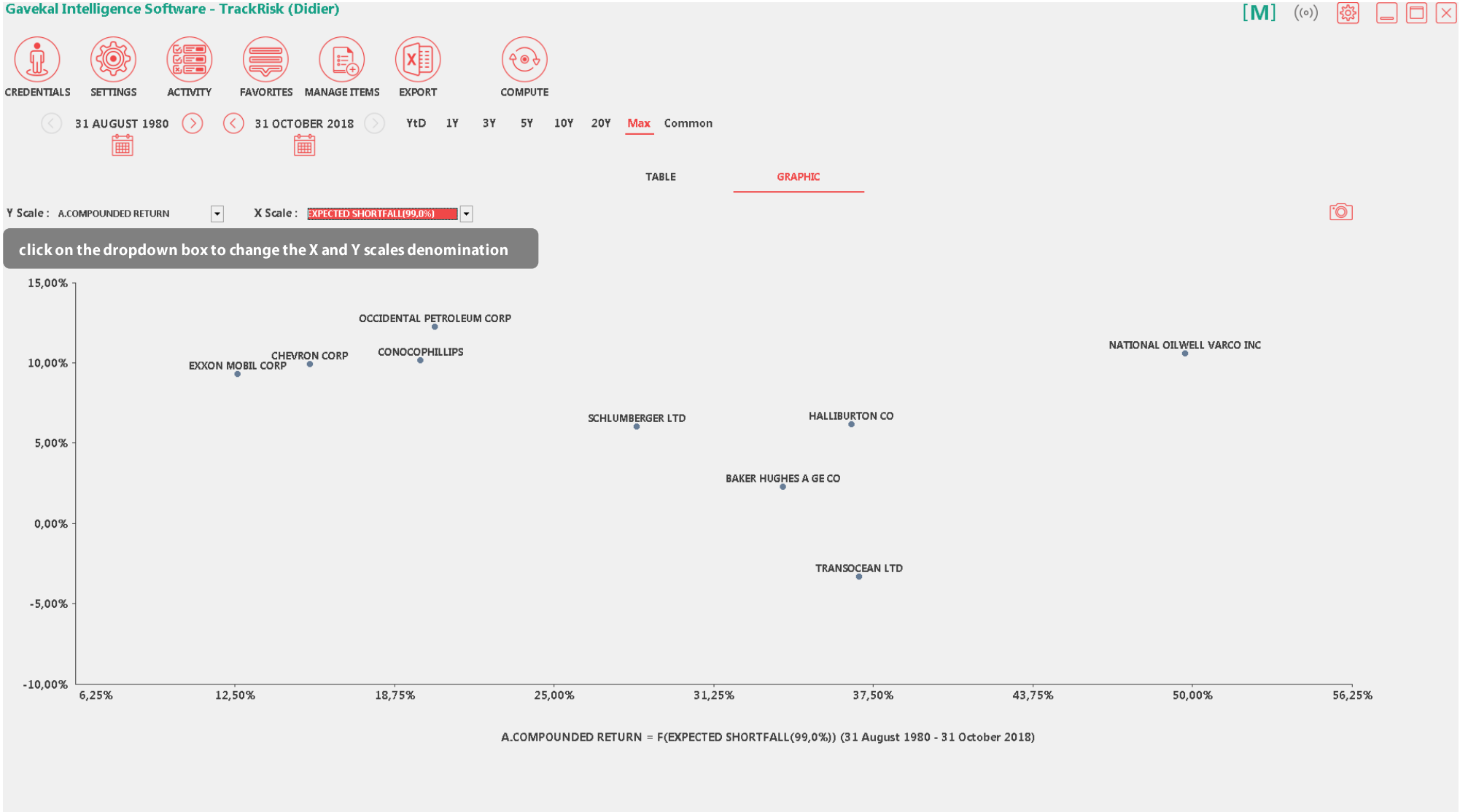
ACTIVITY: GROUP RANKING

When an item is highlighted in green it will show up as a column in the ranking calculation screen.



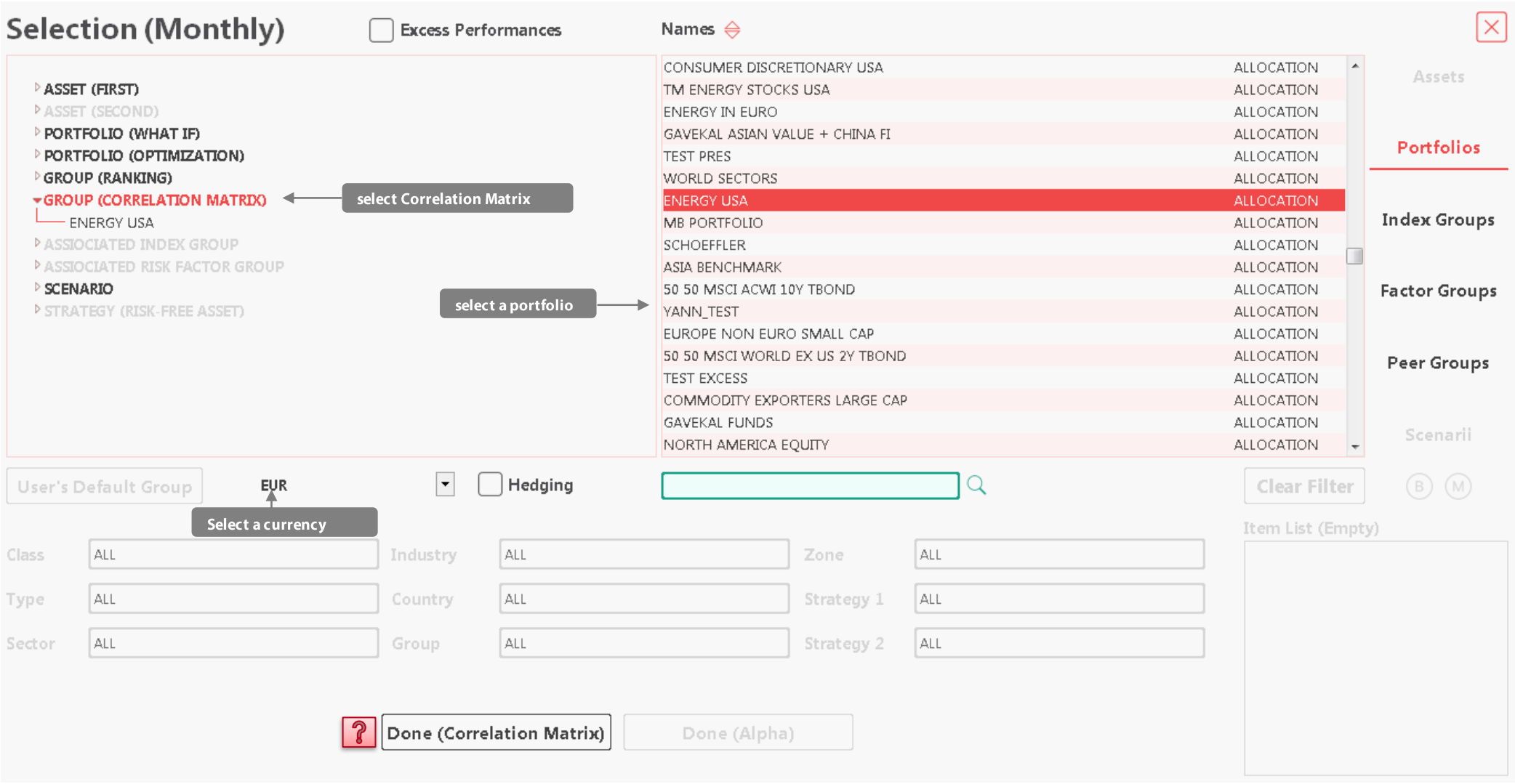
ACTIVITY: GROUP RANKING

Portfolios'constituents displayed on scattered graph.



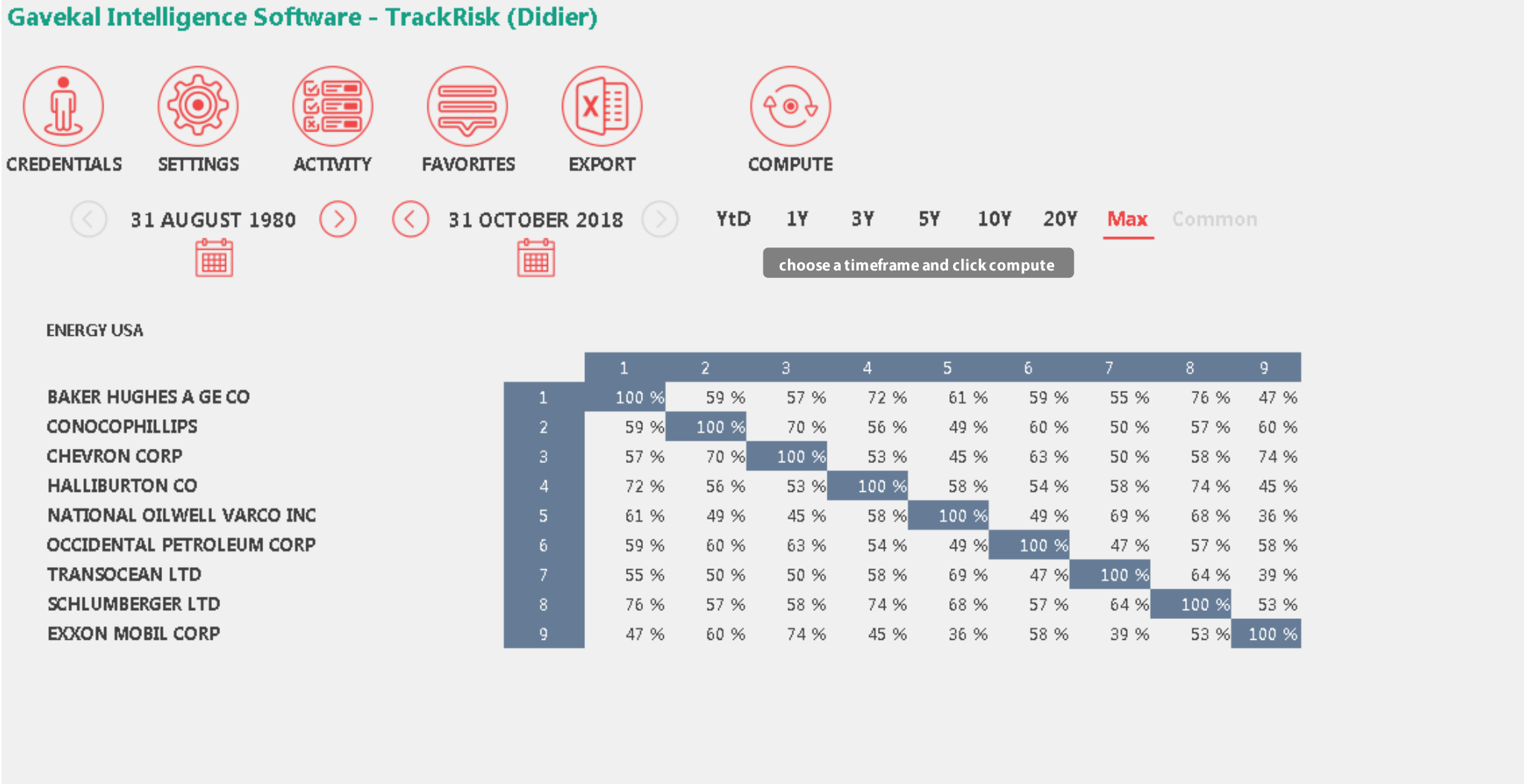
ACTIVITY: GROUP CORRELATION

Displays a correlation matrix of a portfolio constituents



ACTIVITY: GROUP CORRELATION

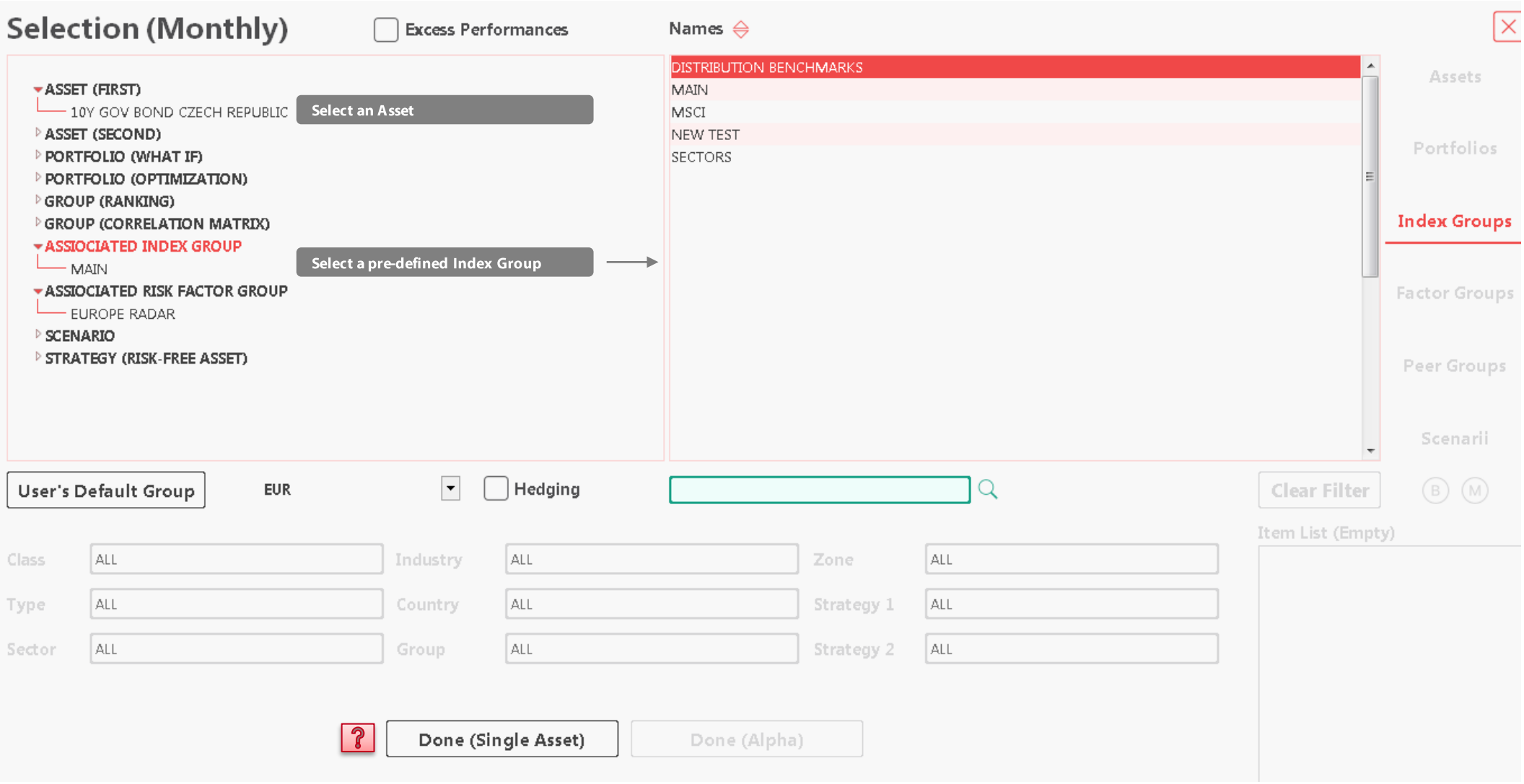
The correlation matrix displays correlations between constituents of a single portfolio.



		1	2	3	4	5	6	7	8	9
BAKER HUGHES A GE CO	1	100 %	59 %	57 %	72 %	61 %	59 %	55 %	76 %	47 %
CONOCOPHILLIPS	2	59 %	100 %	70 %	56 %	49 %	60 %	50 %	57 %	60 %
CHEVRON CORP	3	57 %	70 %	100 %	53 %	45 %	63 %	50 %	58 %	74 %
HALLIBURTON CO	4	72 %	56 %	53 %	100 %	58 %	54 %	58 %	74 %	45 %
NATIONAL OILWELL VARCO INC	5	61 %	49 %	45 %	58 %	100 %	49 %	69 %	68 %	36 %
OCCIDENTAL PETROLEUM CORP	6	59 %	60 %	63 %	54 %	49 %	100 %	47 %	57 %	58 %
TRANSOCEAN LTD	7	55 %	50 %	50 %	58 %	69 %	47 %	100 %	64 %	39 %
SCHLUMBERGER LTD	8	76 %	57 %	58 %	74 %	68 %	57 %	64 %	100 %	53 %
EXXON MOBIL CORP	9	47 %	60 %	74 %	45 %	36 %	58 %	39 %	53 %	100 %

ACTIVITY: ASSOCIATED INDEX GROUP

Displays correlations, alphas, and betas between assets 1 and 2 and a specific Index Group of other assets



ACTIVITY: ASSOCIATED INDEX GROUP

The output associated with the selected "INDEX GROUP" are displayed in "REGRESSIONS" OR "INDEXES"

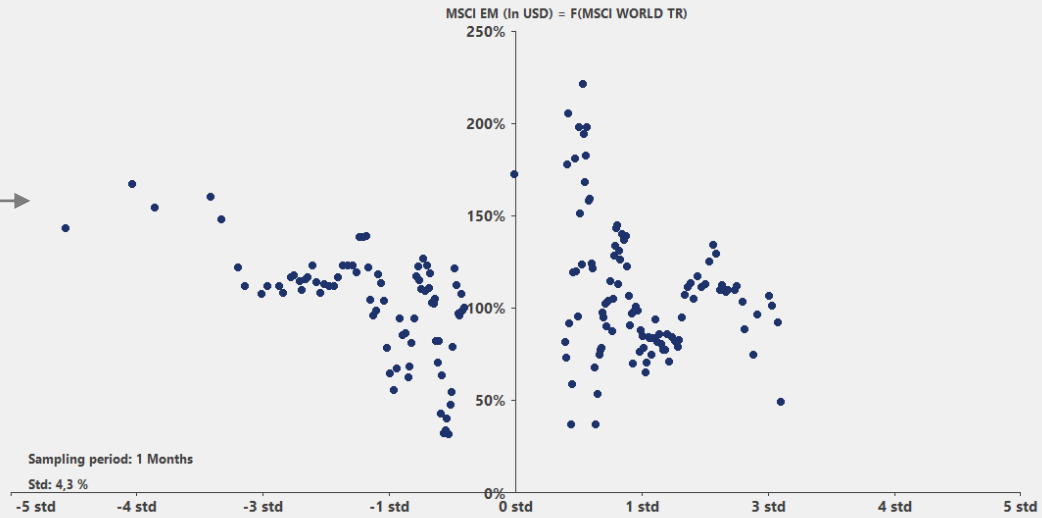
MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

Indexes	-3σ%	-2σ%	-1σ%	-0σ%	-1σ%	-2σ%	-3σ%
MSCI WORLD TR	140	117	92	174	111	103	88
MSCI EM	100	100	100	100	100	100	100
GOLD SPOT	124	50	5	-191	14	37	3
DOLLAR INDEX SPOT	-224	-75	-54	92	-26	-50	-97
10Y GOV BOND USA	-6	-11	-77	3	-71	-113	14

beta behavior with different standard deviation

ASSET 1 | ASSET 1 & ASSET 2

Sampling period 1



CREDENTIALS | SETTINGS | ACTIVITY | FAVORITE

31 DECEMBER 1987 | 30 SEP

PROFILE

RISK/RETURN

PRICES & RETURNS

TRACK RECORD

TRACKING DEVIATION

BETA

REGRESSIONS

RADAR

ADVANCED

MSCI EM

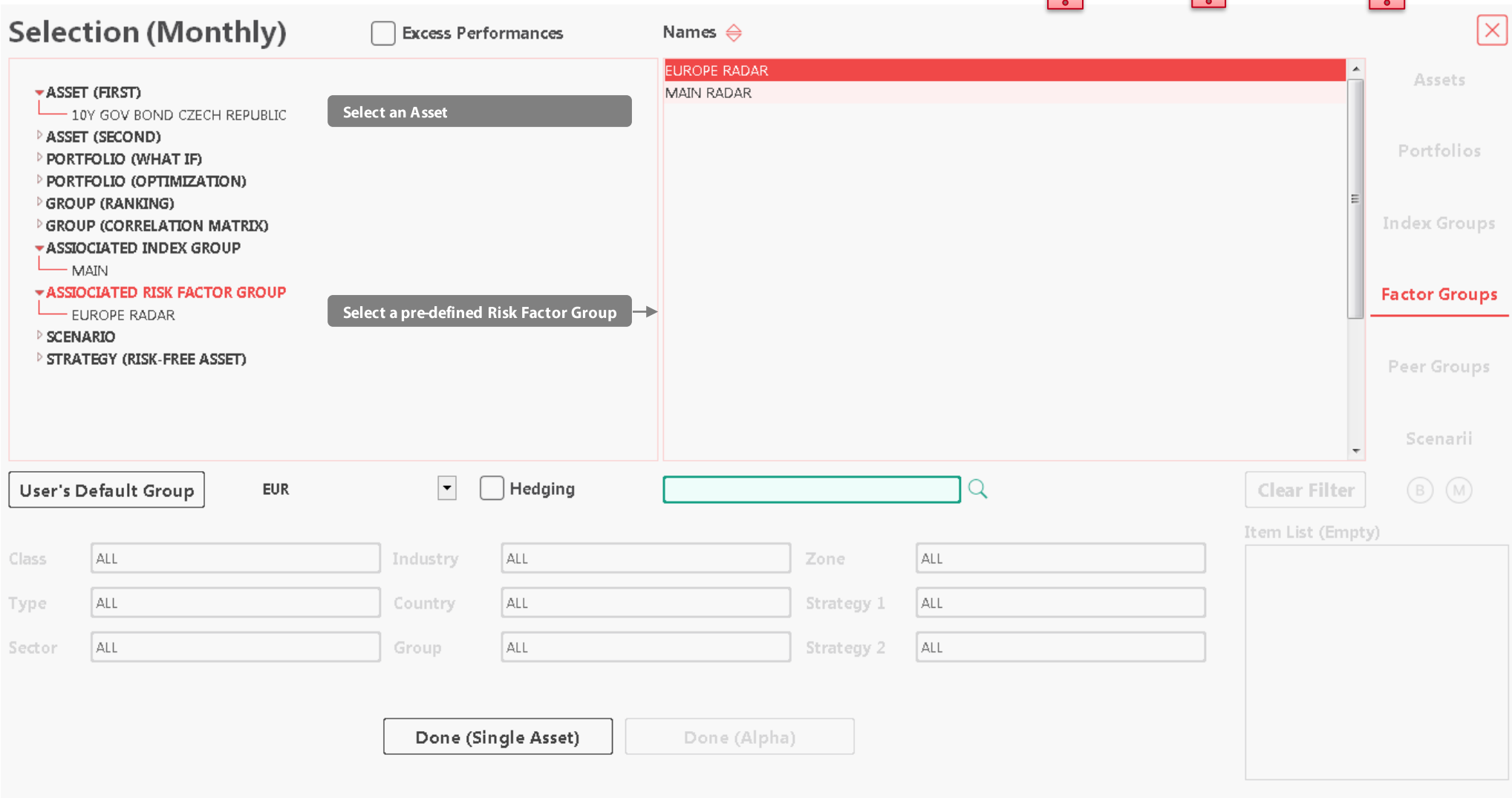
MONTHLY (31 December 1987 :

beta, alpha & correlation of asset 1 vs. Index Group assets

Indexes	ß%	An. α%	ρ%
10Y GOV BOND USA	-58	17,0	-19
DOLLAR INDEX SPOT	-63	13,0	-23
GOLD SPOT	27	10,9	19
MSCI EM	100	0,0	100
MSCI WORLD TR	112	2,7	74

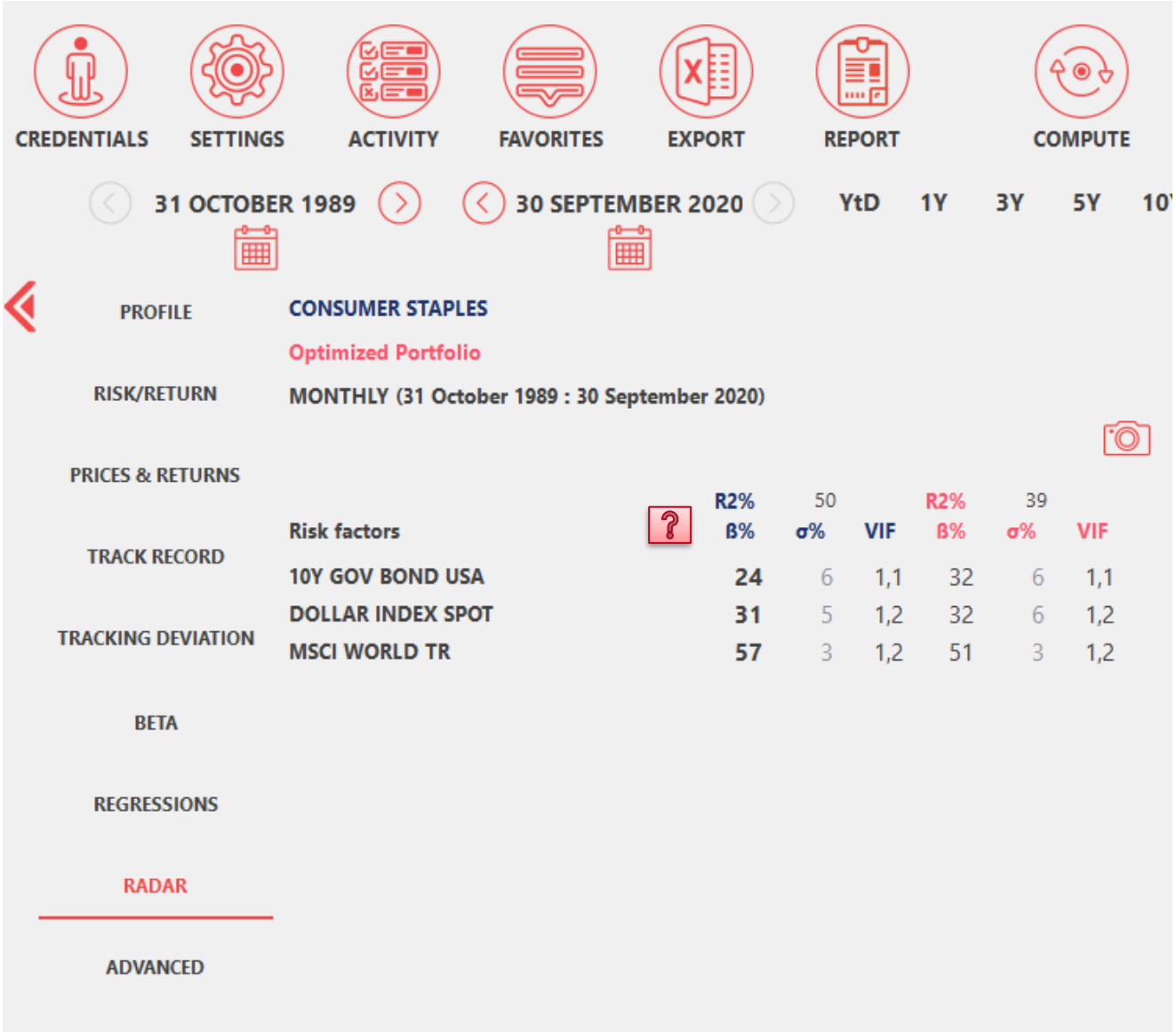
ACTIVITY: ASSOCIATED RISK FACTOR GROUP

Displays correlations, alphas and betas between assets 1 and 2 and a specific Risk Factor Group of assets.
The multi-regression output is displayed in the following sections of TrackRisk :"radar"-"risk factors"-"style analysis"



ACTIVITY: ASSOCIATED RISK FACTOR GROUP

Displays a multi-regression analysis of asset 1 and asset 2 on selected risk factors



ACTIVITY: ASSOCIATED RISK FACTOR GROUP

Displays the beta sensitivity (in number of standard deviations) of asset 1 versus a selected risk factor

Gavekal Intelligence Software - TrackRisk (Didier)

MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

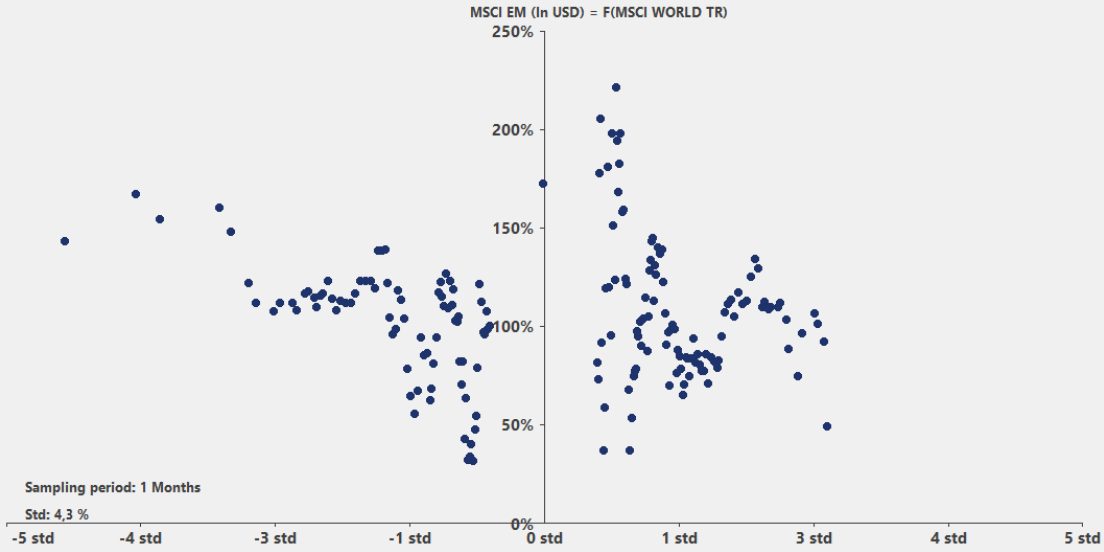
ASSET 1 | ASSET 1 & ASSET 2

Sampling period 1

MSCI EM

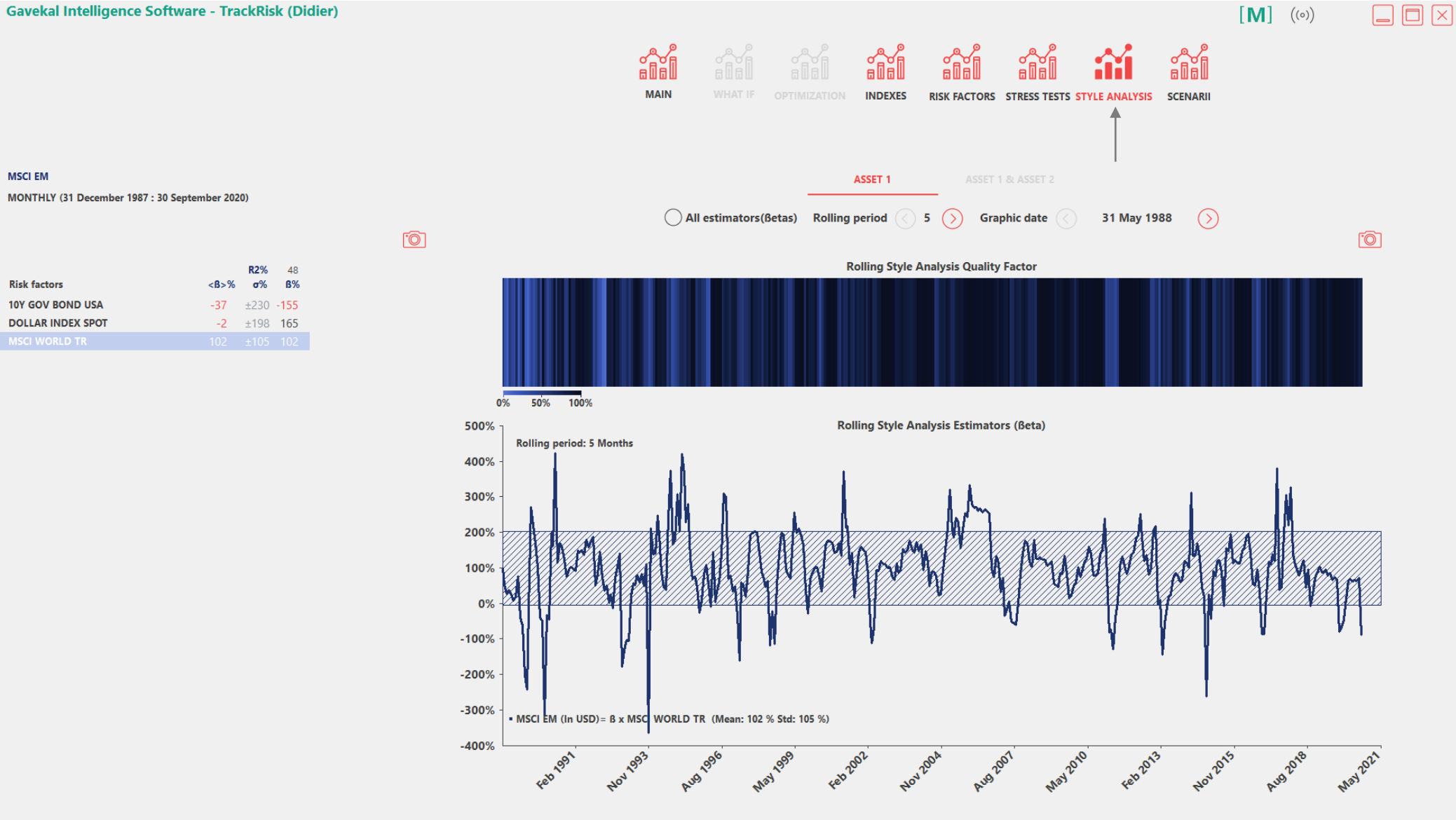
MONTHLY (31 December 1987 : 30 September 2020)

Indexes	-3σ%	-2σ%	-1σ%	-0σ%	-1σ%	-2σ%	-3σ%
MSCI WORLD TR	140	117	92	174	111	103	88
DOLLAR INDEX SPOT	-224	-71	-58	89	-25	-50	-97
10Y GOV BOND USA	-33	0	-76	1	-72	-117	14



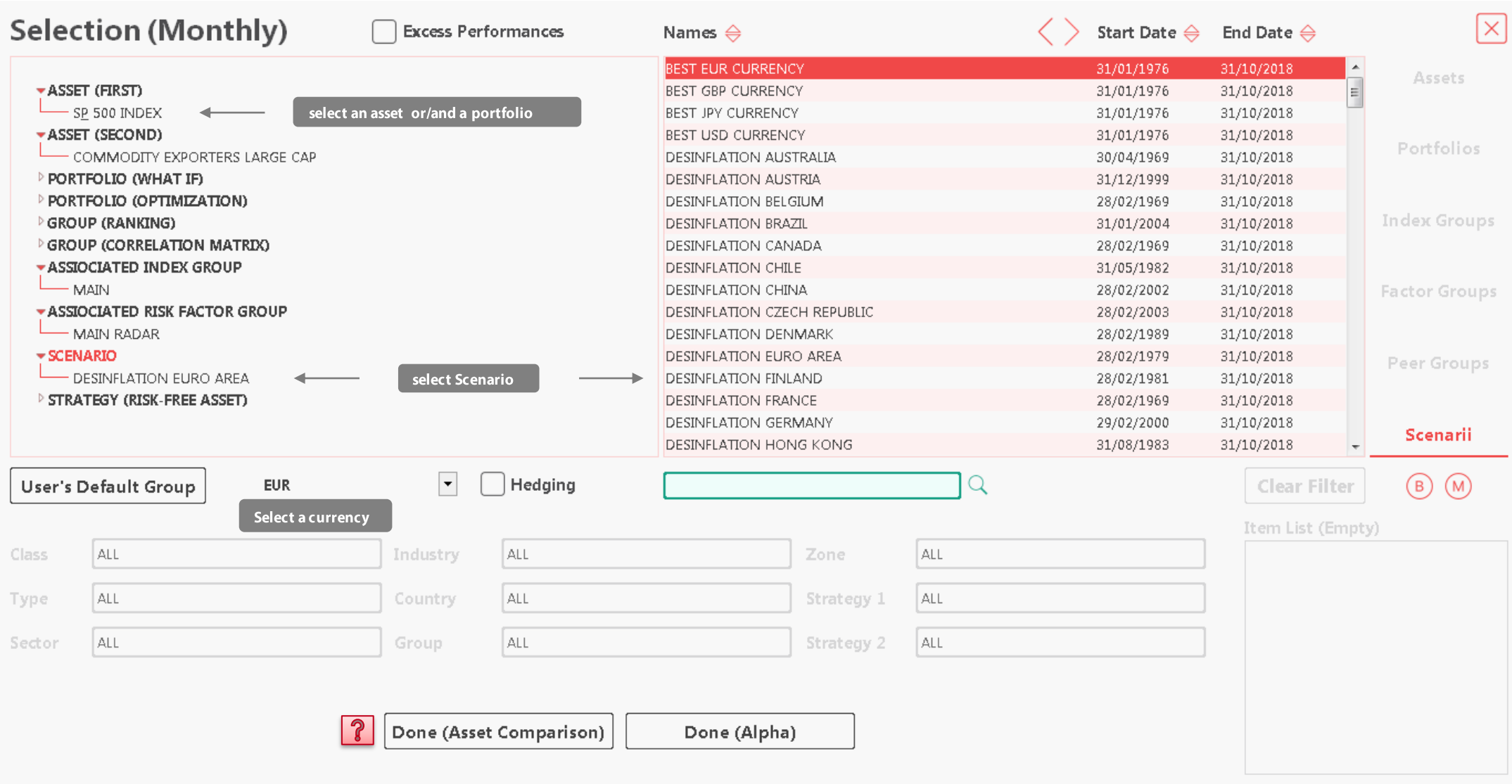
ACTIVITY: ASSOCIATED RISK FACTOR GROUP

Multi-regression dynamics. Select your risk factor by clicking on the left table



ACTIVITY: SCENARIO

Asset 1 and 2 analysis only when a specific scenario is active



ACTIVITY: SCENARIO

Risk return analysis when a specific scenario is active. Example: Impact of disinflation periods in the Euro Area on the S&P 500 and on a portfolio of commodity exporters

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

31 MARCH 1996 — 28 FEBRUARY 2017 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

S&P 500 INDEX

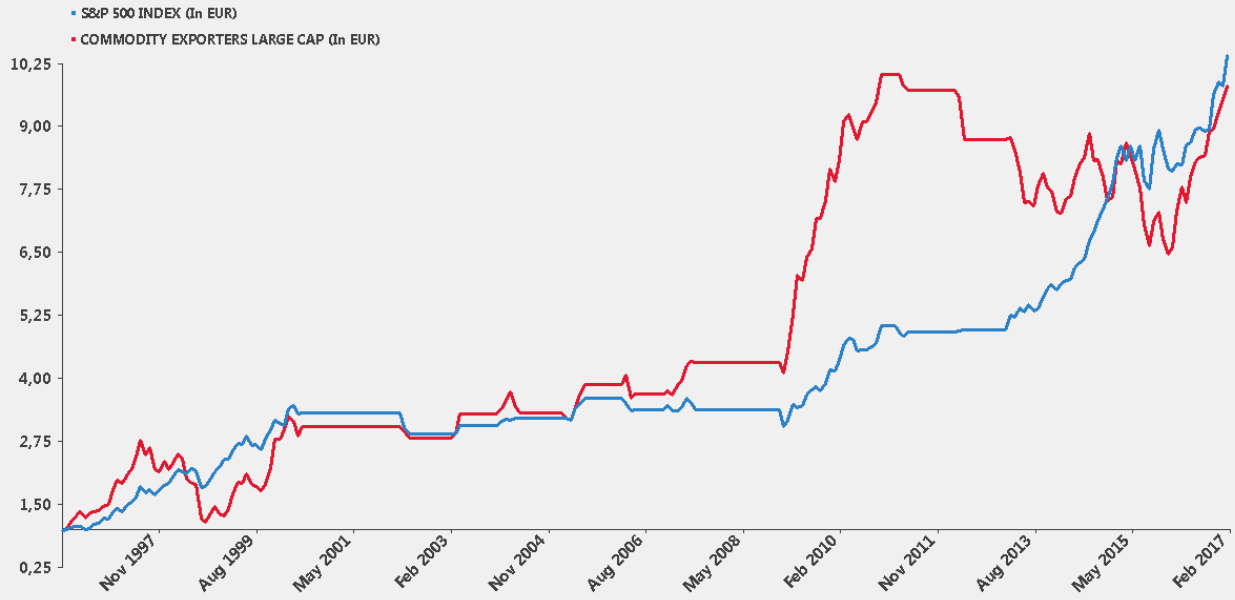
COMMODITY EXPORTERS LARGE CAP

EUR ¤ DESINFLATION EURO AREA

MONTHLY (31 March 1996 : 28 February 2017)

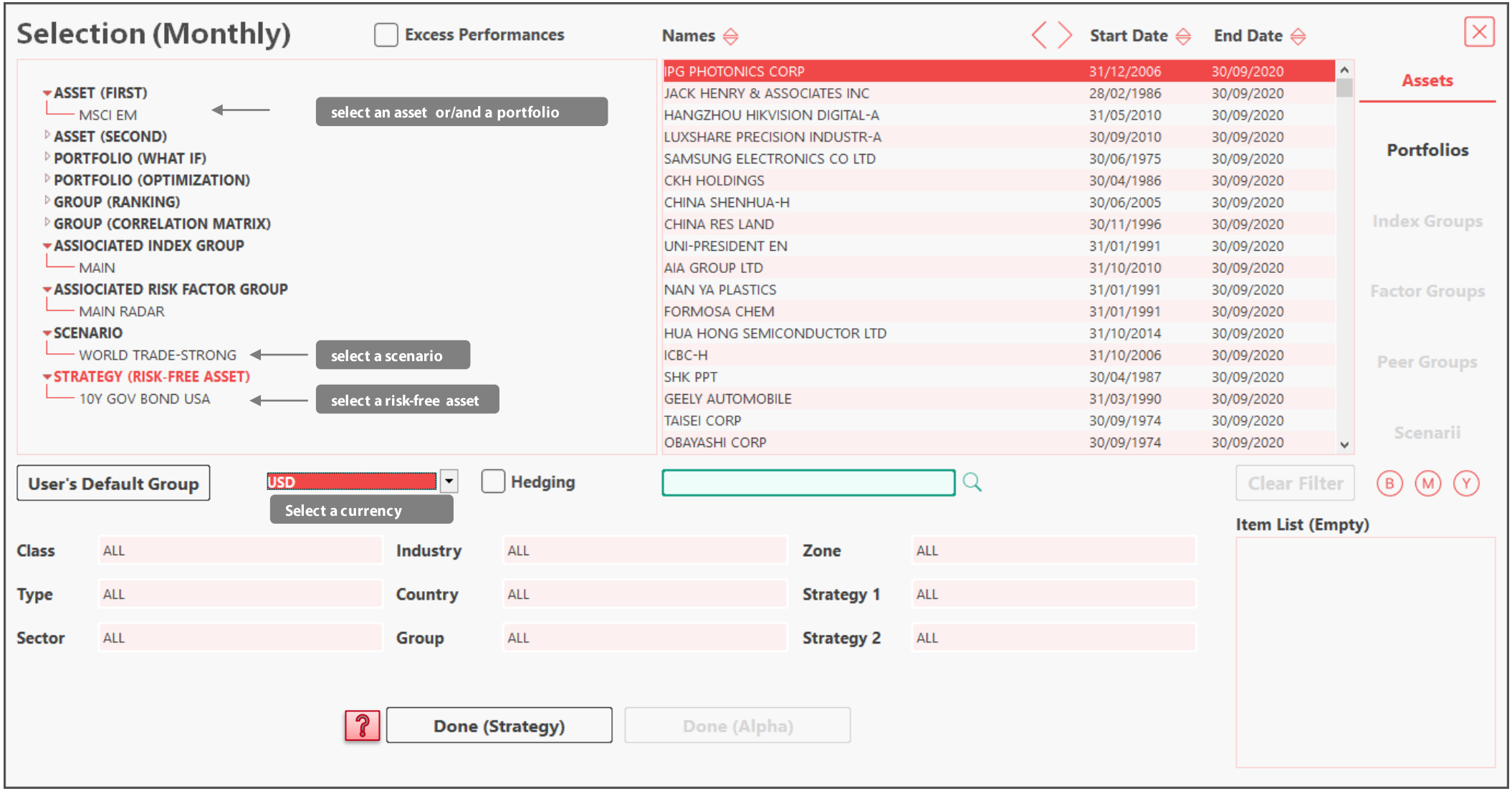
ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

	Result	σ%	Result	σ%
Annual compounded performance	20,7%	±	20,1%	±
Year to date	5,4%	±	5,2%	±
Last performance	6,2%	±	2,8%	±
Best performance	13,8%	±	25,9%	±
Worst performance	-14,6%	±	-34,4%	±
Success rate	66,7%	±	61,3%	±
Annualized volatility	15,6%	±	26,4%	±
Annual downside risk (10,0%)	9,8%	±	17,4%	±
VaR(99,0%)	11,6%	±	21,7%	±
VaR(98,0%)	9,3%	±	16,7%	±
Expected shortfall(99,0%)	14,9%	±	30,2%	±
Drawdown(10,0%)	2,7 y	±	2,4 y	±
Drawdown(5,0%)	1,2 y	±	1,7 y	±
Maximum drawdown	-16,7%	±	-58,5%	±
Current drawdown		±	-2,4%	±
Time to recovery	4 m	±	15 m	±
Fragility	-1,3	±	-0,9	±
Sharpe ratio(10,0%)	0,7	±	0,4	±



ACTIVITY: STRATEGY

Invest in asset 1 when the scenario is active, and in the selected risk-free asset otherwise



ACTIVITY: STRATEGY

Displays the risk-returns and graph of an asset compared to a strategy on the asset

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

31 DECEMBER 1987 — 30 SEPTEMBER 2020 — YtD 1Y 3Y 5Y 10Y 20Y Max Common

Strategy

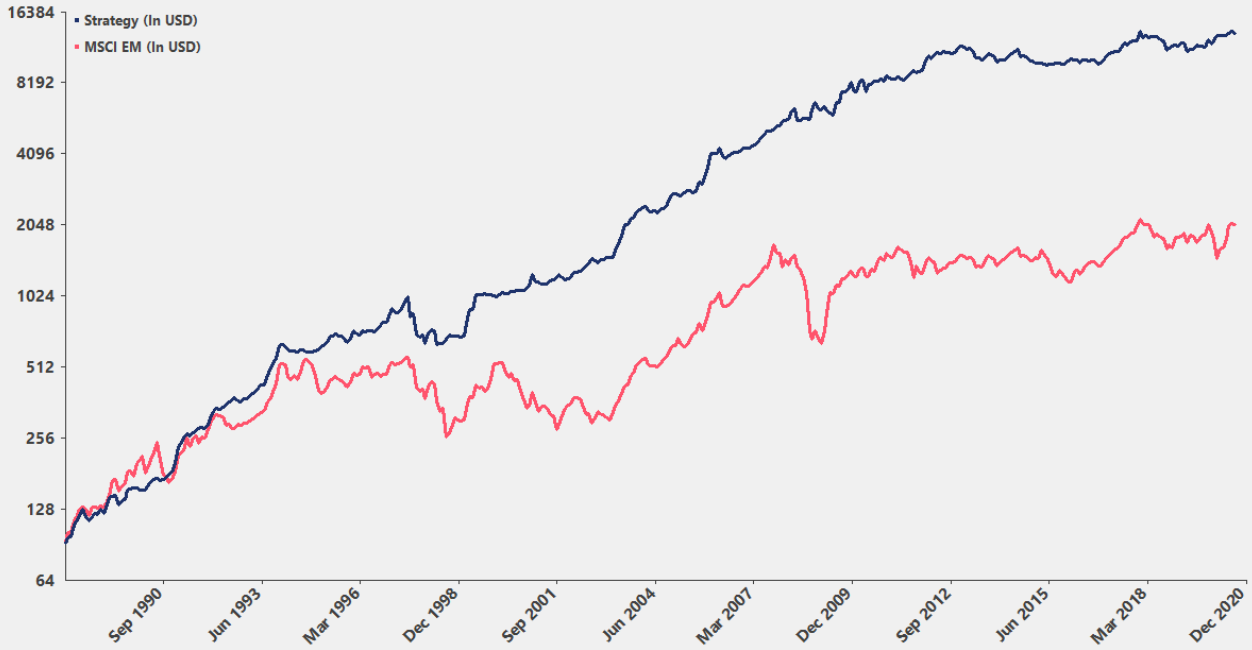
MSCI EM

USD ¤ WORLD TRADE-STRONG ¤ 10Y GOV BOND USA

MONTHLY (31 December 1987 : 30 September 2020)

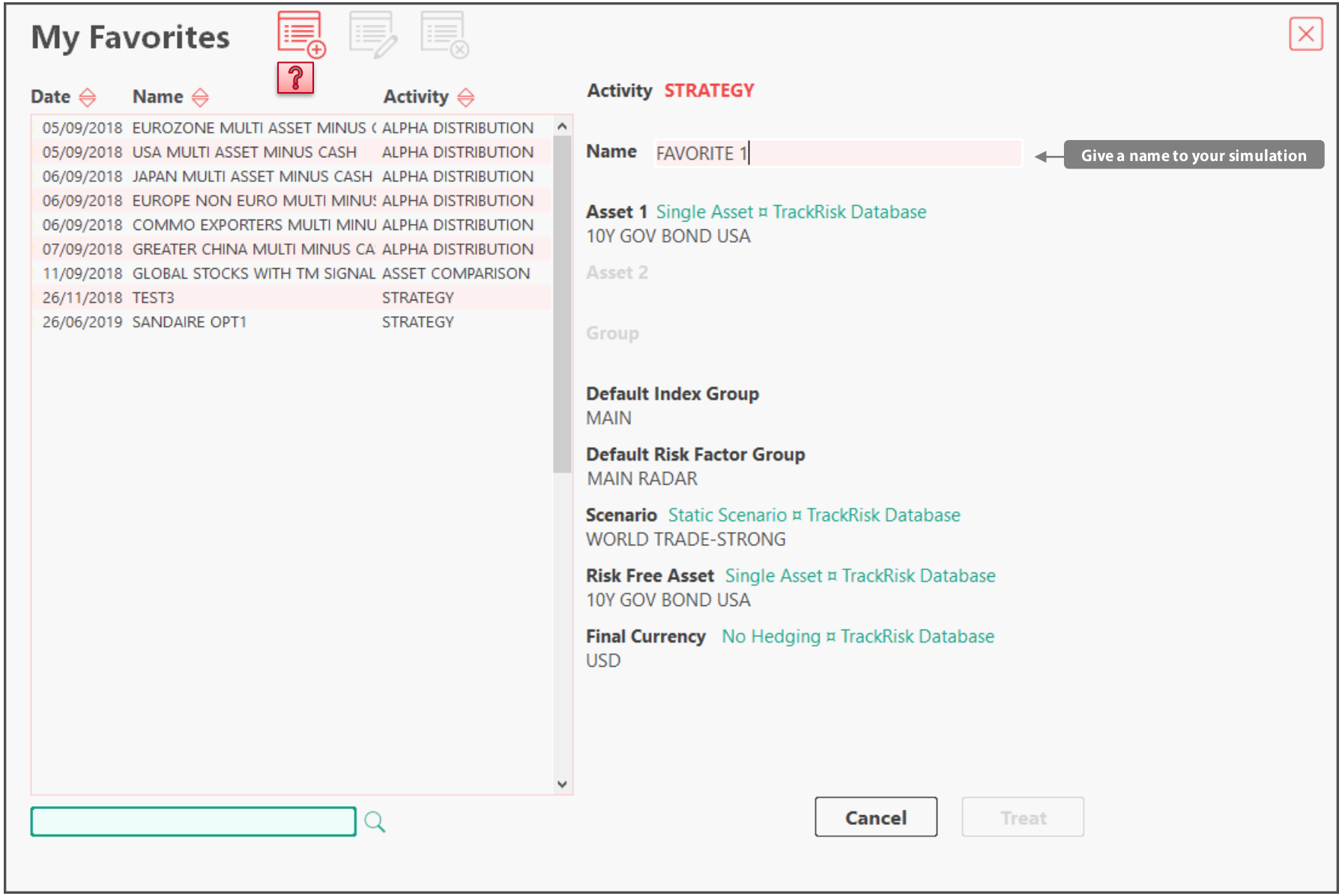
ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

	Result	σ%	Result	σ%
Annual compounded performance	16,4%	±	9,7%	±
Year to date	5,5%	±	-1,0%	±
Last performance	-1,6%	±	-1,6%	±
Best performance	16,4%	±	18,1%	±
Worst performance	-16,2%	±	-29,2%	±
Success rate	64,9%	±	60,3%	±
Annualized volatility	14,1%	±	22,4%	±
Annual downside risk (0,0%)	7,7%	±	15,1%	±
VaR(99,0%)	10,2%	±	19,4%	±
VaR(95,0%)	4,4%	±	10,6%	±
Expected shortfall(99,0%)	15,1%	±	25,3%	±
Drawdown(50,0%)	100,0 y	±	18,3 y	±
Drawdown(20,0%)	14,1 y	±	5,7 y	±
Maximum drawdown	-33,1%	±	-61,4%	±
Current drawdown	-1,6%	±	-7,1%	±
Time to recovery	13 m	±	101 m	±
Fragility	-0,5	±	-1,4	±
Sharpe ratio(0,0%)	1,2	±	0,4	±



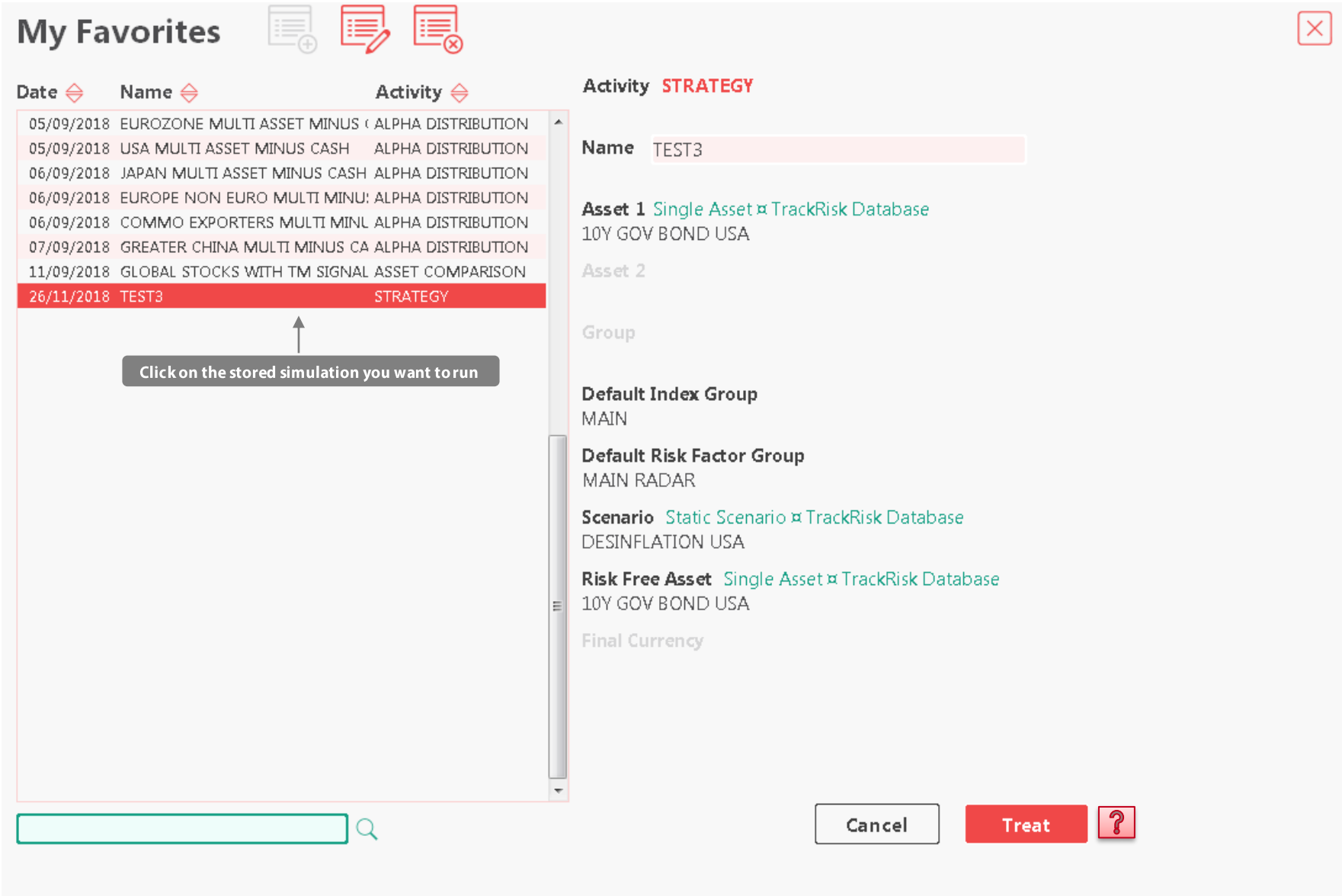
ACTIVITY: FAVORITES

Gain time by saving the simulations or analyses you need to check frequently



ACTIVITY: FAVORITES

Click on your stored simulation and click on "Treat" to upload it on the system



ACTIVITY: FAVORITES

Your selected "Favorite" analysis is automatically uploaded

Gavekal Intelligence Software - TrackRisk (Didier)

CREDENTIALS | SETTINGS | ACTIVITY | FAVORITES | EXPORT | REPORT | COMPUTE | MAIN | WHAT IF | OPTIMIZATION | INDEXES | RISK FACTORS | STRESS TESTS | STYLE ANALYSIS | SCENARII

31 DECEMBER 1987 — 30 SEPTEMBER 2020 | YtD | 1Y | 3Y | 5Y | 10Y | 20Y | Max | Common

Strategy

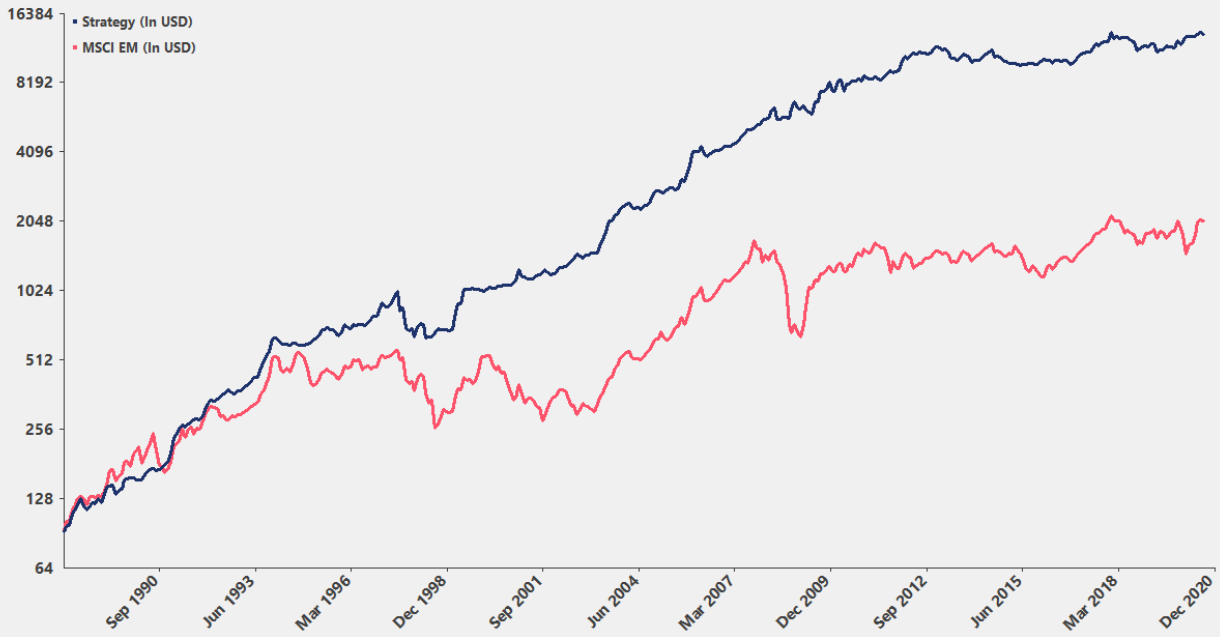
MSCI EM

USD ¤ WORLD TRADE-STRONG ¤ 10Y GOV BOND USA

MONTHLY (31 December 1987 : 30 September 2020)

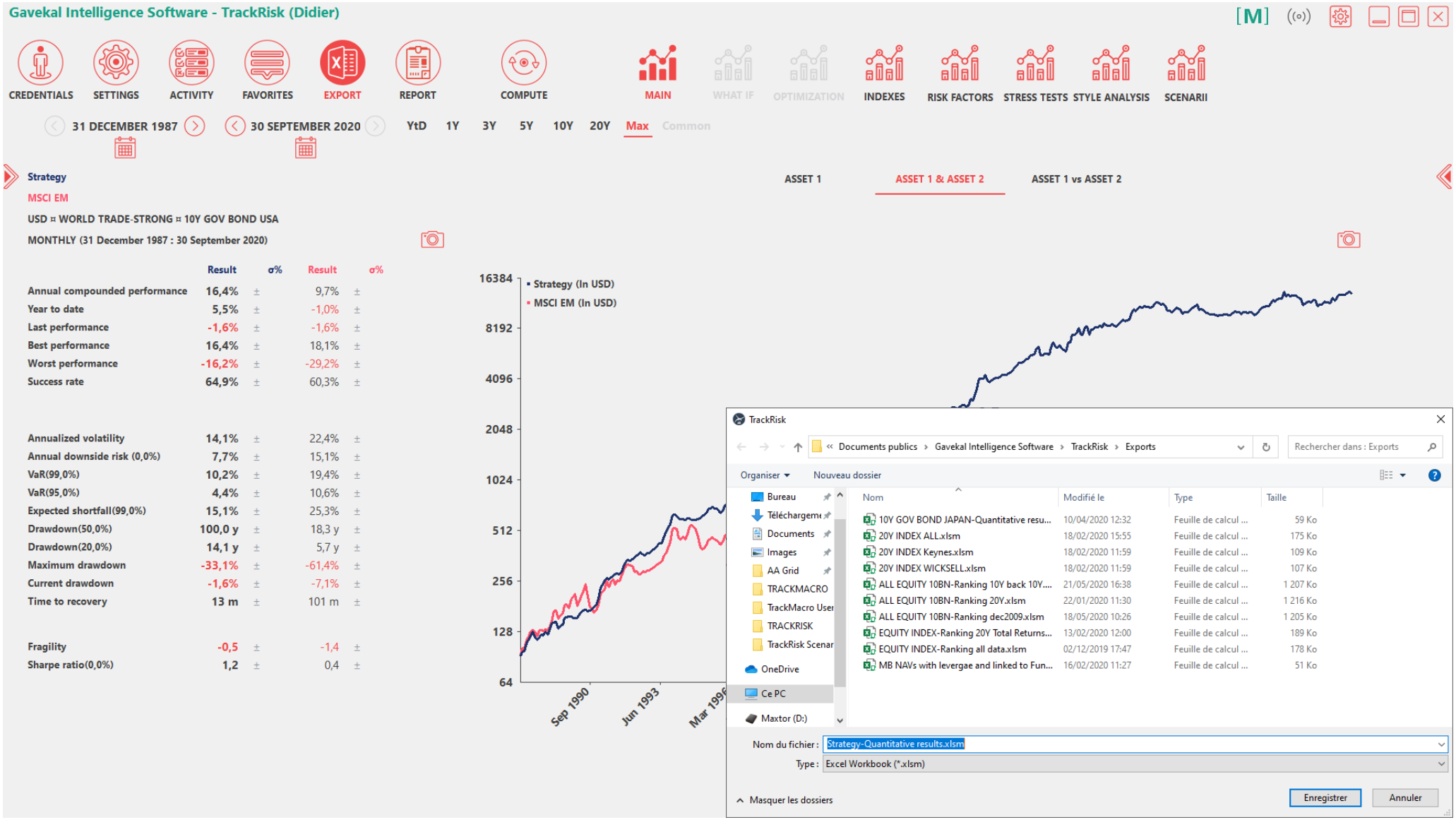
ASSET 1 | ASSET 1 & ASSET 2 | ASSET 1 vs ASSET 2

	Result	σ%	Result	σ%
Annual compounded performance	16,4%	±	9,7%	±
Year to date	5,5%	±	-1,0%	±
Last performance	-1,6%	±	-1,6%	±
Best performance	16,4%	±	18,1%	±
Worst performance	-16,2%	±	-29,2%	±
Success rate	64,9%	±	60,3%	±
Annualized volatility	14,1%	±	22,4%	±
Annual downside risk (0,0%)	7,7%	±	15,1%	±
VaR(99,0%)	10,2%	±	19,4%	±
VaR(95,0%)	4,4%	±	10,6%	±
Expected shortfall(99,0%)	15,1%	±	25,3%	±
Drawdown(50,0%)	100,0 y	±	18,3 y	±
Drawdown(20,0%)	14,1 y	±	5,7 y	±
Maximum drawdown	-33,1%	±	-61,4%	±
Current drawdown	-1,6%	±	-7,1%	±
Time to recovery	13 m	±	101 m	±
Fragility	-0,5	±	-1,4	±
Sharpe ratio(0,0%)	1,2	±	0,4	±



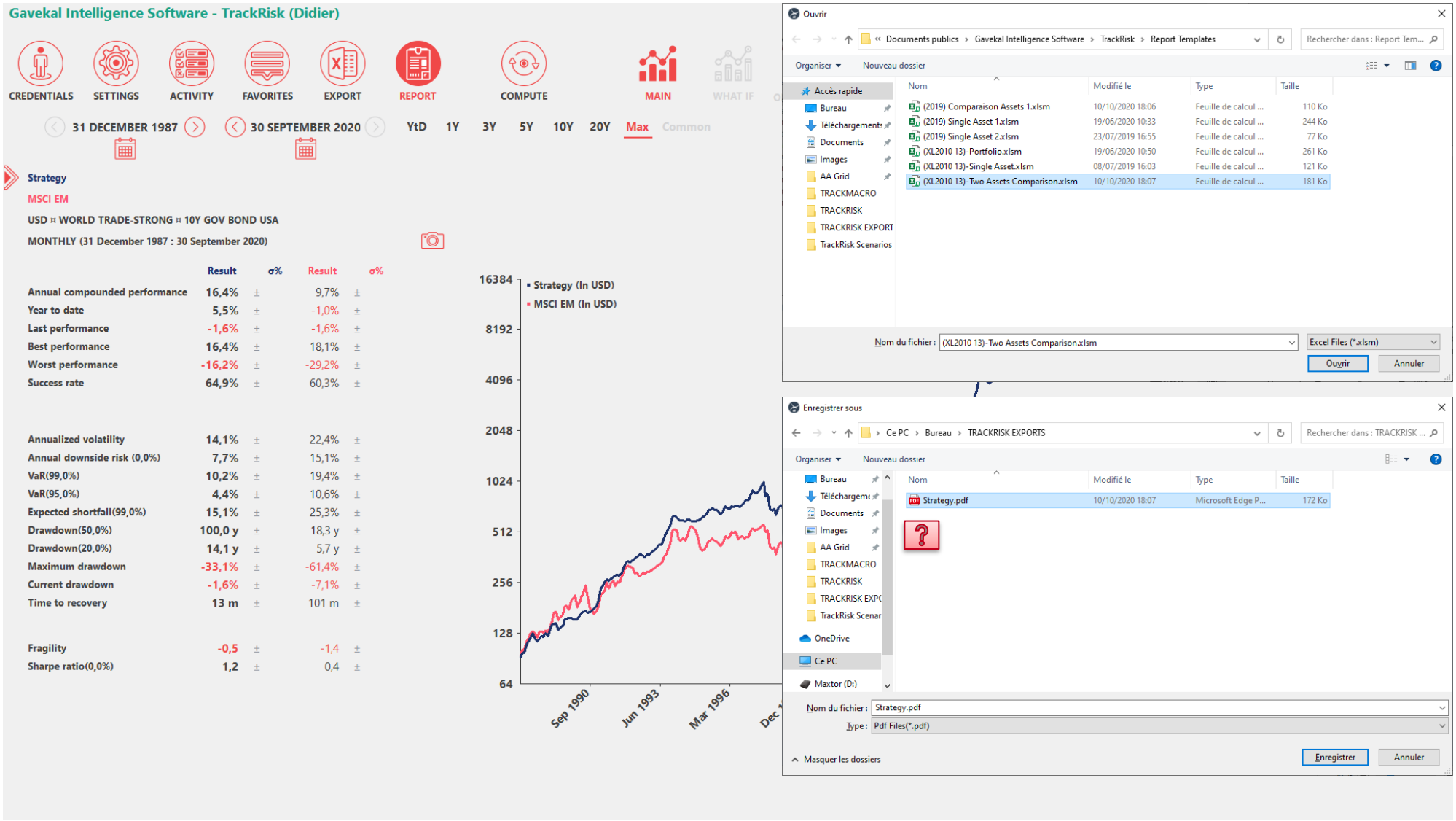
ACTIVITY: EXPORT

Exports the analysis to excel



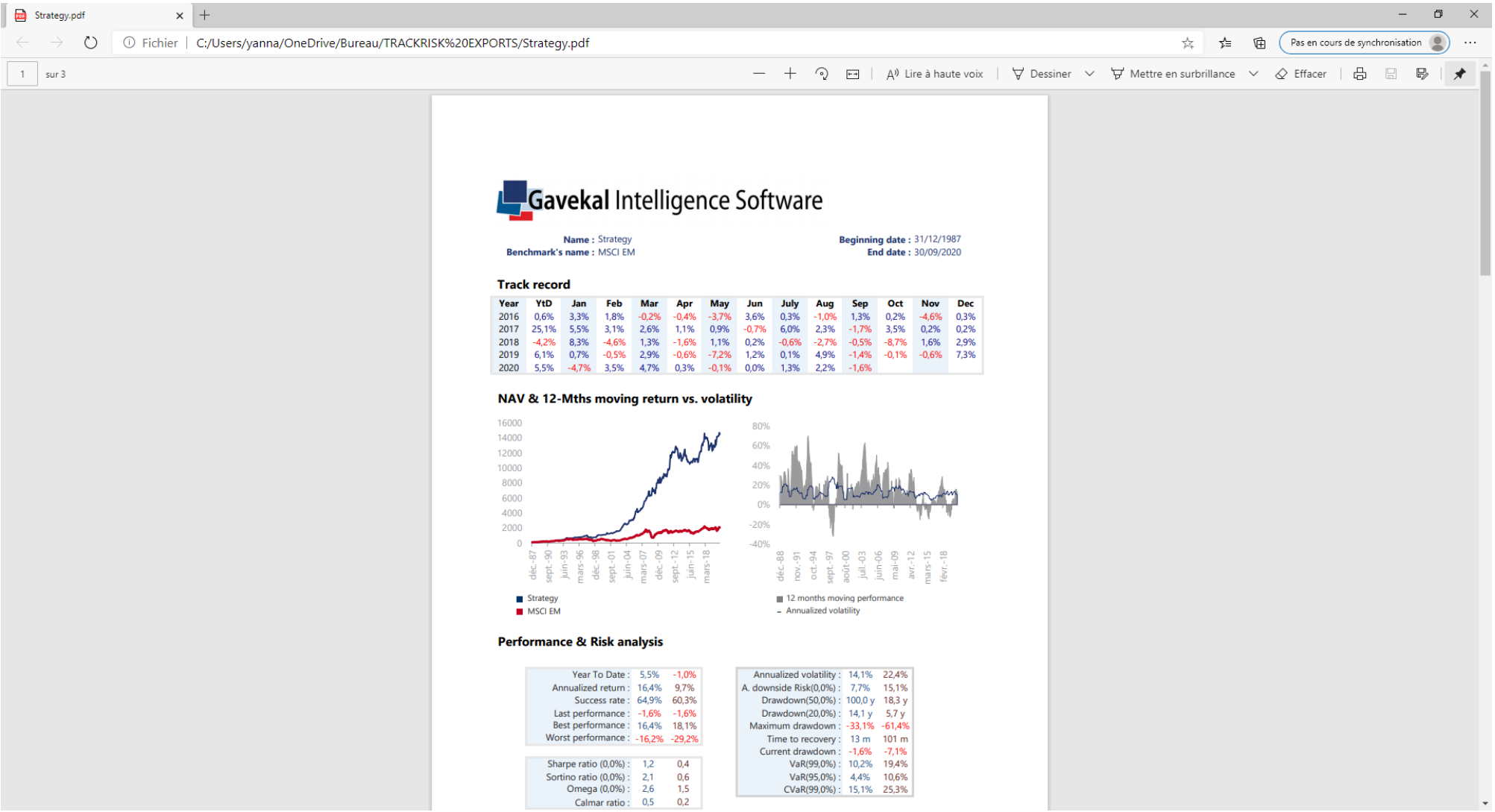
ACTIVITY: REPORT

Exports the analysis to a PDF report



ACTIVITY: REPORT

TrackRisk Reports are designed in excel and converted in PDF format



Gavekal Intelligence Software

Name : Strategy
Benchmark's name : MSCI EM

Beginning date : 31/12/1987
End date : 30/09/2020

Track record

Year	YtD	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
2016	0,6%	3,3%	1,8%	-0,2%	-0,4%	-3,7%	3,6%	0,3%	-1,0%	1,3%	0,2%	-4,6%	0,3%
2017	25,1%	5,5%	3,1%	2,6%	1,1%	0,9%	-0,7%	6,0%	2,3%	-1,7%	3,5%	0,2%	0,2%
2018	-4,2%	8,3%	-4,6%	1,3%	-1,6%	1,1%	0,2%	-0,6%	-2,7%	-0,5%	-8,7%	1,6%	2,9%
2019	6,1%	0,7%	-0,5%	2,9%	-0,6%	-7,2%	1,2%	0,1%	4,9%	-1,4%	-0,1%	-0,6%	7,3%
2020	5,5%	-4,7%	3,5%	4,7%	0,3%	-0,1%	0,0%	1,3%	2,2%	-1,6%			

NAV & 12-Mths moving return vs. volatility

Performance & Risk analysis

Year To Date :	5,5%	-1,0%
Annualized return :	16,4%	9,7%
Success rate :	64,9%	60,3%
Last performance :	-1,6%	-1,6%
Best performance :	16,4%	18,1%
Worst performance :	-16,2%	-29,2%

Sharpe ratio (0,0%) :	1,2	0,4
Sortino ratio (0,0%) :	2,1	0,6
Omega (0,0%) :	2,6	1,5
Calmar ratio :	0,5	0,2

Annualized volatility :	14,1%	22,4%
A. downside Risk(0,0%) :	7,7%	15,1%
Drawdown(50,0%) :	100,0 y	18,3 y
Drawdown(20,0%) :	14,1 y	5,7 y
Maximum drawdown :	-33,1%	-61,4%
Time to recovery :	13 m	101 m
Current drawdown :	-1,6%	-7,1%
VaR(99,0%) :	10,2%	19,4%
VaR(95,0%) :	4,4%	10,6%
CVaR(99,0%) :	15,1%	25,3%

SETTINGS: EXTERNAL

General:

Settings - External allows the user to remove assets or scenarii previously downloaded from external database providers. TrackRisk has embedded links to download data from Bloomberg or MacroBond. In order to do so, a TrackRisk user needs a Bloomberg or a MacroBond licence.

SETTINGS: PARAMETERS

VaR Level:
Common parameters for VaR are 1% and 5% probabilities. The probability level is about equally often specified as one minus the probability of a VaR break. By inputting 5% or 1% in the parameter boxes, the VaR would mean a one-time period 95% or 99% chance that the change in the return of the underlying asset won't be greater that the one calculated by the VaR. TrackRisk will use these inputs to calculate the VaR levels of assets, portfolios and strategies and will show the results on different screens throughout the software (risk-return, what-if scenarios, optimisation scenarii, etc....).

Drawdowns Level:
Maximum drawdown is defined as the peak-to-trough decline of an investment during a period. Input a drawdown level of your choice and the system will calculate the expected frequency of occurrence in number of years of such an event.

Minimum Historical Data:
Assets with insufficient historical data can be benchmarked to artificially extend the data series in the past. When analysing a portfolio, the "Minimum Historical Data" parameter adjusts the starting date of the analysis to a real data constraint.

Crash Standard Deviation:
Crash standard deviation also known as Expected Shortfall or CVAR (conditional value at risk) is a risk measure of the average loss of an asset or a portfolio given that the loss is occurring at or below a predefined quantile.

Risk Free Rate:
Input your own risk-free rate to calculate the Sharpe ratio, etc...

Hedging Cost:
Input an FX hedging cost which will be used to calculate the net return of an asset or a portfolio using a currency hedging strategy. The hedging cost represents the observable bid/offer Libor spread or bid/offer swap spread expressed in % cost per annum.

Strategy Transaction Costs:
Input a transaction cost which will be used to calculate the net return of a dynamic investment strategy.

Fixed Fees:
Input a fixed fee, equivalent to a management fee, to calculate the net return of an asset or a portfolio.

SETTINGS: EVENTS

General:

Settings – Events allow you to define specific times/periods in history where you want to stress-test assets, portfolios or strategies. TrackRisk calculates returns and maximum drawdowns during such periods.

Click on STRESS TESTS from the ACTIVITY menu to display the results.

SETTINGS: GROUPS

General:
Type a group name then click on the following icon to create it. Once created you can either modify it or delete it

Index Group:
Create your own Index Group by selecting as many assets as you want in the TrackRisk database. Once created the system will calculate correlations, alphas and betas between a specific index group and an asset or portfolio of your choice.

Risk Factors Group:
Create your own Risk-Factor Group by selecting as many assets as you want in the TrackRisk database. Once created the system will provide a multi-regression analysis (Radar) between your Risk-Factor Group group and an asset or portfolio of your choice.

Peer Group:
Create your own Peer Group by selecting as many specific assets as you want into TrackRisk database. Once created the system will provide a ranking analysis (see Group Ranking on the Activity screen) of the assets selected in the peer group.

Default on/off
The user can apply a specific Index, Risk Factor or Peer Group by default for all analysis.. Simply click the Default On button on the selected group.

SETTINGS: TRACKRISK DATABASE

General:
TrackRisk database can contain thousands of assets from different asset classes.

Sliding Tabs:
You can apply multiple filters to select your assets and control the order of the filtering process.
Slide the tabs sideways with the mouse to re-arrange the preferred filtering process.

SETTINGS: ALLOCATIONS

General:
"Allocations" allows to construct a portfolio with equal or specific weights, using any asset within your database. The portfolio will then be analysed and displayed under ACTIVITY, PORTFOLIO.

Equal Weight:
Click on "Equal Weight" to automatically equalize the allocation amounts across the assets selected in your portfolio.

Fees p.a (%):
Equivalent to a management fee, the input will be used to calculate the net return of an asset or a portfolio.

Amount:
If the Equal Weight box is not ticked, enter manually a specific amount per selected asset.

Benchmark:
If a selected asset has a short historical series, the system allows to link a specific benchmark with a longer time series.

SETTINGS: STRATEGIES

General:
"Strategies" is a dynamic allocation process simulation. Each selected assets is invested conditional upon its scenario.
If the scenario is "on", the portfolio invests in the asset. If the scenario is "off", the portfolio ignores the asset. If the total investment across all assets is lower than 100%, at any point in time, the strategy invests the missing part in cash. If the total investment is higher than 100%, the strategies borrows cash.

Equal Weight:
Click on Equal Weight to equalize the allocations across assets.

Portfolio List:
Select or create a portfolio upon which a scenario will be ran.

Cash Asset:
Select a cash asset using your TrackRisk database. The selected risk-free asset will serve when the total investment across assets is below or above 100%, to place or borrow cash.

Final Currency:
Select a currency for the portfolio. The net return of the strategy will be displayed in the selected final currency. If you want to hedge the associated FX risk, simply click on the hedging box.

Hedging Box & Hedging Cost:
Click ON the "Hedging Box" to automatically hedge FX risks in your portfolio. "Hedging Cost" is the Libor bid/offer spread p.a. used to calculate the total cost of FX hedging.

SETTINGS: STRATEGIES

Leverage Cost:
When the strategy is leveraged (total investments exceed 100%), it borrows cash at the cash rate plus a leverage cost expressed in % per annum.

Fees p.a (%):
Equivalent to a management fee, the input will be used to calculate the net return of an asset or a portfolio.

Weight:
If the Equal Weight box is not ticked, enter manually a specific percentage weight per selected asset.

Scenario:
Select a scenario for each individual asset of the portfolio.

Benchmark:
If a selected asset has a short historical series, the system allows to link a specific benchmark with a longer time series.

ACTIVITY: ASSET SELECTION

General:
Select your assets, portfolios or strategies. Select your currency and foreign exchange risk (open or hedged). Selected your return calculation (absolute or excess return above cash).

Excess Performance:
If you wish to simulate your asset returns, not in absolute terms, but in excess return above cash rates, simply tick the "Excess Performance box".

Assets:
List of assets available in the TrackRisk database.
Asset prices can be directly imported from Bloomberg or Macrobond as well, if you own a Bloomberg or Macrobond license, by clicking on the following icons: B M

Portfolio:
List of portfolios /strategies created in TrackRisk using SETTINGS, ALLOCATIONS or STRATEGIES.

Original Currency:
The dropdown window allows to choose a specific currency which will be used to compute the asset(s) or portfolio(s) simulations. By default the dropdown list will choose the "original currency".

Hedging:
Tick the Hedging box to have the asset(s) or portfolio(s) returns 100% hedged in another chosen currency. The calculations will use the Libor bid/offer spread set in Settings-Parameters-Hedging Costs .

ACTIVITY: ASSET SELECTION

User's Default Group:
Select asset groups to calculate simple correlations, betas, alphas with asset 1 and asset 2, or multi-regression analysis.

Done (Asset Comparison):
Click to launch the asset(s) or portfolio(s) comparison calculations.

Done (Alpha):
Click to launch the alpha calculation of asset1 against asset 2.

ACTIVITY: Asset 1 vs Asset 2

General:
Visualize the relationship between asset 1 and asset 2 either through a deviation tracking, a linear regression, a performance comparison or a rolling period on beta and correlation coefficient.

Perf. Comparison:
The user can highlight the 10 best and worst returns of asset 1 and check against the returns of asset 2 at the same dates.

Rolling Correlation:
12-months rolling correlation between asset 1 and asset 2.

Outperform/All:
Compares the cumulative outperformance/underperformance of asset 1 versus asset 2 over the whole period.

Outperform/Profits:
Compares the cumulative outperformance/underperformance of asset 1 versus asset 2 during periods of positive returns.

Outperform/Losses:
Compare the cumulative outperformance/underperformance of asset 1 versus asset 2 during periods of negative returns.

ACTIVITY: ALPHA

General:
TrackRisk will calculate by default the long-term Beta value of Asset 1 versus Asset 2.

Beta Value:
Click in the "Value" box to enter a specific Beta of your choice. TrackRisk will then re-compute the Alpha of Asset 1 versus Asset 2 and other risk measures using the specific Beta value. If you select 100%, TrackRisk will analyse the traditional alpha between the two assets (asset1 – 100% asset2)

ACTIVITY: RISK-RETURN

Annual Compound Performance:
The traditional annualized return. This calculation measures the average growth rate that is achieved by an investment within a year. While investments usually do not grow at a constant rate, the compound annual return smoothes out returns by calculating an equivalent constant growth. This is a geometric mean that takes into account the cumulative effect of a series of returns. It takes into consideration the volatility of returns and the effect of negative returns upon the performance.

Year-to-Date:
Performance since the beginning of the current year.

Last Performance:
Last return. Periods or frequencies can be daily, weekly or monthly. Go to SETTINGS – CREDENTIALS to select your frequency.

Best Performance:
Best single-period return over the whole data sample.

Worst Performance:
Worst single-period return over the whole data sample.

Success Rate:
Fraction of positive returns over the whole data sample.

Annualised Volatility:
Volatility is the annualized standard deviation. It measures the degree of variation (dispersion) of returns around an average. It is often considered as a risk measure.

Annualised Downside Risk (0%):
This measure is similar to the standard deviation of the losses but the downside deviation considers only returns that fall below a defined Minimum Acceptable Return (MAR) rather then the arithmetic mean. This measure takes into account the asymmetry of risk. Go to SETTINGS – PARAMETERS to define your specific (MAR).

ACTIVITY: RISK-RETURN

Value at Risk - VaR (99%):
At a given confidence α% level, the VaR is the minimum expected loss over a single time-period (monthly, weekly or daily) α% of the time. In other words, in case of monthly data for instance, α months every 100 months, the investment is anticipated to loose more than the calculated Value-at-Risk.

Expected Shortfall:
This measure is an alternative to VaR that is more representative to the shape of the loss distribution in the tail of the distribution. The expected shortfall at α% level is the expected average loss, α% of the time.

Drawdown (10%) or (5%):
This is the peak-to-valley loss that an unfortunate investor, investing at a local maximum price and selling at a local minimum would suffer. X% drawdown is measured in a number of years and calculates the expected investment horizon where a x% drawdown becomes likely. This measure is calculated with a stretched exponential function fitting the distribution of drawdowns. Go to SETTINGS – PARAMETERS – DRAWDOWN LEVEL to define your own drawdown %.

Maximum Drawdown:
This measure indicates the worst loss of such an investor, meaning that he bought at a local maximum price and sold at the subsequent lowest price, and this drop is the largest for the given time period.

Current Drawdown:
This measure indicates that the current NAV remains below the last running maximum for a given period.

Time to Recovery:
This is the period of time which was needed from the valley to recover from the maximum drawdown loss.

ACTIVITY: RISK-RETURN

Fragility:

The Fragility Theory introduces a new variable in portfolio construction analysis: an asset' sensitivities to its own fluctuations. Some assets dislike fluctuations, they are fragile by nature. Others benefit from fluctuations, they are antifragile and disruptive by nature. In finance, most risk assets lose value when volatility picks up; they are fragile. However, a limited number of other assets gain value, such as options or insurance contracts. They are antifragile. A fragile asset price trends upwards in times of calm market phases, and downwards in times of high volatility. An antifragile asset price behaves the opposite way.

Sharpe Ratio:

This ratio, initially called the reward-to-variability ratio, measures the return in excess of the Risk-Free Rate, also called the risk premium, compared to the total risk, measured by its standard deviation. Go to SETTINGS – PARAMETERS –RISK-FREE to define your own risk-free rate.

ACTIVITY: BETA

Beta to Benchmark (Global Period):
Shows the Beta of selected asset 1 vs. selected asset 2 across the total period.

Beta:
Measures the dependency of Asset 1 versus Asset 2 $\beta(beta) = \frac{Cov(R1R2)}{Var(R2)}$

Annualised Alpha:
Measures the excess return of Asset 1 versus Asset 2.

Correlation:
Measures the correlation of Asset 1 with Asset 2.

Determination Factor:
The determination factor is $R^2 = Pxy^2$ and is a measure of the goodness of fit.

Annual Jensen Alpha (0%):
This ratio quantifies the extent to which an investment has added value relative to a benchmark. The Jensen Alpha is equal to the Investment's compounded annual return in excess of the risk free rate minus the Beta times the Benchmark's compounded annual return in excess of the risk free rate. $\alpha_j = (R_{CAR} - R_{RFR}) - \beta * (R_{CAR}^{Benchmark} - R_{RFR})$

ACTIVITY: BETA

Beta to Benchmark Up & Down Periods:
Same comparisons data as described for the calculation of the Beta for total periods but this time conditionned upon only up or down benchmark periods.

Up or Down with Benchmark:
It is a measure of the number of periods that the Investment was up, when the Benchmark was up, divided by the number of periods that the Benchmark was up. The larger the ratio is, the better.

Up or Down with Benchmark:
It is a measure of the number of periods that the Investment was down when the Benchmark was down, divided by the number of periods that the Benchmark was down. The smaller the ratio is, the better.

Outperform Benchmark Gain:
It is a measure of the number of periods that the Investment outperformed the Benchmark when the Benchmark was up, divided by the number of periods that the benchmark was up. The larger the ratio is, the better.

Outperform Benchmark Loss:
It is a measure of the number of periods that the Investment outperformed the Benchmark when the Benchmark was down, divided by the number of periods that the benchmark was down. The larger the ratio is, the better.

ACTIVITY: REGRESSIONS

General:

Displays the Beta, Alpha and Correlation of asset 1 and asset 2 vis-à- vis the individual constituents of an INDEX GROUP. The INDEX GROUP is set-up in the SETTINGS-GROUP menu.

Beta:

Measures the normalised covariance between Asset 1 and each constituent of the selected INDEX GROUP. $\beta(beta) = \frac{Cov(R1R2)}{Var(R2)}$

R1= return series of asset 1 and R2= return series of asset 2

Annualised Alpha:

Measures the excess return of Asset 1 in comparison with each constituent of the selected INDEX GROUP.

Correlation:

Measures the correlation of Asset 1 in comparison with each constituent of the selected INDEX GROUP.

ACTIVITY: RADAR

General:
The Radar is a multi-regression of asset 1 and asset 2 returns against the selected risk-factors of the Radar.

R^2%:
R-squared (R2) is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model.

B%:
Example: Return(asset) = Beta1 * Return(factor1) + Beta2 * Return(factor2) + ...+ Alpha.

σ %:
It refers to the standard uncertainty of the calculation. The calculation method uses a Monte-Carlo simulation, also called bootstrap, to measure the deviation of the calculation given (1) the model uncertainty and (2) the number of points used to fit the distribution ("stretched exponential function") of returns.

VIF:
The variance inflation factor allows a quick measure of how much a variable is contributing to the standard error in the regression. When significant multicollinearity issues exist, the variance inflation factor will be very large for the variables involved. After these variables are identified, there are several approaches that can be used to eliminate or combine collinear variables, resolving the multicollinearity issue. $VIF_j = \frac{1}{1-R^2{}_j}$. R_j^2 is the coefficient of determination when the jth independent variable is regressed against the remaining K – 1 independent variables. If $VIF_j > 5$, X_j is highly correlated with the other explanatory variables.

ACTIVITY: ADVANCED

Sortino Ratio (0%):

It is defined on the same principle as the Sharpe ratio. However, the Risk-Free Rate (The Risk-Free is defined in SETTINGS-PARAMETERS.) is replaced with the minimum acceptable return (MAR), i.e. the return below which the investor does not wish to drop, and the standard deviation of the returns is replaced with the standard deviation of the returns that are below the MAR (Downside Risk). This parameter is an indicator that is more specifically appropriate for asymmetrical return distributions. This measure allows a distinction between "good" and "bad" volatility: it does not penalise portfolios with returns that are far from their mean return, but higher than this mean, contrary to the Sharpe ratio. $SOR = \frac{R_{AC-MAR}}{ADR}$

RAC= Asset Annual Compounded Return ADR= Annualised Downside Risk MAR= Minimum Acceptable Return

Omega (0%):

The Omega ratio is the probability weighted ratio of gains versus losses for a given minimum acceptable return. The MAR or minimum acceptable return can be defined in SETTINGS-PARAMETERS-RISK FREE

Calmar ratio:

The Calmar ratio is the comparison of the average annual compounded return and the maximum drawdown of an asset or a fund. It is another way to approach a potential investment on a risk-adjusted basis. The difference with the Sharpe ratio is that the Calmar ratio takes the maximum drawdown risk rather than the volatility.

Skewness:

This indicator (third order centred moment) measures the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness indicates a distribution with an asymmetric tail extending toward more negative values. SK = $\sum_{i=1}^{N} \frac{(r_i-\mu)^3}{N*\sigma^3}$

Excess Kurtosis:

This indicator (fourth order centred moment) allows the fatness of the distribution tails to be assessed. A large kurtosis means that there are extreme returns (outliers) compared with the Gaussian benchmark. The kurtosis of the normal distribution is equal to 3. The excess kurtosis is defined as the deviation from the normal distribution (KUR - 3). KUR = $\sum_{i=1}^{N} \frac{(r_i-\mu)^4}{N*\sigma^4}$

ACTIVITY: BETA SMILE

Beta Smile Definition:
The Beta Smile reflects the specific sensitivity of a selected asset or portfolio to respond to variations in a selected benchmark or market portfolio. The variations for the benchmark are measured in standard deviations over a chosen time sampling period. A perfect Beta Smile will show a rising Beta between an asset and its benchmark when the benchmark standard deviations are getting larger, and a decreasing beta in the opposite situation.

Beta Smile Analysis Usefulness:
An analysis of the Beta smile between two assets is useful to uncover hidden asset or portfolio behaviors/relationships in specific risk quantiles of the distribution.

Sampling Period:
Window size.

Tables:
Displays the Beta of asset 1 and asset 2 at different levels of standard deviation moves versus a selected market. Here the list of markets comes from INDEX-GROUP.

ACTIVITY: LINEAR REGRESSION

General:
The table shows asset 1 and asset 2 correlation, beta and alpha versus a selected risk factor when returns are positive or negative.

Sampling Period:
The sampling period defines the time window to calculate the regression. For instance in a monthly periodicity, a sampling period equals to 3 means that the correlation is calculated over rolling quarterly returns.

Tables:
Click on one of the available index to change the linear regression graph. The table displays several measures: a) the total period Beta (B%) as well as the Beta when the market index goes up or when the market index goes down, b) the average annual alpha and c) the total period correlation as well as the correlation when the market index goes up or down.

Red Point on the Graph:
Last point.

ACTIVITY: PERF COMPARISON

General:

The graph displays the 10 best or worst months of asset 1 and the associated performance of the asset 2 and the selected risk factor coming form the list of assets in any pre-defined Index Groups.
Performance comparison is helpful to visualize the historical behavior of an asset, a portfolio or a strategy against a list of markets in specific months.

ACTIVITY: ROLLING

General:
"Rolling" is a multiple regression analysis over a moving window. The purpose of the analysis is to check the stability of an asset in terms of risk projections on selected factors.

Rolling Period:
Full period.

Sampling Period:
Window size.

Time Lag:
The system allows to move forward or backward the asset time series to verify potential desynchronised dependencies with risk factors.

Miscellaneous:
The user can display either the Beta or the Coefficient Correlation with or without the rolling performance of the selected asset.

ACTIVITY: STRESS TESTS

Performance:

TrackRisk displays the performance or the excess performance (if the excess performance box has been ticked in ACTIVITY – ASSET SELECTION) of the selected asset(s) or portfolio(s) during specific periods. TrackRisk lets you define the periods in SETTINGS-EVENTS. The table on the left shows the name given to the event, its start and end dates, the performance and the maximum drawdown of the asset(s) between these dates and its time to recovery. The time to recovery is the time taken by the asset to reach its previous NAV peak.

Maximum Drawdown:

TrackRisk displays the maximum drawdown of the selected asset(s) or portfolio(s) during specific periods. TrackRisk lets you define the periods in SETTINGS-EVENTS. The table on the left shows the name given to the event, its start and end dates, the performance and the maximum drawdown of the asset between these dates and its time to recovery. The time to recovery is the time taken by the asset to reach its previous NAV peak.

ACTIVITY: STYLE ANALYSIS

<u>Specific Beta:</u>
Beta of the asset vis-à-vis each risk factors using a given rolling period and a given graphic date.

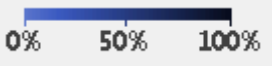
<u>All Estimated Betas:</u>
If "All Estimators Beta" is ticked, the graph will display the beta of the selected assets vis-à-vis each asset of the "Risk Factor Group". The beta is calculated over the selected rolling period preceding the graphic date.

<u>Rolling Periods:</u>
Changes the rolling period for beta calculation.

<u>Graphic Date:</u>
Changing the Graphic Date will recalculate the beta.

ACTIVITY: STYLE ANALYSIS

Rolling Style Analysis Quality Factor (Graph) - 0__50%__100%:



The regression quality increases with the colour darkness.

Graph:

The main graph displays integrated several choices:

1. If the "All Estimators" box (Betas) is ticked, the graph will show the asset(s) rolling average betas vis-à-vis each component of the risk factor group. The calculations will use the defined rolling periods over the whole dataset.
2. If the Graphic Date is changed, a ruler appears on the graph and the betas of the asset(s) on the specific period (start date to graphic date) will be recomputed in the table on the left of the screen.
3. If one of the risk factors is ticked in the table on the left side of the screen, the graph will display the rolling beta of the asset(s) vis-à-vis the chosen risk factor.

ACTIVITY: SCENARII

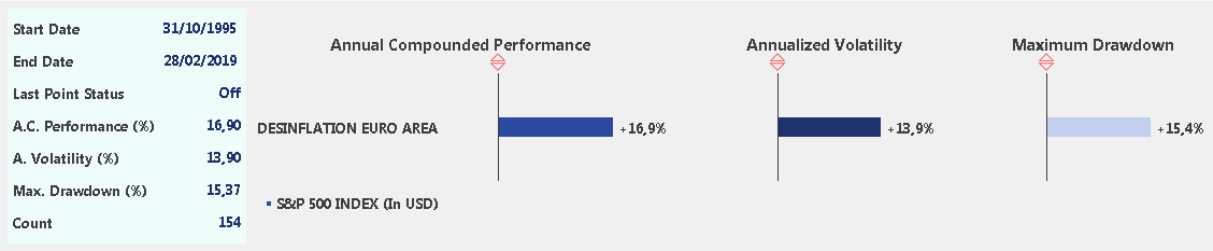
General:

A scenario is simply a filter in the past. When a scenario =1 on a given date, the scenario becomes active for the following time period. When a scenario=0, it becomes inactive. Scenarii can be imported in TrackRisk from different sources such excel, Bloomberg or MacroBond. In the following example, the scenario refers to disinflation periods in the Euro area;

Histogram:

Click the Histogram box to display the asset(s) or portfolio(s) risk-return measures when a selected scenario conditions kicks in. The histogram will display the annual compound performance, the annualized volatility and the maximum drawdown during these specific periods.

Hover the mouse above a bar to display data.



Scatter Plot:

The Scatter Plot box will also display the asset(s) or portfolio(s) risk-return measures when a selected scenario kicks in. The display will appear under a scatter plot. Use the Y Scale and X Scale dropdown boxes to change the Y and X axes definitions. Hover the mouse above point to display the risk-return data, and right-click on a datapoint to open a historical return graph of the asset(s) or portfolio(s) during the scenario periods.

ACTIVITY: RADAR

General:
The Radar graph illustrates the multi-regression factors explaining statistically the asset return distribution. Please note that the factors are represented in absolute terms and therefore can either be positive or negative.

Style Analysis:
Style analysis is a multi-regression analysis describing the relationship between one variable and various factors taken all together. It involves a variable to be explained called the dependent variable Y (asset, fund…) and additional explanatory variables or predictors X (risk factors, indexes…) that are thought to produce or be associated with changes in the dependent variable. $\hat{Y} = \beta_0 + \sum_{i=1}^{K} \beta_i \, \chi_i$ where β_i are found with the last square method.

RSquare:
In this case, the determination factor, R^2 reports the proportion of total variation in Y explained by all X variables or predictors taken together.

ACTIVITY: FRAGILITY

General Concept:
The Fragility Theory introduces a new variable in portfolio construction analysis: an asset' sensitivities to its own fluctuations. Some assets dislike fluctuations, they are fragile by nature. Others benefit from fluctuations, they are antifragile and disruptive by nature. In finance, most risk assets lose value when volatility picks up; they are fragile. However, a limited number of other assets gain value, such as options or insurance contracts. They are antifragile. A fragile asset price trends upwards in times of calm market phases, and downwards in times of high volatility. An antifragile asset price behaves the opposite way.

Variance:
Monthly variance, or volatility squared, of the selected asset.

Intercept:
Means expected excess return of the asset at variance = 0.

Fragility Slope:
The Fragility slope displays the index return sensitivity to risk measured by the variance of the asset.

ACTIVITY: POWER LAWS

<u>Stretched Exponential Function (F_{SE}):</u>

This function is used to fit the return distribution. The first advantage of this mathematical function, as compared with Gaussians or exponentials for instance, is that the fit can adjust to the fat tail nature of the distribution, therefore better capturing various types of investments returns including traditional equity or bond exposures as well as hedge funds and other fat tail investment strategies. The second advantage of this mathematical function is that it is not necessary to have a significant number of data (in the alternative universe, the frequency of the data is often monthly). This function allows one to calculate the Value At Risk (VaR), the Expected Shortfall (ES) and the X% drawdown (by calibration of the drawdown distribution)

$$F_{SE}^{(r)} = A_0 e^{-(\frac{r}{r_0})^z}$$

z is the stretching exponent. The parameters A_0 , r_0 and z are obtained by using an appropriate optimisation method.

ACTIVITY: WHAT-IF

General:

The "What-if" function simulates a modification in the assets' weighting of a portfolio, and its consequences. By selecting a portfolio and clicking on the WHAT-IF icon on the main page, TrackRisk allows to modify the absolute amounts or the percentage of each asset of a portfolio and to recalculate historically its risk-returns' parameters. The user can then compare the original and new portfolio on the same screen and run other quantitative simulations and analyses to the new WHAT-IF portfolio.

Manage Items:

The "Manage Items" function selects the calculations to be displayed in the tables and graphic module of the What-If function. To get a What-IF new portfolio, you need to change the weights of the portfolio assets. In order to do so, go to the Manage Items List and make sure to highlight the what-if amount and allocation items in the allocation section. Then go back to the previous screen to change some asset's weights and click compute to get the new what-If portfolio.

Portfolio Effect:

Highlights the monthly rebalancing contribution of the assets to the portfolio performance.

Click on the arrows to change the display of the portfolio by Zone, Country, Class, Type, Sector, Industry…

ACTIVITY: OPTIMIZATION

General:
The optimization model is a genetic algorithm imitating the natural selection process of living organisms and converging towards the "best of breed" portfolio.

Utility Function:
The Utility function is the scoring function of a portfolio. It is defined as a portfolio return minus potential penalty cost associated with excess risk.

Minimum:
The minimum investment amount is 0% by default, but the user can input a minimum allocation for each asset of the portfolio.

Maximum:
The maximum investment amount is 100% by default, but the user can input a lower maximum allocation for each asset of the portfolio.

Historical:
Displays the expected return of an asset based on its historical annual compounded return.

Expected:
The user can modify an asset expected return by clicking on "Expected" and by inputing its own expected return for the asset.

Initial:
Initial weights of the assets before any optimization.

ACTIVITY: OPTIMIZATION

New:
Displays the new weights for the assets once the optimization has been computed. The optimization process and the new weights will also integrate new information coming from the minimum, maximum allocations, and new expected return.

Difference:
Displays the difference between the new and initial weights of all assets.

Utility Function:
Select a parameter to optimize the initial portfolio in the Utility Function section. For example tick the box next to "Excess Volatility" and input "10" in the "Target" Box. Then choose the Penalty cost in % of 1% excess of the input limit of the Target box.
The system will optimize the initial portfolio under the new objective which is to contain volatility below 10%.

Miscellaneous:
Always click on Compute after a change of parameters.
Click on MAIN to get back to the default main screen and to get an historical graph of the initial and optimized portfolio.
Then use all other functions to compare the new optimized portfolio to the initial one.

ACTIVITY: GROUP RANKING

General:

Group ranking is a quick way to check how constituents of a portfolio perform vis-à-vis each other. For instance, by creating a portfolio with all the financial stocks of the S&P 500, Group Ranking will allow to rank in ascending/descending order the list of companies according to the selected items in the Managed Items List (Performance, VaR, Skewness ...).
Just click on the column title to rank the portfolio constituents.

ACTIVITY: GROUP MATRIX CORRELATION

General:

Select Group Correlation Matrix and a portfolio. TrackRisk will display a correlation matrix between all the assets in the portfolio. The user can chose a specific time frame over which the correlations will be calculated.

ACTIVITY: ASSOCIATED INDEX GROUP

General:
TrackRisk displays the correlation, beta and alpha of asset 1 and/or asset 2 versus the constituents of an Index Group in positive or negative markets. This is quite useful to have a snapshot on the behavior of an asset or a portfolio against multiple assets.

Beta Smile Definition:
The Beta Smile reflects the specific sensitivity of a selected asset or portfolio to respond to variations in a selected benchmark or market portfolio. The variations for the benchmark are measured in standard deviations over a chosen time sampling period. A perfect Beta Smile will show a rising beta between an asset and its benchmark when the benchmark standard deviations are getting larger, and a decreasing beta in the opposite situation.

Beta Smile Analysis Usefulness:
An analysis of the beta smile between two assets is useful to uncover hidden asset or portfolio behaviors in specific risk quantiles of the distribution.

Sampling Period:
Window size.

ACTIVITY: ASSOCIATED RISK FACTOR GROUP

General:
The Radar is a multi-regression of asset 1 and asset 2 returns against the selected risk-factors of the Radar.

R^2%:
R-squared (R2) is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model.

B%:
Example: Return(asset) = Beta1 * Return(factor1) + Beta2 * Return(factor2) + ...+ Alpha.

σ %:
It refers to the standard uncertainty of the calculation. The calculation method uses a Monte-Carlo simulation, also called bootstrap, to measure the deviation of the calculation given (1) the model uncertainty and (2) the number of points used to fit the distribution ("stretched exponential function") of returns.

VIF:
The variance inflation factor allows a quick measure of how much a variable is contributing to the standard error in the regression. When significant multicollinearity issues exist, the variance inflation factor will be very large for the variables involved. After these variables are identified, there are several approaches that can be used to eliminate or combine collinear variables, resolving the multicollinearity issue. $VIF_j = \frac{1}{1-R^2{}_j}$. R_j^2 is the coefficient of determination when the jth independent variable is regressed against the remaining K – 1 independent variables. If $VIF_j > 5$, X_j is highly correlated with the other explanatory variables.

ACTIVITY: ASSOCIATED RISK FACTOR GROUP

General:
The Risk Factor Group is used for the TrackRisk multi-regression analysis of selected asset(s) on specific risk factors. The risk factors are the assets selected when a Risk Factor Group is created in Settings: Groups: Risk Factors.

Beta Smile Definition:
The Beta Smile reflects the specific sensitivity of a selected asset or portfolio to respond to variations in a selected benchmark or market portfolio. The variations for the benchmark are measured in standard deviations over a chosen time sampling period. A perfect Beta Smile will show a rising Beta between an asset and its when the benchmark standard deviations are getting larger, and a decreasing beta in the opposite situation.

Beta Smile Analysis Usefulness:
An analysis of the Beta smile between two assets is useful to uncover hidden asset or portfolio behaviors in specific risk quantiles of the distribution.

Sampling Period:
Window size.

ACTIVITY: ASSOCIATED RISK FACTOR GROUP

Specific Beta:
Beta of the asset vis-à-vis each risk factor using a given rolling period and a given graphic date.

All Estimated Betas:
If "All Estimators Beta" is ticked, the graph will display the beta of the selected assets vis-à-vis each asset of the "Risk Factor Group".

Rolling Periods:
Changes the rolling period for beta calculation.

Graphic Date:
Changes the Graphic Date for beta calculation.

ACTIVITY: SCENARIO

General:

The SCENARIO function helps you visualise the impact of a pre-defined SCENARIO on selected asset(s) or portfolio(s).

As for other TrackRisk functions, the benchmark can be a single asset or a portfolio, the currency in which the scenario performance is calculated can be hedged or unhedged.

Once the ASSET 1, the SCENARIO, and the CURRENCY are selected, the output can use all the other simulation functionalities apart from OPTIMIZATION and WHAT-IF.

ACTIVITY: STRATEGY

General:

The STRATEGY function helps you create a systematic allocation between an asset (ASSET 1) and a risk-free asset (STRATEGY RISK-FREE ASSET) depending on the condition embedded in a SCENARIO.

As for other TrackRisk functions, the benchmark can be a single asset or a portfolio, the currency in which the strategy performance is calculated can be hedge or un-hedged.

Once the ASSET 1, the SCENARIO, the RISK-FREE and the CURRENCY are selected, the output can use all the other simulation functionalities apart from OPTIMIZATION and WHAT-IF.

ACTIVITY: FAVORITES

General:

Store the simulations and analyses you do not want to loose. Click on “Favorites” and give a name to your simulation. The analysis will be stored in the system, and ready to be uploaded whenever you click on it. It will be updated with the latest data.

ACTIVITY: EXPORT

General:

Click on the EXPORT button to download calculations. The data downloaded in a spreadsheet will include risk/returns, track records, performances & prices, exposure to benchmarks, exposure to index groups and style analysis (risk factors).

ACTIVITY: REPORT

General:

Design your own report with the REPORT function. Links to texts, numbers, tables, graphs are embedded in an TrackRisk/Excel function.
Once it is saved, TrackRisk will update automatically all the data, graphs, etc.. imported in the spreadsheet before the report is produced on a PDF format.