Morningstar® Direct℠ **Excel API**

Custom calculations

- Excel API supports custom calculation data with MSTS function;
- New parameters added for custom calculation data: Source, Benchmark, RFP, Comp, Win, and Shift;
- New options added in Investment Dialog for custom calculation settings.

Parameters for custom calculation data

Parameter Name		Description	Possible Parameter Values	New Parameter or not?
Security Identifier		Define the security	Ticker, ISIN, CUSIP, SecID, exchange:ticker, exchange:ISIN, exchange:CUSIP, SecID;Universe	N
Data Point Identifier		Define the data point	Data point names in text	N
Start Date/End Date		Define the time range of intended data series	Dates	N
Additional Parameter	Source	Source data used to calculate the target data points	Data Point ID, default to HP010 (Monthly Return)	Y
	Benchmark	Benchmark used to calculate the selected data points	SecID of securities	Y
	RFP	Risk-free proxy	SecID of securities	Y
	Comp	Compounding Method	S for standard; L for logarithmic; default to S;	Y
	Win	Rolling windows	Positive numbers	Y
	Shift	Window shift	Positive numbers	Y
	Ann	Retrieve annualized or not annualized data	True/False,	N
	Curr	Currency of the returned data	The three letter ISO currency code, i.e., "EUR" for Euro. Default to base currency.	N
	CorR	Indicate whether retried values be displayed vertically or horizontally	C for the next cell in the same column; R for the next cell in the same row; default to C	N
	Dates	Show the dates or not	True/False, default to false,	N

Notes:

1). Win and Shift parameters are used to add many periods at once, for example, a one year window with 1 month shift (win=12m,shift=1m), it will add several one year data, each separated by one month, i.e. 1/1/2011-12/31/2011, 2/1/2011-1/31/2012, 3/1/2011-2/29/2012 etc…..

2). Unit of Win and Shift should be consistent with frequency of source data, for example, when source is monthly return, it's OK to write win=12m, shift=1m, or win=12, shift=1 in functions, but API will return N/A, if you set win=1y, shift=1m.

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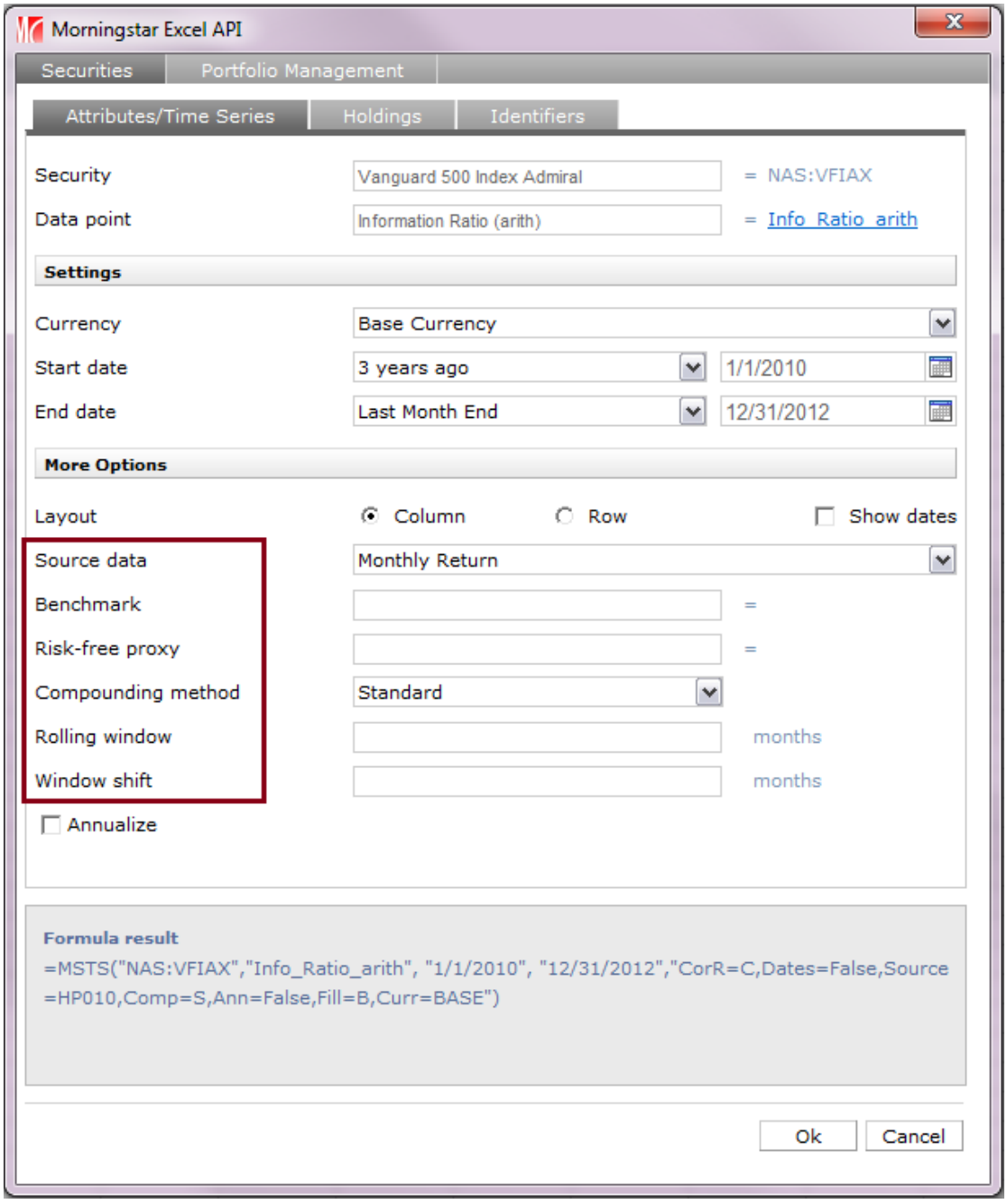
Dialog for custom calculation data

- Options in the red Rectangle are new options added for custom calculation data.
- Source data: dropdown list, listed source data available for the target custom calculation data;
- Benchmark: find benchmark name with auto look-up;
- Risk-free proxy: find risk-free proxy name with auto look-up;
- Compounding method: dropdown list, two options available, standard/logarithmic;
- Rolling window: set the time period for each calculation;
- Window shift: set how often each calculation is performed;



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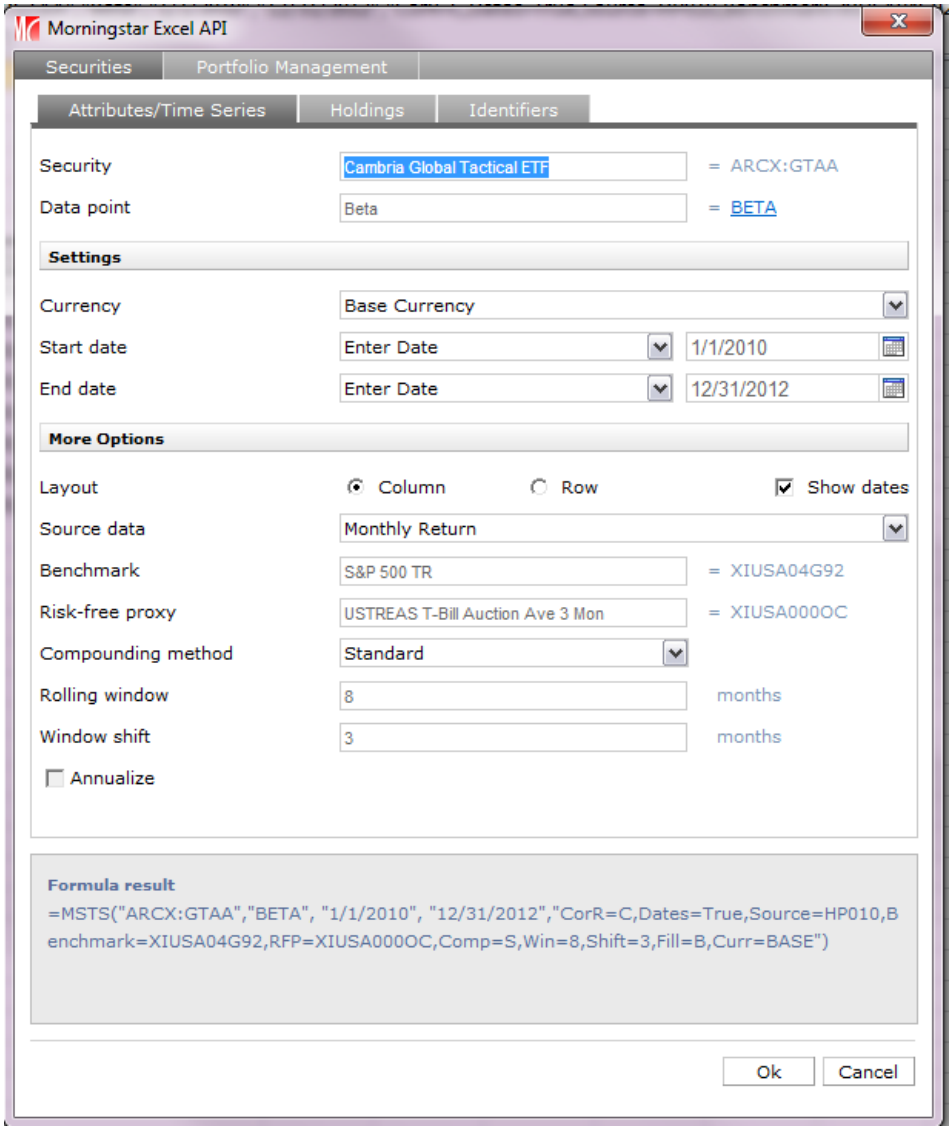
Examples

Example 1: get data with Dialog--calculate "beta" for funds



Results in Excel:

2010-01-01 to 2010-08-31	
2010-04-01 to 2010-11-30	
2010-07-01 to 2011-02-28	
2010-10-01 to 2011-05-31	
2011-01-01 to 2011-08-31	0.84
2011-04-01 to 2011-11-30	0.30
2011-07-01 to 2012-02-29	0.30
2011-10-01 to 2012-05-31	0.29
2012-01-01 to 2012-08-31	0.53

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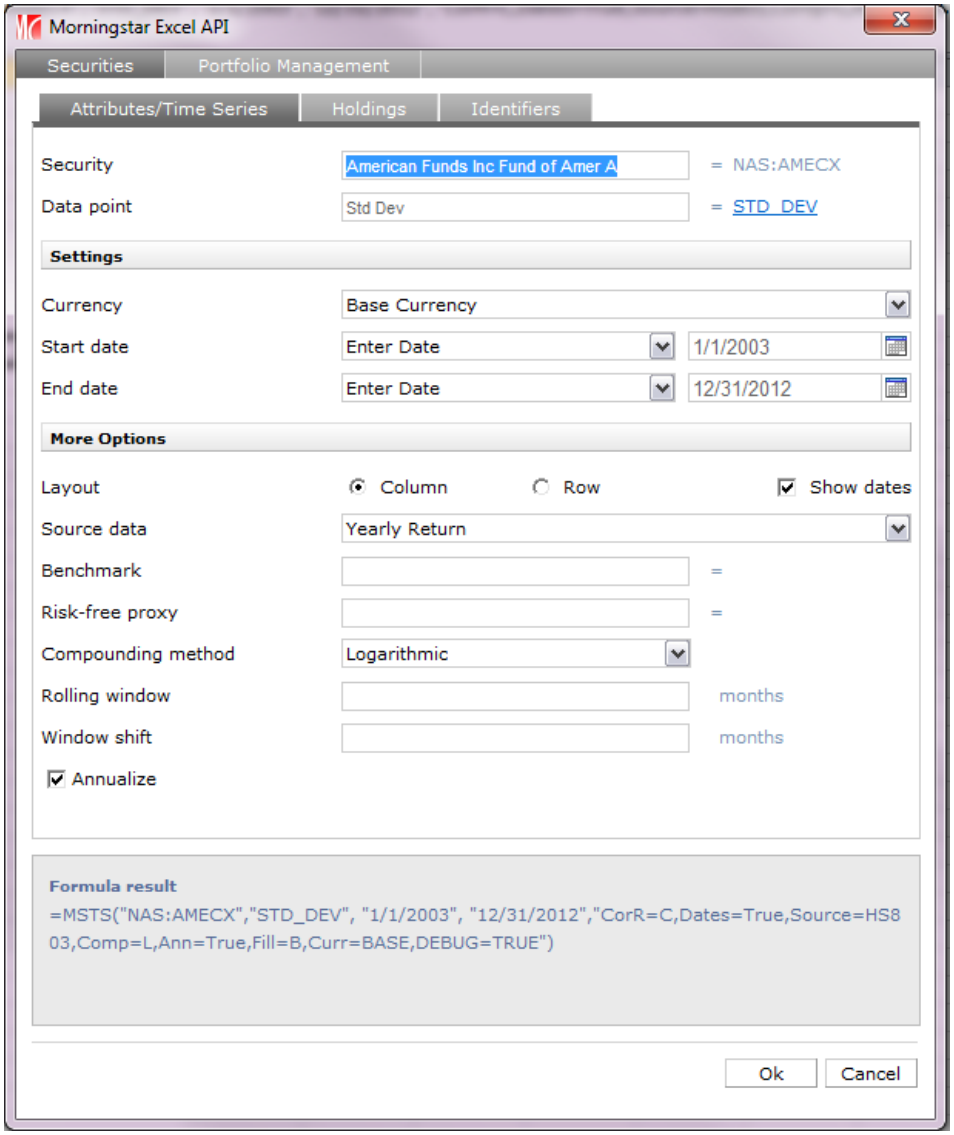
Example 2: get custom data with Dialog--calculate a single period "Std Dev" for funds;



Results in Excel:

2003-01-01 to 2012-12-31	16.21

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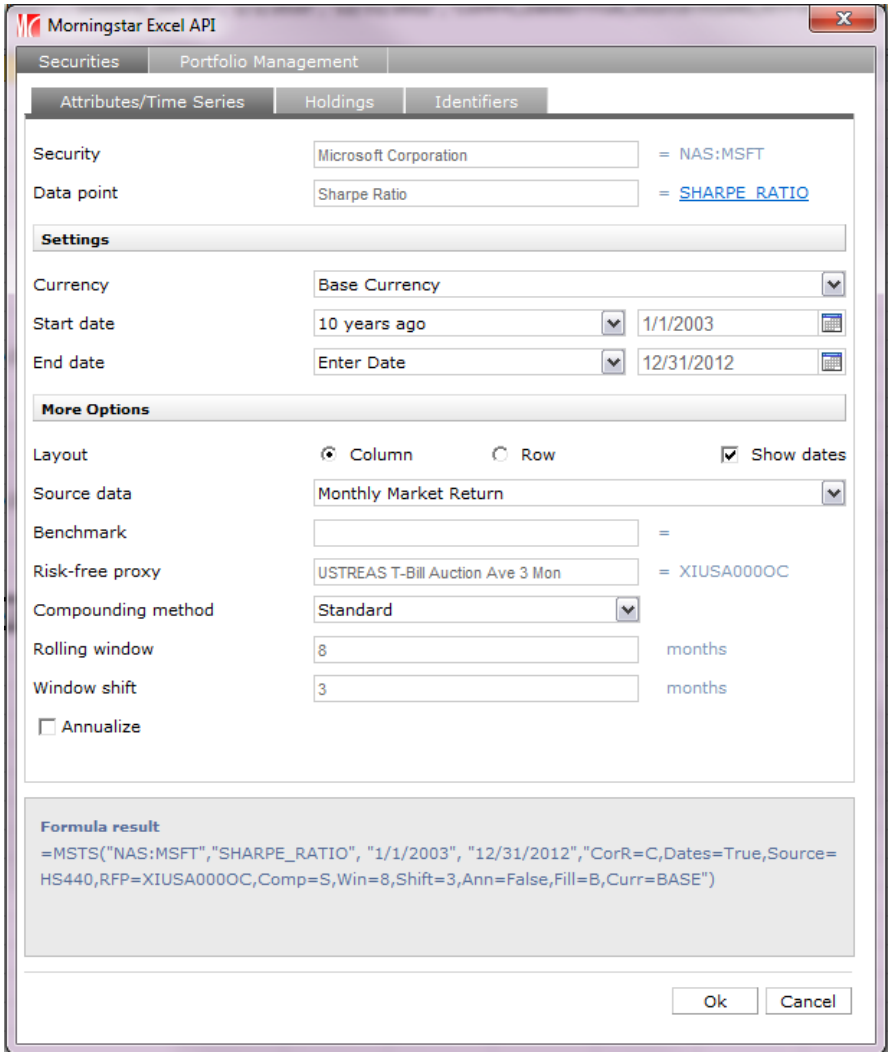
Example 3: get data with Dialog--calculate "sharp ratio" for stocks



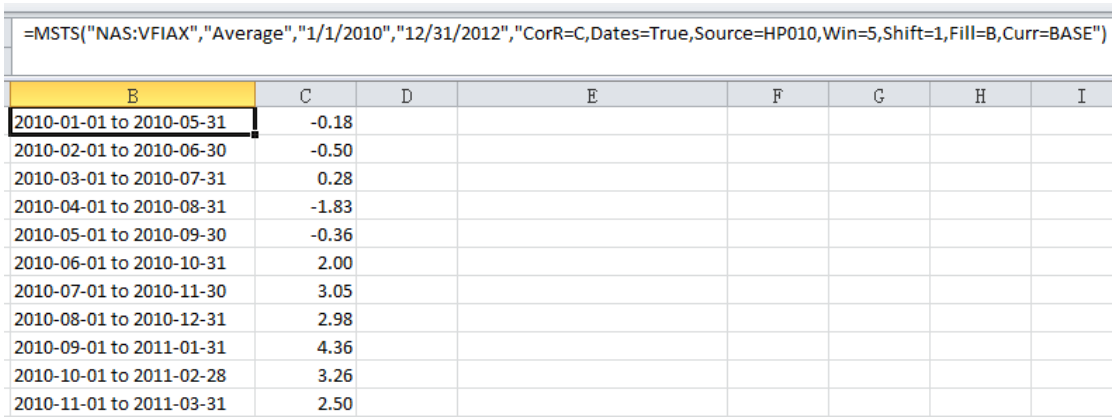
Results in Excel:

2003-01-01 to 2003-08-31	0.08
2003-04-01 to 2003-11-30	0.20
2003-07-01 to 2004-02-29	0.12
2003-10-01 to 2004-05-31	-0.13
2004-01-01 to 2004-08-31	0.00
2004-04-01 to 2004-11-30	0.53
2004-07-01 to 2005-02-28	-0.10
2004-10-01 to 2005-05-31	0.09
2005-01-01 to 2005-08-31	0.06
2005-04-01 to 2005-11-30	0.33

Example 4: get data with function--calculate "average" for funds
Formula:

=MSTS("NAS:VFIAX","Average","1/1/2010","12/31/2012","CorR=C,Dates=True,Source=HP010,Win=5,Shift=1,Fill=B,Curr=BASE")
HP010 is ID of monthly return

Results in Excel:

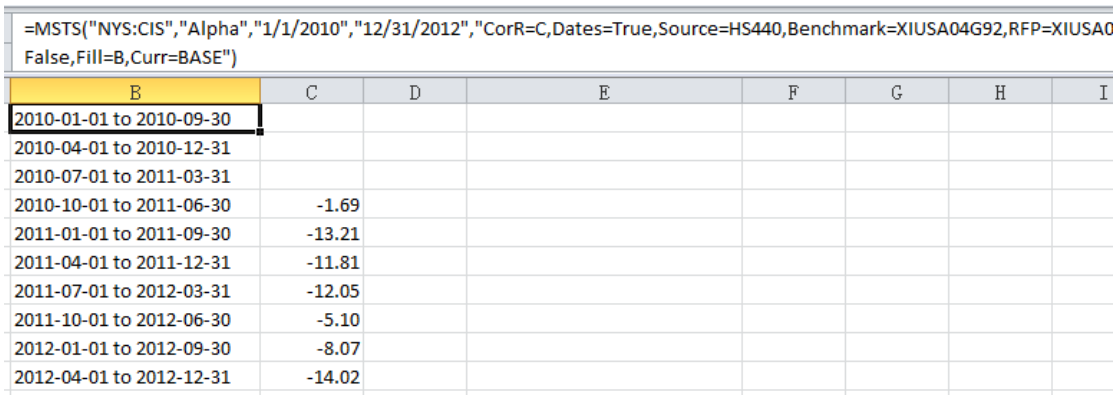


B	C	D	E	F	G	H	I
2010-01-01 to 2010-05-31	-0.18						
2010-02-01 to 2010-06-30	-0.50						
2010-03-01 to 2010-07-31	0.28						
2010-04-01 to 2010-08-31	-1.83						
2010-05-01 to 2010-09-30	-0.36						
2010-06-01 to 2010-10-31	2.00						
2010-07-01 to 2010-11-30	3.05						
2010-08-01 to 2010-12-31	2.98						
2010-09-01 to 2011-01-31	4.36						
2010-10-01 to 2011-02-28	3.26						
2010-11-01 to 2011-03-31	2.50						

Example 5: get data with function--calculate "Alpha" for stocks

Formula:
=MSTS("NYS:CIS","Alpha","1/1/2010","12/31/2012","CorR=C,Dates=True,Source=HS440,Benchmark=XIUSA04G92,RFP=XIUSA000OC,Comp=S,Win=9,Shift=3,Ann=False,Fill=B,Curr=BASE")
HS440 is ID of monthly market return; XIUSA04G92 is ID of S&P 500 TR; XIUSA000OC is ID of USTREAS T-Bill Auction Ave 3 Mon;

Results in Excel:



B	C	D	E	F	G	H	I
2010-01-01 to 2010-09-30							
2010-04-01 to 2010-12-31							
2010-07-01 to 2011-03-31							
2010-10-01 to 2011-06-30	-1.69						
2011-01-01 to 2011-09-30	-13.21						
2011-04-01 to 2011-12-31	-11.81						
2011-07-01 to 2012-03-31	-12.05						
2011-10-01 to 2012-06-30	-5.10						
2012-01-01 to 2012-09-30	-8.07						
2012-04-01 to 2012-12-31	-14.02						

Example 6: get data with function--calculate "Tracking Error" for separate accounts
Formula:

=MSTS("F00000HGPT","TRACKING_ERROR","1/1/2010","12/31/2012","CorR=C,Dates=True,Source=HPD10,Benchmark=XIUSA04G92,Comp=L,Win=8,Shift=2,Ann=False,Fill=B,Curr=BASE")
HPD10 is ID of monthly gross return; XIUSA04G92 is ID of S&P 500 TR; logarithmic as compounding method;

Results in Excel:

=MSTS("F00000HGPT","TRACKING_ERROR","1/1/2010","12/31/2012","CorR=C,Dates=True,Source=HPD10,Benchmark
False,Fill=B,Curr=BASE")

B	C	D	E	F	G	H
2010-01-01 to 2010-08-31	2.29					
2010-03-01 to 2010-10-31	2.33					
2010-05-01 to 2010-12-31	2.56					
2010-07-01 to 2011-02-28	2.31					
2010-09-01 to 2011-04-30	1.80					
2010-11-01 to 2011-06-30	1.61					
2011-01-01 to 2011-08-31	1.29					
2011-03-01 to 2011-10-31	1.97					
2011-05-01 to 2011-12-31	2.13					
2011-07-01 to 2012-02-29	2.13					
2011-09-01 to 2012-04-30	1.45					
2011-11-01 to 2012-06-30	1.85					
2012-01-01 to 2012-08-31	1.49					
2012-03-01 to 2012-10-31	1.59					
2012-05-01 to 2012-12-31						

Custom calculation data points available in Excel API

Full Name	Short Name
Alpha (non-excess return)	Alpha_non_excess_ret
Alpha	Alpha
Average	Average
Average Gain	Average_Gain
Average Loss	Average_Loss
Batting Average	Batting_Average
Beta (non-excess return)	Beta_non_excess_ret
Beta	Beta
Correlation (non-excess return)	Correlation_non_excess_ret
Correlation	Correlation
Down Capture Ratio	Down_Capture_Ratio
Down Capture Return	Down_Capture_Return
Downside Deviation	Downside_Deviation
Excess Return	Excess_Return
Excess Return (geo)	Excess_Return_geo
Information Ratio (arith)	Info_Ratio_arith
Information Ratio (geo)	Info_Ratio_geo
Kurtosis	Kurtosis
Loss Std Dev	Loss_Std_Dev
Max	Max
Median	Median
Min	Min
Relative Risk	Relative_Risk
Residual Std Dev (non-excess return)	Residual_Std_Dev_non_excess_ret
Residual Std Dev	Residual_Std_Dev
R2 (non-excess return)	R2_non_excess_ret
R2	R2
Semi Dev	Semi_Dev
Sharpe Ratio (arith)	Sharpe_Ratio_arith
Sharpe Ratio (geo)	Sharpe_Ratio_geo
Skewness	Skewness
Sortino Ratio (arith)	Sortino_Ratio_arith
Sortino Ratio (geo)	Sortino_Ratio_geo
Std Dev	Std_Dev
Tracking Error	Tracking_Error
Treynor Ratio (arith)	Treynor_Ratio_arith
Treynor Ratio (geo)	Treynor_Ratio_geo
Up Capture Ratio	Up_Capture_Ratio

Up Capture Return	Up_Capture_Return
Upside Deviation	Upside_Deviation
Calmar Ratio	Calmar_Ratio
Sum	Sum
Best Month	Best_Month
Worst Month	Worst_Month
Best Quarter	Best_Quarter
Worst Quarter	Worst_Quarter
Gain Std Dev	Gain_Std_Dev
Max Drawdown	Max_Drawdown
Max Drawdown # of Periods	Max_Drawdown_#_of_Periods
Max Drawdown Peak Date	Max_Drawdown_Peak_Date
Max Drawdown Valley Date	Max_Drawdown_Valley_Date
Up Period Percent	Up_Period_Percent
Down Period Percent	Down_Period_Percent
Longest Up-Streak # of Periods	Longest_Up_Streak_#_of_Periods
Longest Up-Streak Return	Longest_Up_Streak_Return
Longest Up-Streak Start Date	Longest_Up_Streak_Start_Date
Longest Up-Streak End Date	Longest_Up_Streak_End_Date
Longest Down-Streak # of Periods	Longest_Down_Streak_#_of_Periods
Longest Down-Streak Return	Longest_Down_Streak_Return
Longest Down-Streak Start Date	Longest_Down_Streak_Start_Date
Longest Down-Streak End Date	Longest_Down_Streak_End_Date
Up Number Ratio	Up_Number_Ratio
Up Percent Ratio	Up_Percent_Ratio
Down Number Ratio	Down_Number_Ratio
Down Percent Ratio	Down_Percent_Ratio
Sharpe Ratio	Sharpe_Ratio
First Value	First_Value
Last Value	Last_Value
First Date	First_Date
Last Date	Last_Date
Number of Observations	Number_of_Observations
Omega	Omega
Kappa(3)	Kappa(3)
Jarque-Bera	Jarque_Bera
Sortino Ratio	Sortino_Ratio
Sterling Ratio	Sterling_Ratio
Average Drawdown	Average_Drawdown
Appraisal Ratio (non-excess return)	Appraisal_Ratio_non_excess_ret
Std Error Alpha (non-excess return)	Std_Error_Alpha_non_excess_ret
Std Error Alpha	Std_Error_Alpha

Std Error Beta (non-excess return)	Std_Error_Beta_non_excess_ret
Std Error Beta	Std_Error_Beta
Bear Beta	Bear_Beta
Bear Correlation	Bear_Correlation
Bull Beta	Bull_Beta
Bull Correlation	Bull_Correlation
Efficiency Ratio (arith)	Efficiency_Ratio_arith
Coefficient of Variation	Coefficient_of_Variation
Gain/Loss Ratio	Gain/Loss_Ratio
Max Drawdown Recovery # of Periods	Max_Drawdown_Recovery_#_of_Periods
Max Drawdown Recovery Date	Max_Drawdown_Recovery_Date
Max Gain	Max_Gain
Max Gain # of Periods	Max_Gain_#_of_Periods
Max Gain Start Date	Max_Gain_Start_Date
Max Gain End Date	Max_Gain_End_Date
Appraisal Ratio	Appraisal_Ratio
Covariance (non-excess return)	Covariance_non_excess_ret
Covariance	Covariance
Downside Std Dev	Downside_Std_Dev
Upside Std Dev	Upside_Std_Dev
Gain Deviation	Gain_Deviation
Loss Deviation	Loss_Deviation
Efficiency Ratio (geo)	Efficiency_Ratio_geo
M-Squared	M_Squared
Std Dev Population	Std_Dev_Population
Up Number	Up_Number
Down Number	Down_Number
Overall Capture Ratio	Overall_Capture_Ratio
Semi Std Dev	Semi_Std_Dev
Semi Variance	Semi_Variance
Overall Deviation	Overall_Deviation
Average Absolute Deviation	Average_Absolute_Deviation
Max Absolute Deviation	Max_Absolute_Deviation