Back-Testing Relative Performance and Evaluating Technical versus Macroeconomic and Corporate Research.

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Speaker

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Bloomberg L.P.

Tim is the application specialist in Technical Analysis at Bloomberg LP in London, where he manages the rapidly increasing demand for charting and data visualization tools in EMEA.

He has over 30 years' experience in financial markets, in trading, sales and research at major international banks, including State Street, UBS, BNP Paribas and Lloyds. He uses diverse but complementary technical methodologies, based on behavioral finance, to help Bloomberg clients to analyze sentiment in all asset classes and all conditions of volatility and liquidity.

In 2018 he additionally took an MSc in Financial Investigation, including a dissertation examining the dependency of financial markets on illicit flows from money laundering. He previously took a BA in Classics and is a full member of the Society of Technical Analysts in London and of IFTA.

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BT and TSIG

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Back-Testing Technical Analysis

Back-Testing Relative Performance and Evaluating Technical versus Macroeconomic and Corporate Research

Credibility Gap

- Legacy of historical technical analysis
  - Original pattern recognition predated acceptance of behavioural finance
  - Sentiment excluded from macroeconomic and quantitative analysis
    - Efficient Market Hypothesis
  - Lack of coherent causality in macroeconomic or quantitative context
  - Obscure terminology and jargon
    - 'Head and shoulders', 'gravestone doji'….

- Exclusion of technical analysis
  - Disregarded by many professional investors and traders
  - Used for timing short-term entry and exit only
  - Overlooked in long-term, multi-asset or portfolio analysis

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Absolute Back-Testing

- Opportunity to compare and integrate technical analysis
  - Specific trading rules based on technical analysis
  - Objective performance measurement in single securities / indices

- Fails to meet realistic needs of professional investors & traders
  - Relative performance measurement
  - Sophisticated investment / trading rules
  - Realistic trading environments and costs
  - Comparison with macroeconomic and corporate analysis

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Bloomberg Back-testing

- Extend back-testing to needs of professional buy-side & sell-side
    - Relative performance measurement
    - Sophisticated investment / trading rules
    - Realistic trading environments and costs
    - Comparison with macroeconomic and corporate analysis

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Relative Performance

- **Performance measured against any portfolio, index or basket**

  Unavailable in macroeconomic or other fundamental analysis

- **Pairs trading**

  Equities and bonds

  Unavailable in macroeconomic or other fundamental analysis

Sophisticated and realistic conditions

- **Customised trading rules**

  Single and multiple scenarios for trade entry and risk management

  Unavailable in macroeconomic or other fundamental analysis

- **Conditions and costs**

  Customised to each portfolio or market

  Long & Short or Long Only

  Scalable entry and exit

  - Full amount or pyramid-style

  Choice of reporting currency

  Commissions (fixed or percentage)

  Slippage (use with Bloomberg LQA <GO> function)

Technical, Macroeconomic & Corporate Analysis

- **Data**

  Bloomberg trusted provider of macroeconomic and corporate data

  Billions of data points in major and emerging markets, in all asset classes

- **Alignment and comparison**

  Use Bloomberg to back-test trading strategies using non-technical data

  Compare technical with equivalent macroeconomic and corporate analysis

  Eliminate the credibility gap between technical and non-technical analysis

- **Integration**

  Combine technical with non-technical analysis and back-test performance

  Common preference of traders and investors

Back-Testing in Bloomberg TSIG and BT

Back-Testing Relative Performance and Evaluating Technical versus Macroeconomic and Corporate Research

TSIG

- **Fixed period Back-Testing analysis**

    Assumes no amendment or risk management over fixed period

    Available periods: 1 period of 1 minute to 100 years of quarterly

- **Easy observation of profit / loss**

    How many signals over chosen history, when and at what price

    How many profitable and losing signals

- **Easy observation of overall and individual profit / loss**

    P/L of all signals identifiable over fixed period, including mean return

- **Easy to present and send to colleagues and clients**

    Customized alerts

BT

- **Open-ended Back-Testing analysis**

  Signals valid until trading rule / new signal terminates it

  Available periods: 1 minute to quarterly charts

- **Easy observation of profit / loss**

  How many signals over chosen history, when and at what price

  How many profitable and losing signals and full performance statistics

- **Optimization of technical analysis indicators**

  Thousands of permutations

- **Breakdown of portfolios / indices to individual securities**

  Alerts on all securities

Back-Testing

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TSIG <GO>
Technical Strategy: fixed period in absolute terms

Standard or customized
technical studies
(or combination)

Customized trading strategy

TSIG <GO>
Technical Strategy: fixed period in absolute terms

Security and history

Fixed period for analysis

Strategy signals & data

Performance statistics

TSIG <GO>
Technical Strategy: fixed period in absolute terms

Individual signal
performance % returns

Highest
Mean
Lowest
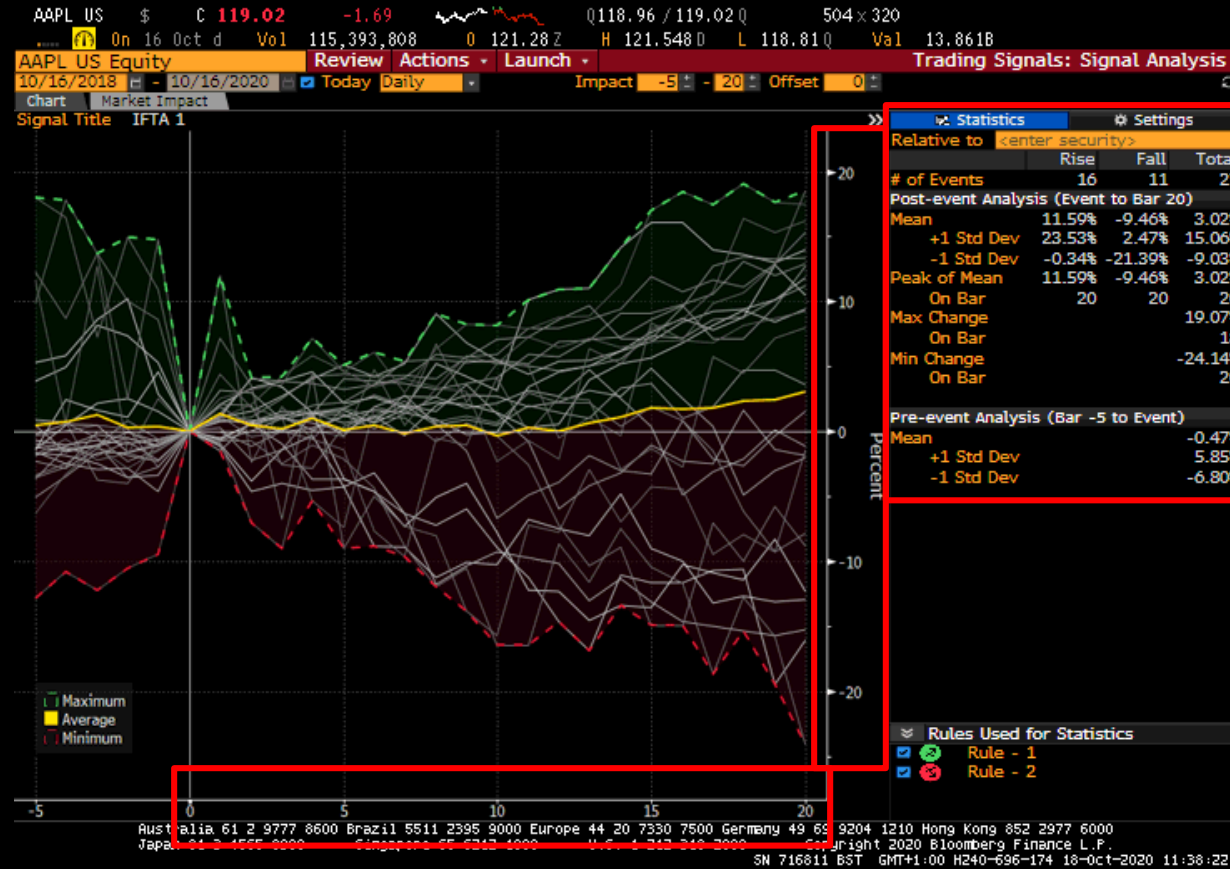
Performance
statistics

Date of signal   Bars since signal

TSIG <GO>
Technical Strategy: absolute terms within portfolio

Strategy signals and
performance
in members of chosen
index or portfolio

Set alerts:
same strategy,
any index or portfolio

# of signals
and dates

Performance
of signals

Back-Testing Relative Performance and Evaluating Technical versus Macroeconomic and Corporate Research

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Technical Strategy: relative to index or portfolio

Same security

Relative to index / portfolio

Performance statistics: additional alpha relative to index / portfolio

TSIG <GO>
Technical Strategy: pairs trading

AAPL v
MSFT

Performance
statistics:
pairs trading

TSIG <GO>
Macroeconomic Strategy: US Non-Farm Payrolls

US 10 year
Treasury

buy
if NFP < 100k

sell
if NFP > 350k
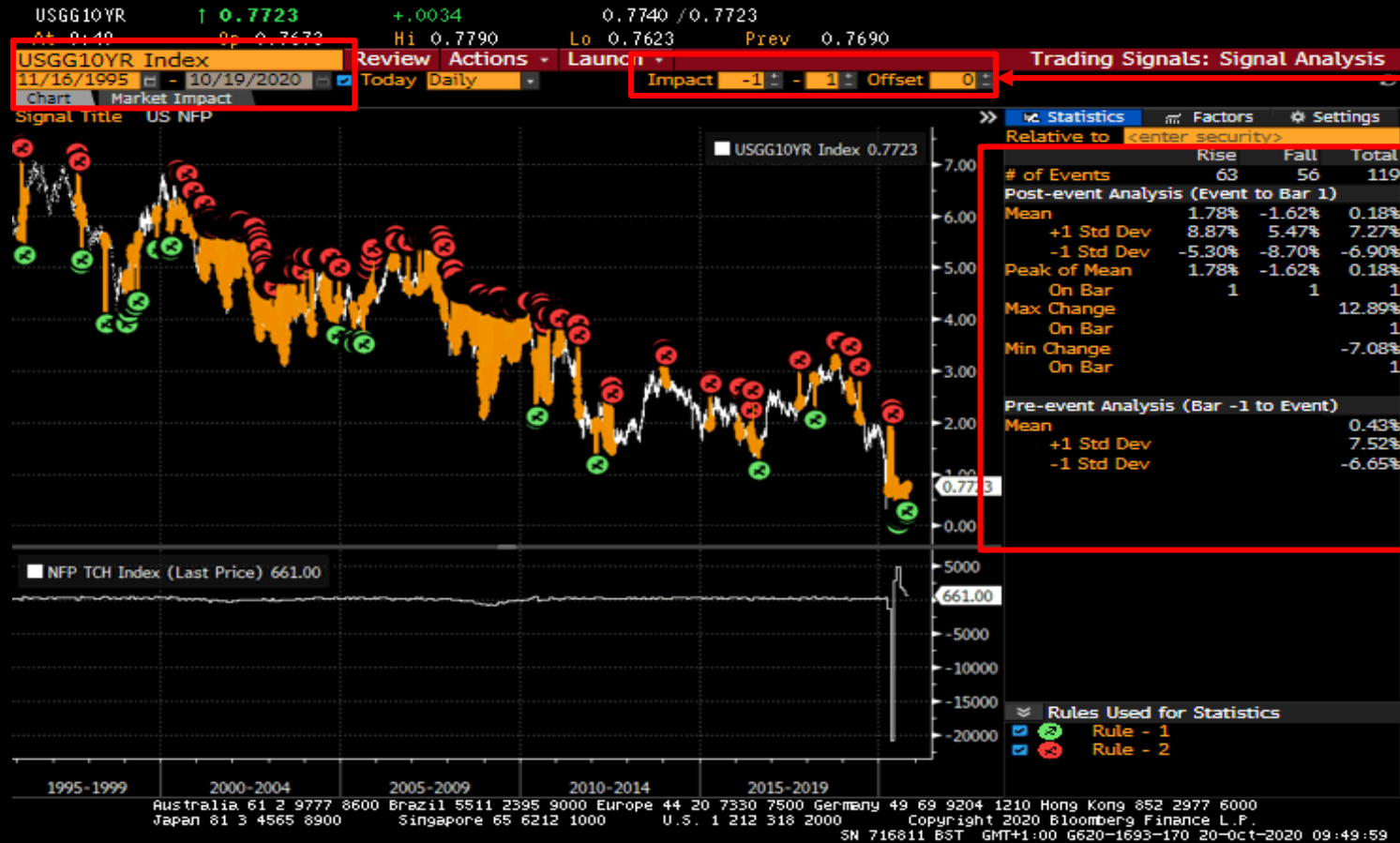
next month
market
impact

119 signals
low returns
over 25 years

TSIG <GO>
Macroeconomic plus Technical Strategy

US 10 year
Treasury

buy
if NFP < 100k
& 10y yield
< mov average

sell
if NFP > 350k
& 10y yield
> mov average

next month
market
impact

26 signals
improved returns
over 25 years

TSIG <GO>
Corporate: Analyst Upgrades & Downgrades

AAPL:
buy
if upgrade
sell
if downgrade

20 day
market impact

25 signals
but low returns
over 2 years

TSIG <GO>
Corporate: Earnings versus Estimates

AAPL:
buy if beat
estimates
sell if miss
estimates

Only 8 signals
4 profits
4 losses
but improved
returns

TSIG <GO>
Corporate: Earnings versus Estimates (Portfolio)

S&P 500 members beat or miss estimates
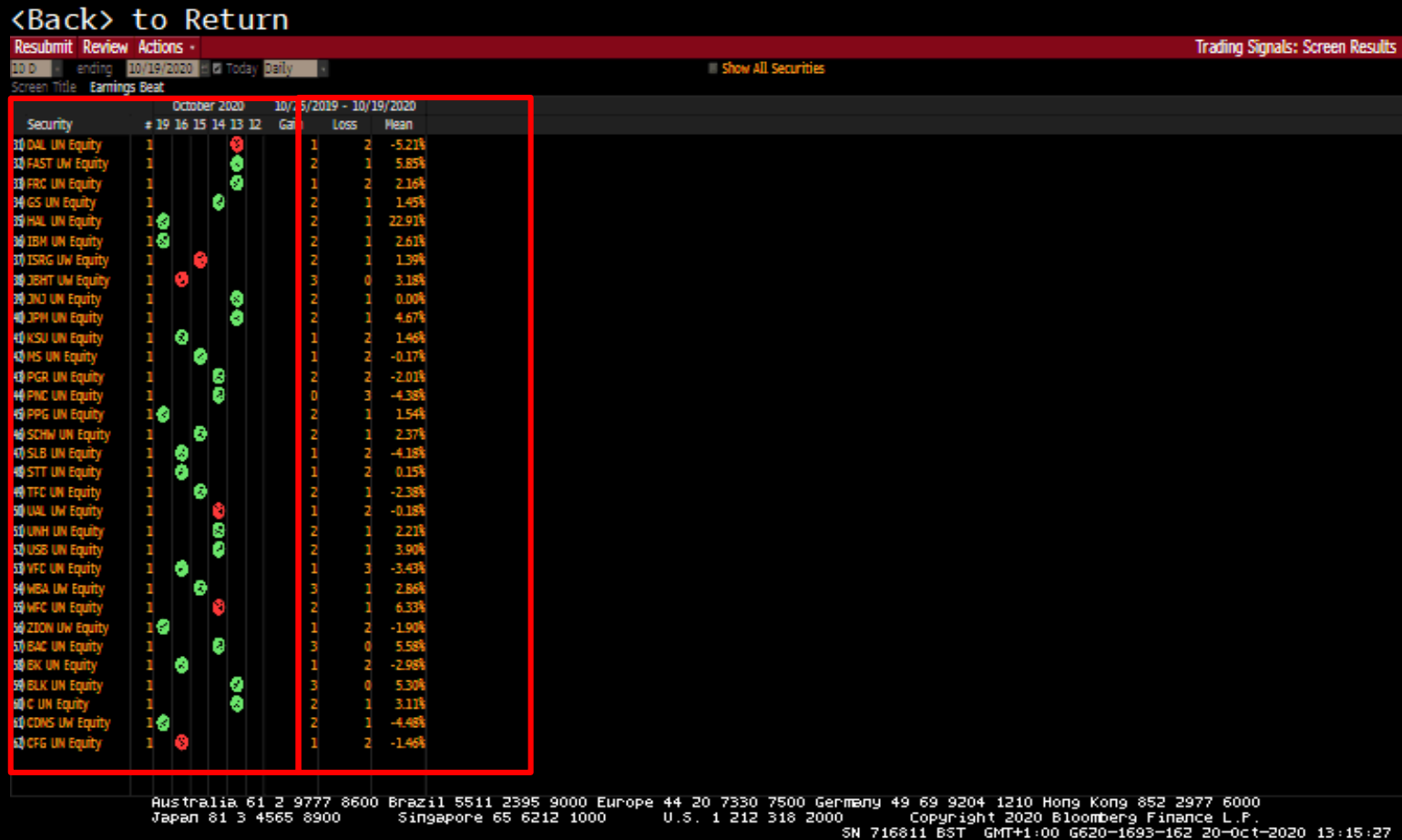
signals in chosen period

BT <GO>
Technical Strategy: no Fixed Period

Strategy successfully saved.

Save	Analyze ▾	Actions ▾	Launch ▾	Backtesting & Optimization: Strategy Definition

Strategy Definition | Simulation Control

Strategy Title| MLR Slope Long & Short

≫ Factors

Select From Available Factors

Add Variable...
Add Security/Datafield...
▸ Bloomberg Technical Studies
▸ User Defined Studies
▸ Events
Simple Moving Average
Relative Strength Index
Rate of Change
Mov Avg Convergence/Divergence
Acc/Dist Oscillator
Aroon Oscillator
Asymmetrical Vol Bands
ATPR Trendline
ATPR U-Shaped
ATPR V-Shaped HiLo

Selected Factors

Type	Name
1. MLR Slope(52,0)	MLR Slope1

Moving Linear
Regression Slope

≫ Rules   2) Add Rule

	Action		Factor 1		Condition		Factor 2		
1.	Cover & go Long ▾	using a	Market Order ▾	at	>	Next Open ▾		+ ⊗
	when	MLR Slope1 ▾	MLR Slope ▾	at	>	Value ▾	0	+ ⊗
2.	Close & go Short ▾	using a	Market Order ▾	at	<	Next Open ▾		+ ⊗
	when	MLR Slope1 ▾	MLR Slope ▾	at	<	Value ▾	0	+ ⊗

≫ Notes

Long
if MLR > 0
Short
if MLR < 0

Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 4565 8900   Singapore 65 6212 1000   U.S. 1 212 318 2000   Copyright 2020 Bloomberg Finance L.P.
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Technical Strategy: no Fixed Period

Security

Strategy Signals

Returns on notional $100k

Long if MLR > 0
Short if MLR < 0

7 profits
9 losses
but net positive returns

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Technical Strategy: Realistic Trading Conditions

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Technical Strategy: Optimization

LEGATRUU 543.9745 -.1828 Ret MTD +.56 Ret 3M +1.90
As of 10/20/20 YTW 0.90 OAS 0.47

LEGATRUU Index | **Submit** | **Backtesting & Optimization: Submit Optimization**

10/19/2015 - 10/22/2020 ☑ Today Daily

Optimization Parameters | Strategy Definition | Simulation Control

Optimization Title MLR Slope Long & Short

Available Parameters			
⊟ MLR Slope1			
├ MLR Period			
MA Period			
└ Lead/Lag			

Selected Parameters (Max 10)					
Factor	Parameter	Min	Max	Step	
1. MLR Slope1	MLR Period	48	56	1	x
2. MLR Slope1	MA Period	3	7	1	x
3. MLR Slope1	Lead/Lag	-1	1	1	x

* Only factors used in strategy rules are shown.

Current iterations	135
Remaining iterations	14865

⌵ Notes

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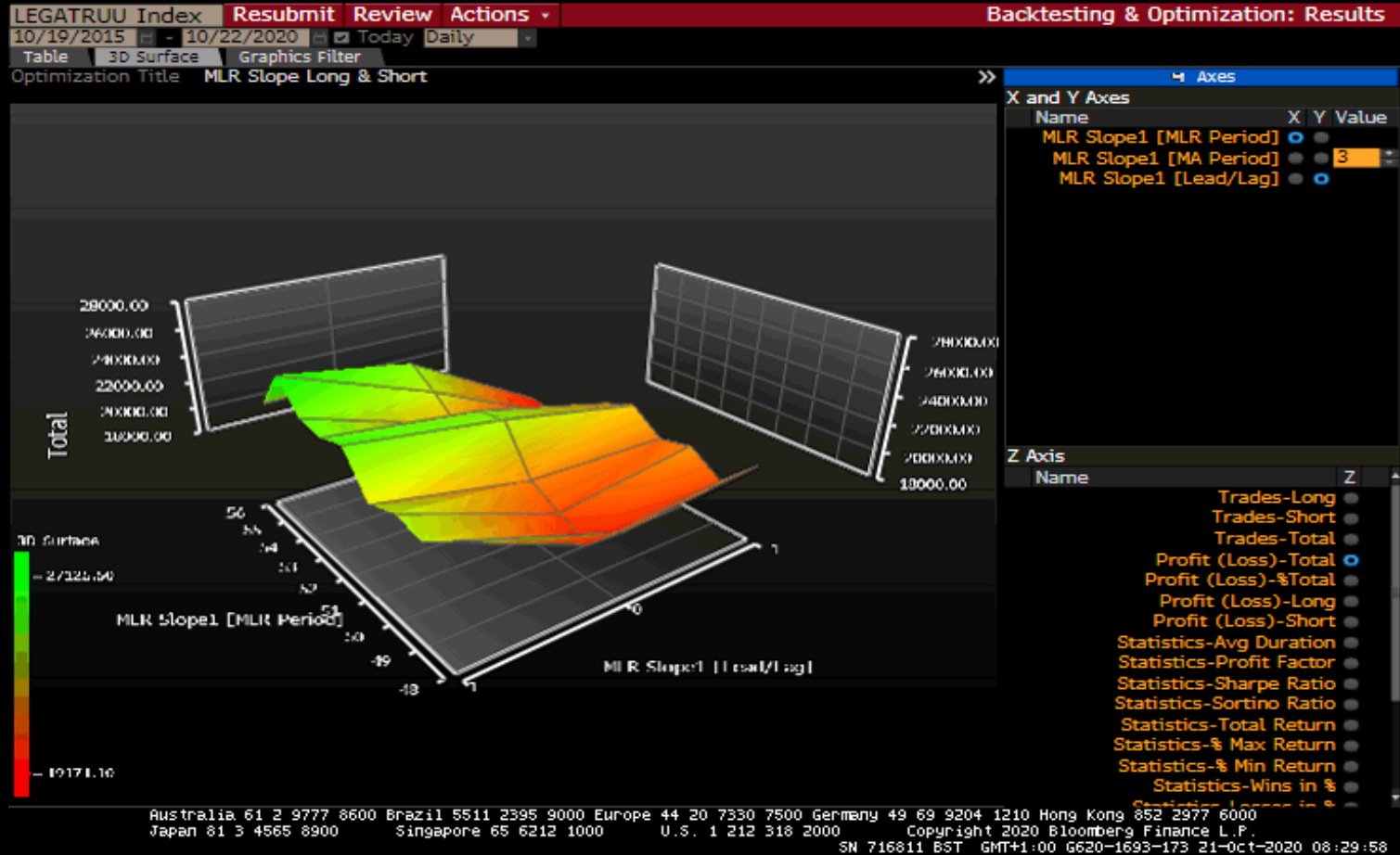SN 716811 BST GMT+1:00 G620-1693-169 21-Oct-2020 08:18:13

**9, 5 & 3:
permutations
of individual factors**

**Total 135
permutations
in optimization**

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Technical Strategy: Optimization

Optimum signal settings

Optimum returns

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Technical Strategy: Optimization

3-D Surface
optimum
signal settings

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Popular Strategy: Golden Cross & Death Cross

55 bar Mov Av
& 200 bar Mov Av

BT <GO>
Popular Strategy: Golden Cross & Death Cross

55 bar Mov Av
& 200 bar Mov Av

Positive return
but volatile

Return on
notional $100k

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Integrated Strategy: long-only with multiple factors

Strategy factors:
Analyst recommendations,
volatility,
RoC of Mov Av,
stop-loss

BT <GO>
Integrated Strategy: long-only with multiple factors
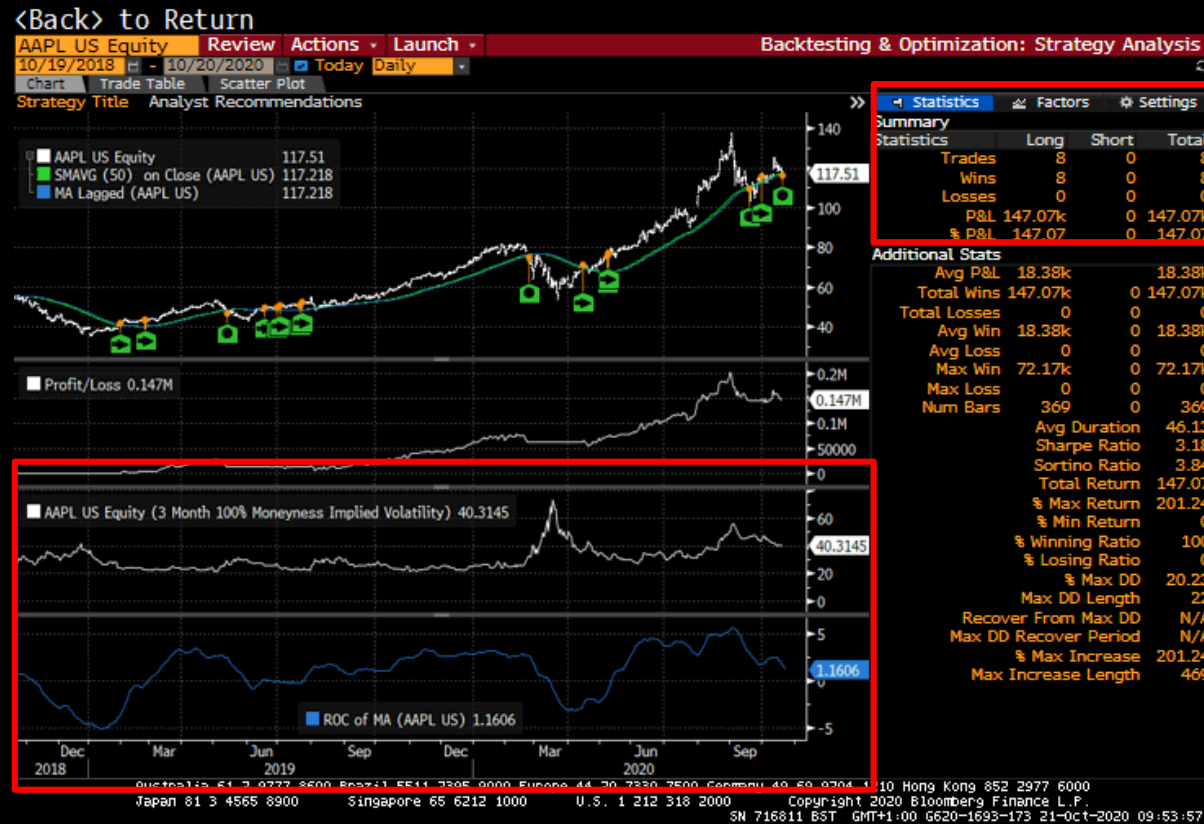
No losing trades

Analyst recommendations,
volatility,
RoC of Mov Av,
stop-loss

Back-Testing Relative Performance and Evaluating Technical versus Macroeconomic and Corporate Research

Conclusion

- Technical analysis now directly comparable with macroeconomic and corporate analysis

- Technical analysis now integrated with macroeconomic and corporate analysis

- Technical analysis now measurable in realistic trading scenarios of relative return and variable market conditions

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Thank You

- To learn more, please contact your Bloomberg representative or

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Thank you.

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