

AlgoDynamix



Forecasting Risk in Financial Markets through Artificial Intelligence

Brokerage, wealth management and
agency (client) trading use cases

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Artificial intelligence category finalists in our Entrepreneurial Science and Technology Awards

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Meet the finalists in the artificial intelligence category of our awards



Dr Jeremy Sosabowski
CEO,
AlgoDynamix

AlgoDynamix Pulls Trigger on 'Magnum' Price Forecasting Tool



The new tool captures crowding and clustering effects that can help forecast large price movements.

UK financial analysis provider **AlgoDynamix** has launched a new tool for forecasting large market movements and price changes across asset classes based on identifying clusters of similar behavior among market participants.

The world's current FX & derivatives clusters of behavior and forward movements, usually on a weekly timescale, lagging the bid and ask of the subsequent movement, and is aimed at traders at smaller to large firms and hedge funds, and funds offices. The new tool, **PHO** Magnum, identifies clusters that have potential to generate less frequent and much larger

The WealthTECH Book **WILEY**

Your rating ★ 5

We published **The FINTECH Book** which became a global Bestseller.

Financial forecasting and portfolio optimisation in the 21st Century.

ALDX PI™

The ongoing disruptions within the asset/wealth management space including in the areas of Robo advisory and optimised portfolio construction are already visible on numerous fronts. What still isn't visible and probably even more urgently required are changes in existing market risk and portfolio construction methodologies. Mathematical models and calibration from past events are the foundation for most models used in today's financial services industry including portfolio diversification (Markovitz), option pricing (Black-Scholes), interest rate evolution (Black-Karasinski) and tail risk impact probabilities (VaR and others).

Global financial markets are becoming even more interdependent by the day, making diversification and financial correlations and the free more complicated.



Needless to say that occ The irony is not lost on t most required. AlgoDyn based on deep data from proprietary unsupervise

AlgoDynamix signs up major Silicon Valley customer for financial SaaS

By Mike Fox Aug 07, 2016 2 Comments



Dr Jeremy Sosabowski, PhD, CEO of AlgoDynamix says

"Our knowledgeable customer had originally attended one of our popular workshops which comes with a 7 day software licence included in the price. Having then fully evaluated the software and its capabilities they decided to go ahead with purchasing a full production license. The results our trial customers had over the 7 days of using the software clearly demonstrated the added value of the ALDX-PI™ platform."

Who is the big Silicon Valley customer? Stay tuned to LeapRate for follow up to this story.

Tags: algorithmic, financial markets, portfolio management, trading software, tech, artificial intelligence

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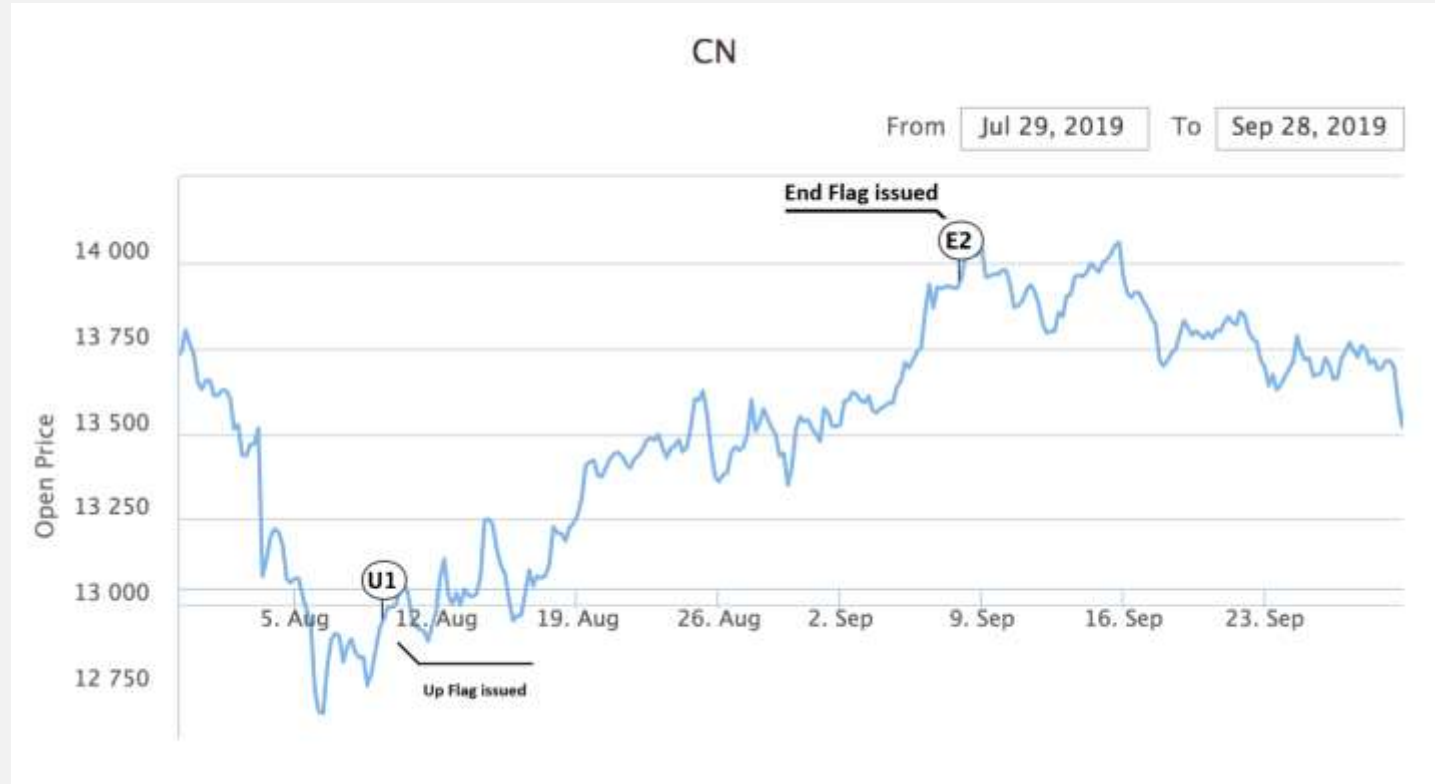
Financial risk forecasting providing days advance warning of major directional market movements. Example showing Up Flags (U1, U2) followed by End Flag (E3) on equity markets

AlgoDynamix



Financial risk forecasting providing days advance warning of major directional market movements. Example showing Up Flags (U1, U2) followed by End Flag (E3) on equity markets

AlgoDynamix



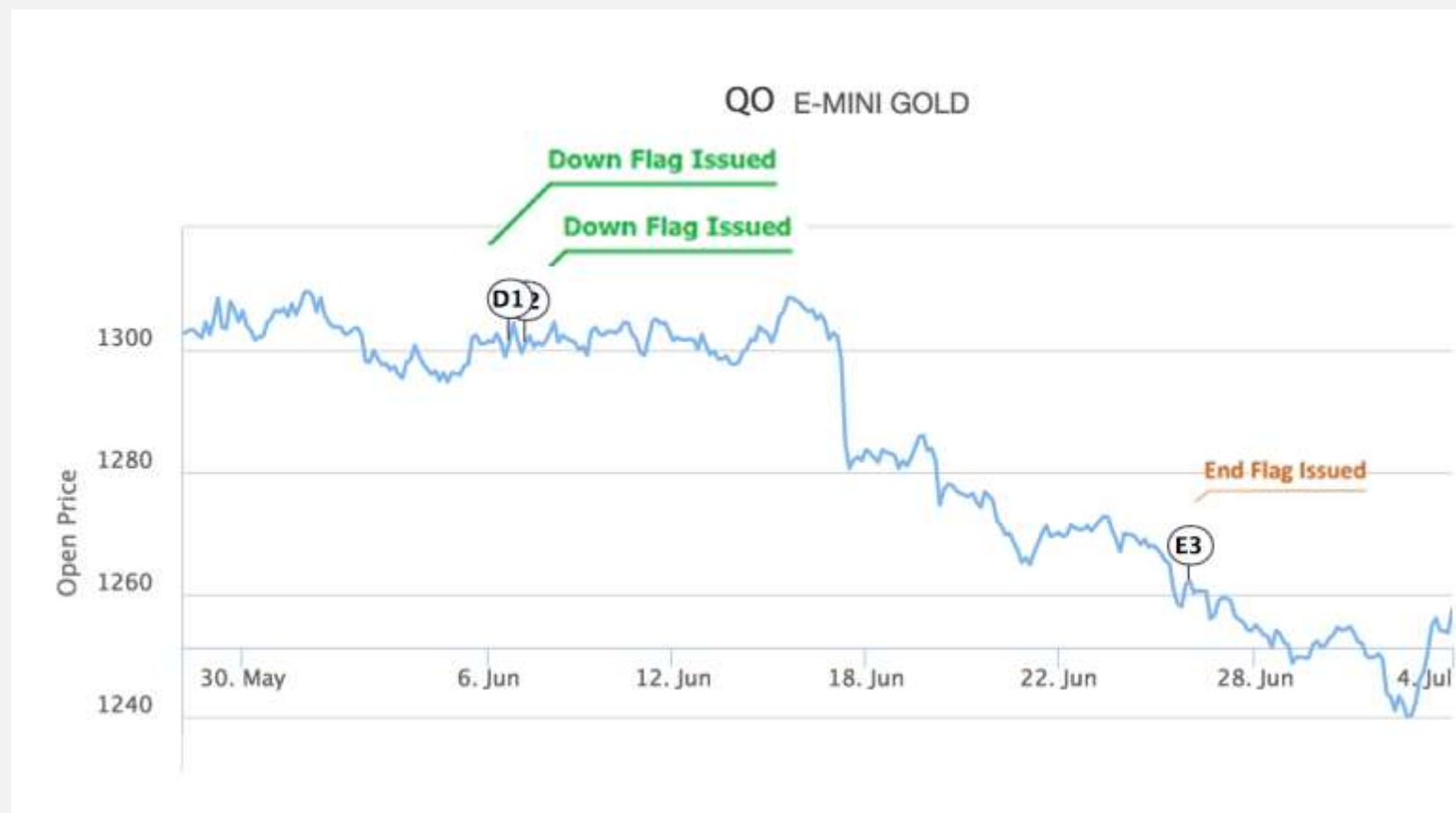
Financial risk forecasting providing days advance warning of major directional market movements. Example showing Up Flags (U1) followed by End Flag (E2) on equity markets

AlgoDynamix



Financial risk forecasting providing days advance warning of major directional market movements. Example showing Down Flag (D1) followed by End Flag (E2) on currency markets

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金融风险预警工具提前几天或几小时提供重大市场方向走势的预测。图中实例展示了我们的工具所提供的黄金下跌标识(D1),(D2)与随后的结束标识 (E3)

Different types of Machine Learning:

Supervised

Supervised learning

- Start with a labelled “training” data set
- Used for producing predictive models
- Examples are:
 - Classification
 - Regression

→ Works very well if the future looks a lot like the past....



More specific

Supervised vs unsupervised

Supervised learning

- Start with a labelled “training” data set
- Used for producing predictive models
- Examples are:
 - Classification
 - Regression

Unsupervised learning

- No labelling on the data
- Used for producing descriptive models
- Examples are:
 - Clustering
 - Association learning



- The AlgoDynamix risk analytics engine is based on deep data agent-based algorithms scanning - in real-time - multiple quantitative primary data sources (order books).
 - These algorithms analyse the dynamic behaviour of market participants, i.e. buyers and sellers, through our unsupervised machine learning technology which clusters them based on common feature sets.
 - Noise classification, cluster identification and behavioural finance theory are part of our unique core capabilities.
 - Market anomalies occur when large clusters of buyers or sellers are identified, note that in the following slides everything still 'looks normal' but the deep data insights reveal a very different picture.

Underlying technology (behavioural)

→ 'Cluster the limit order book'

Order Type	Price	Volume	Order ID
Bid	90.77	1,500	6049953
Bid	90.75	5,000	6051405
Bid	90.73	1,000	6049741
Bid	90.70	8,978	6053789
Bid	90.67	17,410	6051405
Ask	90.61	36,443	6053789
Ask	90.58	2,000	5989529
Ask	90.56	1,000	6055391
Ask	90.55	15,480	6056875
Ask	90.54	1,000	6055391

The WealthTECH Book WILEY

Your rating ★ 5

We published The **FINTECH** Book which became a global Bestseller.

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ALDX PI™

The ongoing disruptions within the asset/wealth management space including in the areas of portfolio construction are already visible on numerous fronts. More and more urgently required are changes in existing market methodologies. Mathematical models and calibration from past models used in today's financial services industry including (but not limited to) option pricing (Black-Scholes), interest rate evolution (Black-Scholes), and risk management (VaR and others).

Markets are becoming even more interdependent by the day, making forecasting increasingly challenging. Past assumptions about market stability and extreme events (US Elections, Brexit) are making this even more so.

Things can and do go very wrong in global financial markets. AlgoDynamix team that most financial models stop working when addressing these fundamental flaws using its analytic engine and multiple data sources (the world's global financial exchanges) and its machine learning algorithms.

Nobel Prize in Economics

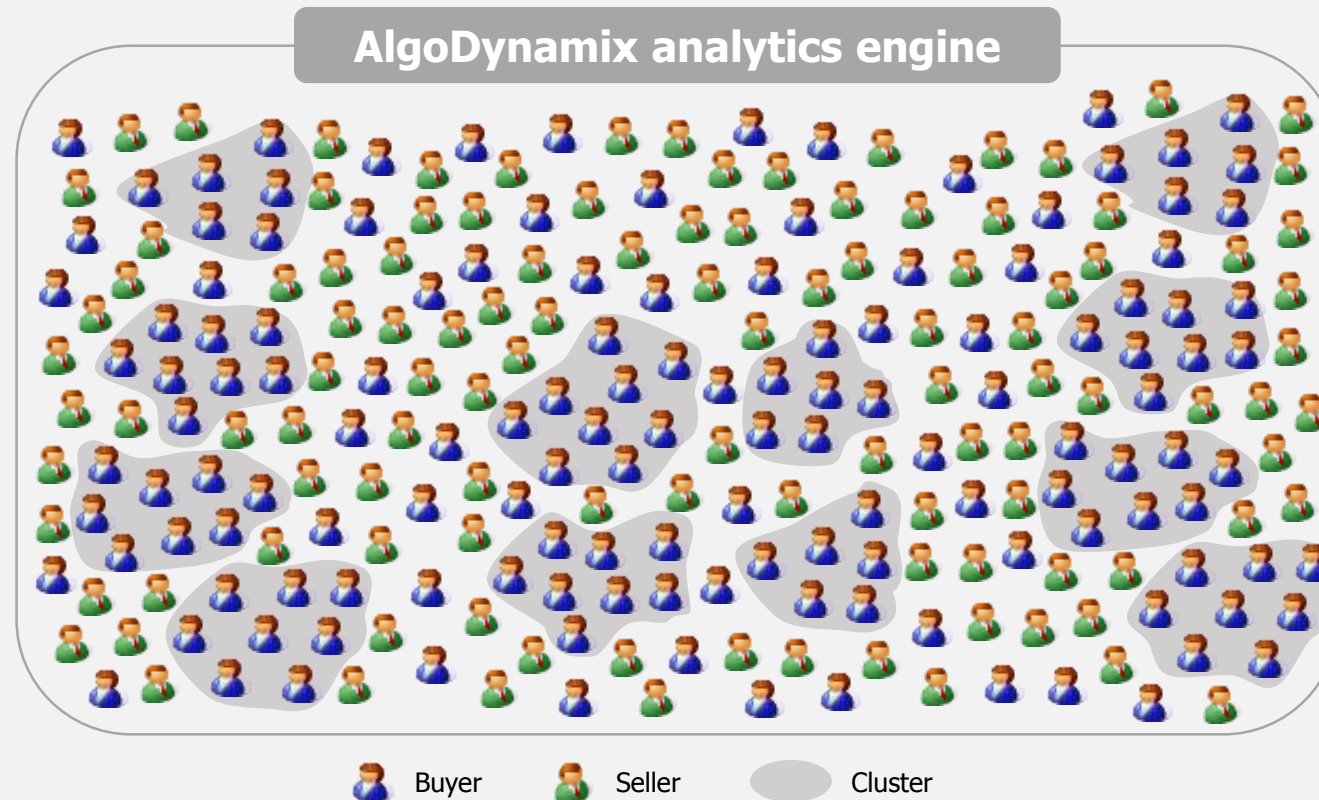
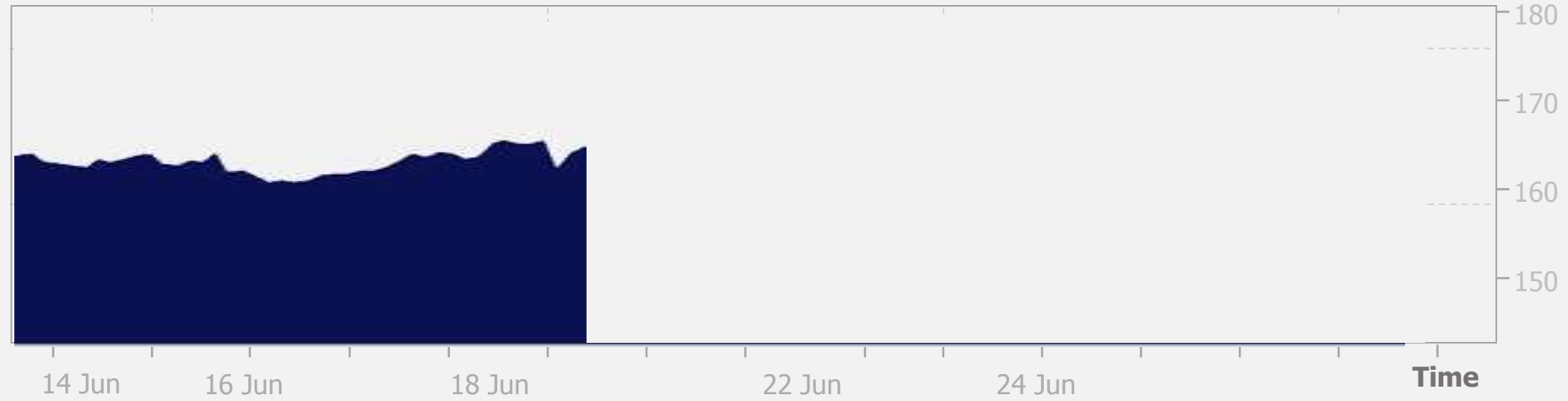


The 2017 Nobel Prize in Economic Sciences has been awarded to Richard Thaler of the University of Chicago for his pioneering work in behavioural economics

RECENT LAUREATES

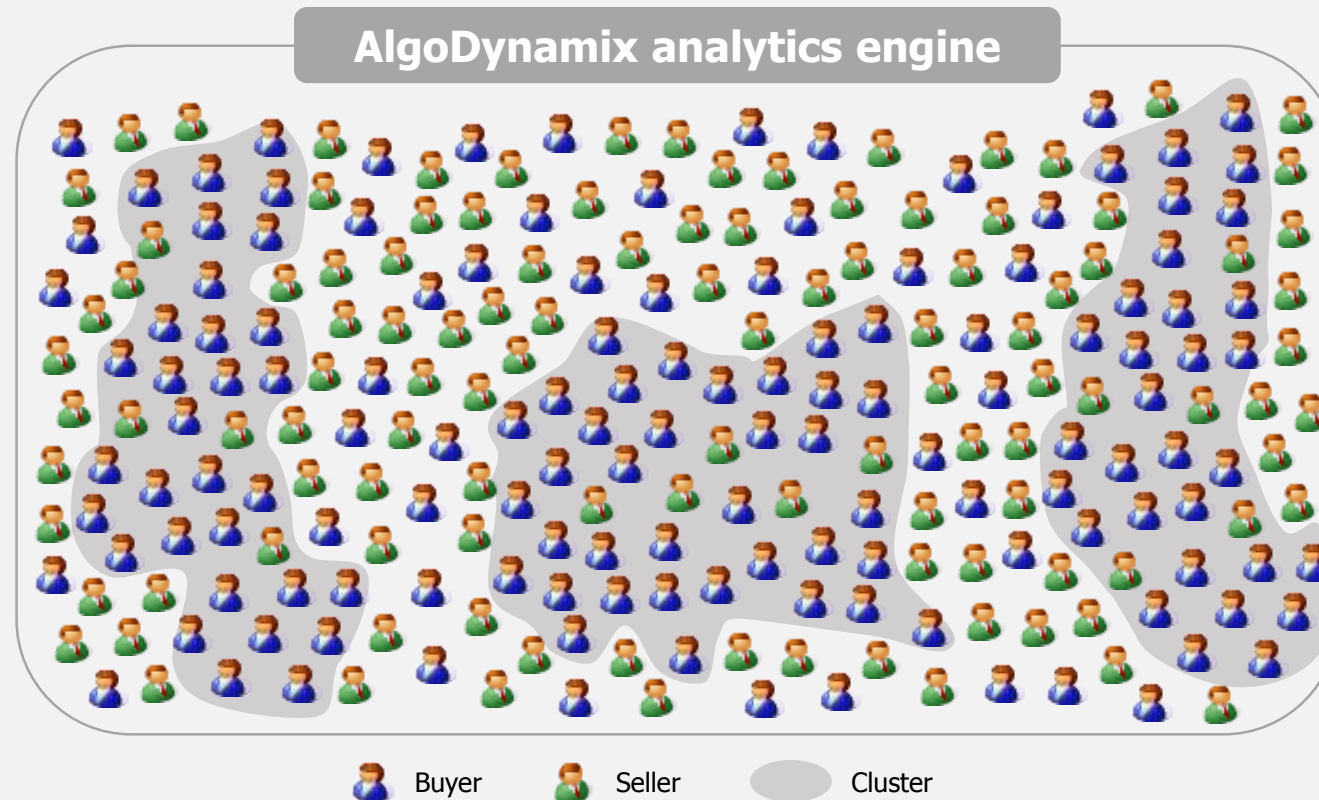
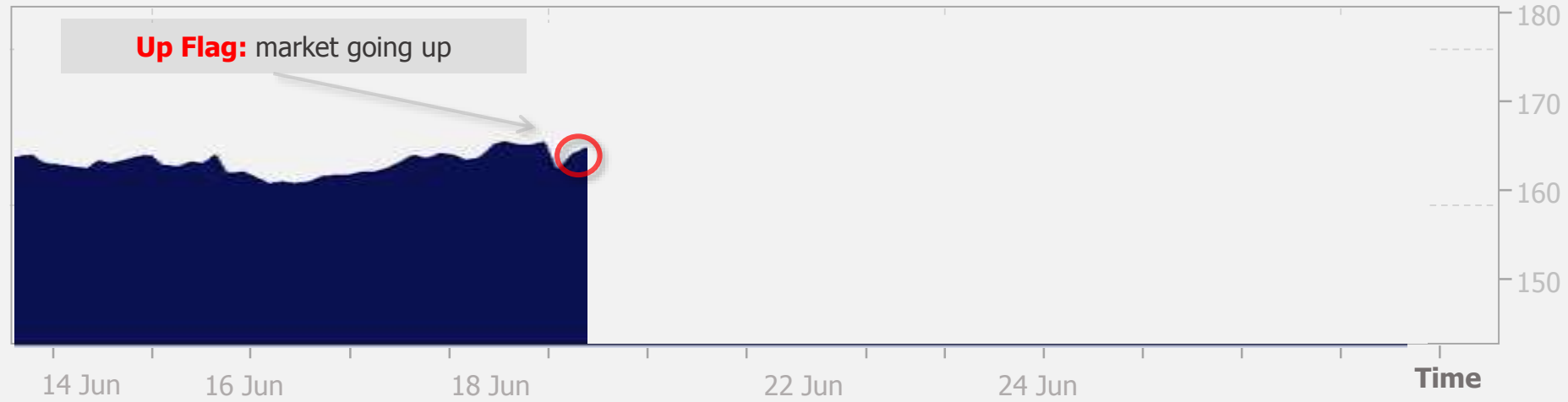
Richard Thaler
Behavioural Economics Explained

Price S&P 500



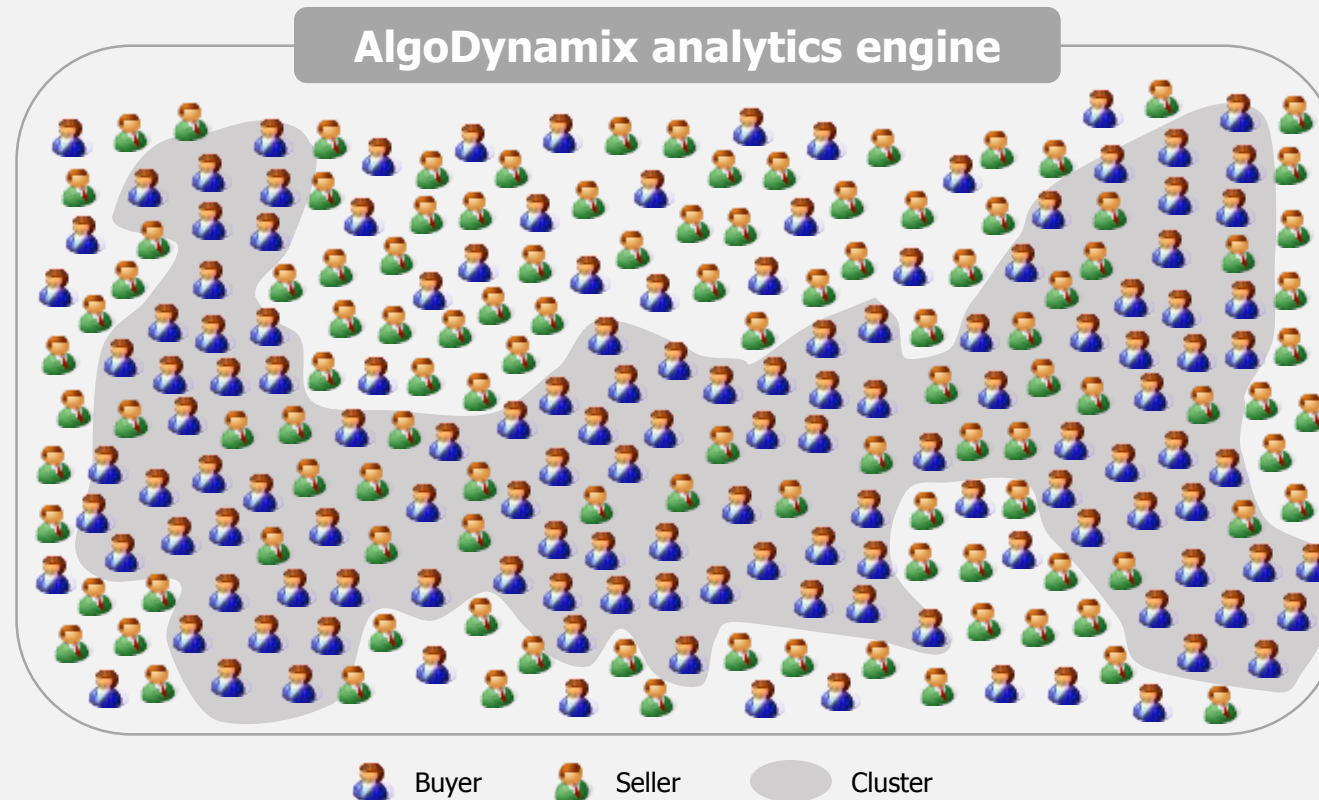
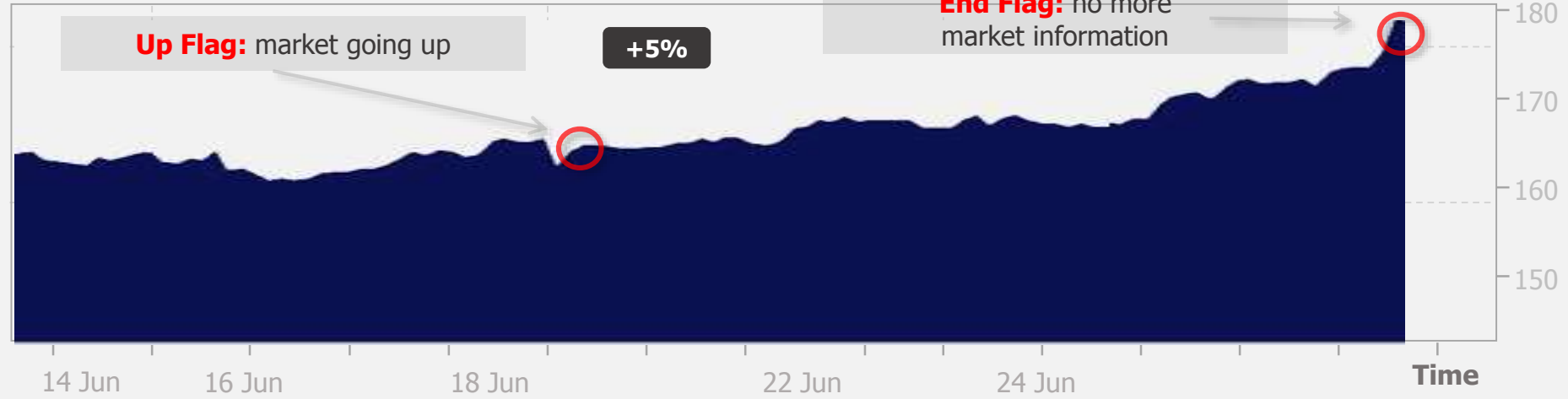
- Software identified 'clusters' of user-behaviour
- Within each cluster, users have comparable feature sets
- Cluster identification amongst noisy buyers and sellers is part of our unique core capabilities

Price S&P 500



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Price S&P 500



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Product details

AlgoDynamix - Alert Status

analytics.algodynamix.com/alertStatus

AlgoDynamix Alert Status Features Jeremy Sosabowski

PI-EQ™ Product Information

Instrument	Type	Direction	Flag Issued	Flag Issued Since	Flag Price
YM	Equity Index Fut...	↑ Up - End	15-08-2019 20:00 06-09-2019 06:00	27+ days 8+ days	25511.00 26760.00
SUSA	Equities	↑ Up	11-09-2019 16:11	19+ hours	124.19
SHY	Equities	↑↑ Up	22-08-2019 13:31	21+ days	84.96
RTY	Equity Index Fut...	↑↑ Up	08-08-2019 00:00	35+ days	1499.80
NG	Equity Index Fut...	↑ Up	11-09-2019 03:00	1+ days	7520.00
MCX.X	Equity Market In...	↑ Up - End	29-08-2019 11:00 05-09-2019 11:00	14+ days 7+ days	19245.57 19583.89
DGQ	Equities	↑↑ Up	13-06-2019 19:01	80+ days	14.95
GLD	Equities	↑ Up	23-08-2019 14:01	19+ days	141.72
FTSE100	Equity Index Fut...	↑ Up - End	10-08-2019 02:00 20-08-2019 15:00	27+ days 22+ days	7104.80 7144.80
FESX	Equity Index Fut...	↑↑ Up	13-08-2019 10:00	29+ days	3362.00
FDAX	Equity Index Fut...	↑ Up - End	26-08-2019 19:00 02-09-2019 04:00	16+ days 10+ days	11268.00 11904.00
ES	E-mini Equity In...	↑ Up	11-09-2019 03:00	1+ days	3580.00

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Alert Status Summary

Instrument VBEEM.XO

CACE VBEEM RD
ETF Volatility Index

ALDX PIT™ Product Info

Instrument	Type	Direction
YM	Equi	↑ Up
SHY	Equi	↑ Up
RTY	Equi	↑ Up
NG	Equi	↑ Up
MCX.X	Equi	↑ Up
DGQ	Equi	↑ Up
GLD	Equi	↑ Up
FTSE100	Equi	↑ Up
FESX	Equi	↑ Up
FDAX	Equi	↑ Up
ES	Equi	↑ Up
HOU.A	Equi	↑ Up
FTSE100	Equi	↑ Up
FESX	Equi	↑ Up
FDAX	Equi	↑ Up
S&P	Equi	↑ Up

ALDX PIT™

Correct flag for VBEEM.XO

Up Flag Issued	Up Flag Price	End Flag Date	End Flag Price
10-09-18 19:00:00	11.13	Open	Open
18-01-18 20:00:00	15.08	Open	Open
18-01-18 10:00:00	15.88	Open	Open
18-01-18 16:00:00	15.81	Open	Open

Previous flag for VBEEM.XO

Up Flag Issued	Up Flag Price	End Flag Date	End Flag Price
11-07-18 19:00:00	15.08	18-08-18 17:00:00	23.48

Instrument Price | Close

Jeremy Sosabowski

→ Up Flags, Down Flags, End Flags across most financial instruments and asset classes, see also next slides.

→ Client specific trading strategies are developed on the back of these directional insights.

U10	31-Oct-2018 10:00:00 AM	89.31
EB	10-Oct-2018 07:30:00 AM	72.00
US	04-Oct-2018 12:00:00 PM	75.03
L17	28-Sep-2018 10:01:00 AM	75.84
EB	05-Sep-2018 12:00:00 PM	71.51
US	03-Sep-2018 16:00:00 PM	89.80
84	22-Aug-2018 14:01:00 PM	83.22



Client use cases

Results, practical trading

Long-standing US client: Dr Nag



Multi asset portfolio manager:

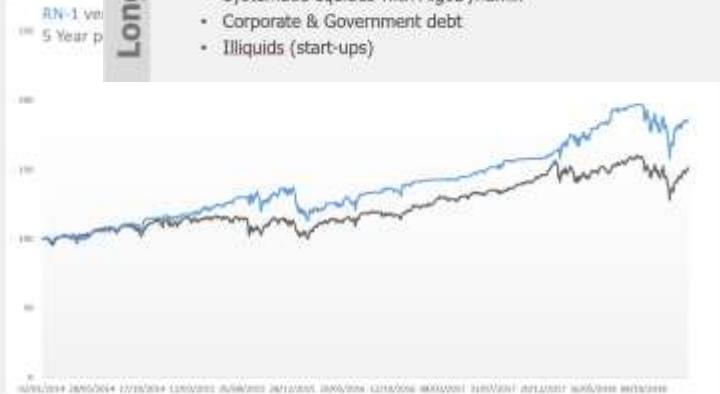
- Discretionary equities
- Systematic equities with AlgoDynamix
- Corporate & Government debt
- Illiquids (start-ups)

Stanford Distinguished Careers Institute

Ronjon Nag



Ronjon Nag has been named as one of the world's most influential leaders by the Stanford University Center for Innovation and Entrepreneurship (CIFE). He is also a member of the Stanford University Board of Trustees and a member of the Stanford University Board of Academic Officers.



Results (live):	RN-1	S&P 500
2018 Returns	+6.01%	-4.38%
Volatility	~17%	~17%



Maximum diversification portfolio
% outperformance versus benchmark

Weights as below:				Benchmark (Gov & Intl) equity same weighting			
Equity	Commodity	Gold	Intl	Equity	Commodity	Gold	Intl
60	20	10	10	60	20	10	10

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Combined portfolio with equities, commodities and gold

Weights as below:

Equity	Commodity	Gold
60	20	20

- Live use cases: Global active asset managers
- Investment banks: brokerage with some inventory
- Agency trading, client facilitation and in house

Historical data, research notes etc...

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Notes
PI product historical Flags
ES S&P 500

Up Flags date/time	End Flags date/time	PI (gross), without any strategy!
21-2-2013-01:00:00-AM	5-3-2013-08:00:00-PM	24
25-2-2013-10:00:00-PM	5-3-2013-08:00:00-PM	50
18-3-2013-03:00:00-AM	28-3-2013-07:00:00-PM	26
5-4-2013-01:00:00-PM	10-4-2013-04:00:00-PM	46
18-4-2013-08:00:00-PM	30-4-2013-06:00:00-AM	51
1-6-2013-11:00:00-PM	9-7-2013-04:00:00-PM	15
2-6-2013-01:00:00-PM	9-7-2013-04:00:00-PM	15





Resources available to view or download

- Webinars
- Workshops
- Research notes
- Conferences

Webinars

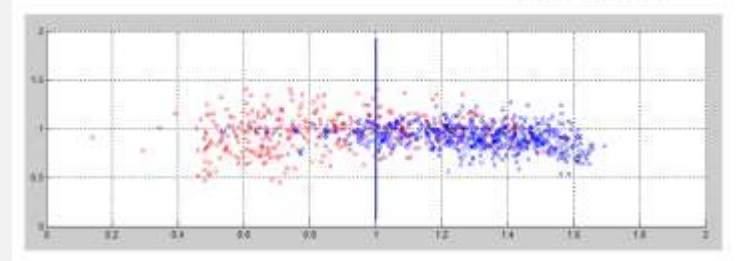
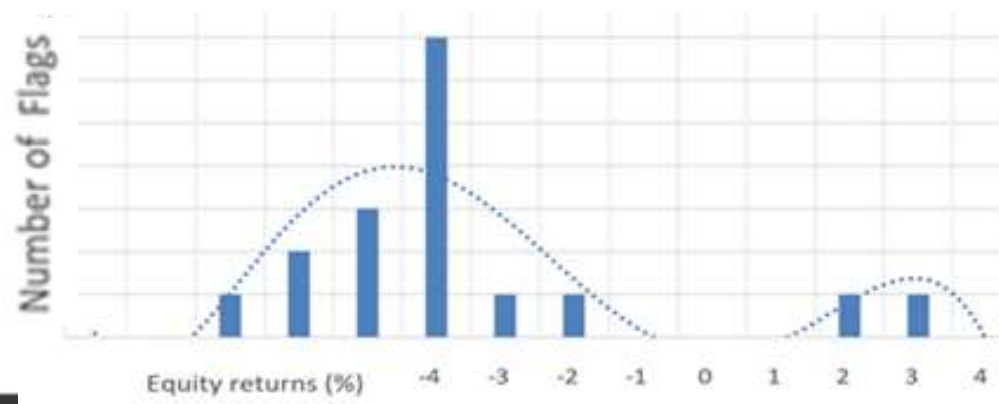
-  February 2017 Cambridge Webinar with full overview of ALDX PI analytics including results
-  December 2016 Webinar with 'soft launch event' of ALDX PI analytics
-  Summer 2016 Canary Wharf Fintech Week Webinar
-  AlgoDynamix Easter Webinar, April 2016

Workshops

-  AlgoDynamix Workshop/Bootcamp 20th May 2016 Part 6/6: Volatility forecasting, benchmarking
-  AlgoDynamix Workshop/Bootcamp 20th May 2016 Part 5/6: Product overview, login instructions
-  AlgoDynamix Workshop/Bootcamp 20th May 2016 Part 4/6: Analytics Engine, advanced breakdown
-  AlgoDynamix Workshop/Bootcamp 20th May 2016 Part 3/6: Clustering technologies
- May 2016 Part 2/6: Risk & technology overview
- May 2016 Part 1/6: Introduction

ALDX PI™

Symbol	Exchange	Name		
EMEA Equities				
4300	ASX	AUS FPAIA 08 INDEX FUTURE	✓	✓
EN	NYSE	NYSE ENER AND JULY 2017	✓	✓
61	NYSE	NYSE HESBERA APRIL JULY 2017	✓	✓
59	NYSE	NYSE NYNY INDEX JULY 2017	✓	✓
109	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
55	NYSE	NYSE SINGAPORE INDEX JULY 2017	✓	✓
76	NYSE	NYSE 00000 INDEX JULY 2017	✓	✓
EMEA Futures				
80A	NYSE	NYSE INDEX JULY 2017	✓	✓
EN19	NYSE	NYSE NY NY NY FUTURE CONTINUOUS	✓	✓
101	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
80B	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
100	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
101	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
102	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
103	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
104	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
105	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
106	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
107	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
108	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
109	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
110	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
111	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
112	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
113	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
114	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
115	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
116	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
117	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
118	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
119	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓
120	NYSE	NYSE 000 100 INDEX SEPTEMBER 2017	✓	✓



Get in touch.....

We will talk you through how our software analytics might be able to help you



jeremy@algodynamix.com



bryanoc@bankfin.com.au

AlgoDynamix Proof of Value

- Workshop with registration of selected users
- Selection of financial instruments*
*We do not require any internal or proprietary data sets
- **8 weeks access to risk analytics software**
- Ongoing support

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