

The FCO Cockpit – Global Bubble Status Report

Ahmed Ahmed, Didier Sornette & Ke Wu
Chair of Entrepreneurial Risk

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What is this?

This monthly report discusses the historical evolution of bubbles in and between different asset classes and geographies.

It is the result of an extensive analysis done on the historical time series of 431 systemic assets and 856 single stocks. The systemic assets are bond, equity and commodity indices and a selection of currency pairs. The single stocks are mainly US and European, equities. The data is from Thomson Reuters.

In the first part of this report, we present the state of the world, based on the analysis of the systemic assets. In the second part, we zoom in on the bubble behavior of single stocks and discuss some specific cases.

⁺ For an intuitive explanation of the methodology and the specifics of the indicators that are used in this report, we refer to: D. Sornette and P. Cauwels, *Financial bubbles: mechanisms and diagnostics*. *Review of Behavioral Economics* 2 (3), 279-305 (2015) (<http://arxiv.org/abs/1404.2140> and <http://ssrn.com/abstract=2423790>)

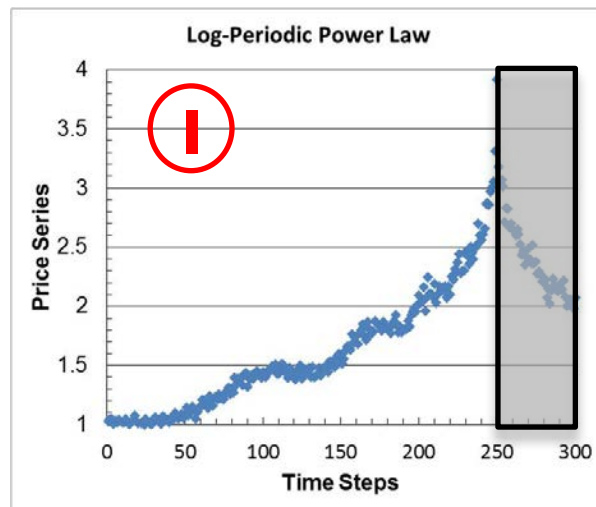
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How does it work?

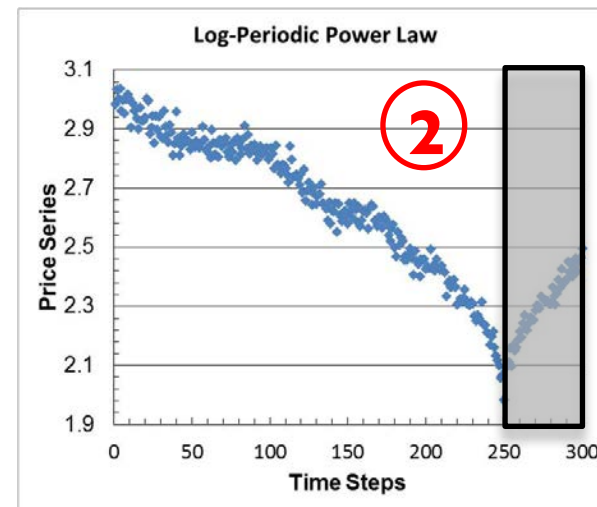
We use the Log-Periodic Power Law Singular (LPPLS) model to hunt for the distinct fingerprint of **Bubbles**:

1. The price rises **faster than exponentially**, so the logarithm of the price rises faster than linearly;
2. There are **accelerating oscillations**, with a distinct characteristic.

A bubble signal is identified if both of our bubble indicators, LPPL-Confidence and LPPL-Trust, are larger than 5%.



A **positive bubble** when
there is imitation in **buying**

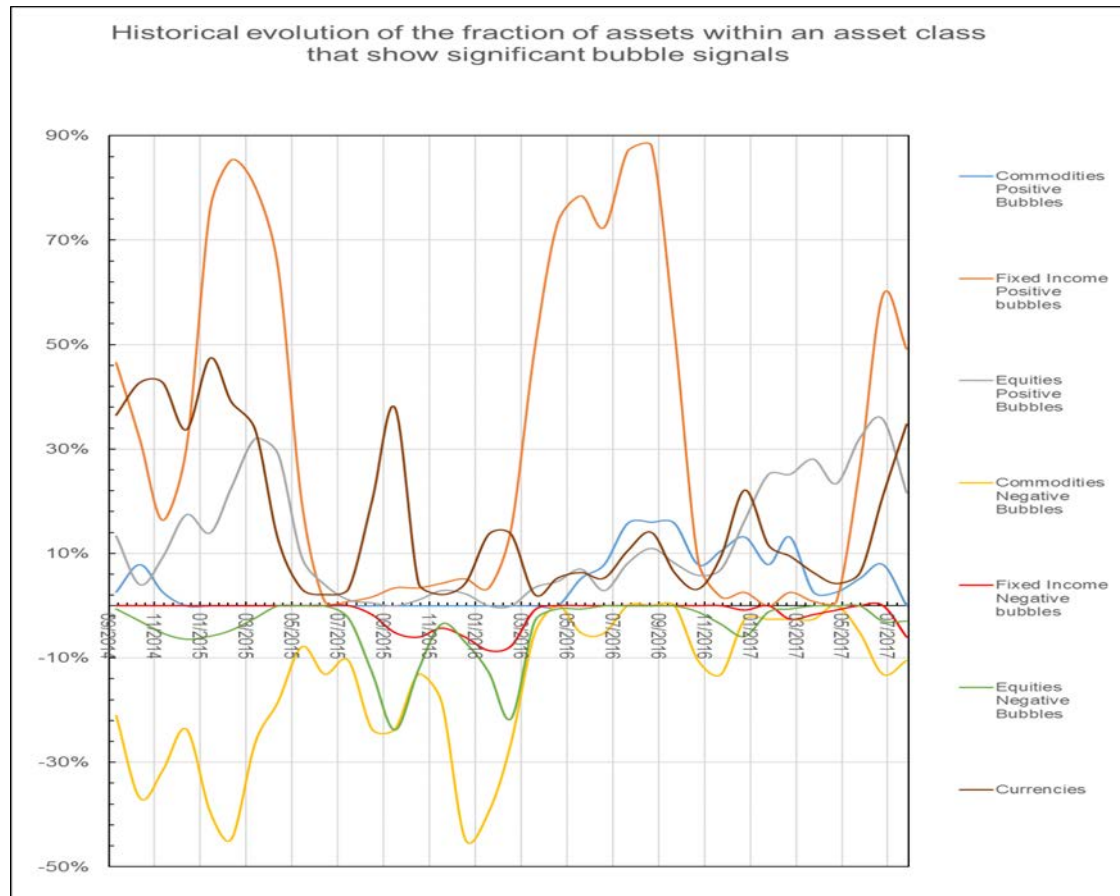


A **negative bubble** when
there is imitation in **selling**

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General Result

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A positive bubble signal is an indication of herding when people start buying because prices go up.
A negative bubble signal is an indication of herding when people start selling because prices go down.

The big picture

One can observe the stabilisation in the growth of positive bubbles in the fixed income asset class, with about 50% qualifying.

The fraction of stocks diagnosed in a positive bubble state decreased this month to 22% compared with 36% last month.

Only negative bubble signals are observed in a few commodity indices.

We also observe the continuation of the renewed bubble activity in currency pairs.

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Other interesting highlights from this report

- A surge in bubble signals in currencies for the second month, specifically in Euro and generally in its correlated European crosses, on the back of the improvement in the European macroeconomic and political atmosphere;
- The surge in bubble signals in the fixed income asset class continued for the third month (specifically in the financial bond indices) with a few sector indices started to show negative bubble signals;
- Four commodity indices are showing bubble signals and all of them are negative bubble signals. It is interesting that all of these four indices are agriculture indices;
- There is a slight cooling down in positive bubble signals in equities compared with last month as the strong start to 2017 for European equities has faltered over the past few months as a rising euro is seen crimping the continent's competitiveness. Note that around 70% of the indices that are showing signs of bubbles are emerging markets;
- In our analysis of single stocks, we find this month that 19 out of 20 sectors have smaller bubble scores compared to last month. Especially, the sector Semiconductors & Semiconductor Equipment we reported in the last seven months has moved back to a small bubble score. The sector Energy we reported last month still has a significant negative bubble score, reflecting that the recent drawdowns of energy prices are continuing.

A positive bubble signal is an indication of herding when people start buying because prices go up.









A negative bubble signal is an indication of herding when people start selling because prices go down.

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Results per Asset Class

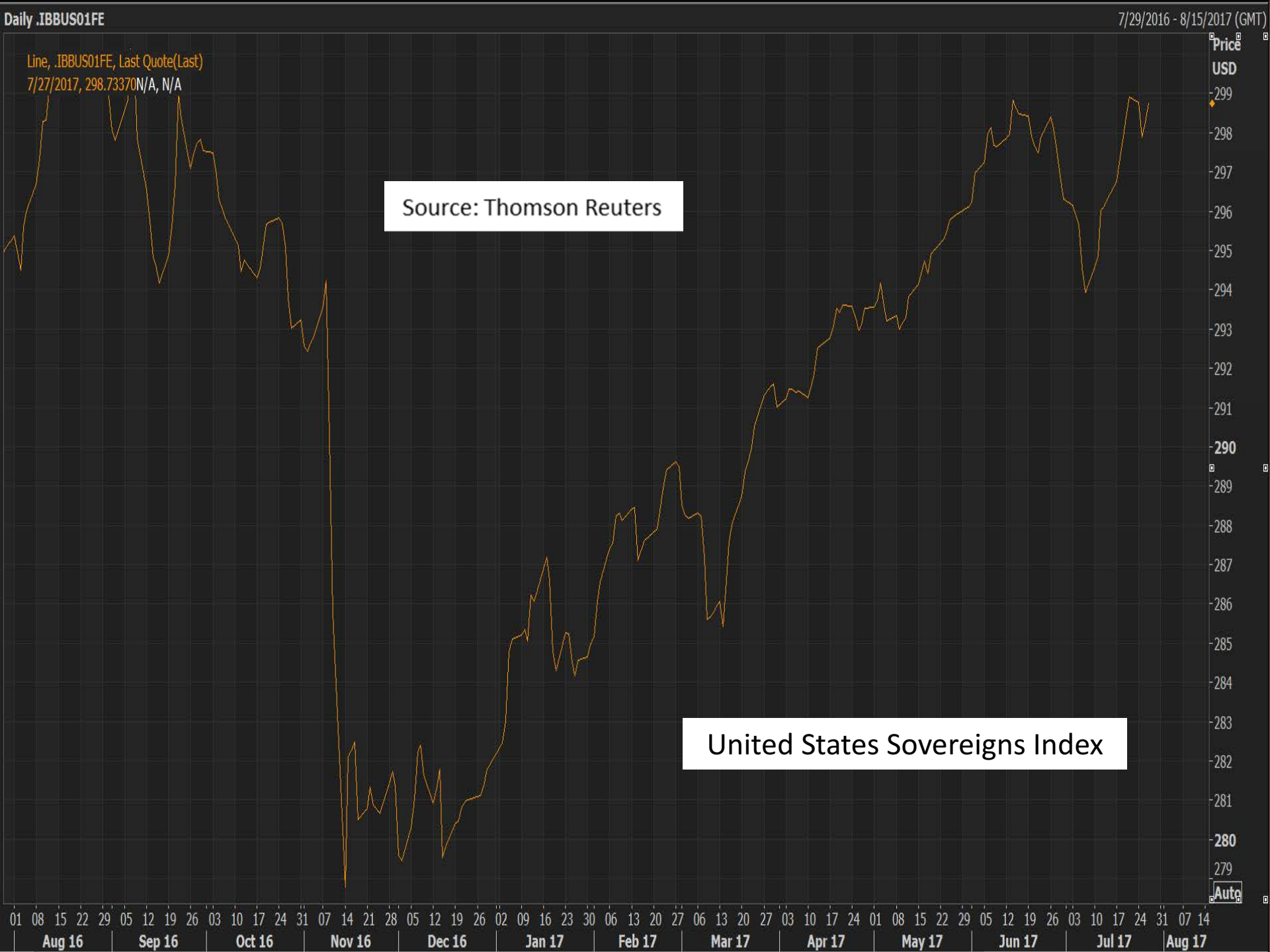
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Government bonds

Positive Bubbles	Yearly Ret	DS LPPL Trust	DS LPPL Confidence
iBoxx USD Sovereigns Index	1.3%	 7.1%	 5.9%
Negative Bubbles			
iBoxx Asia Thailand Government Index	-0.4%	 26.8%	 24.7%
iBoxx USD Treasuries Index	-1.8%	 7.2%	 8.6%
iBoxx Asia Taiwan Government Index	-2.8%	 5.9%	 9.3%

This month we see negative bubble signals in three of the 34 government bond indices that were analyzed, that is 9% of the set. On the other hand, the United States Sovereign index is the only one showing positive bubble signals.

We reported last month that, for the British Sovereign index, a turning point was already visible. This is confirmed this month as the index is not showing positive bubble signals anymore. It is worth mentioning that the United States Sovereign index is showing positive bubble signals for the third consecutive month.



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Corporate bonds

Sector Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx USD Mobile Telecommunications Index	2.7%	34.1%	20.0%
iBoxx EUR Insurance Subordinated Index	10.7%	34.0%	20.4%
iBoxx EUR Financial Services Subordinated Index	3.6%	33.7%	15.1%
iBoxx USD Banks Subordinated Index	5.2%	31.7%	25.4%
iBoxx USD Financials Index	2.7%	30.2%	18.7%
Negative Bubbles			
iBoxx USD Tobacco Index	-0.1%	21.9%	18.2%
iBoxx USD General Retailers Index	-0.6%	19.2%	14.8%
iBoxx USD Retail Index	-0.4%	19.0%	14.5%
iBoxx USD Personal Goods Index	-0.9%	15.0%	11.5%
iBoxx USD Telecommunications Index	-0.1%	11.5%	13.3%
iBoxx USD Fixed Line Telecommunications Index	-0.7%	9.1%	9.1%
iBoxx EUR Utilities Index	-0.4%	7.4%	9.5%

The number of corporate bond indices that are showing positive bubble signals is close to last month level. Of the 82 government bond indices that were analyzed, 57 show positive bubble signals, that is 70% of the set. On the other hand, seven indices are showing negative bubble signals, that is 9% of the set. The table above shows the indices with the five strongest positive signals (four of them are financial indices) in addition to the seven indices that are showing negative bubbles;

It is worth mentioning that the European financial subordinated index is still showing positive bubble signals for the fifth consecutive month while having the second strongest bubble signal. The figure on the next page shows the fast growing price trajectory is continuing with increased volatility.



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Commodities

Commodities Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
None			
Negative Bubbles			
Softs ER Index	-20.2%	21.7%	27.8%
Sugar ER Index	-31.0%	19.2%	25.5%
White Sugar ER Index	-22.3%	15.8%	18.3%
Coffee ER Index	-14.7%	7.3%	14.3%

For the first month from over a year, we see only negative bubble signals among a few commodity indices. There are four indices showing negative bubble signals this month and it is interesting that all of them are agriculture indices.

It is worth mentioning that after two months the Live and Feeder Cattle indices stopped showing positive bubble signals, while the Softs and Sugar indices are still showing negative bubble signals for the third consecutive month.

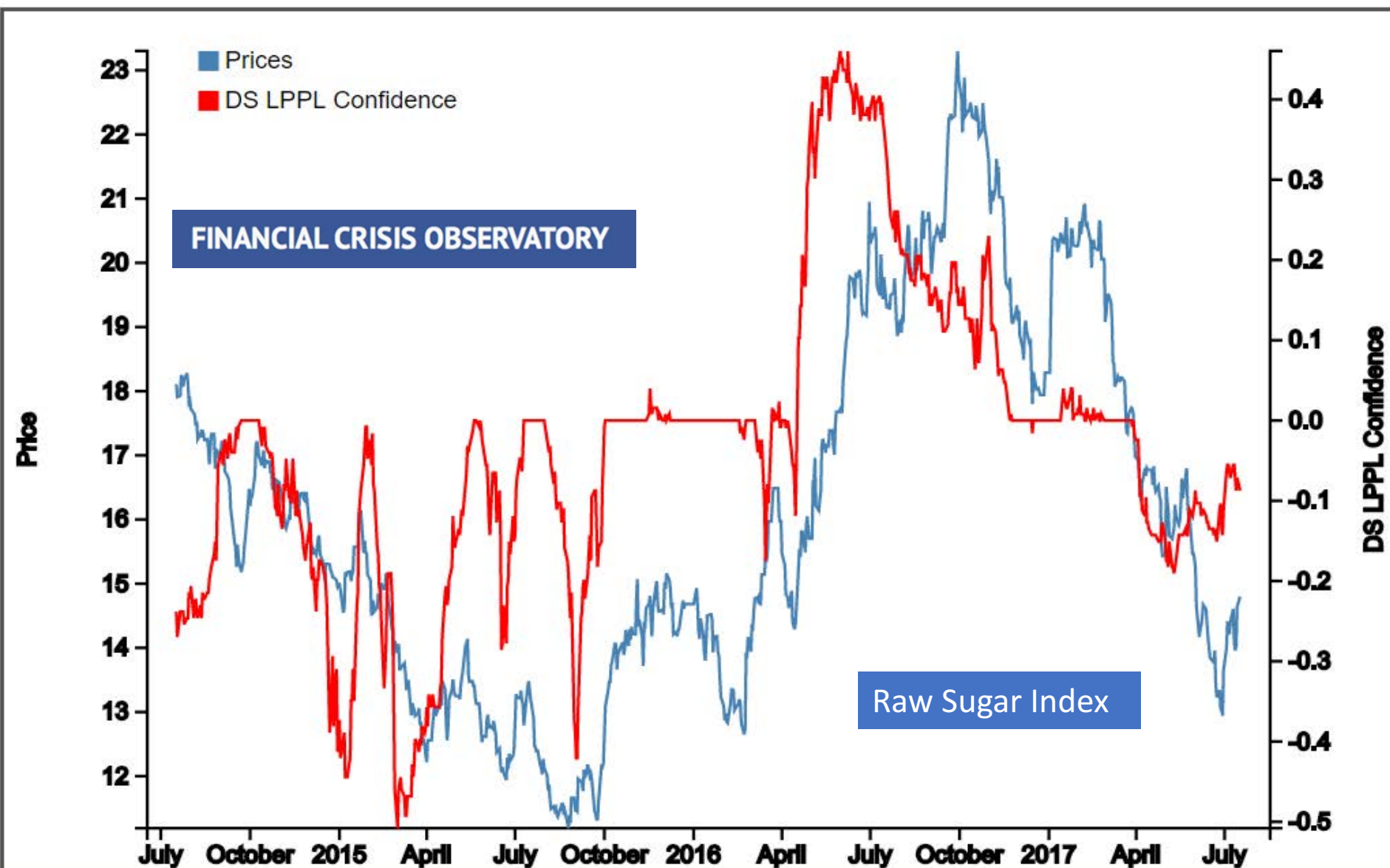
DS Bubble Inspectors Viewer - "Bubble end flag - long time scale"

Date: 2017-07-17

Name: Raw Sugar-ISA Daily Price

Indicator: DS LPPL Confidence

Early bubble warning - long time scale

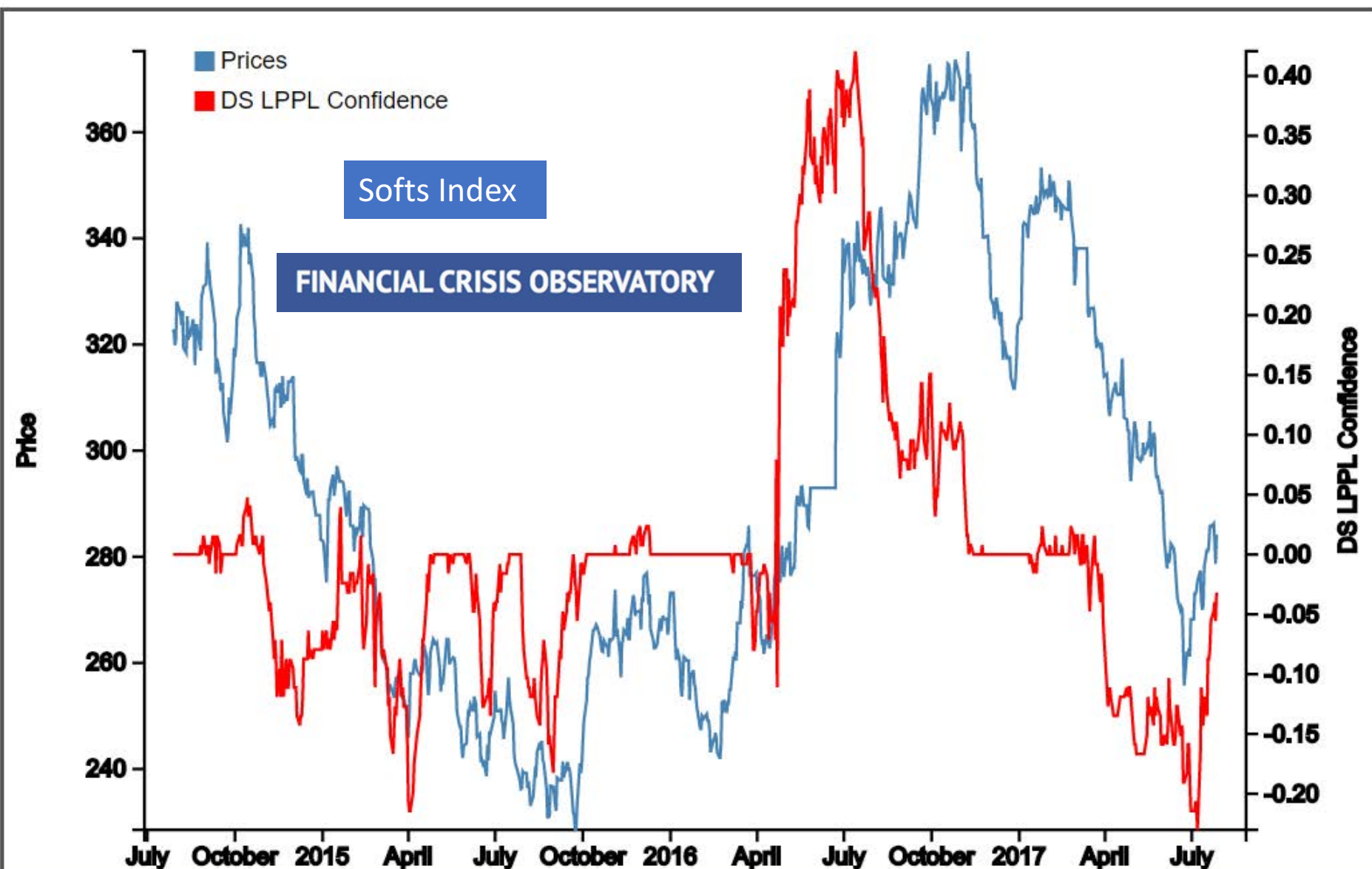


Date: 2017-07-27

Name: CSCB 01E Softs Spot Retl

Indicator: DS LPPL Confidence ▼

Early bubble warning - long time scale ▼



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Currencies

FX	Yearly Return	DS LPPL Trust	DS LPPL Confidence
US Dollar/Hong Kong Dollar	0.7%	59.2%	64.7%
Czech Koruna/Euro	3.7%	19.7%	15.7%
US Dollar/Czech Koruna	-9.0%	19.4%	36.8%
Czech Koruna/Swiss Franc	6.0%	18.9%	22.8%
US Dollar/Polish Zloty	-7.7%	18.3%	17.6%
Hong Kong Dollar/Euro	-6.2%	15.5%	31.6%
Qatar Rial/Euro	-6.1%	14.9%	42.3%
Euro/US Dollar	5.9%	14.1%	26.1%
US Dollar/Danish Krone	-5.6%	13.8%	29.2%
Indonesian Rupiah/Euro	-6.9%	13.8%	30.3%
US Dollar/Bulgarian Lev	-5.6%	13.5%	27.2%
Saudi Arabian Riyal/Euro	-5.6%	13.3%	26.6%
Hong Kong Dollar/Swiss Franc	-4.1%	11.5%	23.7%
US Dollar/Hungarian Forint	-7.6%	10.4%	32.0%
Taiwan Dollar/Euro	0.1%	10.3%	24.5%
Chinese Renminbi/Euro	-6.6%	10.2%	25.5%
Korean Won/Euro	-3.7%	9.8%	23.7%
Qatar Rial/Swiss Franc	-3.9%	9.6%	23.5%
Saudi Arabian Riyal/Swiss Franc	-3.4%	9.0%	21.2%
US Dollar/Romanian New Leu	-3.2%	8.4%	30.9%
Russian Rouble/Euro	3.0%	8.1%	18.5%
Argentine Peso/Euro	-19.3%	8.0%	34.0%
Indonesian Rupiah/Swiss Franc	-4.8%	7.6%	28.7%
US Dollar/Swedish Krona	-5.0%	7.3%	37.9%
Danish Krone/Swiss Franc	2.3%	7.0%	21.2%
US Dollar/Argentine Peso	17.0%	7.0%	22.4%
Chinese Renminbi/Swiss Franc	-4.5%	6.9%	15.1%
Argentine Peso/Swiss Franc	-17.4%	6.5%	26.5%
Euro/Swiss Franc	2.3%	5.8%	18.0%
Korean Won/Swiss Franc	-1.5%	5.8%	10.3%
Brazilian Real/Euro	-2.1%	5.6%	8.3%
US Dollar/Singapore Dollar	0.0%	5.3%	17.6%
Chilean Peso/Euro	-4.4%	5.1%	7.1%

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Currencies

The Euro rally, which has been the main theme of the currency market since the French election in May 2017, has accelerated this month after the ECB recent remarks about the quantitative easing (QE) program potential end, pushing the Euro against the dollar to a 19-month high;

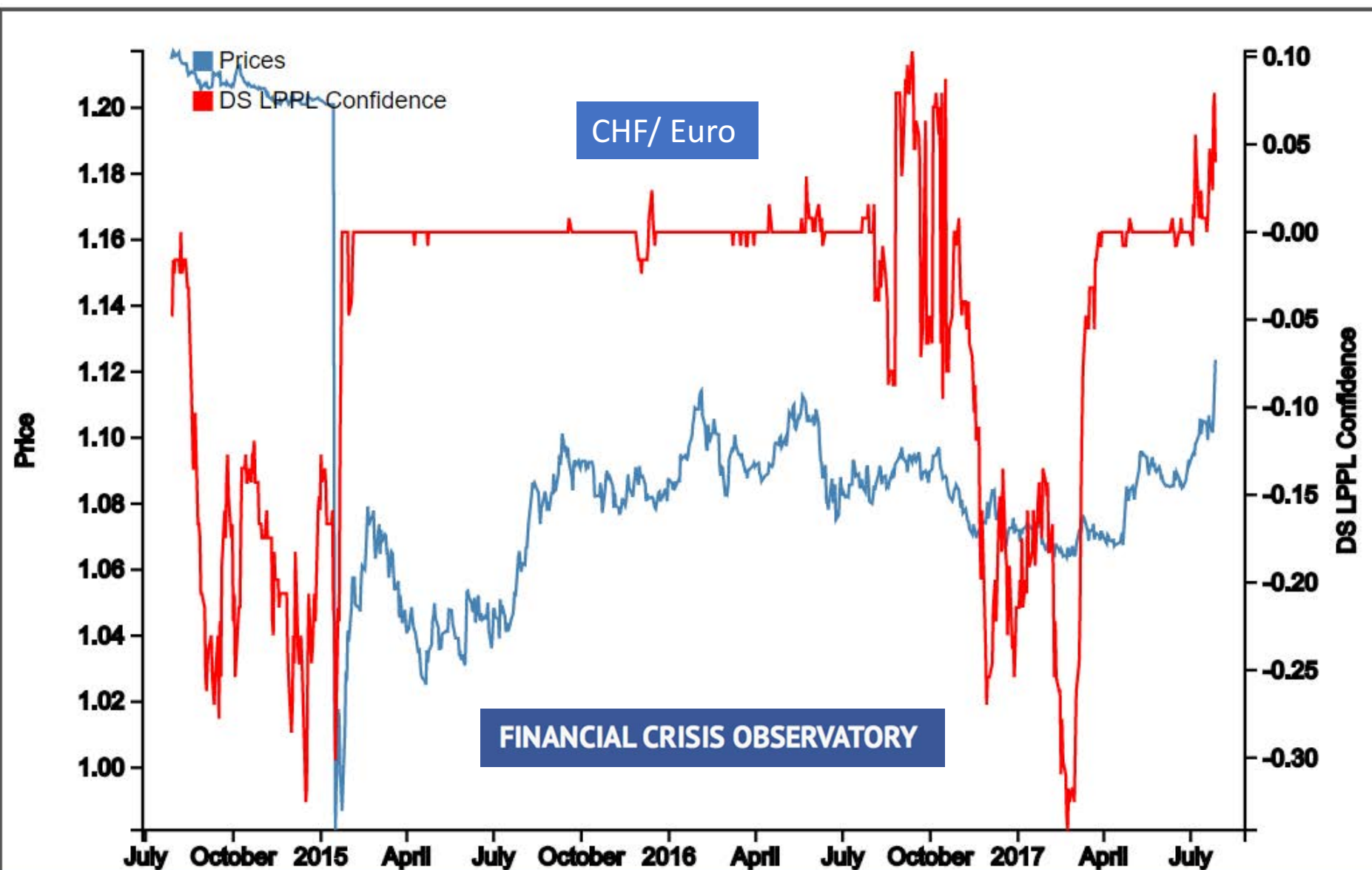
There are signs of a positive bubble in the Polish Zloty, Czech Koruna and Hong Kong Dollar for the third consecutive month. Six of the 33 pairs that are showing bubble signals are crossed with these three pairs.

Date: 2017-07-27

Name: SWISS FRANC TO EURO

Indicator: DS LPPL Confidence

Early bubble warning - long time scale

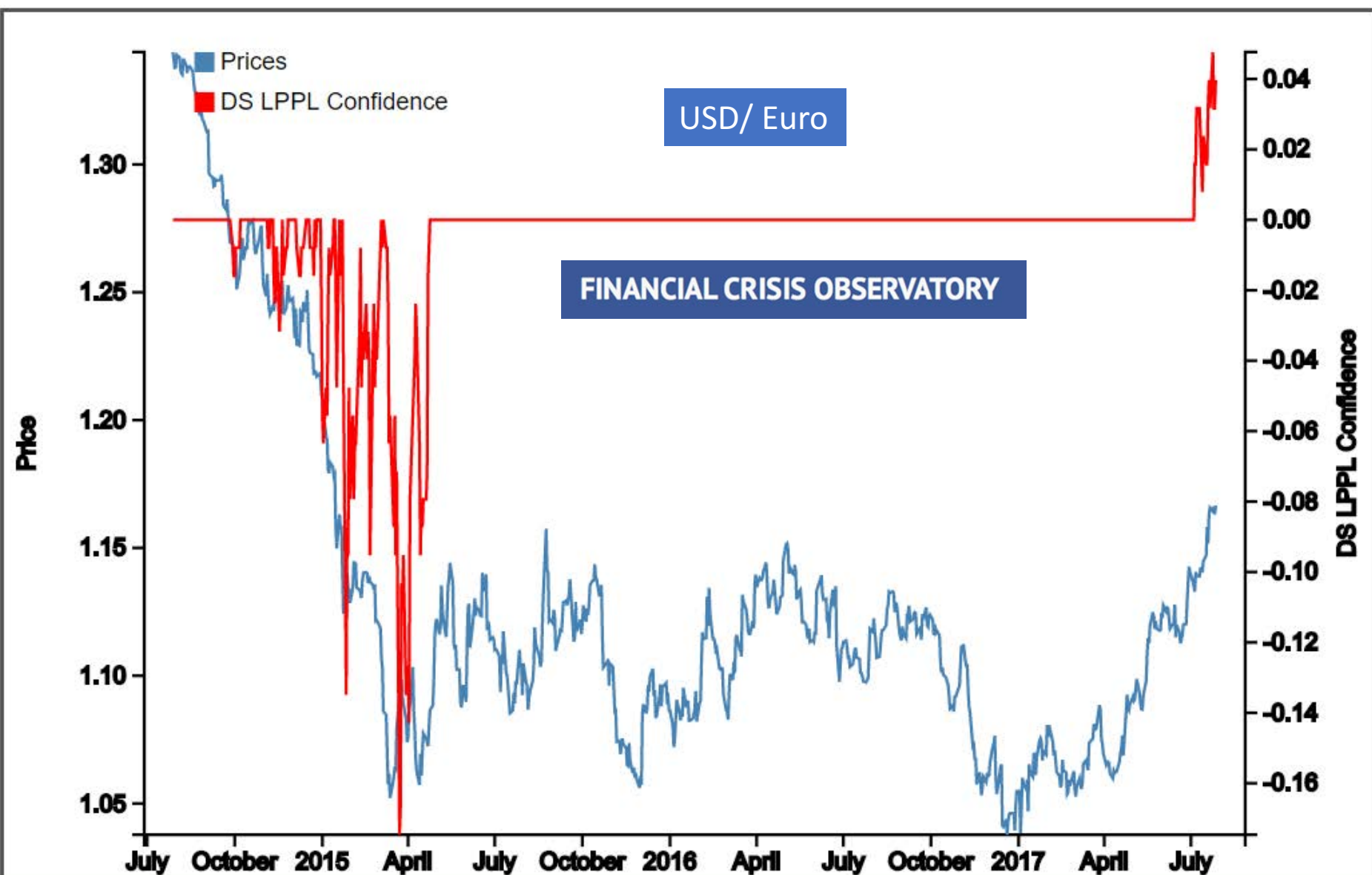


Date: 2017-07-27

Name: US \$ TO EURO (WMR&D\$

Indicator: DS LPPL Confidence ▼

Bubble end flag - long time scale ▼

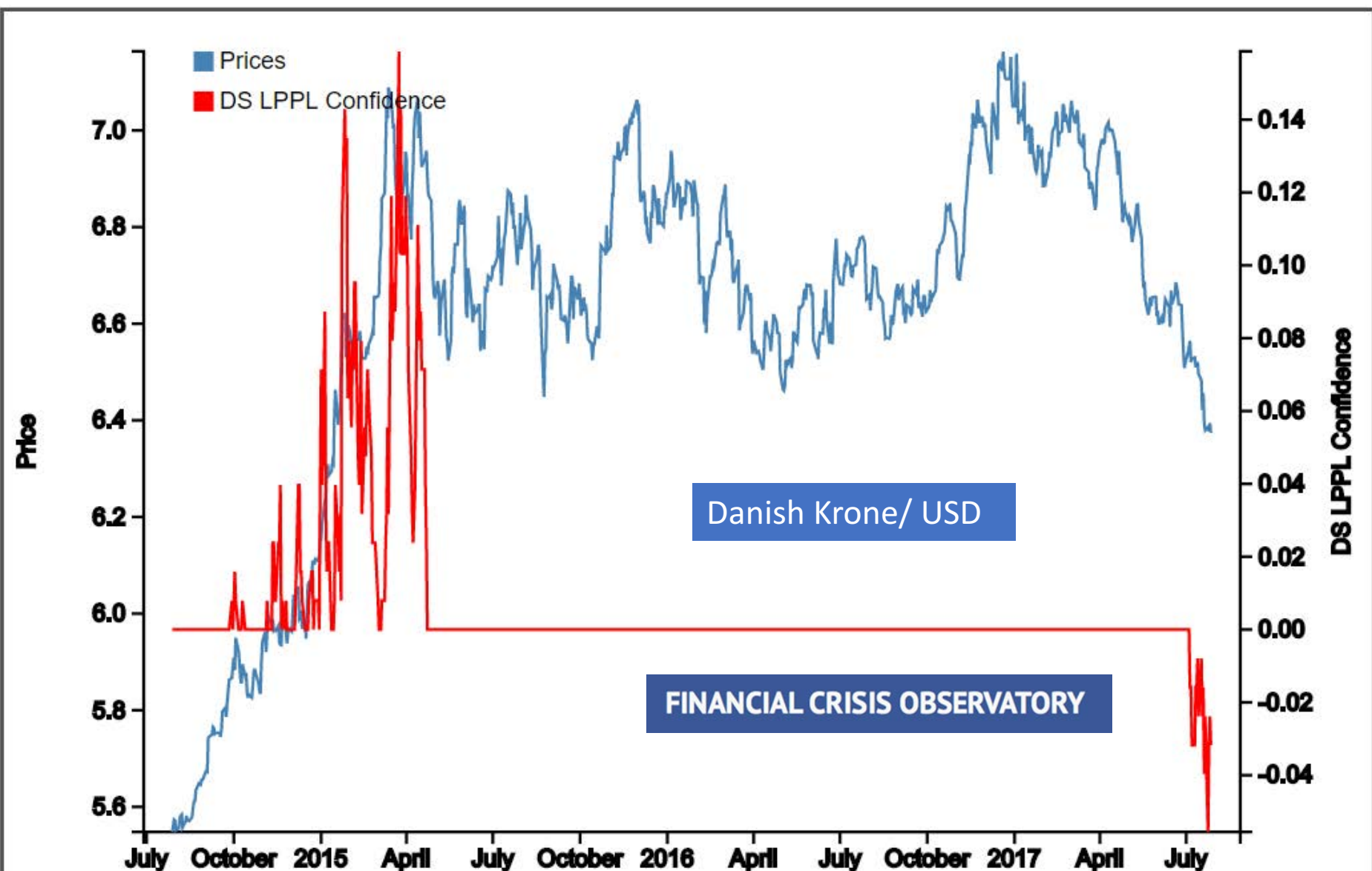


Date: 2017-07-27

Name: DANISH KRONE TO US \$

Indicator: DS LPPL Confidence ▼

Bubble end flag - long time scale ▼



Date: 2017-07-27

Name: CZECH KORUNA TO US \$

Indicator: DS LPPL Confidence ▼

Bubble end flag - long time scale ▼



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Stocks country indices

Equities Countries Indices	Yearly Ret	DS LPPL Trust	DS LPPL Confidence	
Bursatil Index	979.9%	46.9%	18.8%	Venezuela
OMX Riga_GI	54.6%	38.9%	47.3%	Latvia
Korea SE Kospi Index	21.2%	38.7%	17.0%	Korea
New Zealand Se Top50 Free Index	5.4%	30.8%	64.9%	New Zealand
Athex General Composite Share Price Index	49.3%	27.9%	25.5%	Greece
OMX Vilnius_GI	14.2%	24.9%	35.6%	Lithuania
Taiwan SE Weighted Index	16.4%	24.7%	50.3%	Taiwan
Vietnam Index	18.2%	23.7%	29.0%	Vietnam
BIST 100 Index	44.3%	20.5%	14.2%	Turkey
Hang Seng Index	22.1%	19.2%	16.1%	Hong Kong
PFTS Index	26.9%	19.1%	27.2%	Ukraine
OMX Helsinki 25 Index	14.0%	18.1%	9.7%	Finland
OMX Copenhagen 20 Index	1.8%	14.4%	9.2%	Denmark
Budapest SE Index	26.2%	9.4%	11.7%	Hungary
Colombia SE General Index	11.8%	7.2%	12.8%	Colombia
OMX Tallinn_GI	21.2%	6.1%	12.2%	Estonia
Shanghai SE 50 Index	22.4%	6.0%	28.4%	China
Dow Jones Composite Index	14.5%	5.1%	12.9%	United States
Negative Bubbles				
Muscat SE General Index	-14.0%	25.0%	39.2%	Oman
Qatar Exchange General Index	-9.1%	8.3%	11.9%	Qatar

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Stocks country indices

The number of indices that are showing positive bubbles declined significantly this month. This mainly occurs as the strong start to 2017 for European equities has faltered over the past few months as a rising euro is seen crimping the continent's competitiveness. In addition, Qatar and Oman stock market indices are still showing negative bubble signals for the second consecutive month, as no solution was reached for the Gulf diplomatic crisis, especially in the case of Qatar.

It is worth mentioning that around 70% of the indices that are showing signs of bubbles are emerging markets. This is propelled by the Dollar weakness and signs of healthy global economic growth.

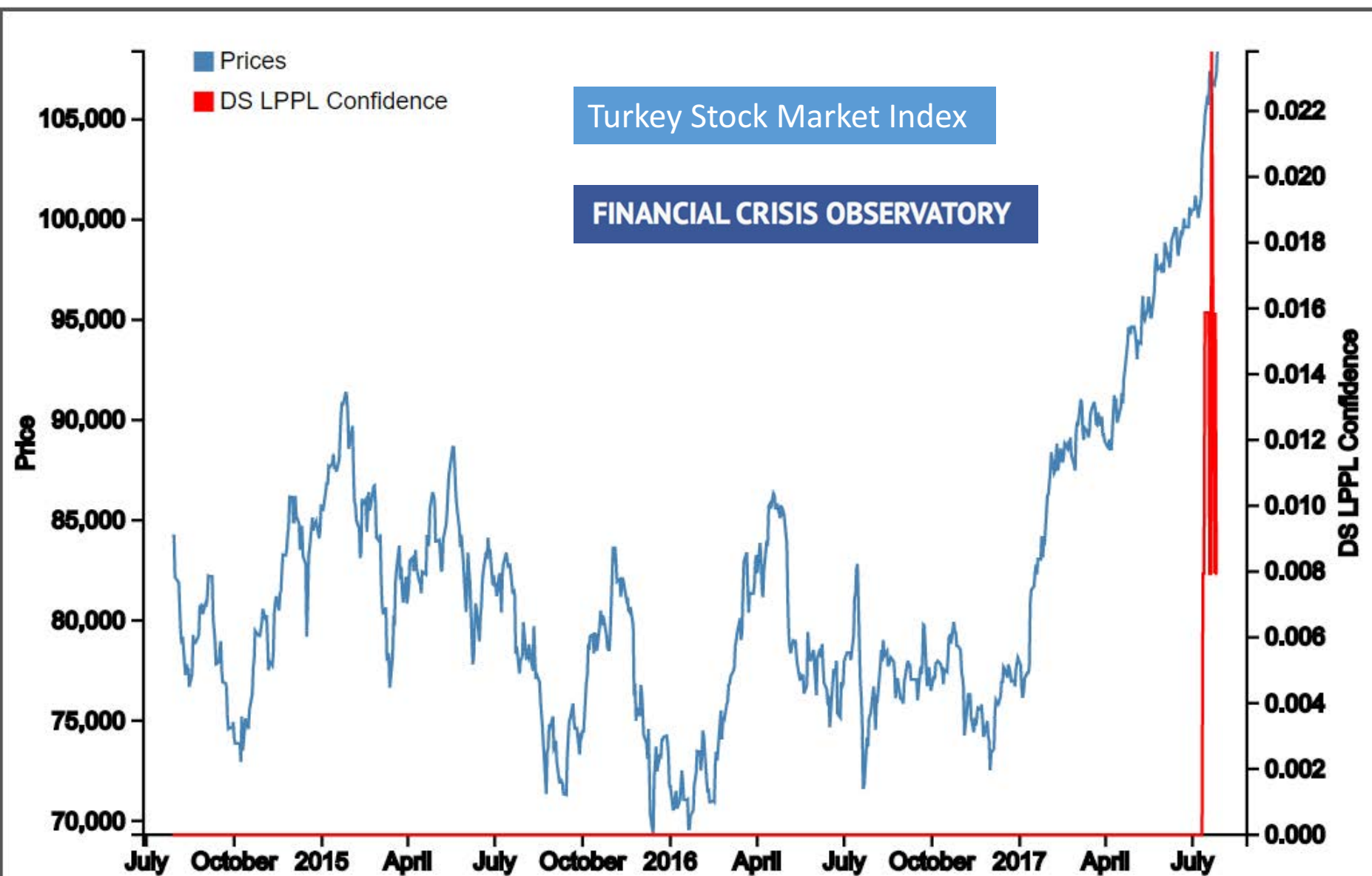
Finally, the positive bubble signals in the EUR STOXX and U.S. Nasdaq Composite indices over the last five months disappeared.

Date: 2017-07-27

Name: BIST NATIONAL 100

Indicator: DS LPPL Confidence ▼

Bubble end flag - long time scale ▼



Date: 2017-07-27

Name: VENEZUELA SE GENERA

Indicator: DS LPPL Confidence ▼

Early bubble warning - long time scale ▼



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Single Stocks

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What is this?

For 856 stocks, we calculate the bubble warning indicators as well as two financial strength indicators, which indicate the fundamental value of the stock and the growth capability respectively.

The stocks are the constituents of the Stoxx Europe 600, the S&P 500 and the Nasdaq 100 indices. From these, all doubles and stocks with incomplete data are removed. Because our financial strength indicators are specifically designed for corporates, all financial institutions are taken out of the set as well.

The two financial strength indicators are:

- A value score that is based on the ROIC (Return on Invested Capital) taking into account the EV (Enterprise Value) to normalize for high/low market valuations and/or high/low debt;
- A growth score that has characteristics similar to the PEG ratio, which is the Price to Earnings ratio normalized for expected EPS-growth (Earnings per Share).

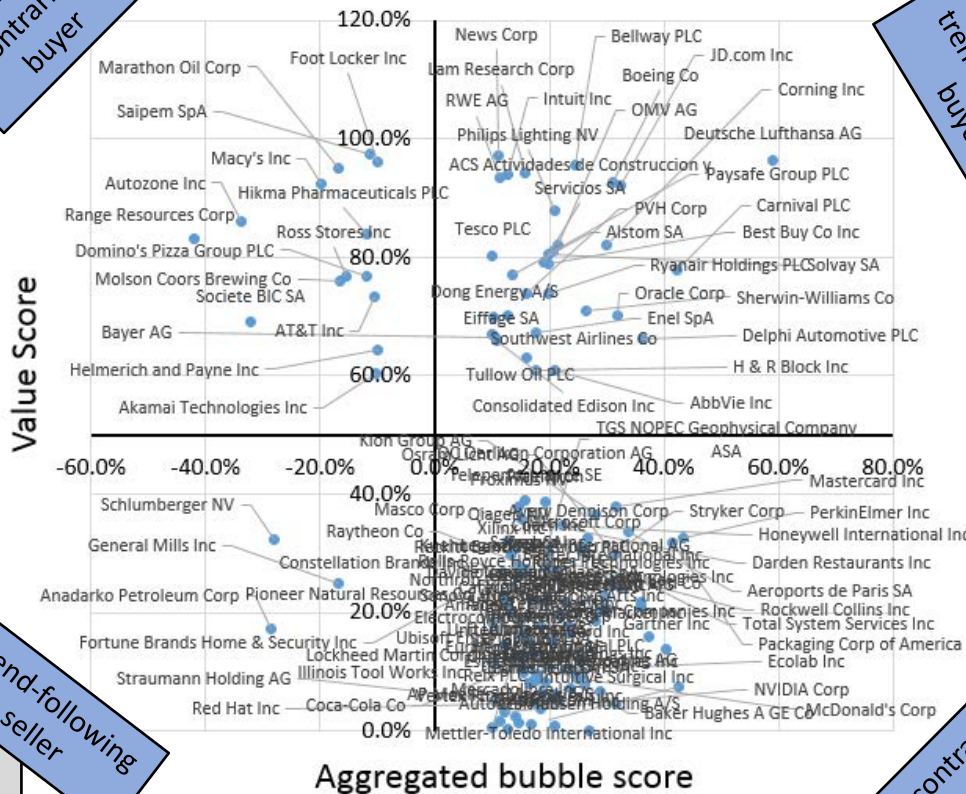
Both scores give a value between zero and one, one being the best of the set and zero the worst, so the higher the score, the higher the financial strength.

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Contrarian
buyer

The four quadrants: value versus bubble score



1

trend-following
buyer

By plotting the value score against the aggregated bubble score, we can divide the stocks into four quadrants*:

1. [Quadrant 1](#): Stocks with a strong positive bubble score and a strong value score (e.g. RWE AG);
2. [Quadrant 2](#): Stocks with a strong positive bubble score and a weak value score (e.g. NVIDIA Corp);
3. [Quadrant 3](#): Stocks with a strong negative bubble score and a weak value score (e.g. General Mills Inc);
4. [Quadrant 4](#): Stocks with strong negative bubble score and a strong financial strength (e.g. Macy's Inc)

3

trend-following
seller

2

contrarian
seller

*A strong positive bubble signal is identified if bubble score is larger than 10%, and a strong negative bubble signal is identified if bubble score is smaller than -10%.
A strong value score is identified if value score is larger than 60%, and a weak value score is identified if value score is smaller than 40%.

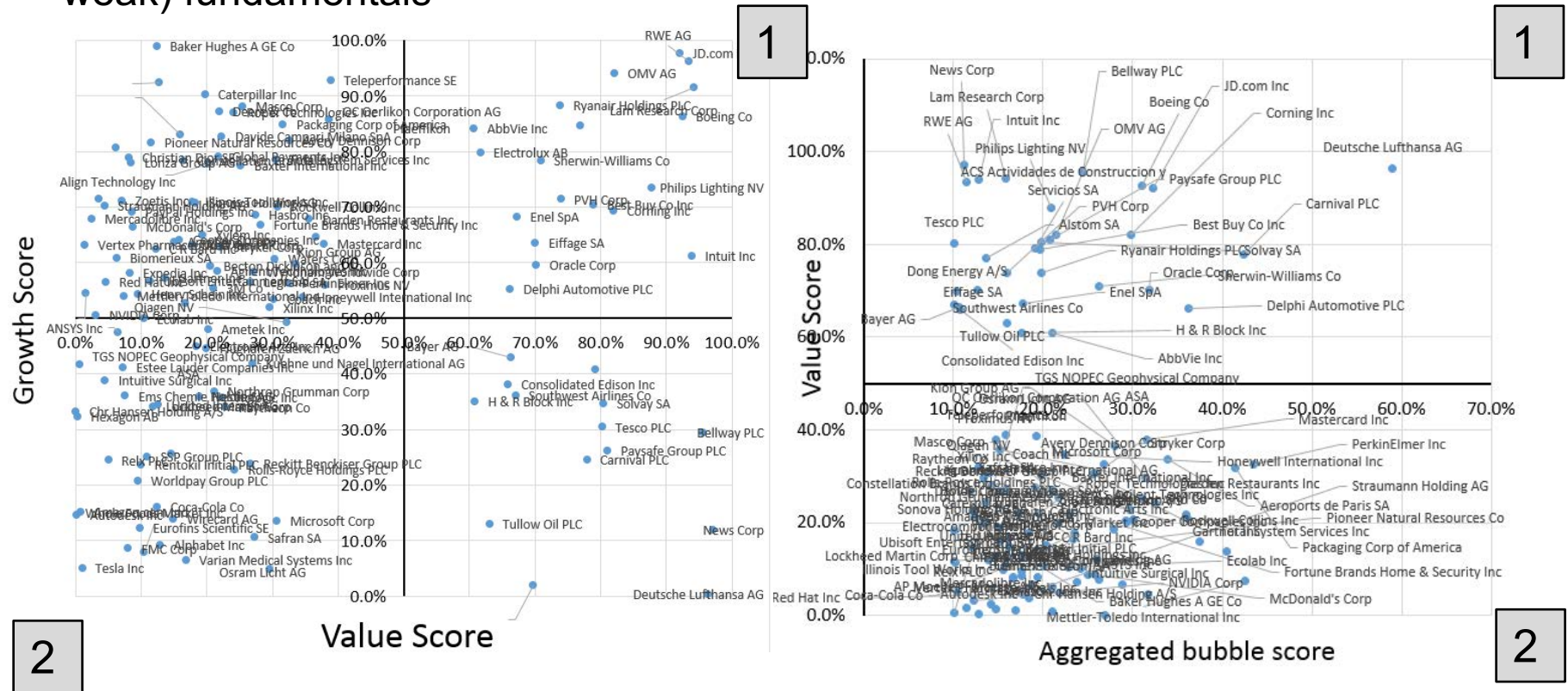
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Each quadrant has its own specs:

1. [Quadrant 1](#): Stocks with a strong value score are cheap relative to their earnings potential. The strong positive bubble signal should be interpreted as a momentum indicator possibly the consequence of a repricing based on the fundamentals. **As an investor, one could be a trend-following buyer.**
2. [Quadrant 2](#): Stocks with a weak value score are expensive relative to their earnings potential. The strong positive bubble signal is an indication of sentiment and herding increasing the price until it is not linked to fundamentals anymore. **As an investor, one could be a contrarian seller.**
3. [Quadrant 3](#): These stocks are expensive relative to their earnings potential. On top of that, there are clear negative bubble signals. Such stocks should be considered as falling knives. **As an investor, one could be a trend-following seller.**
4. [Quadrant 4](#): These stocks are cheap relative to their financial performance. The strong negative bubble signal is an indication of sentiment and herding. These stocks can be considered as over-sold. **As an investor, one could be a contrarian buyer.**

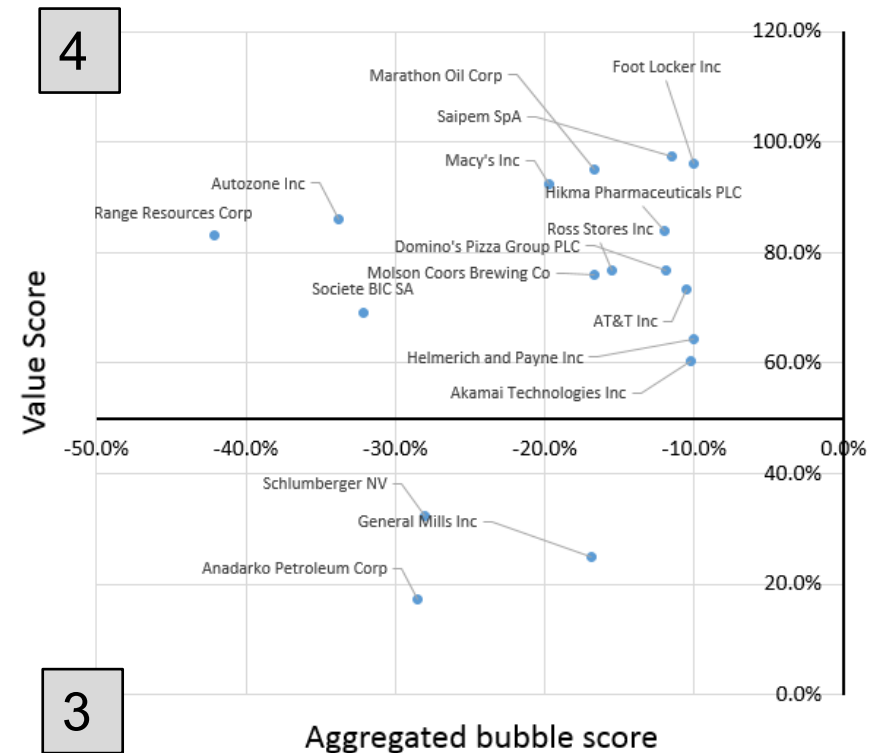
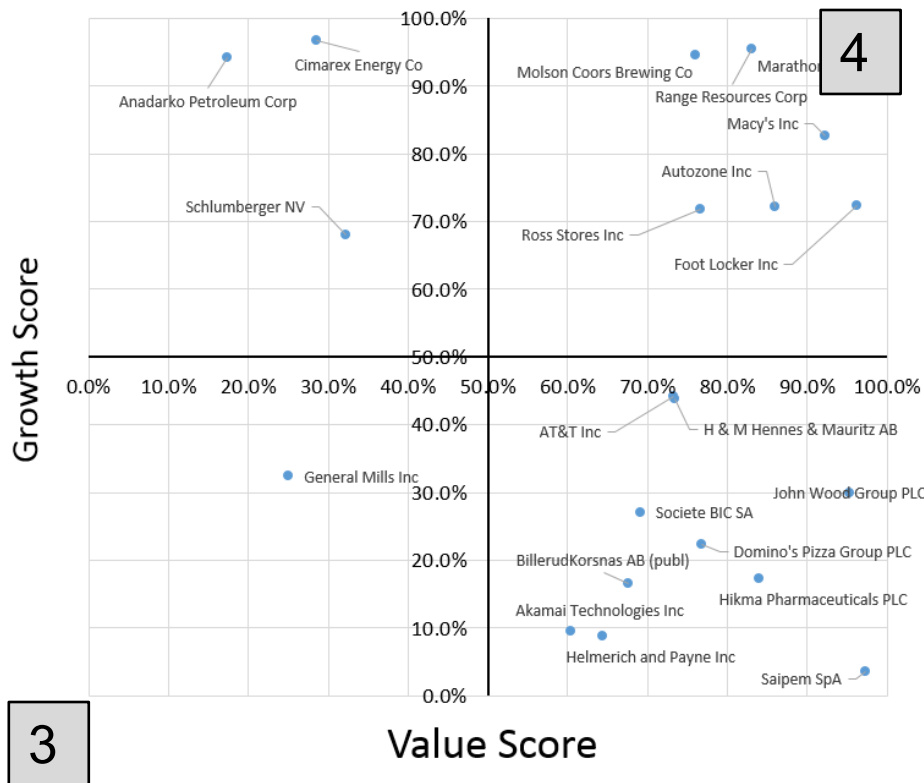
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Quadrant 1 and 2 stocks: strong positive bubble signals with strong (respectively weak) fundamentals



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Quadrant 3 and 4 stocks: strong negative bubble signals with weak respectively strong fundamentals



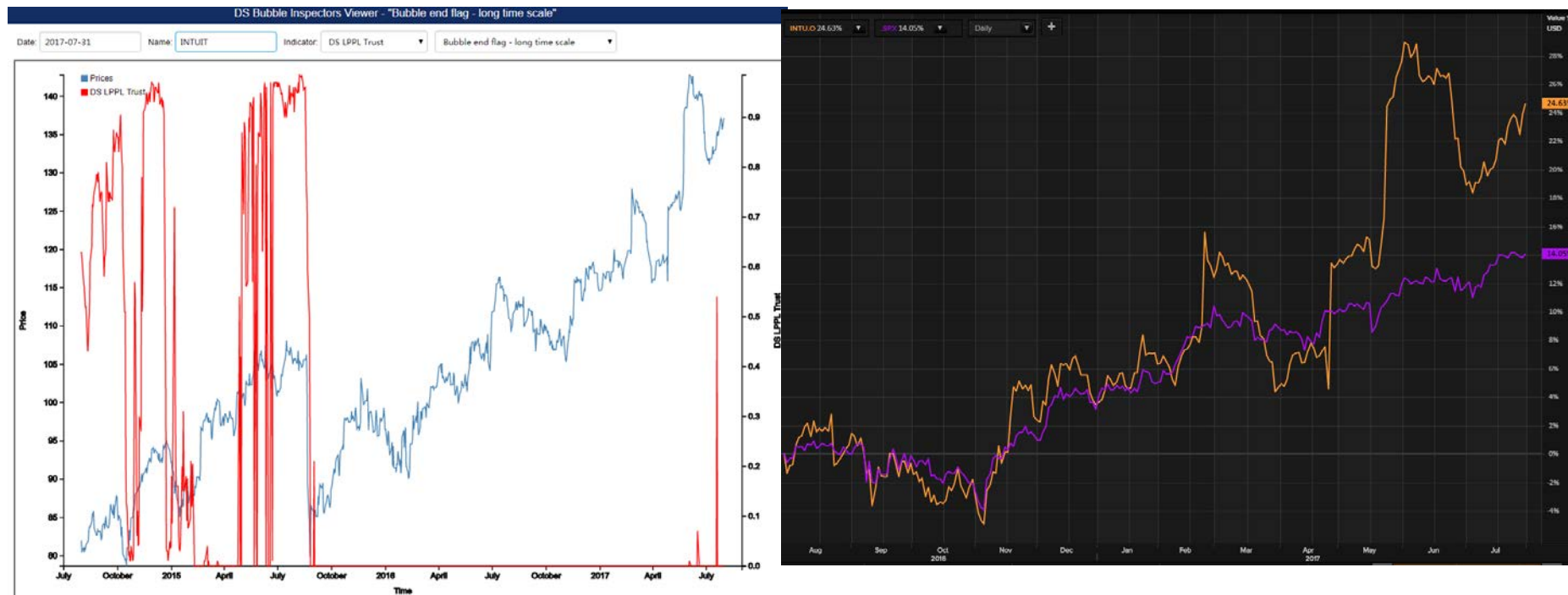
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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Intuit Inc	United States of America	Information Technology	Software & Services	23.9%	12.8%	93.9%	61.1%
JD.com Inc	China	Consumer Discretionary	Retailing	106.8%	32.3%	92.1%	97.7%
Lam Research Corp	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	75.6%	15.8%	94.2%	91.6%
News Corp	United States of America	Consumer Discretionary	Media	10.4%	11.1%	97.2%	11.8%
Solvay SA	Belgium	Materials	Materials	32.8%	19.9%	80.5%	34.7%
Bellway PLC	United Kingdom	Consumer Discretionary	Consumer Durables & Apparel	58.5%	24.4%	95.6%	29.4%
Carnival PLC	United Kingdom	Consumer Discretionary	Consumer Services	40.7%	42.4%	77.9%	24.5%
Bayer AG	Germany	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	11.2%	10.7%	66.4%	43.0%
Deutsche Lufthansa AG	Germany	Industrials	Transportation	69.4%	59.0%	96.4%	0.2%
RWE AG	Germany	Utilities	Utilities	16.4%	11.4%	93.5%	96.3%
Dong Energy A/S	Denmark	Utilities	Utilities	11.4%	10.4%	69.7%	1.9%
ACS Actividades de Construcción y Servicios SA	Spain	Industrials	Capital Goods	32.1%	19.2%	79.2%	40.8%
Alstom SA	France	Industrials	Capital Goods	38.6%	13.7%	77.0%	84.6%
Eiffage SA	France	Industrials	Capital Goods	19.8%	12.7%	70.1%	63.6%
Philips Lighting NV	Netherlands	Industrials	Capital Goods	39.0%	21.0%	87.7%	73.5%
Enel SpA	Italy	Utilities	Utilities	17.7%	17.7%	67.3%	68.2%
OMV AG	Austria	Energy	Energy	102.4%	21.5%	82.1%	94.0%
Paysafe Group PLC	Isle of Man	Information Technology	Software & Services	59.4%	20.8%	81.1%	26.2%
Ryanair Holdings PLC	Ireland; Republic of	Industrials	Transportation	51.0%	19.8%	73.8%	88.3%
Tullow Oil PLC	United Kingdom	Energy	Energy	6.1%	16.0%	63.1%	13.0%
Tesco PLC	United Kingdom	Consumer Staples	Food & Staples Retailing	12.5%	10.1%	80.3%	30.4%
AbbVie Inc	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	4.4%	21.0%	60.7%	84.1%
Boeing Co	United States of America	Industrials	Capital Goods	82.0%	31.0%	92.5%	86.3%
Best Buy Co Inc	United States of America	Consumer Discretionary	Retailing	74.3%	19.7%	79.0%	70.4%
Delphi Automotive PLC	United Kingdom	Consumer Discretionary	Automobiles & Components	33.4%	36.2%	66.2%	55.3%
Consolidated Edison Inc	United States of America	Utilities	Utilities	3.0%	10.8%	65.9%	38.1%
Corning Inc	United States of America	Information Technology	Technology Hardware & Equipment	30.7%	29.9%	82.0%	69.3%
H & R Block Inc	United States of America	Consumer Discretionary	Consumer Services	27.5%	17.6%	60.9%	34.9%
Southwest Airlines Co	United States of America	Industrials	Transportation	49.9%	10.1%	67.1%	36.1%
Oracle Corp	United States of America	Information Technology	Software & Services	21.3%	31.8%	70.2%	59.5%
PVH Corp	United States of America	Consumer Discretionary	Consumer Durables & Apparel	19.4%	16.0%	73.9%	71.4%
Sherwin-Williams Co	United States of America	Materials	Materials	13.4%	26.3%	70.9%	78.3%
Electrolux AB	Sweden	Consumer Discretionary	Consumer Durables & Apparel	20.0%	27.7%	61.7%	79.8%

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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals, example Intuit Inc.



The left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning, indicating the convergence towards the end of a bubble-like regime. The right graph shows the outperformance of the stock over the last year (orange) with respect to the S&P 500 benchmark (purple), which is almost 10%.

Last month example: strong positive bubble signals with strong fundamentals, Corning Inc.

Note that a big correction has occurred after a recent rise, in synchrony with our DS LPPL trust indicator, and the strong fundamentals. This suggests a tactical buy as the stock is expected to rebound after further correcting. One should remain cautious as this stock is still identified with strong bubble signal this month.

Last month signal (1st July. 2017)



This month signal (1st Aug. 2017)



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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals

This month we again observe an abnormally large number of stocks in this Quadrant, although the number of stocks in this Quadrant has declined a bit.

This suggests that the fundamentals are still dominantly weak while there is a general positive investment sentiment, possibly in denial of the weakness of the existing recovery.

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Autodesk Inc	United States of America	Information Technology	Software & Services	85.5%	12.8%	0.2%	14.6%
Align Technology Inc	United States of America	Health Care	Health Care Equipment & Services	86.5%	18.4%	3.6%	71.5%
Amazon.com Inc	United States of America	Consumer Discretionary	Retailing	28.7%	21.1%	0.8%	15.1%
ANSYS Inc	United States of America	Information Technology	Software & Services	43.3%	28.9%	6.5%	47.4%
Electronic Arts Inc	United States of America	Information Technology	Software & Services	52.3%	27.9%	18.5%	45.0%
Expedia Inc	United States of America	Consumer Discretionary	Retailing	33.3%	19.4%	8.3%	58.2%
Alphabet Inc	United States of America	Information Technology	Software & Services	20.4%	17.7%	13.0%	9.2%
Hasbro Inc	United States of America	Consumer Discretionary	Consumer Durables & Apparel	30.7%	19.2%	27.5%	68.6%
Hologic Inc	United States of America	Health Care	Health Care Equipment & Services	13.4%	12.1%	22.4%	35.7%
Henry Schein Inc	United States of America	Health Care	Health Care Equipment & Services	1.1%	17.6%	9.6%	54.3%
Intuitive Surgical Inc	United States of America	Health Care	Health Care Equipment & Services	35.2%	31.7%	4.6%	38.8%
Mercadolibre Inc	Argentina	Information Technology	Software & Services	88.6%	14.1%	2.5%	67.9%
Microsoft Corp	United States of America	Information Technology	Software & Services	28.5%	26.0%	30.7%	13.6%
NVIDIA Corp	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	186.5%	12.3%	3.2%	50.6%
PayPal Holdings Inc	United States of America	Information Technology	Software & Services	58.0%	25.0%	8.6%	69.2%
Tesla Inc	United States of America	Consumer Discretionary	Automobiles & Components	40.6%	16.9%	1.1%	5.0%
Vertex Pharmaceuticals Inc	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	54.6%	14.7%	1.4%	63.1%
Whole Foods Market Inc	United States of America	Consumer Staples	Food & Staples Retailing	37.3%	20.1%	10.5%	7.9%
Xilinx Inc	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	23.6%	13.3%	29.7%	51.9%
Proximus NV	Belgium	Telecommunication Services	Telecommunication Services	6.7%	14.7%	38.0%	56.0%
Kion Group AG	Germany	Industrials	Capital Goods	48.9%	28.1%	36.6%	64.6%
Osram Licht AG	Germany	Industrials	Capital Goods	53.0%	31.4%	29.6%	4.9%
Qiagen NV	Netherlands	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	17.4%	12.8%	32.1%	49.2%
United Internet AG	Germany	Information Technology	Software & Services	30.2%	14.8%	12.6%	34.3%
Wirecard AG	Germany	Information Technology	Software & Services	55.5%	16.2%	15.0%	13.9%
Chr Hansen Holding A/S	Denmark	Materials	Materials	19.8%	26.9%	0.1%	33.2%

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals (cont'd)

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
AP Moeller - Maersk A/S	Denmark	Industrials	Transportation	54.2%	11.5%	1.6%	54.6%
DSV A/S	Denmark	Industrials	Transportation	37.3%	15.1%	16.0%	83.1%
GN Store Nord A/S	Denmark	Health Care	Health Care Equipment & Services	51.7%	29.3%	20.3%	77.7%
H Lundbeck A/S	Denmark	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	37.3%	16.0%	12.7%	92.4%
Amadeus IT Group SA	Spain	Information Technology	Software & Services	21.7%	16.1%	16.7%	52.7%
Cellnex Telecom SA	Spain	Telecommunication Services	Telecommunication Services	19.8%	21.0%	6.2%	80.7%
Electrocomponents PLC	United Kingdom	Information Technology	Technology Hardware & Equipment	113.8%	12.2%	14.6%	25.6%
Aéroports de Paris SA	France	Industrials	Transportation	50.6%	33.9%	33.6%	59.7%
Biomerieux SA	France	Health Care	Health Care Equipment & Services	50.9%	18.8%	6.3%	60.7%
Christian Dior SE	France	Consumer Discretionary	Consumer Durables & Apparel	48.9%	16.7%	8.2%	78.9%
Eurofins Scientific SE	Luxembourg	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	38.8%	15.6%	9.8%	12.1%
Legrand SA	France	Industrials	Capital Goods	14.0%	11.9%	26.8%	56.5%
Teleperformance SE	France	Industrials	Commercial & Professional Services	41.5%	15.9%	38.9%	92.8%
Safran SA	France	Industrials	Capital Goods	28.9%	16.0%	27.3%	10.5%
Ubisoft Entertainment SA	France	Information Technology	Software & Services	46.0%	10.2%	11.3%	56.7%
Davide Campari Milano SpA	Italy	Consumer Staples	Food, Beverage & Tobacco	35.2%	17.1%	22.3%	82.7%
TGS NOPEC Geophysical Company ASA	Norway	Energy	Energy	19.6%	10.0%	0.6%	41.6%
Reckitt Benckiser Group PLC	United Kingdom	Consumer Staples	Household & Personal Products	0.2%	15.1%	26.6%	23.7%
Relx PLC	United Kingdom	Industrials	Commercial & Professional Services	14.9%	10.5%	5.0%	24.4%
Rentokil Initial PLC	United Kingdom	Industrials	Commercial & Professional Services	34.7%	24.2%	10.0%	23.6%
Rolls-Royce Holdings PLC	United Kingdom	Industrials	Capital Goods	13.8%	13.6%	24.3%	22.8%
Ems Chemie Holding AG	Switzerland	Materials	Materials	26.9%	26.3%	7.6%	36.0%
Flughafen Zuerich AG	Switzerland	Industrials	Transportation	35.8%	21.7%	20.0%	44.6%
Kuehne und Nagel International AG	Switzerland	Industrials	Transportation	23.8%	21.0%	27.0%	41.8%
Lonza Group AG	Switzerland	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	35.9%	17.6%	8.5%	78.0%
Nestle SA	Switzerland	Consumer Staples	Food, Beverage & Tobacco	5.1%	15.2%	18.8%	35.9%

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals (cont'd)

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Sonova Holding AG	Switzerland	Health Care	Health Care Equipment & Services	18.1%	10.1%	18.3%	70.8%
Straumann Holding AG	Switzerland	Health Care	Health Care Equipment & Services	47.6%	17.7%	4.4%	70.2%
OC Oerlikon Corporation AG Pfaeffikon	Switzerland	Industrials	Capital Goods	56.0%	19.2%	38.7%	85.7%
SSP Group PLC	United Kingdom	Consumer Discretionary	Consumer Services	57.0%	15.8%	11.0%	25.1%
Agilent Technologies Inc	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	24.9%	36.0%	21.6%	58.4%
Ametek Inc	United States of America	Industrials	Capital Goods	30.8%	29.3%	20.2%	48.0%
A. O. Smith Corp	United States of America	Industrials	Capital Goods	15.4%	18.4%	17.9%	63.2%
Amphenol Corp	United States of America	Information Technology	Technology Hardware & Equipment	28.9%	20.3%	15.1%	63.7%
Avery Dennison Corp	United States of America	Materials	Materials	18.9%	26.8%	32.6%	81.9%
Baxter International Inc	United States of America	Health Care	Health Care Equipment & Services	24.7%	31.1%	25.2%	77.5%
C R Bard Inc	United States of America	Health Care	Health Care Equipment & Services	42.4%	26.0%	12.3%	62.4%
Becton Dickinson and Co	United States of America	Health Care	Health Care Equipment & Services	13.9%	30.0%	20.6%	59.3%
Baker Hughes A GE Co	United States of America	Energy	Energy	15.8%	18.2%	12.4%	98.9%
Caterpillar Inc	United States of America	Industrials	Capital Goods	39.0%	13.3%	19.7%	90.3%
Coach Inc	United States of America	Consumer Discretionary	Consumer Durables & Apparel	8.5%	19.8%	30.3%	53.4%
Rockwell Collins Inc	United States of America	Industrials	Capital Goods	26.0%	14.0%	30.8%	70.0%
Cooper Companies Inc	United States of America	Health Care	Health Care Equipment & Services	33.5%	37.4%	15.9%	64.0%
Deere & Co	United States of America	Industrials	Capital Goods	65.1%	17.3%	22.0%	87.1%
Darden Restaurants Inc	United States of America	Consumer Discretionary	Consumer Services	35.9%	15.1%	35.6%	67.8%
Ecolab Inc	United States of America	Materials	Materials	11.0%	22.9%	10.4%	49.9%
Estee Lauder Companies Inc	United States of America	Consumer Staples	Household & Personal Products	6.0%	23.8%	7.2%	41.1%
Fortune Brands Home & Security Inc	United States of America	Industrials	Capital Goods	3.3%	14.3%	28.2%	66.8%
FMC Corp	United States of America	Materials	Materials	61.6%	16.6%	8.1%	8.5%
Global Payments Inc	United States of America	Information Technology	Software & Services	28.0%	22.9%	21.8%	79.1%
Honeywell International Inc	United States of America	Industrials	Capital Goods	18.1%	22.4%	34.7%	53.7%
Gartner Inc	United States of America	Information Technology	Software & Services	28.3%	40.4%	13.7%	57.1%

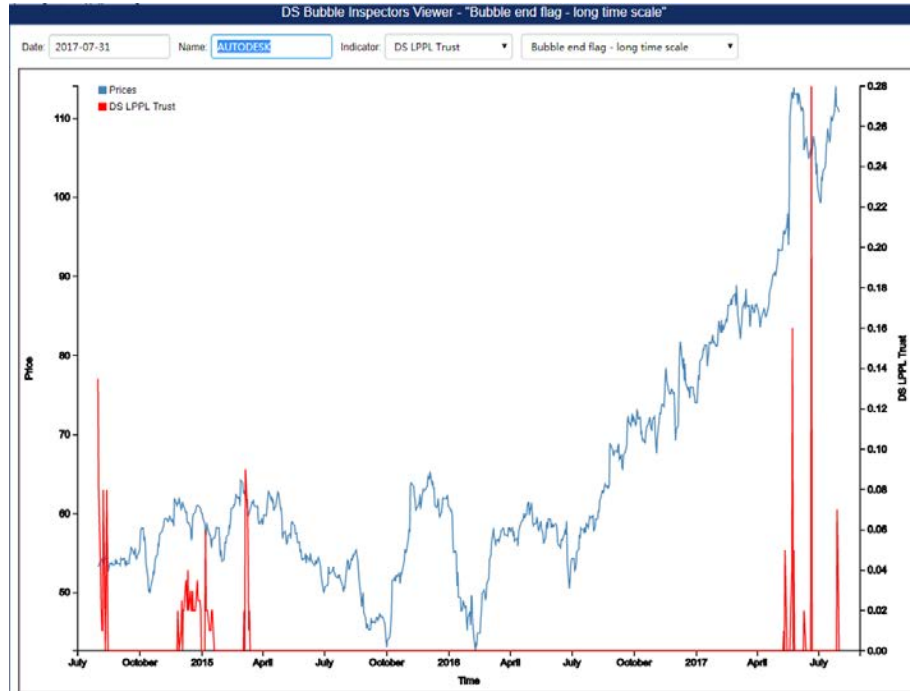
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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals (cont'd)

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Illinois Tool Works Inc	United States of America	Industrials	Capital Goods	21.9%	23.5%	17.8%	70.9%
Coca-Cola Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	5.5%	18.3%	12.5%	16.0%
Lockheed Martin Corp	United States of America	Industrials	Capital Goods	14.6%	13.9%	11.8%	34.1%
Mastercard Inc	United States of America	Information Technology	Software & Services	34.4%	31.6%	37.9%	63.3%
Masco Corp	United States of America	Industrials	Capital Goods	4.9%	21.8%	25.5%	88.1%
McDonald's Corp	United States of America	Consumer Discretionary	Consumer Services	31.5%	25.8%	8.8%	66.4%
3M Co	United States of America	Industrials	Capital Goods	12.8%	36.1%	21.0%	55.4%
Mettler-Toledo International Inc	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	39.5%	42.5%	7.4%	54.0%
Northrop Grumman Corp	United States of America	Industrials	Capital Goods	21.4%	12.4%	21.1%	36.8%
Packaging Corp of America	United States of America	Materials	Materials	47.1%	41.4%	31.7%	84.8%
PerkinElmer Inc	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	16.1%	43.4%	32.5%	56.3%
Pioneer Natural Resources Co	United States of America	Energy	Energy	3.7%	10.1%	11.6%	81.7%
Red Hat Inc	United States of America	Information Technology	Software & Services	32.1%	21.8%	4.7%	56.4%
Roper Technologies Inc	United States of America	Industrials	Capital Goods	35.6%	32.5%	24.1%	87.0%
Raytheon Co	United States of America	Industrials	Capital Goods	22.5%	29.7%	22.9%	34.0%
Constellation Brands Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	17.9%	23.3%	16.5%	78.4%
Stryker Corp	United States of America	Health Care	Health Care Equipment & Services	25.7%	19.5%	22.1%	62.7%
Total System Services Inc	United States of America	Information Technology	Software & Services	27.5%	25.6%	30.5%	78.5%
Varian Medical Systems Inc	United States of America	Health Care	Health Care Equipment & Services	15.6%	33.1%	16.8%	6.4%
Waters Corp	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	8.7%	23.0%	30.4%	60.6%
Wyndham Worldwide Corp	United States of America	Consumer Discretionary	Consumer Services	49.8%	35.9%	27.1%	58.3%
Xylem Inc	United States of America	Industrials	Capital Goods	18.7%	19.7%	19.4%	65.0%
Zoetis Inc	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	24.0%	15.5%	7.1%	71.1%
Hexagon AB	Sweden	Information Technology	Technology Hardware & Equipment	18.7%	18.0%	0.4%	32.2%
Worldpay Group PLC	United Kingdom	Information Technology	Software & Services	25.8%	19.1%	9.5%	20.8%

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals, example Autodesk Inc.



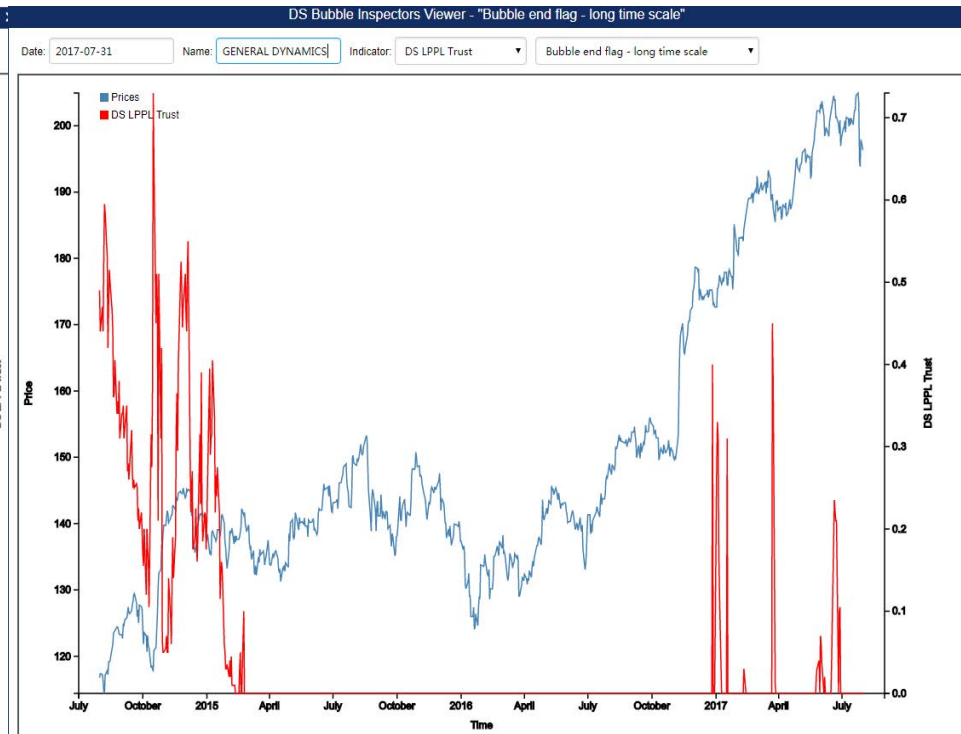
The left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning. The right graph shows the outperformance of the stock over the last year (orange) with respect to the S&P500 benchmark (purple), it is almost 72% up. The strong positive bubble signals and weak fundamentals indicate a high probability of correction in the future.

Last month example: strong positive bubble signals with weak fundamentals, General Dynamics Corp.

Note that the correction has started to occur, in synchrony with our DS LPPL trust indicator. This suggests continuing to short or get out of a long position on this stock.

Last month signal (1st July. 2017)

This month signal (1st Aug. 2017)



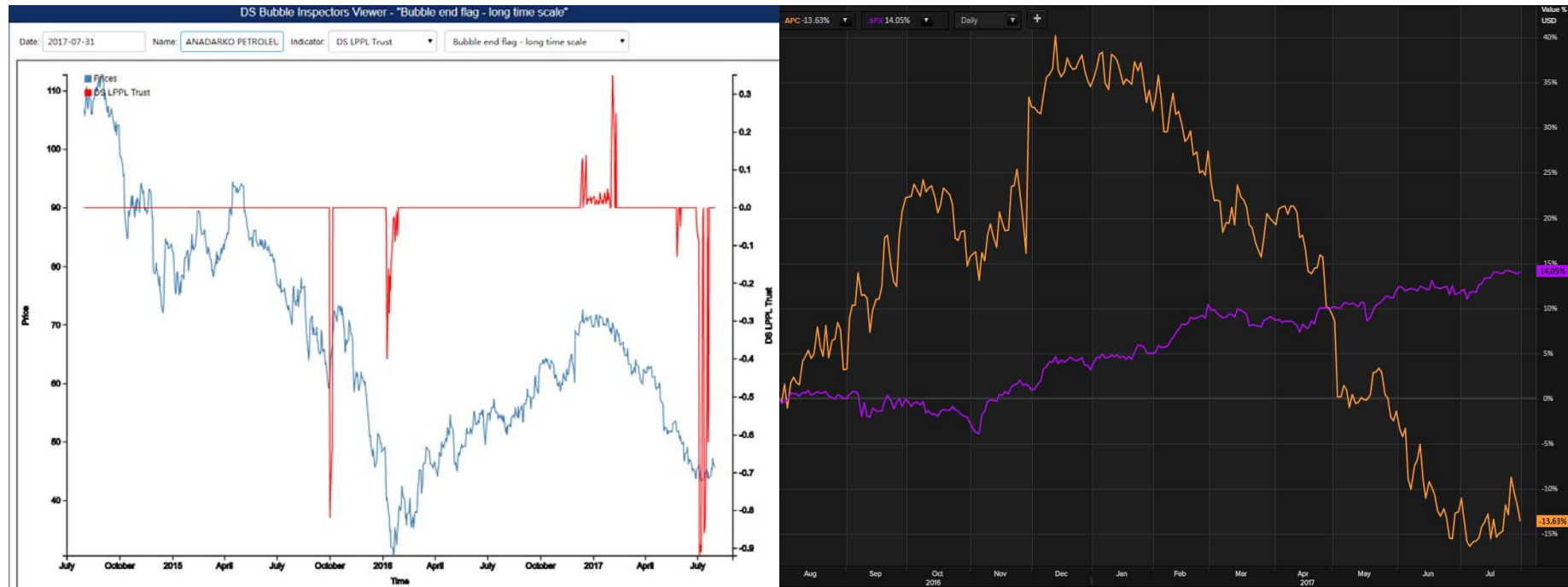
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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Anadarko Petroleum Corp	United States of America	Energy	Energy	-11.9%	-28.5%	17.3%	94.2%
General Mills Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	-22.3%	-16.9%	25.0%	32.4%
Schlumberger NV	United States of America	Energy	Energy	-12.6%	-28.1%	32.2%	68.0%
Cimarex Energy Co	United States of America	Energy	Energy	-14.2%	-30.5%	28.5%	96.7%

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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals, example Anadarko Petroleum Corp.



Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning of the negative bubble. The right graph shows the performance of the stock over the last year (orange) with respect to the S&P 500 benchmark (purple), it is roughly -27%.

Last month example: strong negative bubble signals with weak fundamentals, Occidental Petroleum Corp.

Note that the correction has just started, in synchrony with our DS LPPL trust indicator, but in contradiction with the weak fundamentals. However, one should remain cautious as there is still downward risk for this stock.

Last month signal (1st July. 2017)



This month signal (1st Aug. 2017)



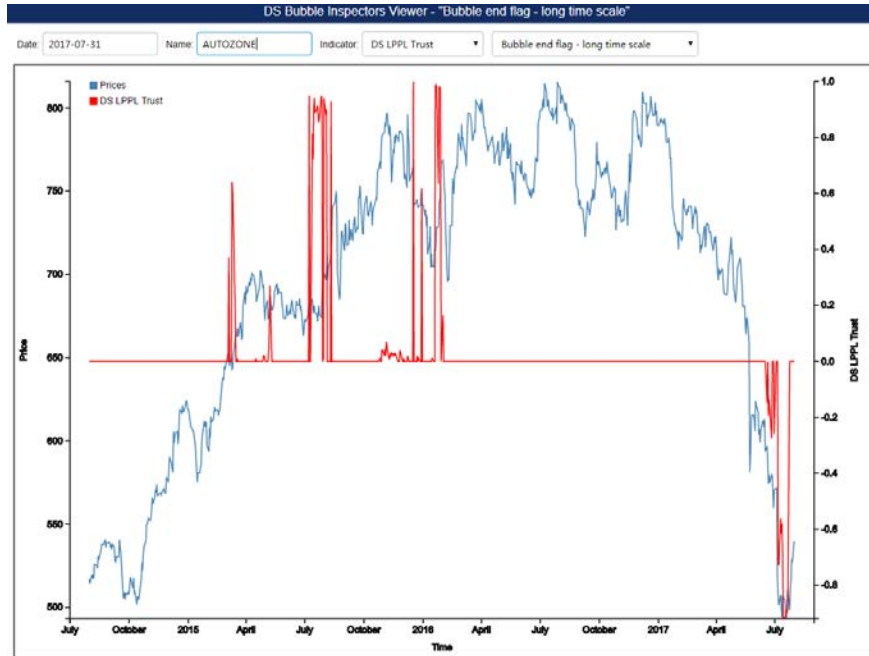
The FCO Cockpit – Global Bubble Status August 1st, 2017

Quadrant 4 stocks: strong negative bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Akamai Technologies Inc	United States of America	Information Technology	Software & Services	-6.8%	-10.3%	60.4%	9.5%
Ross Stores Inc	United States of America	Consumer Discretionary	Retailing	-10.2%	-15.5%	76.6%	71.8%
Domino's Pizza Group PLC	United Kingdom	Consumer Discretionary	Consumer Services	-32.2%	-11.9%	76.8%	22.3%
Societe BIC SA	France	Industrials	Commercial & Professional Services	-24.7%	-32.2%	69.0%	27.0%
Hikma Pharmaceuticals PLC	United Kingdom	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	-47.2%	-12.0%	84.0%	17.3%
Saipem SpA	Italy	Energy	Energy	-9.3%	-11.5%	97.3%	3.5%
Autozone Inc	United States of America	Consumer Discretionary	Retailing	-33.5%	-33.8%	86.0%	72.2%
Foot Locker Inc	United States of America	Consumer Discretionary	Retailing	-21.1%	-10.0%	96.1%	72.3%
Helmerich and Payne Inc	United States of America	Energy	Energy	-16.7%	-10.0%	64.4%	8.8%
Macy's Inc	United States of America	Consumer Discretionary	Retailing	-32.8%	-19.8%	92.3%	82.6%
Marathon Oil Corp	United States of America	Energy	Energy	-5.3%	-16.7%	95.0%	97.2%
Range Resources Corp	United States of America	Energy	Energy	-46.0%	-42.1%	83.1%	95.6%
AT&T Inc	United States of America	Telecommunication Services	Telecommunication Services	-9.7%	-10.6%	73.2%	44.3%
Molson Coors Brewing Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	-11.8%	-16.6%	76.1%	94.5%
BillerudKorsnas AB (publ)	Sweden	Materials	Materials	-13.2%	-13.5%	67.5%	16.5%
H & M Hennes & Mauritz AB	Sweden	Consumer Discretionary	Retailing	-18.0%	-14.9%	73.4%	43.8%
John Wood Group PLC	United Kingdom	Energy	Energy	-7.0%	-13.5%	95.3%	29.9%

The FCO Cockpit – Global Bubble Status August 1st, 2017

Quadrant 4 stocks: strong negative bubble signals with strong fundamentals, example Autozone Inc.



Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning of the negative bubble. The right graph shows the performance of the stock over the last year (orange) with respect to the S&P 500 benchmark (purple), it is -47%. We expect a future rebound, which is due to our diagnostic of a negative bubble signal with strong fundamentals, calling for a contrarian buyer position.

Last month example: strong negative bubble signals with strong fundamentals, Bed Bath & Beyond Inc.

Note that the stock stopped declining this month, which is in synchrony with our DS LPPL trust indicator and the strong fundamentals. We expect this stock to appreciate in the future due to the strong fundamentals.

Last month signal (1st July. 2017)



This month signal (1st Aug. 2017)



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Sectors

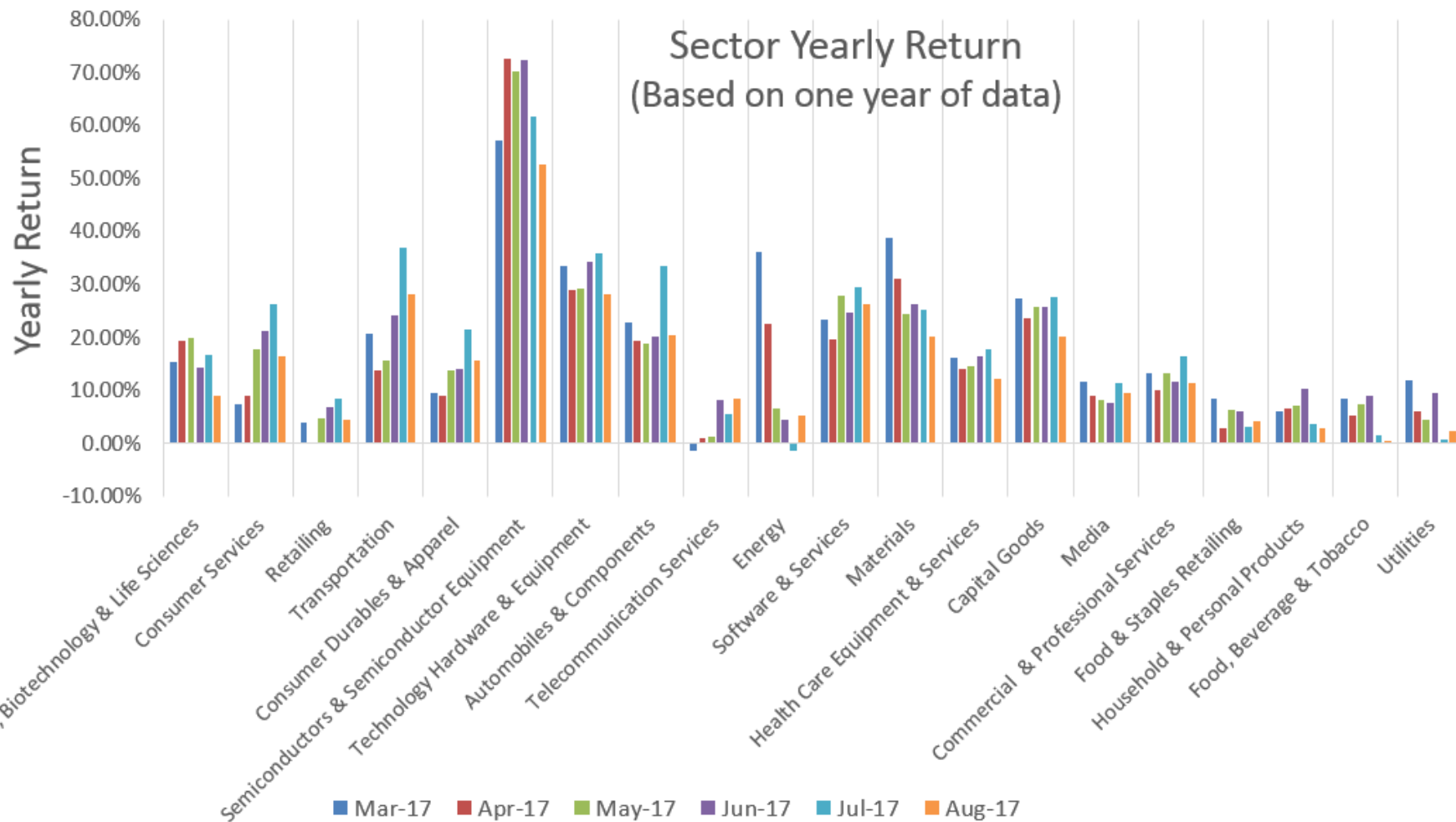
The FCO Cockpit – Global Bubble Status August 1st, 2017

GICS Industry Group Name	Yearly Return		Bubble Score		Value Score		Growth Score	
	Aug 1st	July 1st	Aug 1st	July 1st	Aug 1st	July 1st	Aug 1st	July 1st
Pharmaceuticals, Biotechnology & Life Sciences	8.9%	16.7%	6.5%	8.1%	42.6%	42.2%	51.7%	51.1%
Consumer Services	16.6%	26.4%	8.0%	17.3%	45.3%	44.8%	47.0%	48.3%
Retailing	4.4%	8.6%	-1.6%	2.7%	54.3%	54.0%	42.4%	42.7%
Transportation	28.3%	37.0%	7.7%	10.7%	54.6%	53.3%	41.7%	40.2%
Consumer Durables & Apparel	15.6%	21.6%	2.6%	6.0%	53.6%	53.0%	51.9%	51.5%
Semiconductors & Semiconductor Equipment	52.7%	61.9%	3.0%	12.0%	59.0%	53.2%	76.2%	76.0%
Technology Hardware & Equipment	28.2%	36.0%	4.4%	7.0%	62.0%	61.2%	47.6%	46.7%
Automobiles & Components	20.6%	33.6%	2.6%	6.3%	75.3%	74.4%	61.6%	60.5%
Telecommunication Services	8.6%	5.6%	0.8%	4.2%	53.2%	57.0%	38.9%	38.6%
Energy	5.2%	-1.5%	-3.0%	-4.1%	52.2%	56.4%	67.4%	68.0%
Software & Services	26.4%	29.5%	8.6%	13.8%	41.4%	39.8%	47.8%	49.8%
Materials	20.2%	25.2%	4.1%	4.5%	55.2%	55.8%	54.4%	54.4%
Health Care Equipment & Services	12.3%	17.8%	8.9%	13.9%	38.4%	36.5%	52.1%	52.8%
Capital Goods	20.3%	27.7%	6.2%	9.7%	46.0%	45.2%	50.9%	50.0%
Media	9.6%	11.4%	0.5%	3.4%	53.5%	54.6%	48.2%	49.4%
Commercial & Professional Services	11.4%	16.4%	1.1%	5.6%	41.2%	42.0%	41.7%	42.2%
Food & Staples Retailing	4.2%	3.1%	1.5%	3.3%	56.6%	59.1%	40.9%	40.6%
Household & Personal Products	2.9%	3.8%	3.2%	8.3%	23.3%	19.7%	42.2%	42.3%
Food, Beverage & Tobacco	0.4%	1.5%	0.6%	4.5%	40.5%	39.2%	49.1%	48.2%
Utilities	2.4%	0.8%	2.9%	4.6%	63.2%	66.8%	37.7%	38.7%

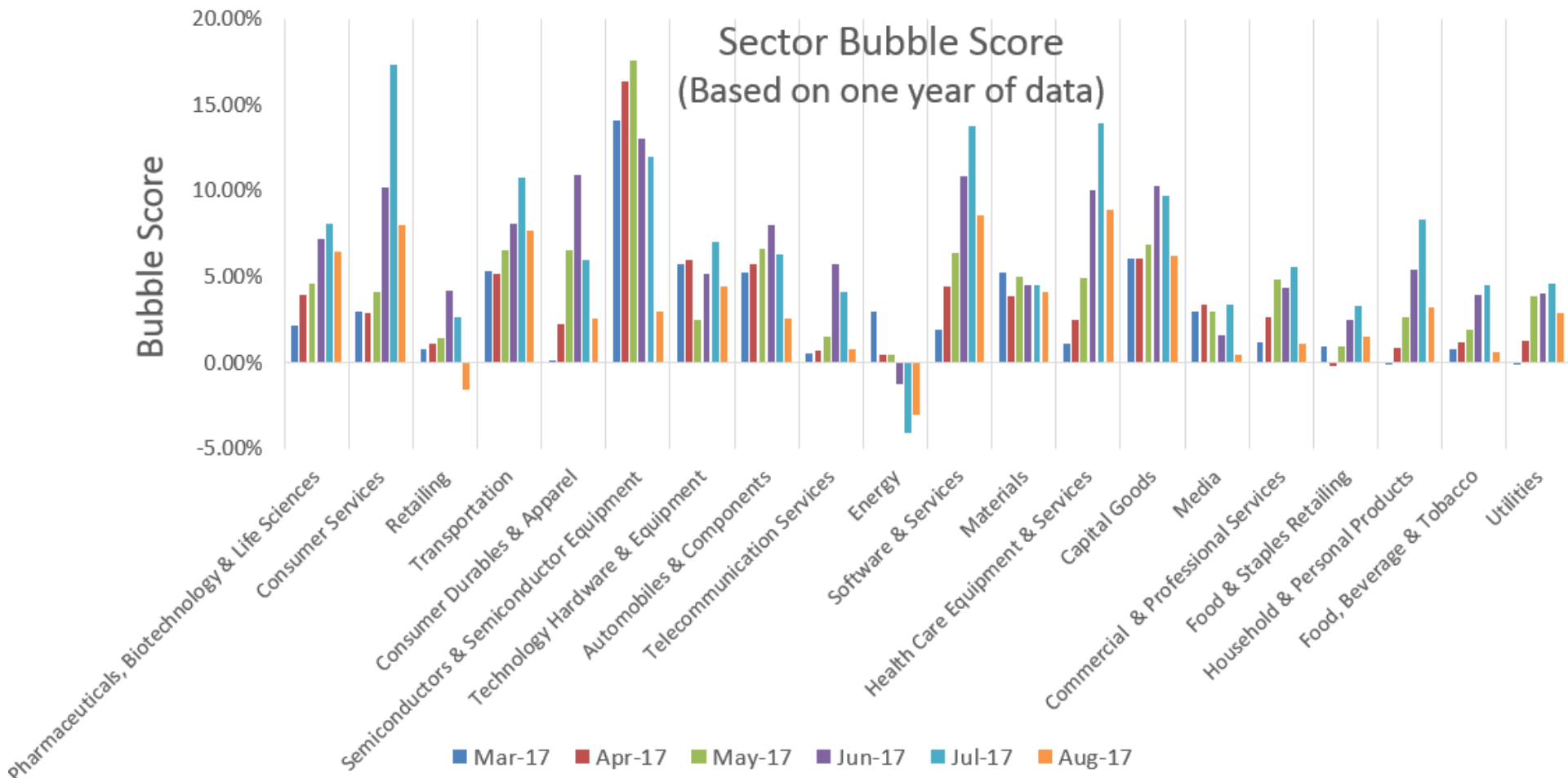
By aggregating the calculations that were done at the single stock level in the previous section, we can see the bubble, value and growth score at the sector level. The results in the previous report are also presented here for comparison.

- This month 19 out of 20 sectors have smaller bubble scores compared to last month. Especially, the sector *Semiconductors & Semiconductor Equipment* we reported in the last seven months has moved back to a small bubble score.
- The sector *Energy* we reported last month still has a significant negative bubble score, reflecting that the recent drawdowns of energy prices are continuing.

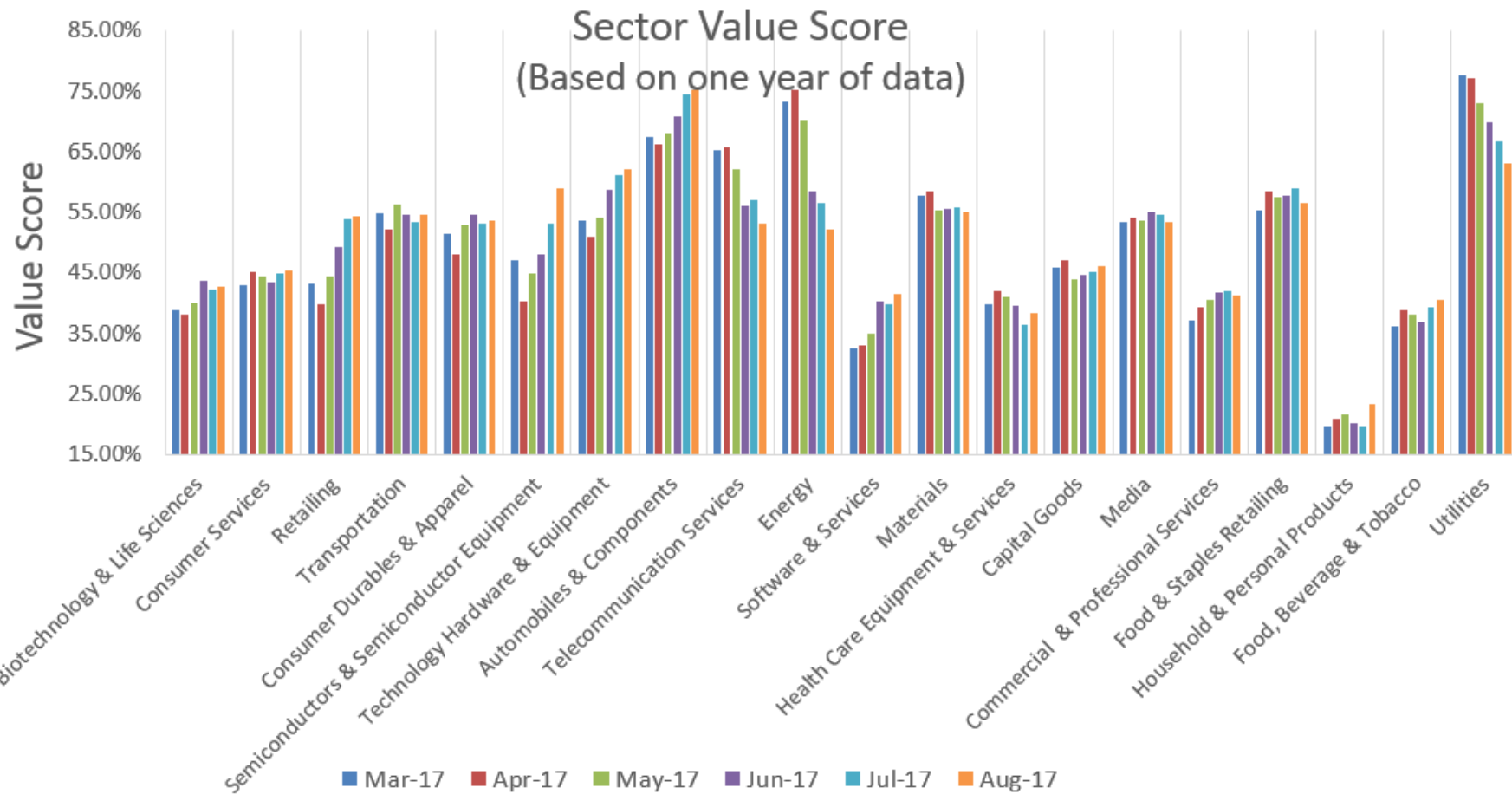
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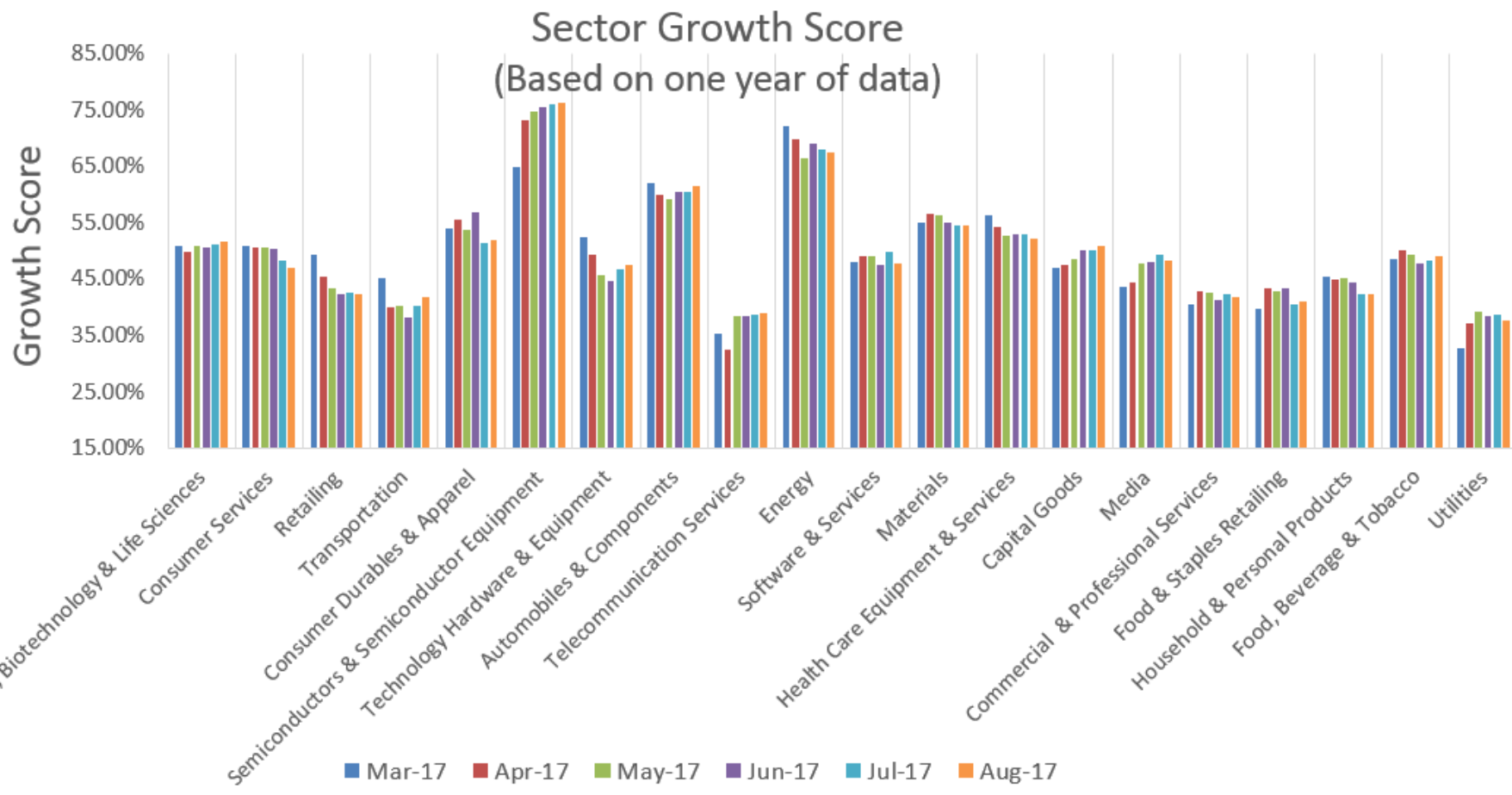
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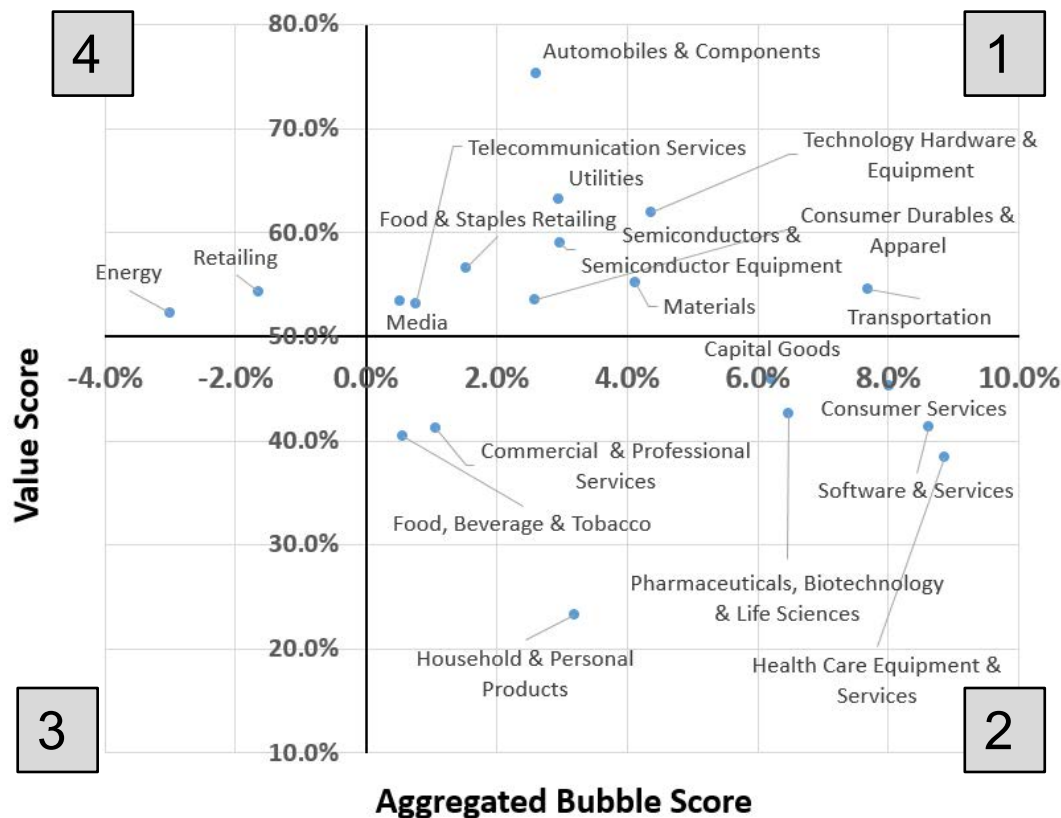
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The FCO Cockpit – Global Bubble Status August 1st, 2017



The FCO Cockpit – Global Bubble Status August 1st, 2017



By plotting the value score versus the aggregated bubble score, we can also divide the sectors into four quadrants*:

1. [Quadrant 1](#): Sectors with an average positive bubble score and a strong value score;
2. [Quadrant 2](#): Sectors with an average positive bubble score and a weak value score;
3. [Quadrant 3](#): Sectors with an average negative bubble score and a weak value score;
4. [Quadrant 4](#): Sectors with an average negative bubble score and a strong value score.

*For sectors, a strong value score is identified if value score is larger than 50%, and a weak value score is identified if else.

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Portfolio Construction and Performance

Here we illustrate the methodology of the portfolio construction process based on the results of our previous analyses.

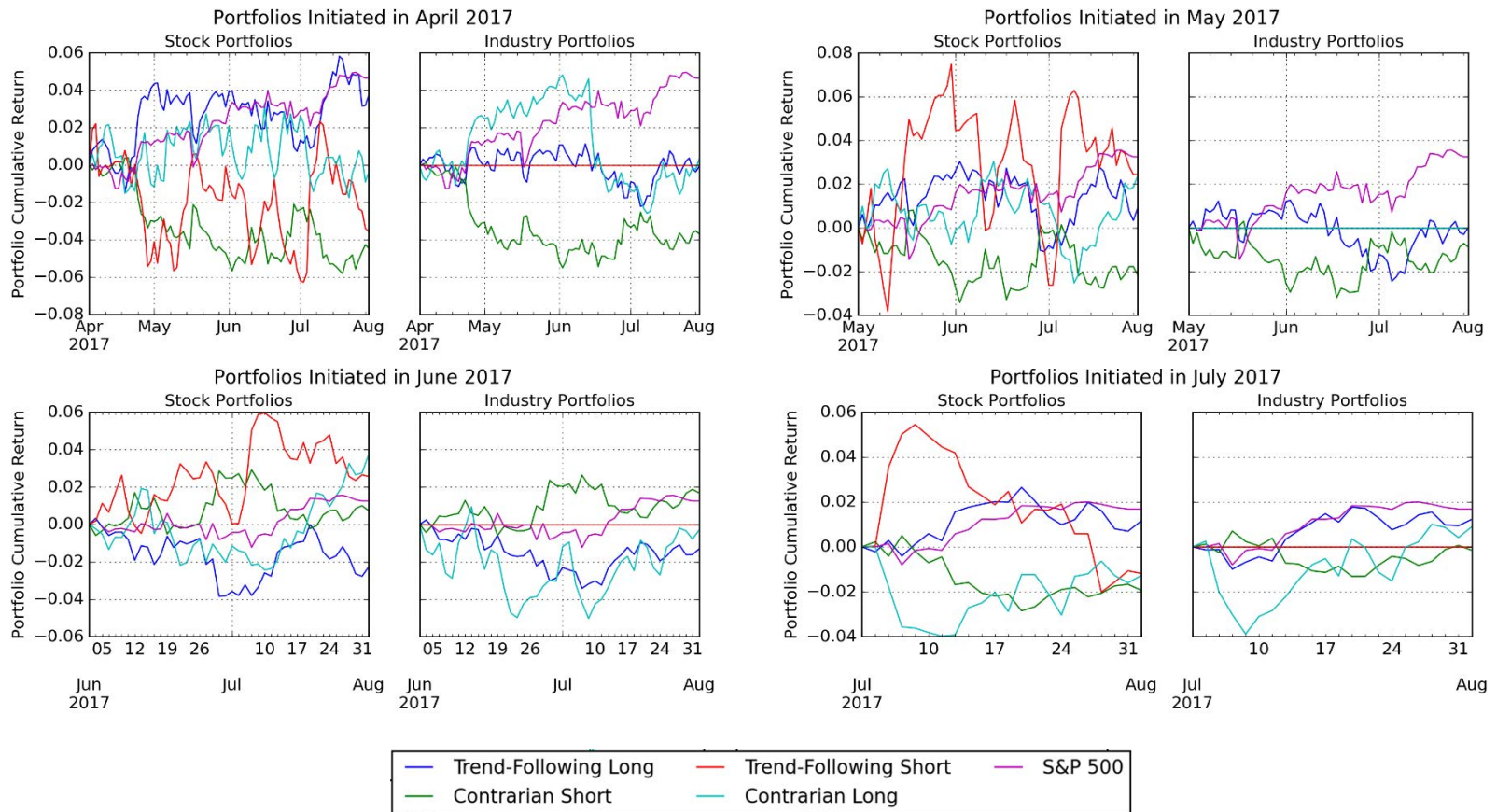
For individual stocks that we identified in the 4 quadrants, we constructed 4 portfolios based on the 4 quadrants defined in the last report. Each portfolio consists of all the stocks listed in the corresponding quadrant.

- (1) Trend-Following Long Stock Portfolio (TFLSP) is made of the stocks that have a **strong** bubble signal as well as a **strong** value score. For instance, TFLSP June consists of all the stocks listed in quadrant 1, identified in slide 25 of June FCO Report.
- (2) Trend-Following Short Stock Portfolio (TFSSP) is made of the stocks that have a **strong** bubble signal as well as a **weak** value score.
- (3) Contrarian Long Stock Portfolio (CLSP) is made of the stocks that have a **weak** bubble signal as well as a **strong** value score.
- (4) and Contrarian Short Stock Portfolio (CSSP) is made of the stocks that have a **weak** bubble signal as well as a **weak** value score.

At the same time, we also classified 20 industries into 4 quadrants. We also constructed 4 type of industry portfolios based on the 4 industry quadrants. Each portfolio consists of all the stocks in the industries listed in the corresponding quadrant. Following the same definitions as above, we have Trend-Following Long Industry Portfolio (TFLIP), Trend-Following Short Industry Portfolio (TFSIP), Contrarian Long Industry Portfolio (CLIP), and Contrarian Short Industry Portfolio (CSIP). For example, Trend-Following Long Industry Portfolio June consists of all the stocks in the industries listed in quadrant 1, identified in slide 39 of the June 2016 FCO Report.

In each month, we initiated 8 new portfolios based on the updated results. The performance of every 8 portfolios we initiated in each month since April 2016 are presented in the next slide. All of the stocks in our portfolios have the same weights and we don't consider transaction cost in the portfolio performance.

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This month, we find that most Long portfolios initiated in April, May, June and July 2017 have bounced back. This is because the rise of the markets, which essentially outperforms most of our portfolios. Contrarian Portfolios are more delicate to use due to their sensitivity to timing the expected reversal and exhibit very volatile performances, indicating that most of bubbles in the market are still dominating and that fundamentals have not yet played out. We expect trend-following positions to perform in the months following the position set-up and then contrarian positions to over-perform over longer time scales as the predicted corrections play out.

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For information, see

<http://www.er.ethz.ch/financial-crisis-observatory.html>