

The FCO Cockpit – Global Bubble Status Report

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Chair of Entrepreneurial Risk

May 1st, 2016

The FCO Cockpit – Global Bubble Status May 1st, 2016

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 811 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>)

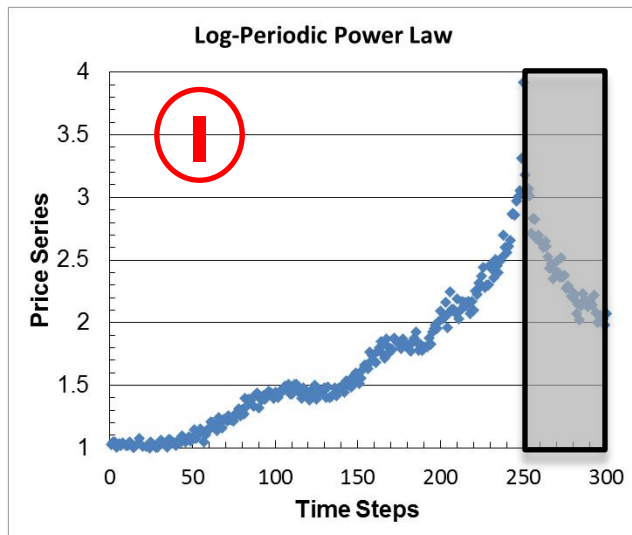
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How does it work?

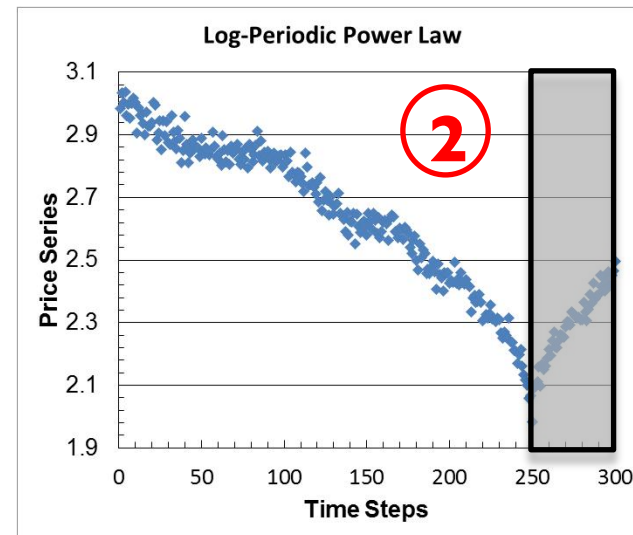
We use the Log-Periodic Power Law Singular (LPPLS) model to hunt for the distinct fingerprint of **Bubbles**:

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**

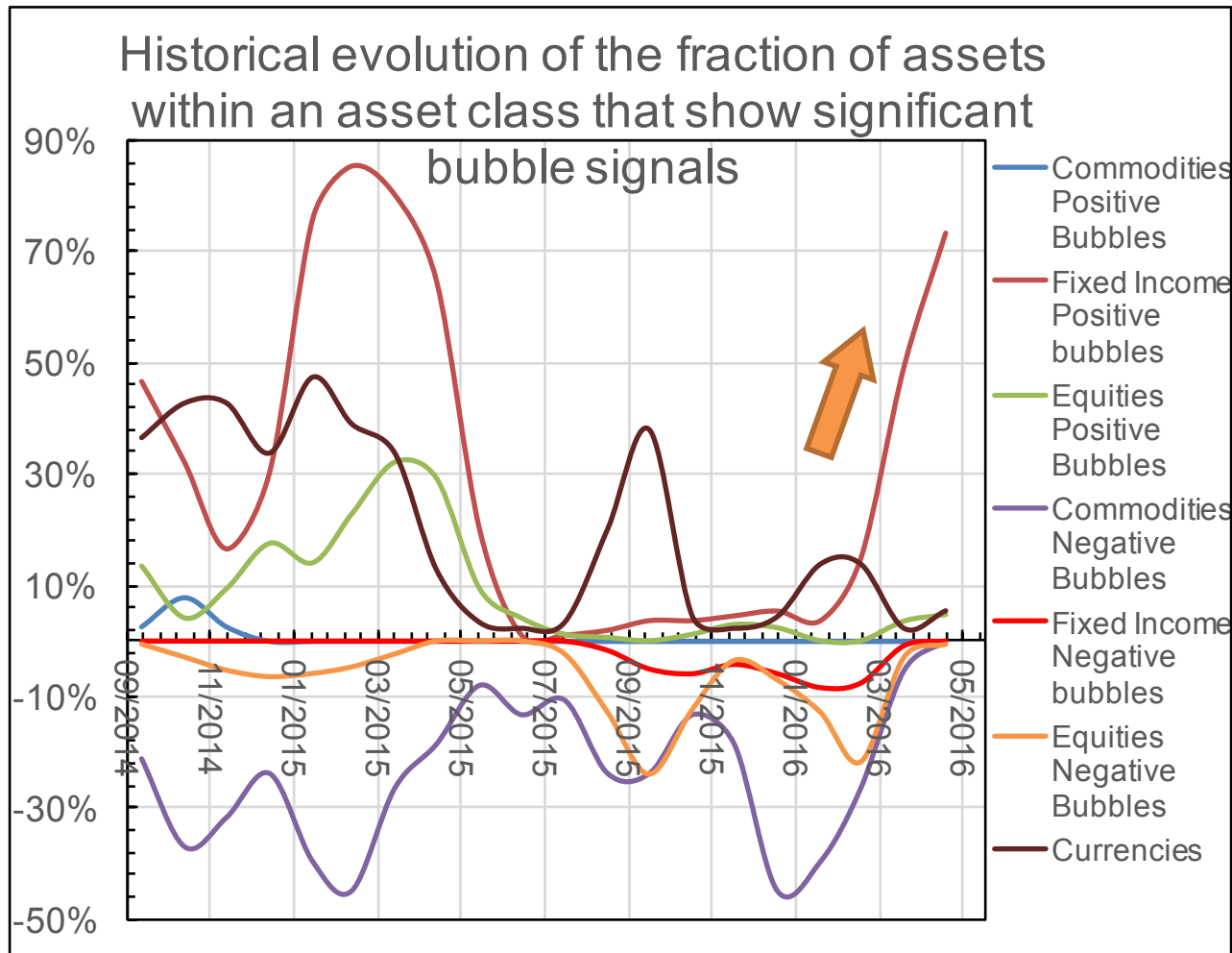


A **negative bubble** when
there is imitation in **selling**

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General Result

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The big picture

Bonds prices across all sectors and regions still are feeling a strong tail wind. A very strong momentum has lifted the entire asset class and, looking at the very significant increase in warning signals, is showing a bubble-like behavior.

A global shift is seen. The very strong negative bubble signals in commodities and in related stocks and currencies that was seen over the past half year have disappeared.

Market focus is now on bonds.

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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Other interesting highlights from this report

- Last month, we reported that there was a strong rally in Japanese government bonds and in ¥ cross rates. This continued also for this month and the results in this report suggest that this process is not sustainable;
- Over the last two months, we reported that the strong negative sentiment in commodities was turning and that the asset class was touching bottom. This is further confirmed in this report;
- There is no general trend in equities. The most interesting result was found in the New Zealand Market Index, which is showing signs of a positive bubble. In addition, the signs of a negative bubble in the Swiss Market Index that was reported last month disappeared;
- In our analysis of single stocks, the positive bubble signals we reported last time in non-cyclical/defensive sectors like food still exist. In addition, we find a significant increase of bubble signals in utilities sector, which is mainly due to the recent rebound of energy prices.

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

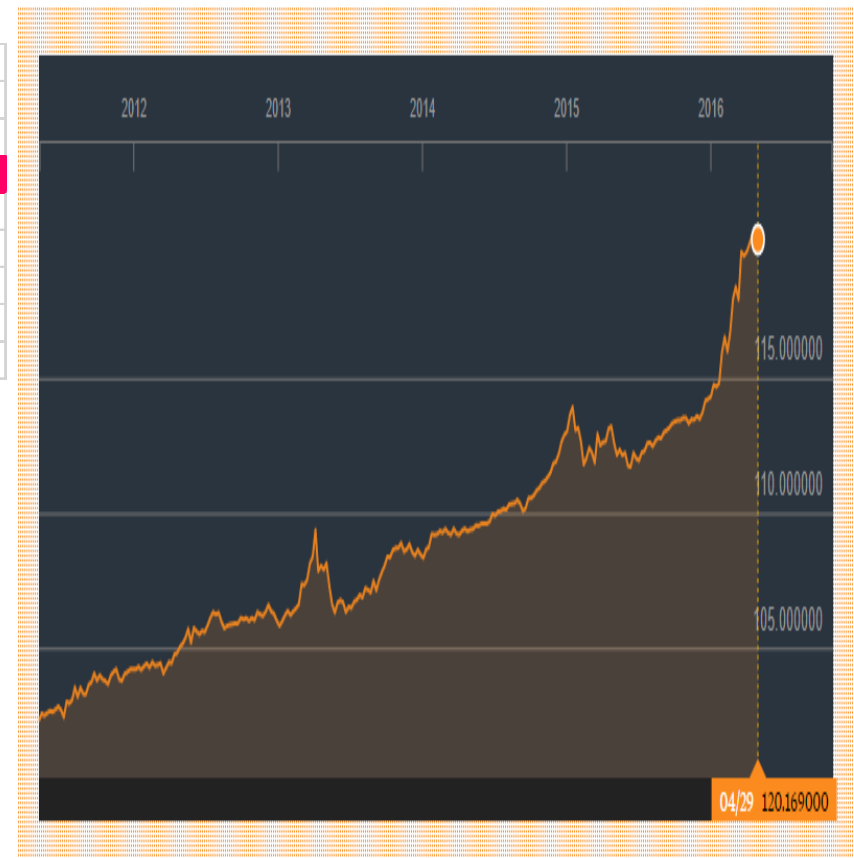
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Government bonds

Country Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx Asia Thailand Government Index	7.8%	51.9%	50.1%
iBoxx Asia China Government Index	7.4%	47.8%	56.8%
iBoxx Sovereign Japan local currency Index	6.9%	41.8%	38.2%
iBoxx Asia Korea Government Index	6.2%	30.7%	24.5%
iBoxx Asia Taiwan Government Index	8.4%	29.4%	5.1%
Negative Bubbles			
None			

- Of the 34 government bond indices that were analyzed, 28 show positive bubble signals, that is 82% of the set;
- The table above shows the indices with the five strongest signals, all are still in Asia and Japan;
- The figure to the right shows the remarkable bubble in Japanese sovereign bonds. An explosive price trajectory can be seen in the first quarter of 2016. This faster-than-exponential price growth is why we see such strong bubble warning signals.

Japanese sovereign bonds



Source: Bloomberg

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Corporate bonds

Sector Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx USD Personal & Household Goods Index	6.1%	37.2%	56.7%
iBoxx USD Tobacco Index	7.1%	34.2%	50.5%
iBoxx USD Personal Goods Index	4.9%	33.1%	65.4%
iBoxx USD Food & Beverage Index	4.5%	31.3%	53.1%
iBoxx USD Pharmaceuticals & Biotechnology Index	5.0%	29.5%	48.3%
iBoxx USD Electronic & Electrical Equipment Index	4.5%	28.5%	58.6%
iBoxx USD Consumer Goods Index	4.3%	27.2%	45.0%
iBoxx EUR Technology Index	2.0%	27.2%	55.3%
Negative Bubbles			
None			

- The strong momentum is not only in government bonds. It can be seen across all sectors and regions: 57 of the 82 corporate bond indices that were analyzed, that is 70% of the set, give bubble warning signals;
- The negative bubble signal in the oil equipment sector that was shown till last month disappeared due to the very strong rebound in commodities.

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Commodities

Last month, we reported that the strong negative momentum in commodities was turning and that the asset class was touching the bottom. This is further confirmed in this report. No single index of the of 38 indices analyzed show bubble signals. The S&P Goldman Sachs Commodity Index (figure below) shows the remarkable rebound in commodities last month



The S&P Goldman Sachs Commodity Index

Source: Financial Times

Date: 2016-05-01

Name: Crude Oil-Brent Dated

Indicator: DS LPPL Confidence

Bubble end flag - long time scale



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Currencies

FX	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Japanese Yen/US Dollar	11.5%	14.3%	24.5%
Danish Krone/Euro	0.3%	8.4%	29.5%
Japanese Yen/Euro	6.3%	7.4%	6.4%
Swiss Franc/UK Pound Sterling	0.7%	6.4%	14.2%
US Dollar/Norwegian Krone	5.9%	5.8%	17.0%

For the second month, the strong bubble signals in Japanese government bonds are confirmed by the analysis on currencies. Only five currency pairs out of 95 show bubble signals, two of them are crosses with the Japanese Yen;

The analysis on currencies further confirms the results on commodities. In the previous report we clearly saw the bubble signals in the currencies of commodities exporting countries disappeared. This is confirmed by this report;

We start to see a strengthening bubble signal on the GBP/CHF exchange rate. There is still negative sentiment on the British Pound, undoubtedly this is related to the Brexit talks;

Finally, a strengthening bubble signal on the Danish Krone/Euro exchange rate. This clearly explains the motivation behind the Danish Central Bank intervention in the currency markets for the first time since February 2015 to preserve the Krone to Euro peg.

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Stocks country indices

Equities Country Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence	Country
Positive Bubbles				
New Zealand Se Top50 Free Index	17.7%	15.1%	30.3%	New Zealand
Budapest SE Index	18.8%	10.6%	28.1%	Hungary
OMX Tallinn_GI	12.7%	8.5%	17.8%	Estonia
Casablanca SE All Share Index	0.4%	6.3%	9.6%	Morocco
Negative Bubbles				
None				
Equities Sector Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence	
Positive Bubbles				
S&P 500 Electric Utilities(Industry)	9.1%	11.4%	11.9%	
S&P 500 Leisure Equip&Products(Ir	14.2%	10.6%	7.8%	
S&P 500 Tobacco (Industry)	22.4%	9.4%	22.7%	
S&P 500 Personal Products (Indust	15.8%	8.2%	21.0%	
S&P 500 Multi-Utilities (Industry)	10.7%	7.1%	10.9%	
Negative Bubbles				
S&P 500 Diversf Consum Serv(Ind)	-35.9%	10.4%	29.5%	

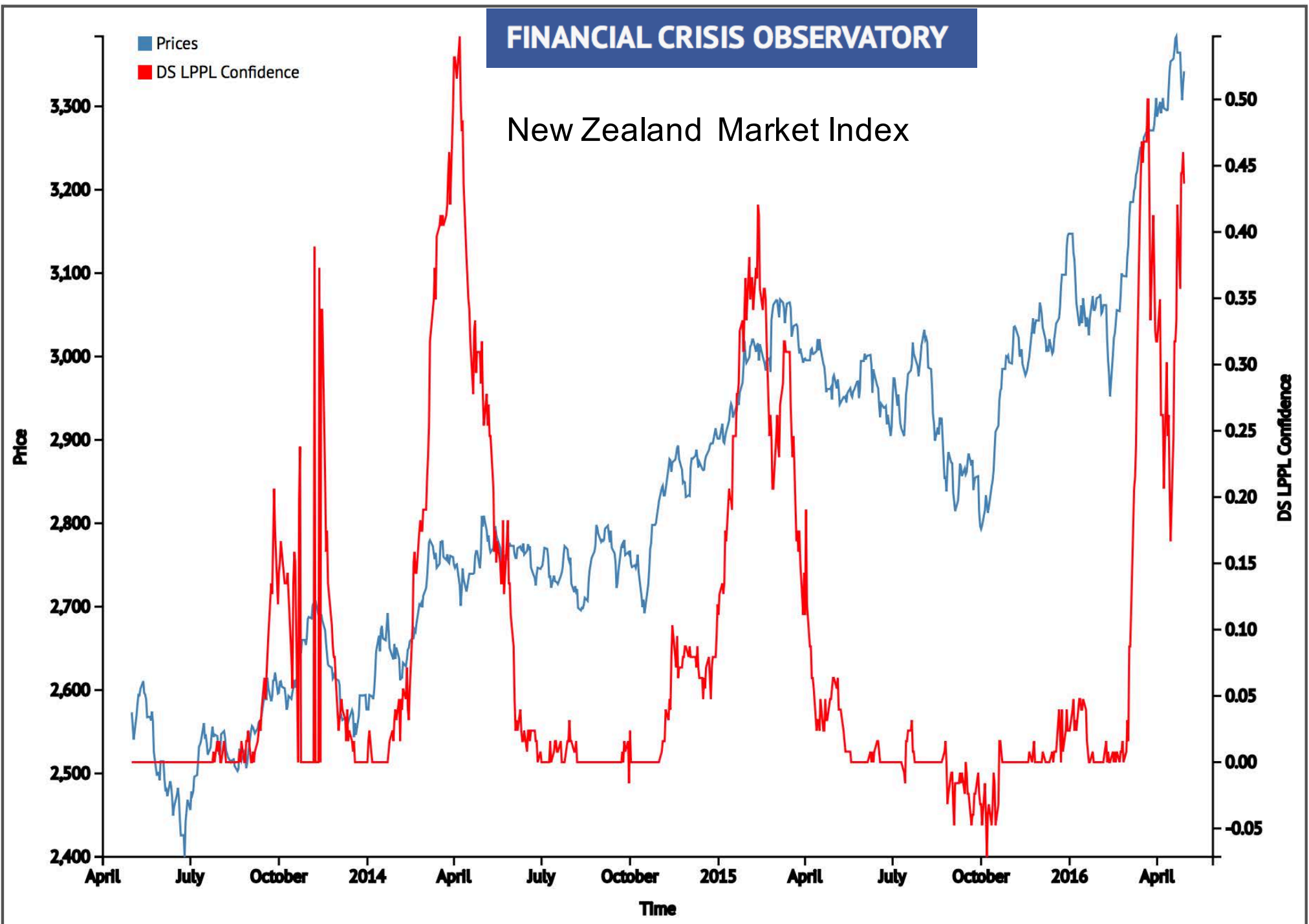
There is no general trend in equities. The most interesting result is the New Zealand Market Index, which is showing strong signs of a positive bubble due to the strong rebound in commodities. In addition, the signs of a negative bubble in the Swiss Market Index that was reported last month disappeared.

Date: 2016-05-01

Name: NZX 50

Indicator: DS LPPL Confidence

Early bubble warning - long time scale



Date: 2016-04-30

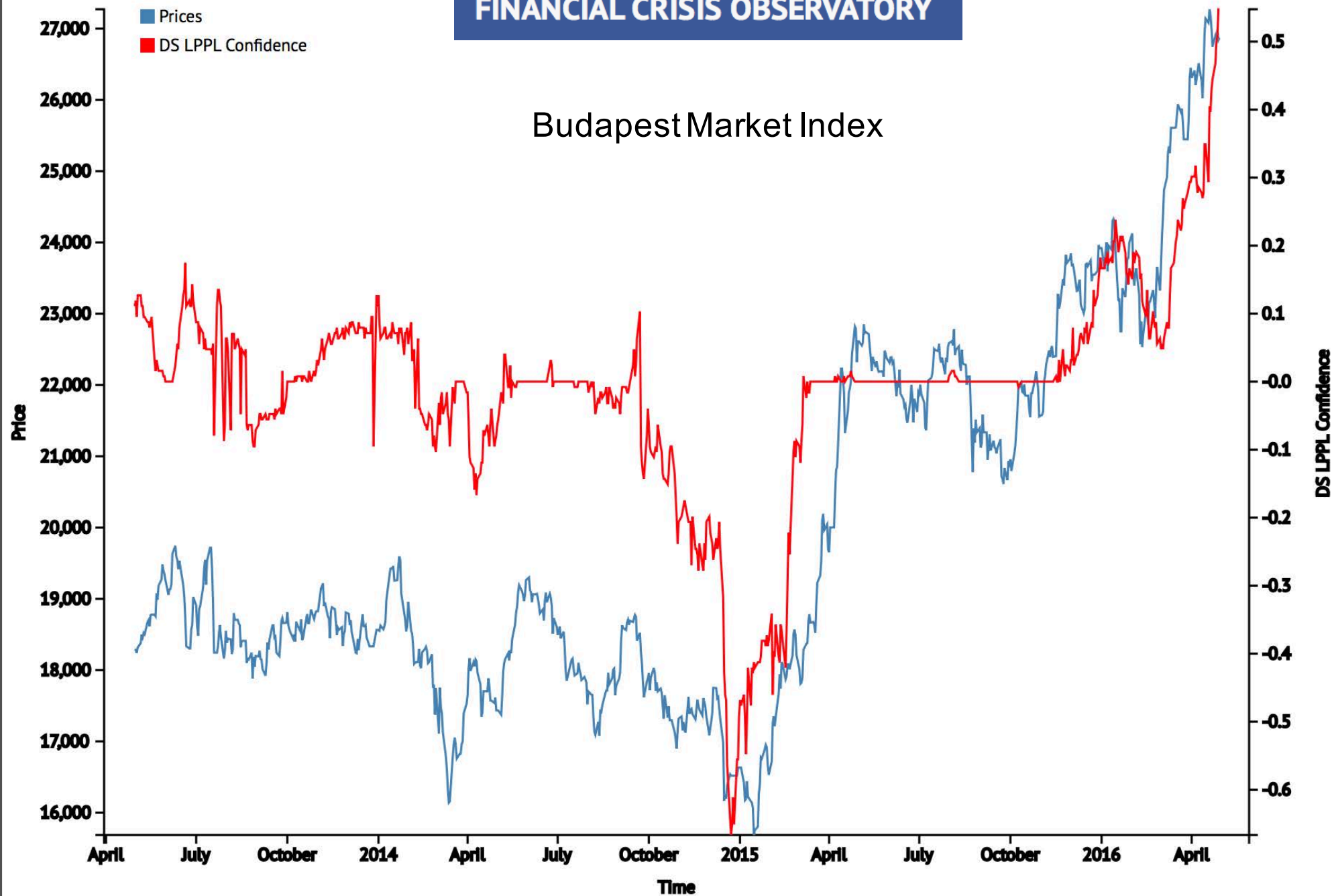
Name: BUDAPEST (BUX)

Indicator: DS LPPL Confidence

Early bubble warning - long time scale

FINANCIAL CRISIS OBSERVATORY

Budapest Market Index



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Single Stocks

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What is this?

For 811 stocks we calculate the bubble warning indicators as well as two newly-developed financial strength indicators, which indicate the fundamental value of the stock and the growth capability respectively.

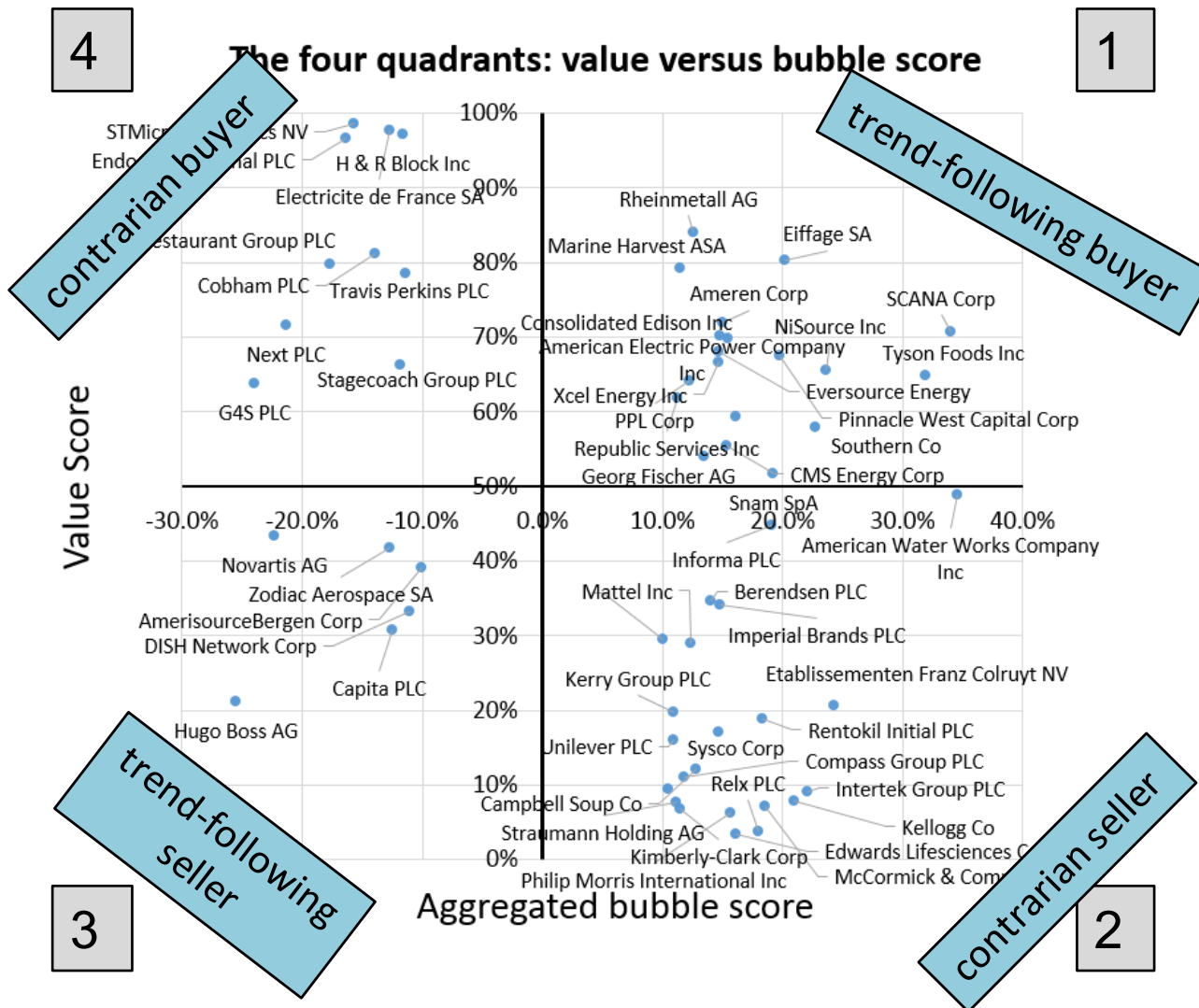
The stocks are the constituents of the Stoxx Europe 600, the S&P 500 and the Nasdaq 100 indices. From these, all doubles and stocks with incomplete data are removed. Because our financial strength indicators are specifically designed for corporates, all financial institutions are taken out of the set 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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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. SCANA Corp);
2. [Quadrant 2](#): Stocks with a strong positive bubble score and a weak value score (e.g. Compass Group PLC);
3. [Quadrant 3](#): Stocks with a strong negative bubble score and a weak value score (e.g. Hugo Boss AG);
4. [Quadrant 4](#): Stocks with strong negative bubble score and a strong financial strength (e.g. G4S PLC)

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Each quadrant has its own specs:

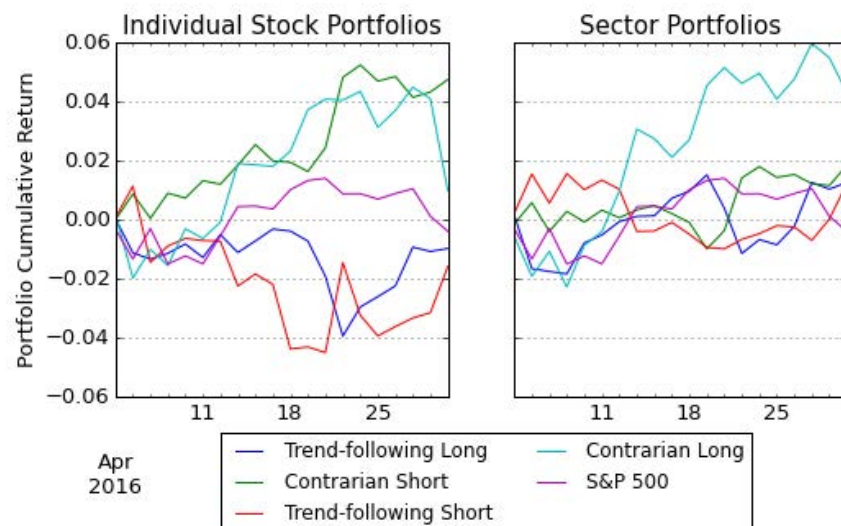
1. [Quadrant 1](#): Stocks with a strong value score are cheap relative to their earnings potential. The strong positive bubble signal should be interpreted as a momentum indicator possibly the consequence of a repricing based on the fundamentals. **As an investor, one could be a trend-following buyer.**
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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Here we summarized 8 portfolios performance in April based on stocks or sectors types we reported in the last time. For each stock, we have its individual type or its sector's type, which are trend-following or contrarian combined with long or short. All of the stocks in our portfolio have same weights. We don't consider transaction cost in the portfolio performance.

For individual stocks, we construct 4 type portfolios based on individual stock type as analyzed last time. The figure below left shows that both contrarian type portfolios perform well. This further illustrates the effect of our indicators. Stocks with strong bubble signals and strong(weak) value scores start to correct their prices towards their fair values.

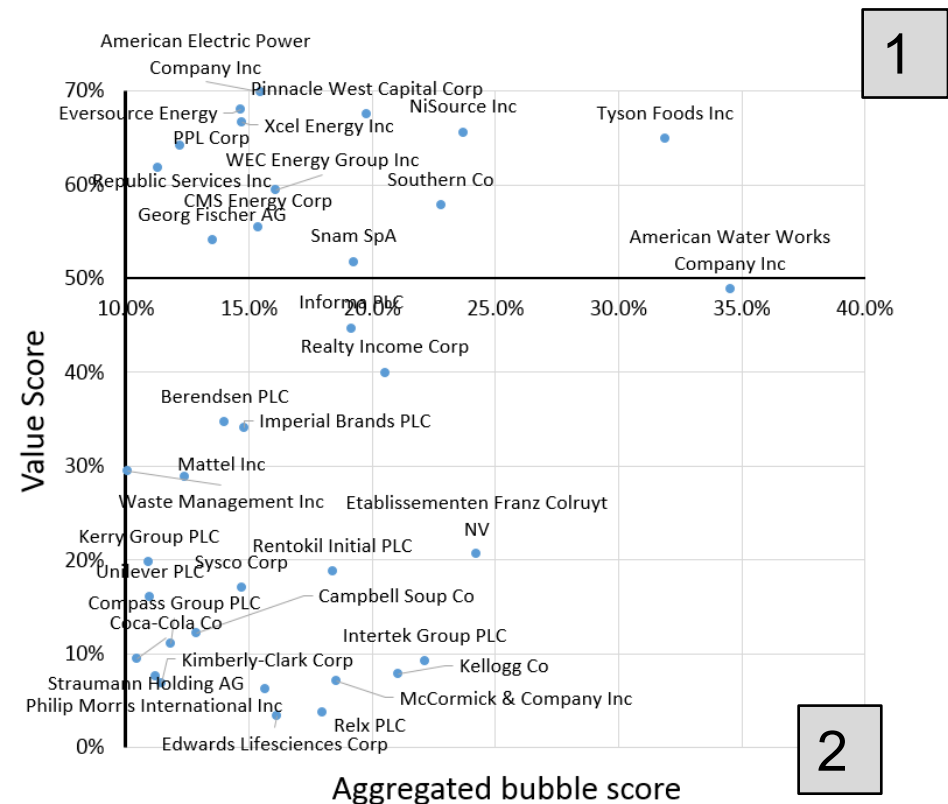
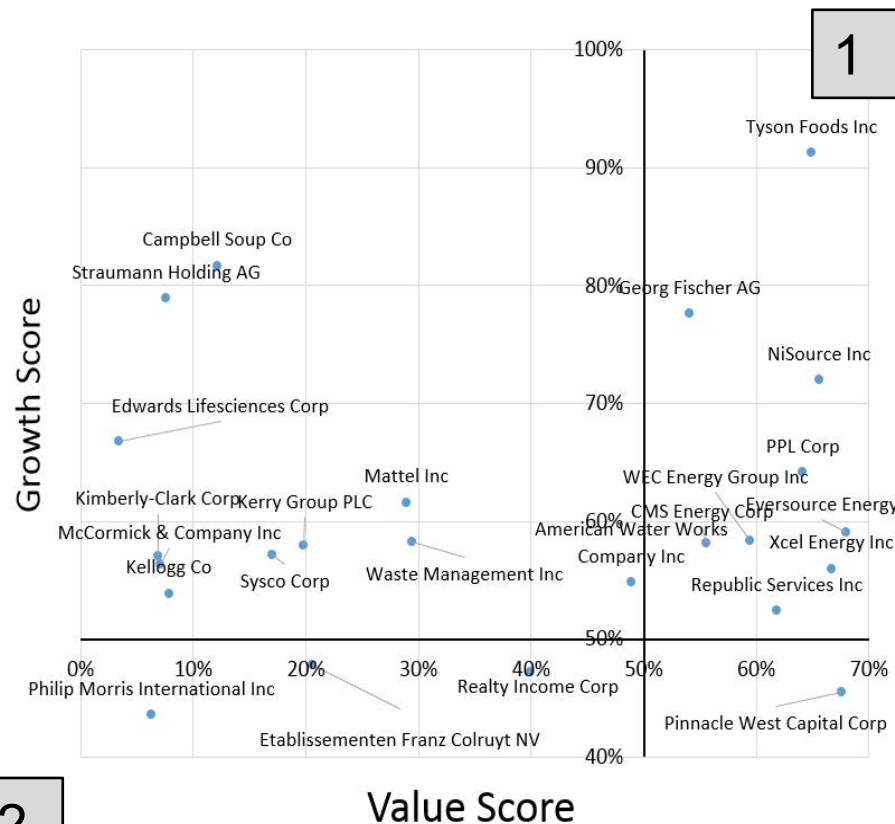
For sector portfolios, we select stocks based on sector types, and choose all of stocks in those sectors into the corresponding portfolio. Again, contrarian type portfolios perform better than trend-following ones.



Portfolio	April Cumulative Return	Annualized Volatility	Number of Stocks
Trend-following Long Stock	-0.98%	12.87%	3
Contrarian Short Stock	4.74%	11.66%	10
Trend-following Short Stock	-1.59%	21.15%	5
Contrarian Long Stock	0.97%	18.81%	23
Trend-following Long Sector	1.25%	12.80%	50
Contrarian Short Sector	1.83%	10.24%	71
Trend-following Short Sector	1.21%	11.11%	414
Contrarian Long Sector	4.30%	16.88%	233
S&P 500	-0.51%	10.35%	-

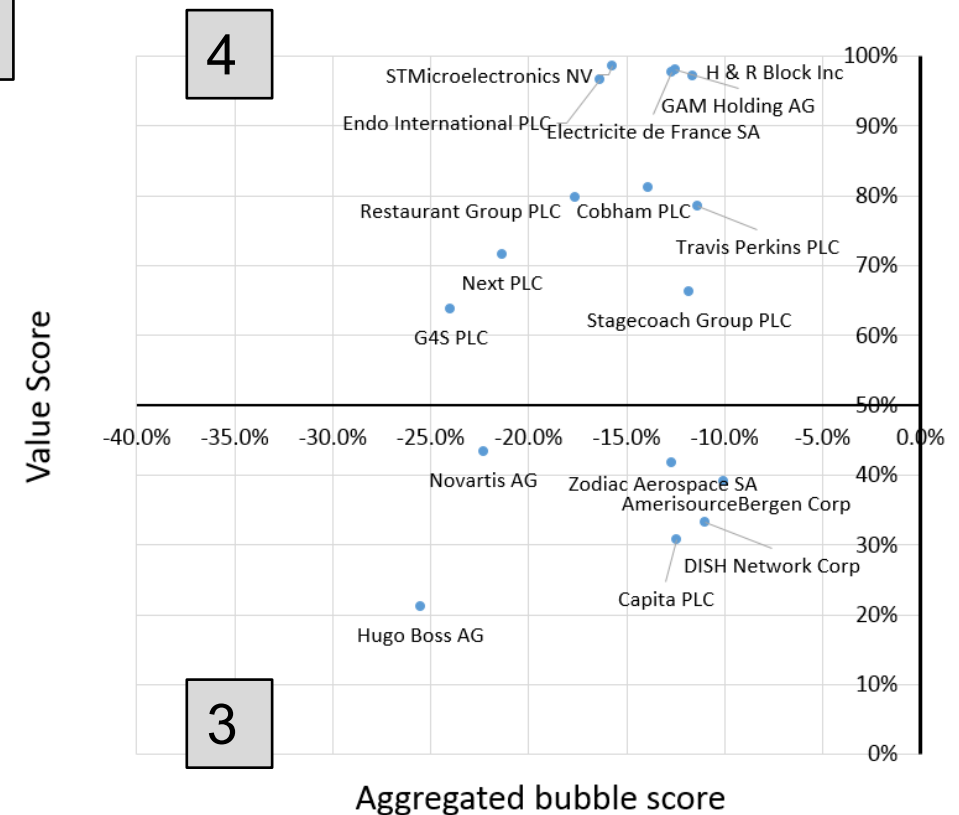
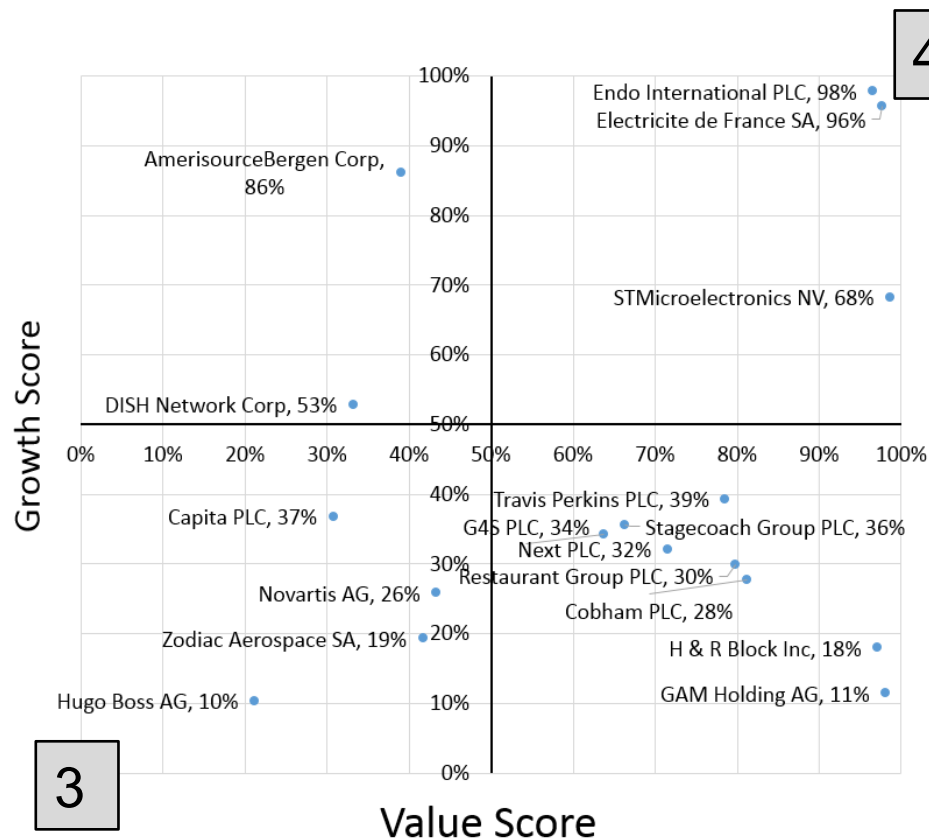
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Quadrant 1 and 2 stocks: positive bubble signals with strong respectively weak fundamentals



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



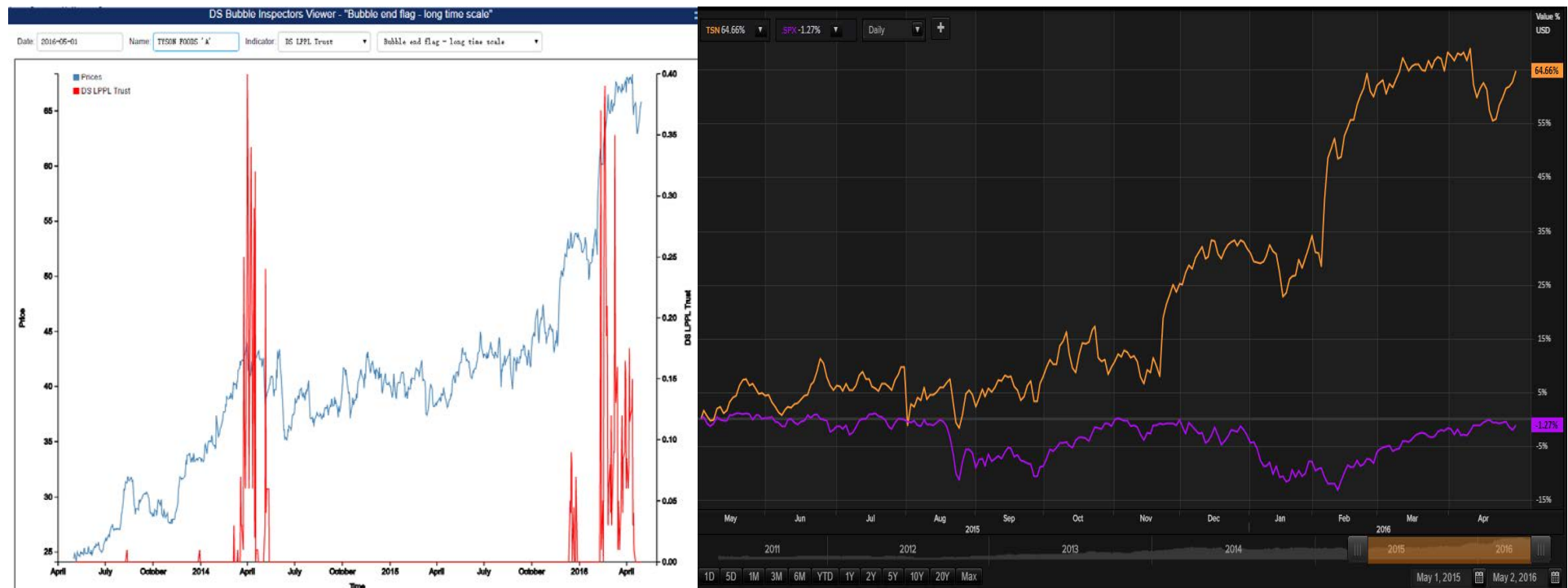
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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
SCANA Corp	United States of America	Utilities	Utilities	29.7%	34.0%	73%	52%
Tyson Foods Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	66.6%	31.9%	66%	92%
NiSource Inc	United States of America	Utilities	Utilities	33.1%	23.7%	68%	72%
Eiffage SA	France	Industrials	Capital Goods	27.5%	20.3%	82%	90%
Pinnacle West Capital Corp	United States of America	Utilities	Utilities	18.7%	19.8%	70%	46%
WEC Energy Group Inc	United States of America	Utilities	Utilities	18.5%	16.1%	62%	58%
American Electric Power Company Inc	United States of America	Utilities	Utilities	11.7%	15.5%	72%	27%
Ameren Corp	United States of America	Utilities	Utilities	17.2%	15.0%	74%	23%
Consolidated Edison Inc	United States of America	Utilities	Utilities	21.2%	14.8%	73%	23%
Xcel Energy Inc	United States of America	Utilities	Utilities	18.0%	14.7%	69%	55%
Eversource Energy	United States of America	Utilities	Utilities	15.8%	14.7%	70%	58%
Rheinmetall AG	Germany	Industrials	Capital Goods	48.5%	12.6%	86%	86%
PPL Corp	United States of America	Utilities	Utilities	19.2%	12.2%	66%	63%
Marine Harvest ASA	Norway	Consumer Staples	Food, Beverage & Tobacco	36.1%	11.5%	79%	99%

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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals, example Tyson Foods.



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 65%.

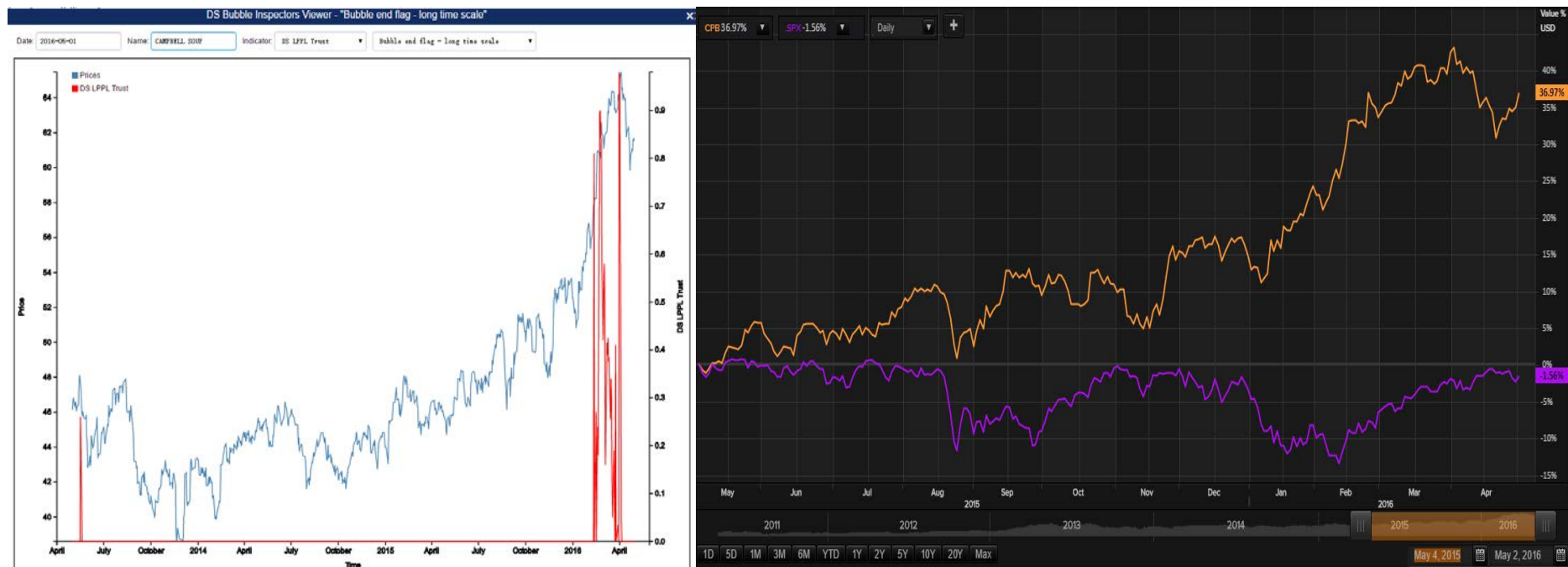
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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Etablissements Franz Colruyt NV	Belgium	Consumer Staples	Food & Staples Retailing	19.2%	24.2%	20%	47%
Intertek Group PLC	United Kingdom	Industrials	Commercial & Professional Services	24.7%	22.1%	9%	35%
Kellogg Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	21.3%	21.0%	8%	53%
McCormick & Company Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	24.5%	18.6%	8%	55%
Rentokil Initial PLC	United Kingdom	Industrials	Commercial & Professional Services	31.1%	18.4%	19%	38%
Relx PLC	United Kingdom	Consumer Discretionary	Media	11.8%	18.0%	4%	37%
Edwards Lifesciences Corp	United States of America	Health Care	Health Care Equipment & Services	67.7%	16.2%	3%	67%
Philip Morris International Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	17.6%	15.7%	5%	43%
Imperial Brands PLC	United Kingdom	Consumer Staples	Food, Beverage & Tobacco	16.5%	14.8%	35%	38%
Sysco Corp	United States of America	Consumer Staples	Food & Staples Retailing	24.4%	14.7%	16%	62%
Berendsen PLC	United Kingdom	Industrials	Commercial & Professional Services	13.7%	14.0%	35%	35%
Campbell Soup Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	38.0%	12.8%	11%	82%
Mattel Inc	United States of America	Consumer Discretionary	Consumer Durables & Apparel	10.4%	12.4%	30%	62%
Compass Group PLC	United Kingdom	Consumer Discretionary	Consumer Services	5.4%	11.8%	11%	34%
Kimberly-Clark Corp	United States of America	Consumer Staples	Household & Personal Products	14.1%	11.4%	6%	57%
Straumann Holding AG	Switzerland	Health Care	Health Care Equipment & Services	25.0%	11.2%	6%	77%
Unilever PLC	United Kingdom	Consumer Staples	Household & Personal Products	6.6%	11.0%	17%	36%
Kerry Group PLC	Ireland; Republic of	Consumer Staples	Food, Beverage & Tobacco	18.8%	10.9%	21%	58%
Coca-Cola Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	10.5%	10.5%	10%	22%
Waste Management Inc	United States of America	Industrials	Commercial & Professional Services	18.7%	10.1%	31%	59%

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals, example Campbell Soup Co.



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 40%. The stock Campbell Soup was identified last month in Quadrant 2 and one can observe the subsequent correction, which is in line with the diagnostic of a strong bubble signal with weak fundamentals, which calls for a contrarian seller position.

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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
DISH Network Corp	United States of America	Consumer Discretionary	Media	-27.2%	-11.0%	36%	53%
Capita PLC	United Kingdom	Industrials	Commercial & Professional Services	-12.5%	-12.5%	31%	36%
Hugo Boss AG	Germany	Consumer Discretionary	Consumer Durables & Apparel	-49.5%	-25.5%	19%	9%
AmerisourceBergen Corp	United States of America	Health Care	Health Care Equipment & Services	-25.5%	-10.0%	36%	86%

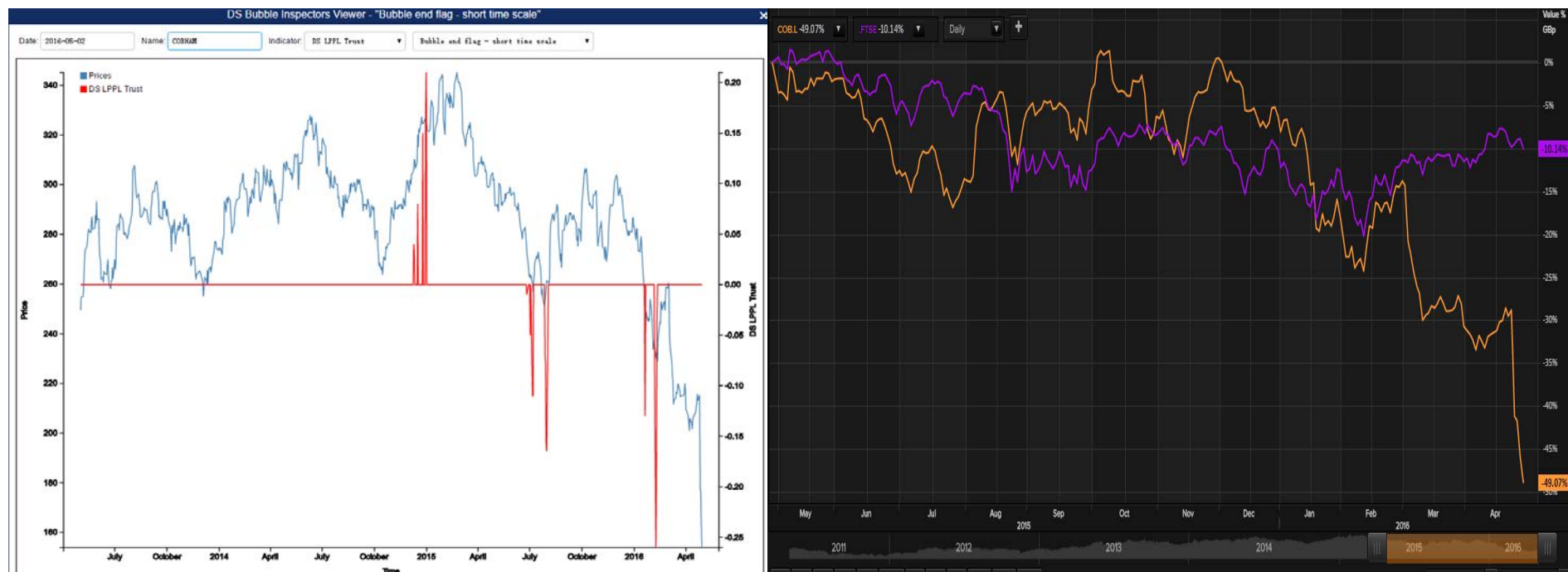
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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Endo International PLC	Ireland; Republic of	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	-67.9%	-16.4%	97%	98%
Cobham PLC	United Kingdom	Industrials	Capital Goods	-48.1%	-13.9%	83%	27%
Electricite de France SA	France	Utilities	Utilities	-42.7%	-12.7%	98%	97%
Bolloré SA	France	Industrials	Transportation	-32.2%	-11.7%	90%	40%
G4S PLC	United Kingdom	Industrials	Commercial & Professional Services	-35.7%	-24.0%	67%	33%
STMicroelectronics NV	Switzerland	Information Technology	Semiconductors & Semiconductor Equipment	-24.7%	-15.7%	99%	67%
Next PLC	United Kingdom	Consumer Discretionary	Retailing	-30.8%	-21.4%	61%	32%
Restaurant Group PLC	United Kingdom	Consumer Discretionary	Consumer Services	-59.5%	-17.6%	81%	29%
Stagecoach Group PLC	United Kingdom	Industrials	Transportation	-29.1%	-11.8%	68%	34%
Travis Perkins PLC	United Kingdom	Industrials	Capital Goods	-11.1%	-11.3%	80%	38%
H & R Block Inc	United States of America	Consumer Discretionary	Consumer Services	-33.1%	-11.6%	97%	17%

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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals, example Cobham PLC.



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 performance of the stock over the last year (orange) with respect to the FTSE benchmark (purple), it is -40%. The strong fundamentals have not yet played out and the negative bubble trend is still dominating.

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Sectors

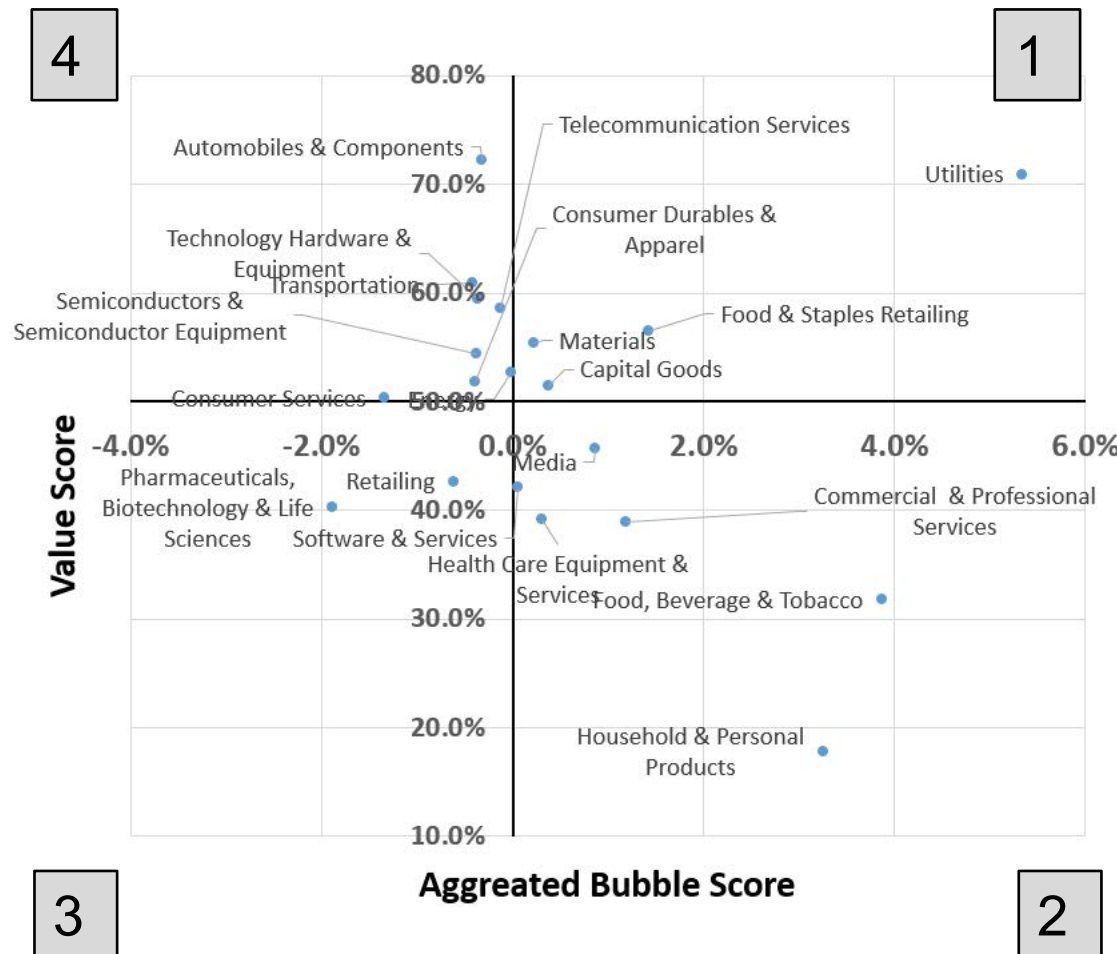
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GICS Industry Group Name	Yearly Return		Bubble Score		Value Score		Growth Score	
	May 1 st	April 1 st	May 1 st	April 1 st	May 1 st	April 1 st	May 1 st	April 1 st
Pharmaceuticals, Biotechnology & Life Sciences	-6.3%	-9.0%	-1.9%	-3.4%	40.2%	39.0%	57.8%	51.0%
Consumer Services	-5.2%	-4.7%	-1.3%	-1.6%	50.4%	47.0%	50.7%	54.0%
Retailing	-4.8%	-0.9%	-0.6%	-1.7%	42.7%	44.0%	53.6%	51.0%
Transportation	-5.4%	-4.6%	-0.4%	-2.1%	61.0%	62.0%	51.2%	46.0%
Consumer Durables & Apparel	-0.2%	2.3%	-0.4%	-0.5%	51.9%	54.0%	67.1%	61.0%
Semiconductors & Semiconductor Equipment	-5.2%	-2.0%	-0.4%	-1.3%	54.4%	50.0%	51.0%	44.0%
Technology Hardware & Equipment	-11.2%	-5.8%	-0.4%	-1.5%	59.5%	54.0%	34.5%	39.0%
Automobiles & Components	-14.4%	-14.4%	-0.3%	-1.3%	72.3%	77.0%	71.1%	59.0%
Telecommunication Services	-10.8%	-3.9%	-0.1%	-0.6%	58.6%	46.0%	55.6%	48.0%
Energy	-20.4%	-26.2%	0.0%	-2.1%	52.7%	52.0%	19.9%	23.0%
Software & Services	6.4%	10.0%	0.1%	-0.1%	42.1%	37.0%	60.5%	56.0%
Materials	-4.7%	-8.6%	0.2%	-1.1%	55.4%	51.0%	45.4%	43.0%
Health Care Equipment & Services	5.4%	-0.7%	0.3%	-1.7%	39.2%	38.0%	69.7%	62.0%
Capital Goods	-2.1%	-2.4%	0.4%	-0.8%	51.4%	49.0%	47.2%	47.0%
Media	-4.8%	-4.8%	0.9%	-0.5%	45.6%	43.0%	56.7%	54.0%
Commercial & Professional Services	-0.9%	1.6%	1.2%	-1.2%	38.9%	40.0%	49.4%	53.0%
Food & Staples Retailing	-4.7%	-1.4%	1.4%	0.9%	56.5%	42.0%	48.3%	46.0%
Household & Personal Products	7.1%	8.6%	3.3%	2.0%	17.8%	20.0%	48.3%	44.0%
Food, Beverage & Tobacco	11.8%	14.6%	3.9%	3.9%	31.8%	30.0%	48.9%	48.0%
Utilities	2.4%	1.3%	5.3%	2.3%	70.9%	61.0%	41.2%	39.0%

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

- The sector *Automobiles & Components* and *Transportation* we recommend last month still maintain very strong value scores, and their negative bubble scores have decreased by more than 1%, indicating a rebound happening;
- Recent rebounds of energy prices partly explain the high bubble score. Nevertheless, the value score of this industry is still at a high level.

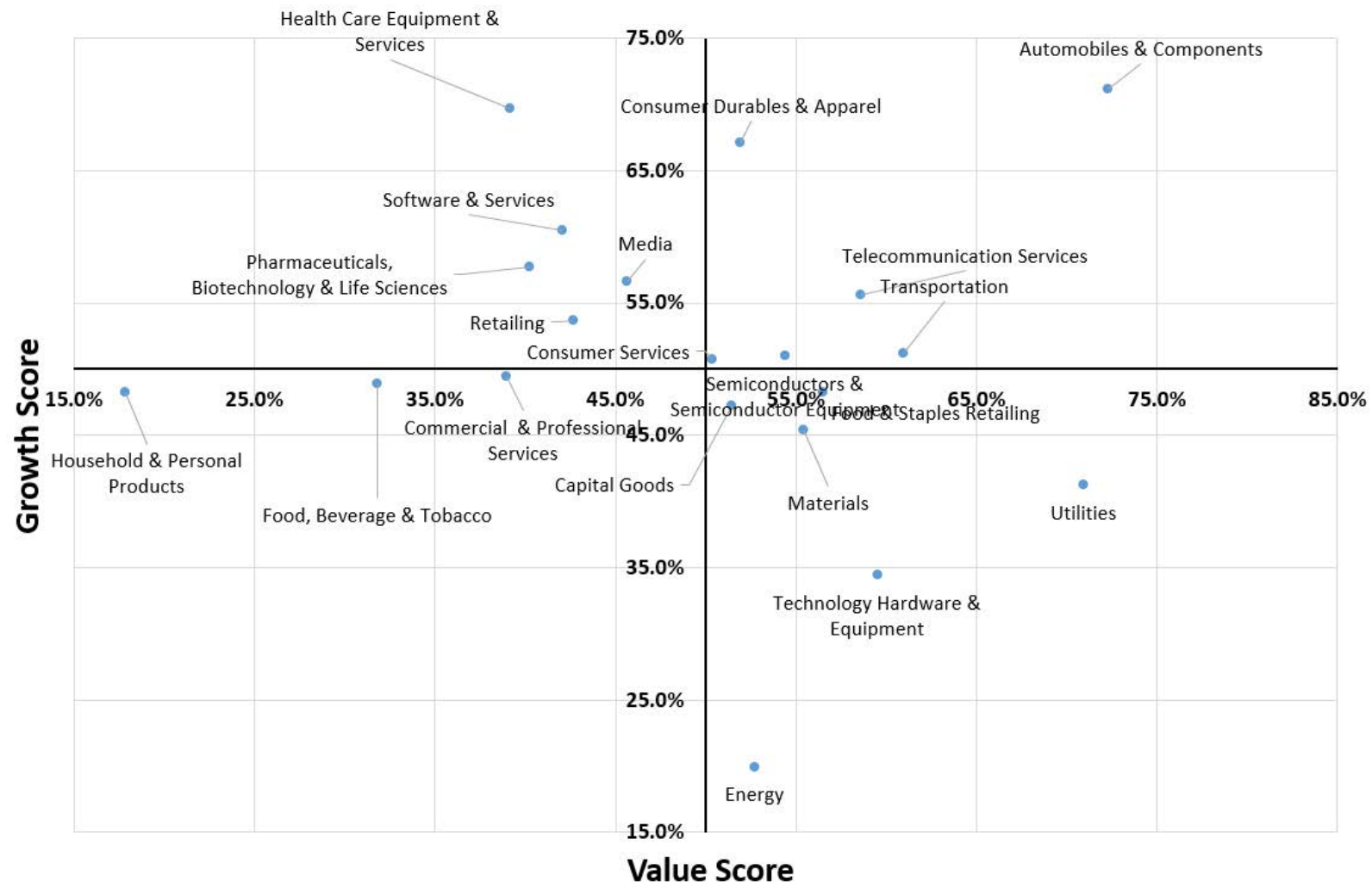
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By plotting the value score versus the aggregated bubble score, we can also divide the sectors into four quadrants:

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.

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Thank you