

The FCO Cockpit – Global Bubble Status Report

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Chair of Entrepreneurial Risk

June 1st, 2016

The FCO Cockpit – Global Bubble Status June 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 835 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>)

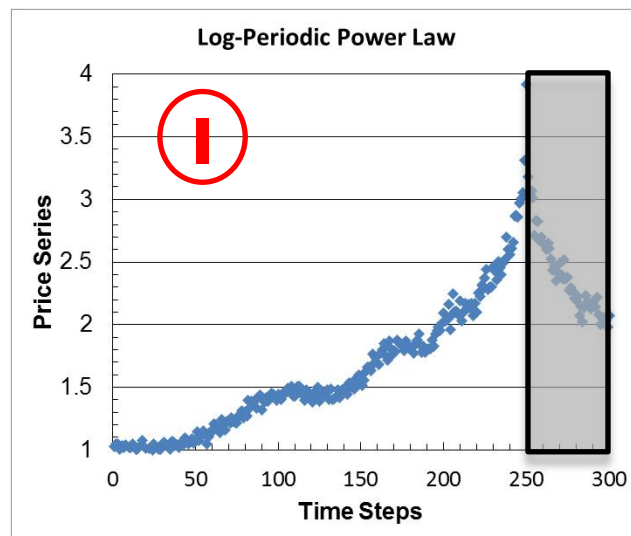
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How does it work?

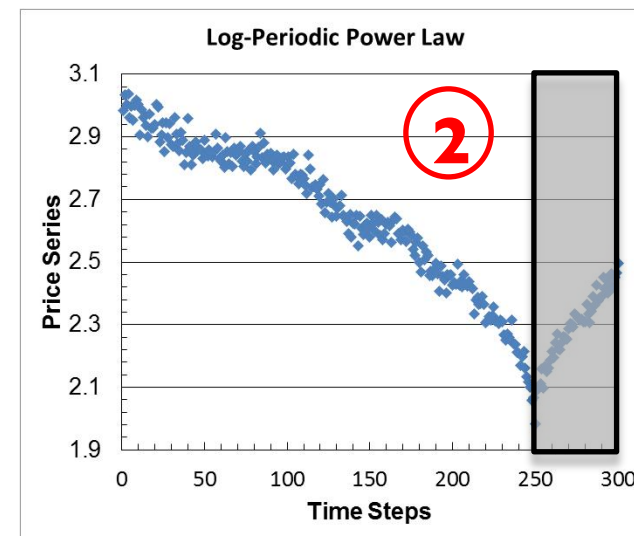
We use the Log-Periodic Power Law Singular (LPPLS) model to hunt for the distinct fingerprint of **Bubbles**:

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**

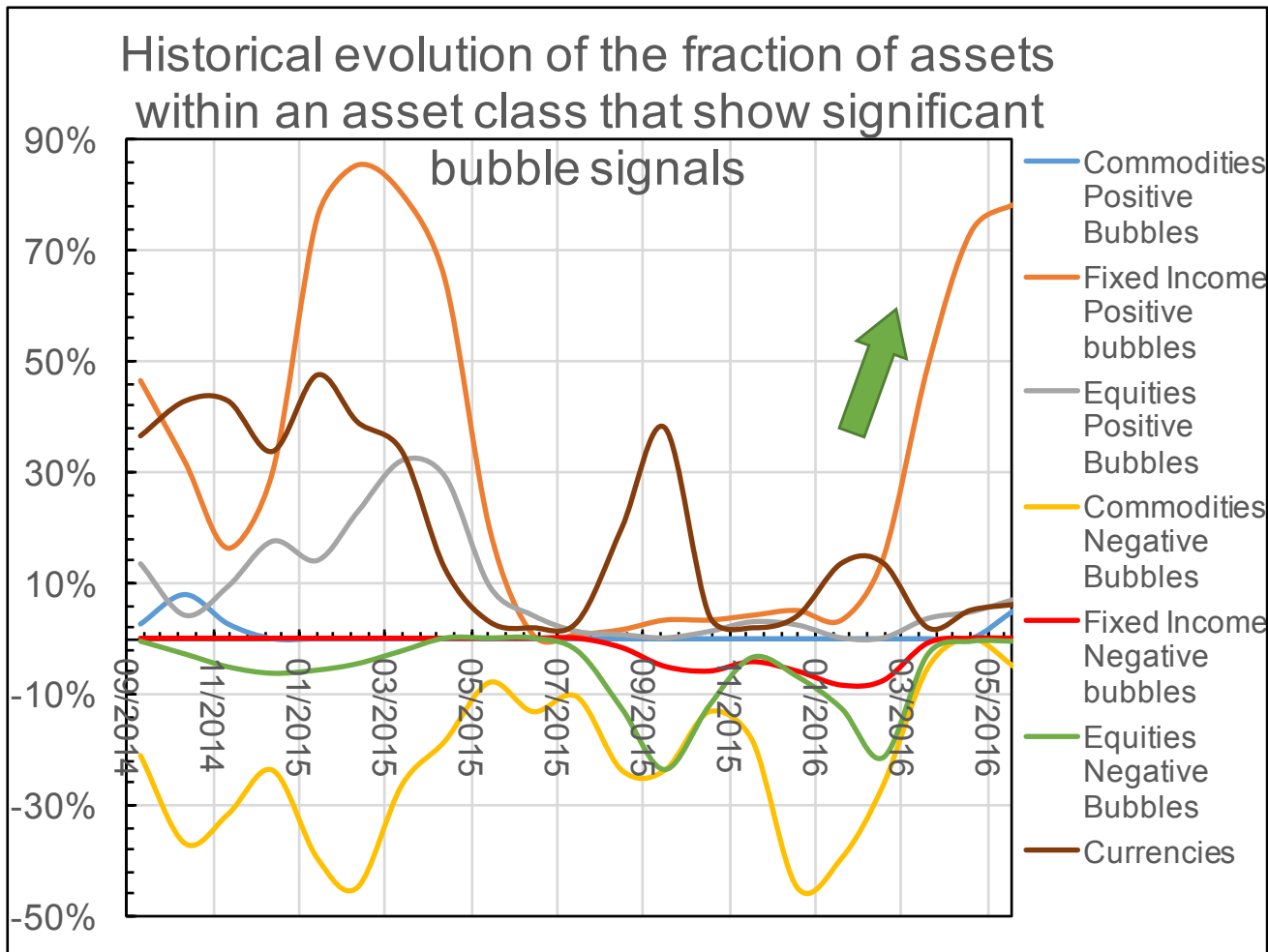


A **negative bubble** when
there is imitation in **selling**

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General Result

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The big picture

Bonds prices across all sectors and regions are still 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. In addition, for the first time since November 2014, we see positive bubble signals in commodities indices.

Market focus is still 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

- Over the last two months, 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 by having positive bubble signals in two commodities indices for the first time in a year and a half;
- There is no general trend in equities. The most interesting result was found in New Zealand, Hungary, Estonia, and Morocco stock market indices, which are showing signs of a positive bubble for the second consecutive month. In addition, Lithuania stock market index joined them in showing signs of a positive bubble during this month;
- In our analysis of single stocks, the positive bubble signals we reported last time in non-cyclical/defensive sectors still exist, but less stronger. Moreover, we find a significant increase of bubble signals in commercial services (cyclical) and health care services (defensive).

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	7.7%	41.2%	10.3%
iBoxx Sovereign Japan local currency Index	8.1%	34.4%	12.9%
iBoxx Asia Indonesia Government Index	10.9%	28.2%	30.6%
iBoxx EUR Agencies Index	2.0%	27.0%	11.8%
iBoxx EUR Public Banks Index	2.1%	25.5%	24.8%
Negative Bubbles			
None			

Of the 34 government bond indices that were analyzed, 21 show positive bubble signals, that is 62% of the set;

The table above shows the indices with the five strongest signals, all are in Asia, Japan and Europe;

The figure on the next page shows the remarkable bubble in the Japanese sovereign bonds. The fast growing price trajectory that was seen in the first quarter of 2016 is still continuing in the second quarter but at a slower pace.

Line, .IBBJP0001, Last Quote(Last)
6/1/2016, 141.57030, N/A, N/A

Japanese sovereign bonds

Source: Thomson Reuters



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Corporate bonds

Sector Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx USD Tobacco Index	7.8%	49.4%	30.4%
iBoxx USD Personal Goods Index	5.9%	42.5%	32.5%
iBoxx USD Personal & Household Goods Index	7.1%	42.0%	38.7%
iBoxx USD Electronic & Electrical Equipment Index	4.9%	39.3%	49.1%
iBoxx EUR Financial Services Subordinated Index	6.4%	39.1%	48.6%
iBoxx USD Food & Beverage Index	5.0%	38.6%	26.8%
iBoxx EUR Financial Services Index	2.6%	35.5%	35.7%
iBoxx USD Support Services Index	6.1%	34.6%	47.4%
Negative Bubbles			
None			

The strong momentum is not only in government bonds. It can be seen across all sectors and regions: 63 of the 82 corporate bond indices that were analyzed, that is 77% of the set, give bubble warning signals;

The negative bubble signal in the oil equipment sector that was shown till March 2016 disappeared due to the very strong rebound in commodities.

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Commodities

Commodities Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
Soybean ER Index	9.1%	8.3%	16.2%
White Sugar ER Index	14.2%	7.1%	9.8%
Negative Bubbles			
Platinum ER Index	12.30%	6.2%	23.7%
Silver ER Index	3.70%	5.8%	34.1%

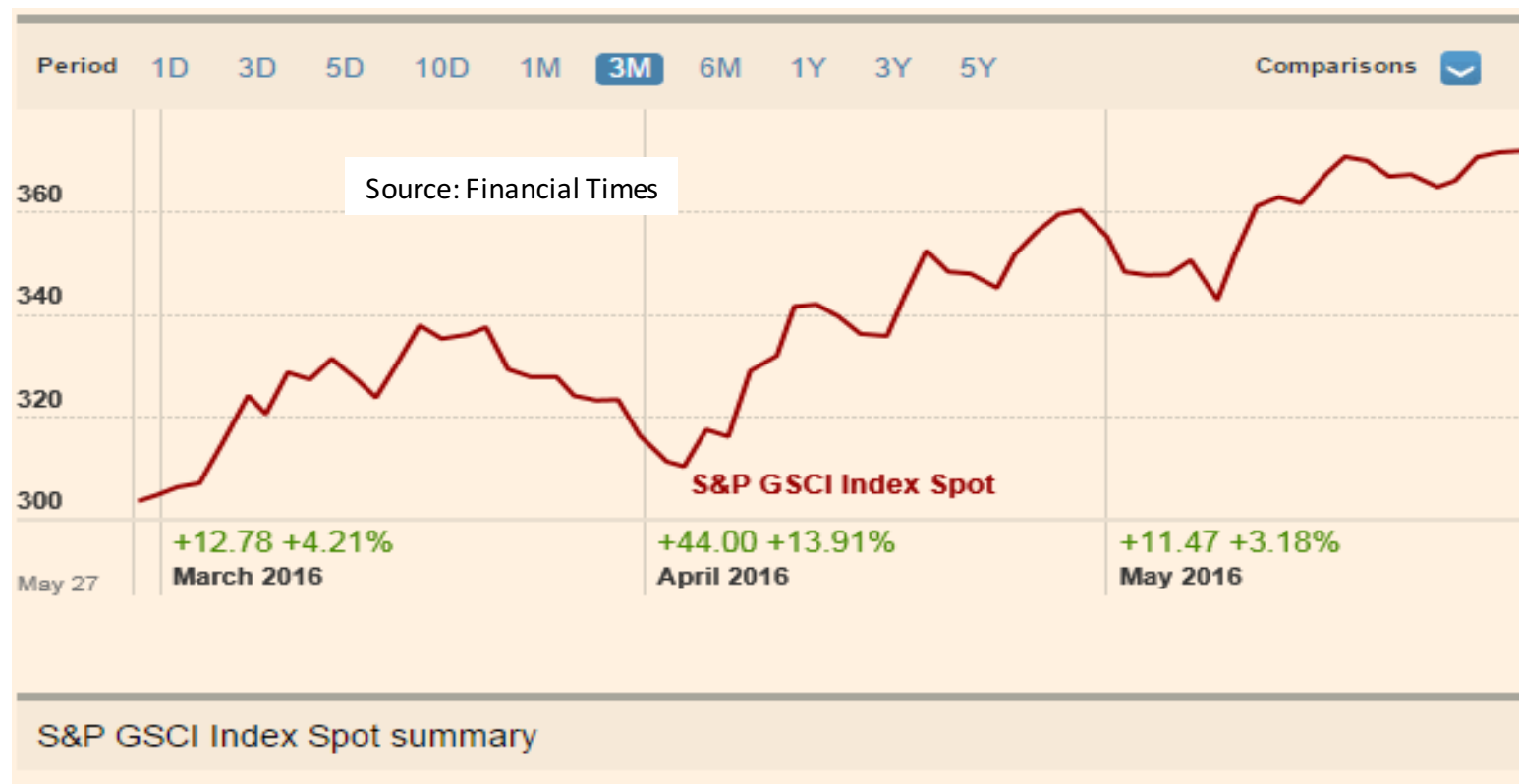
For the first time since November 2014, we see a positive bubble signals among commodities indices. The Soybean and White Sugar indices are showing positive bubble signals during this month. It is interesting that both are agriculture commodities.

Last month, we reported that the strong negative momentum in commodities was turning and that the asset class was touching bottom. This is further confirmed in this report. Only two indices of the of 38 analyzed show bubble signals. The two are the Platinum and Silver indices. It is also interesting that both are metal commodities;

The S&P Goldman Sachs Commodity Index (next page) shows that the remarkable rebound in commodities is continuing.

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Commodities



Date: 2016-05-31

Name: Silver, Handy&Harman

Indicator: DS LPPL Confidence

Bubble end flag - long time scale



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Currencies

FX	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Danish Krone/Euro	0.3%	19.9%	44.6%
Japanese Yen/US Dollar	11.2%	17.4%	17.4%
Japanese Yen/Euro	6.2%	9.1%	5.2%
Japanese Yen/Swiss Franc	19.1%	8.3%	10.8%
US Dollar/Iceland Krona	6.5%	6.6%	7.8%
US Dollar/Norwegian Krone	7.30%	6.3%	8.7%

For the third consecutive month, the strong bubble signals in Japanese government bonds are confirmed by the analysis on currencies. Only six currency pairs out of 95 analyzed show bubble signals, three of them are crosses with the Japanese Yen.

For the second consecutive month, a strengthening bubble signal on the Danish Krone/Euro exchange rate is still continuing. This clearly explains the motivation behind the Danish Central Bank intervention in the currency markets for the second consecutive month and for the first time since February 2015 to preserve the Krone to Euro peg.

The signs of a bubble on the GBP/CHF exchange rate that was reported last month disappeared. This can be clearly explained by the increasing number of surveys that have signaled pro-European voters are pulling ahead of those who are supporting the Brexit.

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

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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	21.0%	26.6%	24.3%	New Zealand
Budapest SE Index	20.3%	21.0%	14.5%	Hungary
OMX Tallinn_GI	16.8%	18.3%	11.3%	Estonia
Casablanca SE All Share Index	1.5%	11.2%	26.0%	Morocco
OMX Vilnius_GI	3.1%	8.4%	29.7%	Lithuania
Negative Bubbles				
None				
Equities Sector Indices				
Positive Bubbles				
S&P 500 Tobacco (Industry)	22.0%	9.4%	11.9%	
S&P 500 Gas Utilities (Industry)	30.4%	8.9%	7.8%	
S&P 500 Diversf TelecomServ(Ind)	5.2%	8.6%	22.7%	
S&P 500 Personal Products (Industry)	4.0%	7.8%	21.0%	
S&P 500 Leisure Equip&Products(In)	21.7%	7.6%	10.9%	
Negative Bubbles				
S&P 500 Diversf Consum Serv(Ind)	-34.6%	21.8%	42.3%	

There is no general trend in equities. The most interesting result was found in New Zealand, Hungary, Estonia, and Morocco stock market indices, which are showing signs of a positive bubble for the second consecutive month. In addition, Lithuania stock market index joined them in showing signs of a positive bubble during this month.

FINANCIAL CRISIS OBSERVATORY

New Zealand Market Index



Date: 2016-05-31

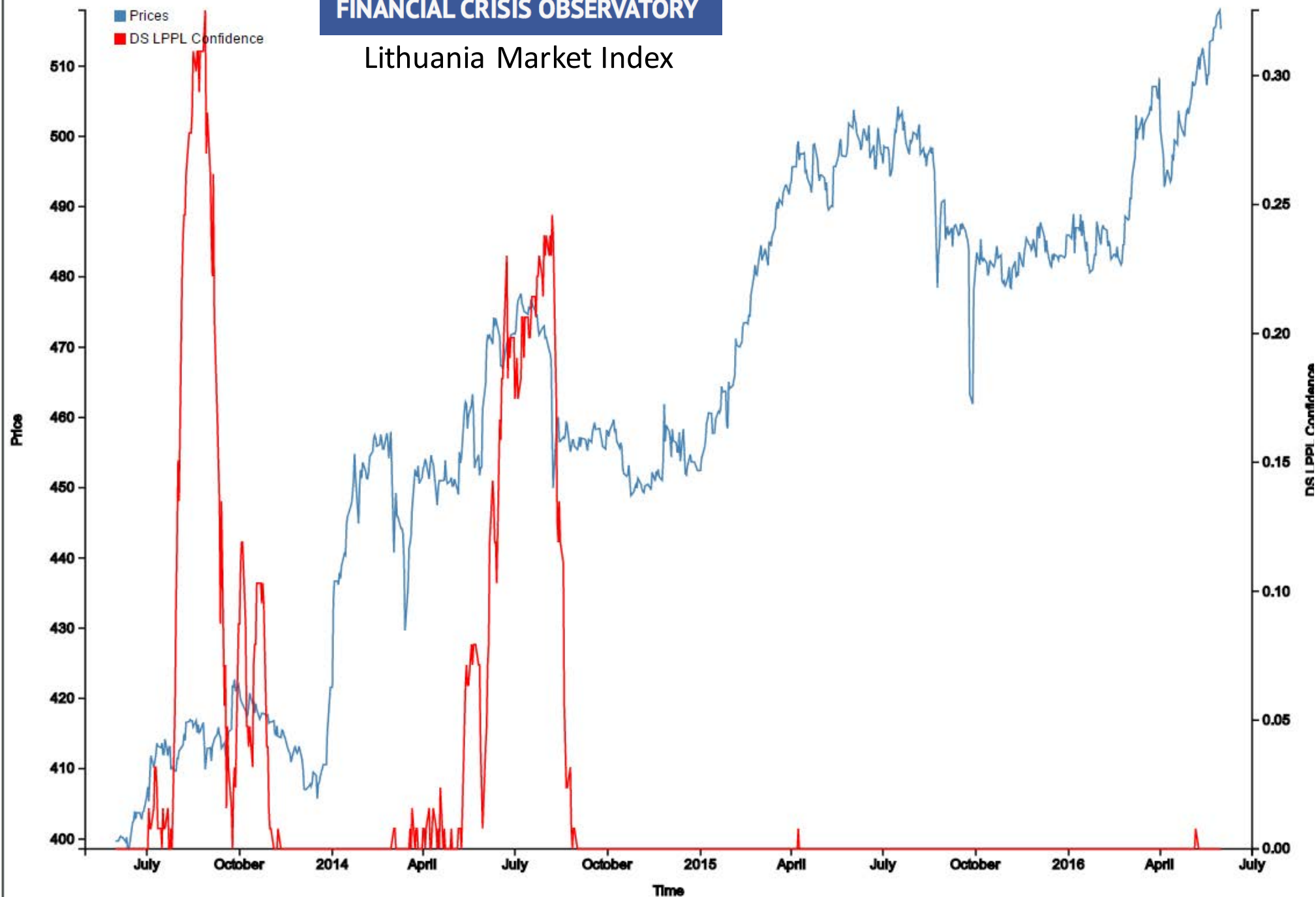
Name: OMX VILNIUS (OMXV)

Indicator: DS LPPL Confidence

Bubble end flag - long time scale

FINANCIAL CRISIS OBSERVATORY

Lithuania Market Index



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Single Stocks

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What is this?

For 834 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.

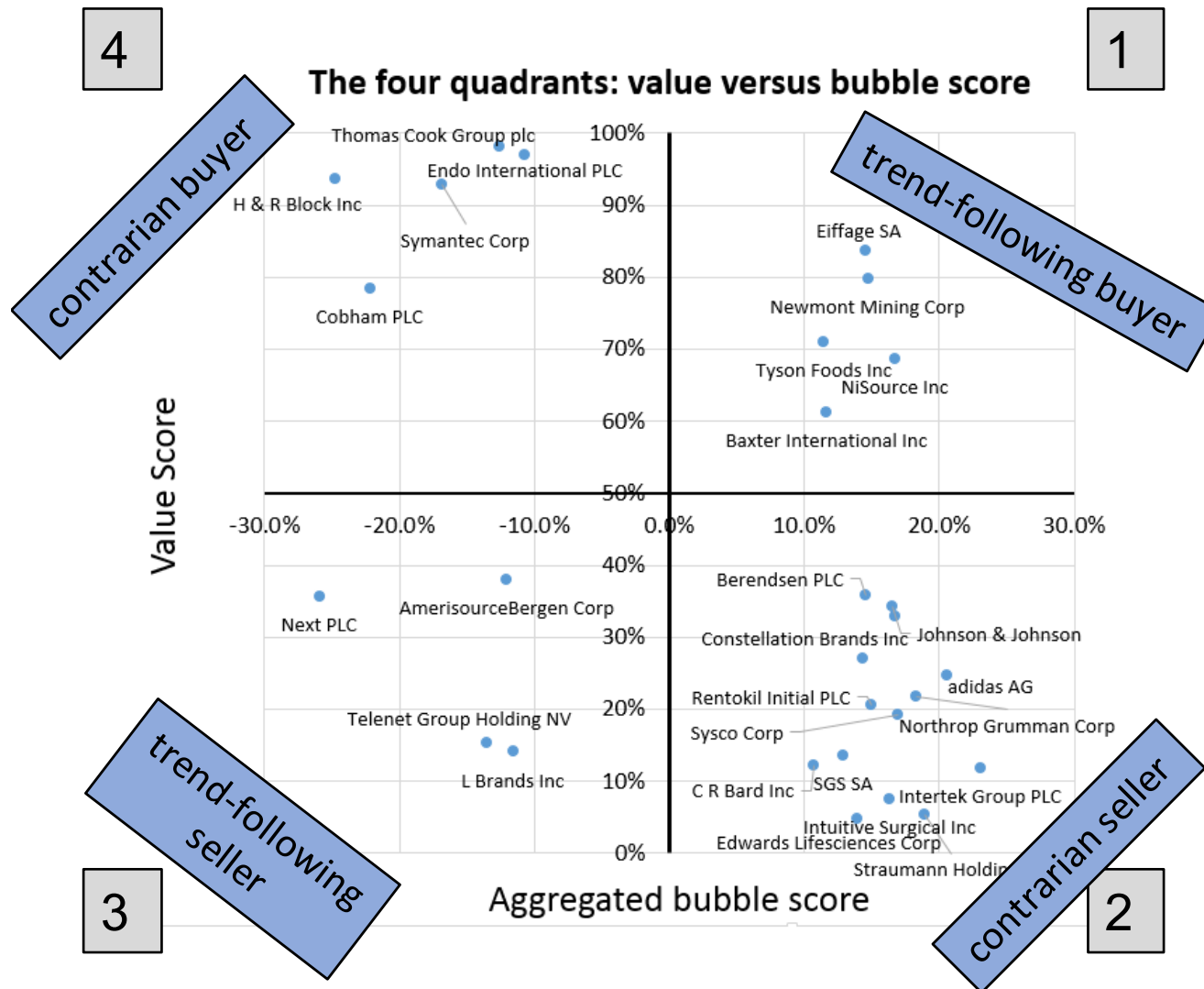
The stocks are the constituents of the Stoxx Europe 600, the S&P 500 and the Nasdaq 100 indices. From these, all doubles and stocks with incomplete data are removed. Because our financial strength indicators are specifically designed for corporates, all financial institutions are taken out of the set 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. Eiffage SA);
2. [Quadrant 2](#): Stocks with a strong positive bubble score and a weak value score (e.g. Johnson & Johnson);
3. [Quadrant 3](#): Stocks with a strong negative bubble score and a weak value score (e.g. L Brands Inc.);
4. [Quadrant 4](#): Stocks with strong negative bubble score and a strong financial strength (e.g. H&R Block Inc.)

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Each quadrant has its own specs:

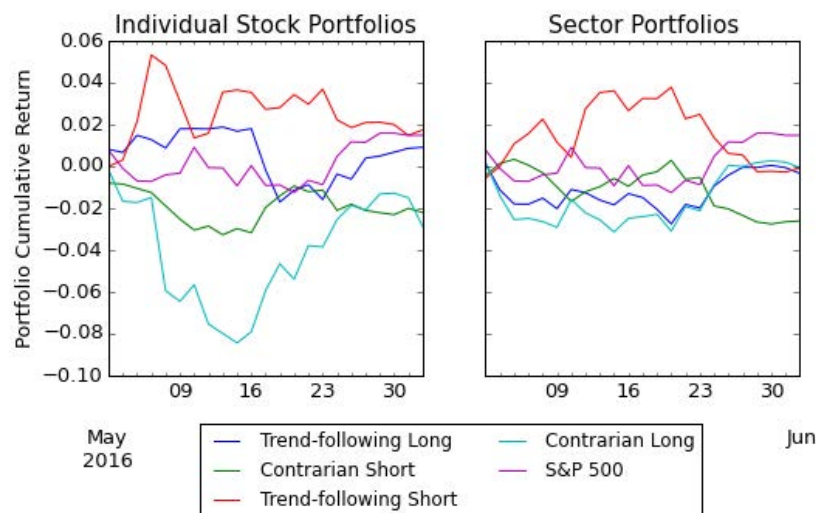
1. [Quadrant 1](#): Stocks with a strong value score are cheap relative to their earnings potential. The strong positive bubble signal should be interpreted as a momentum indicator possibly the consequence of a repricing based on the fundamentals. **As an investor, one could be a trend-following buyer.**
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 May based on stocks or sectors types we analysed in April. For each stock, we have its individual type or its sector type, which are trend-following or contrarian combined with long or short. All of the stocks in our portfolio have the 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 in April 2016. The figure below and left shows that trend-following short type portfolios perform well. This indicates that most of bubbles in the market are still dominating and fundamentals have not yet played out.

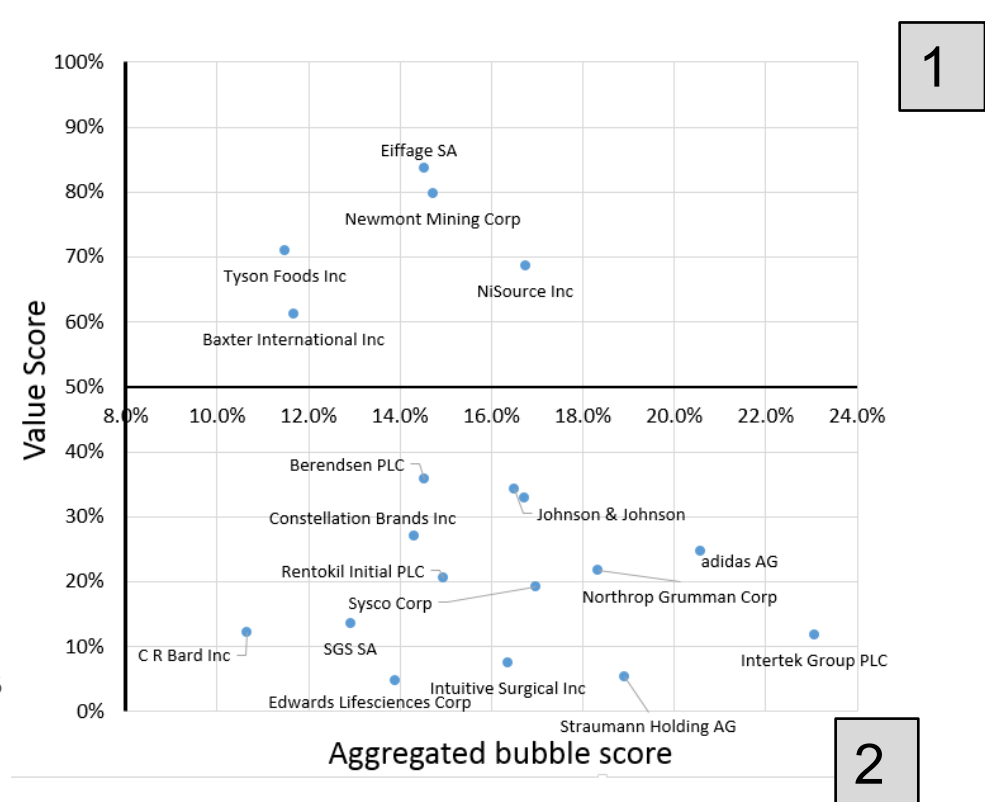
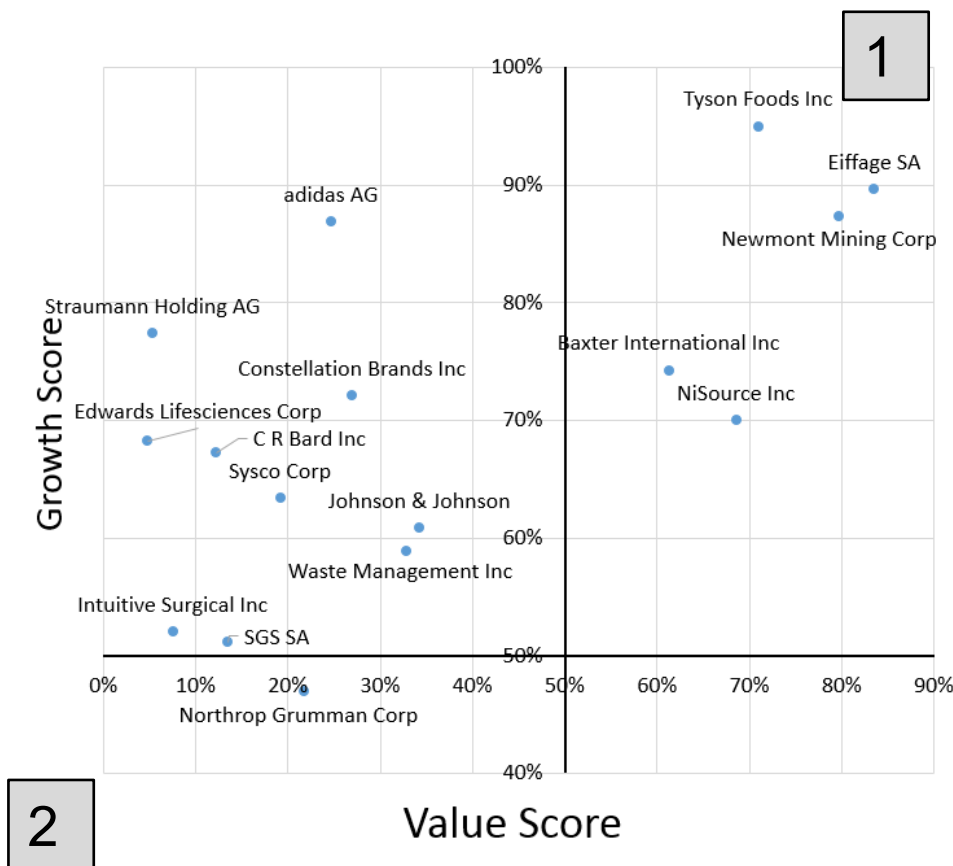
For sector portfolios, we select stocks based on sector types, and choose all of stocks in those sectors into the corresponding portfolio. The results are similar to the stock type portfolios with lower volatility.



Portfolio	April Cumulative Return	Annualized Volatility	Number of Stocks
Trend-following Long Stock	1.25%	12.06%	15
Contrarian Short Stock	-2.56%	8.24%	20
Trend-following Short Stock	1.49%	17.85%	4
Contrarian Long Stock	-2.34%	22.39%	11
Trend-following Long Sector	-0.38%	9.30%	257
Contrarian Short Sector	-2.68%	8.14%	217
Trend-following Short Sector	-0.13%	13.83%	94
Contrarian Long Sector	-0.25%	12.04%	245
S&P 500	0.07%	10.81%	-

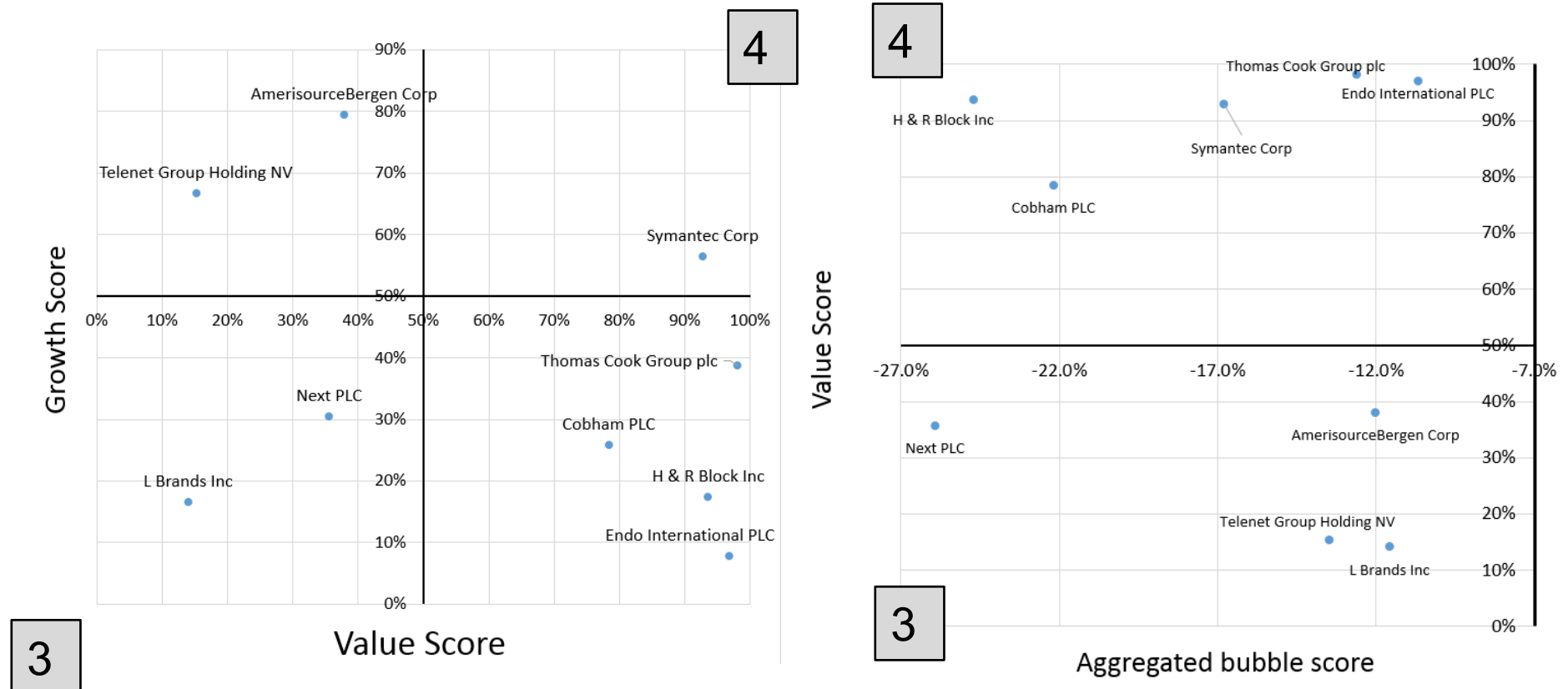
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Quadrant 1 and 2 stocks: positive bubble signals with strong respectively weak fundamentals



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



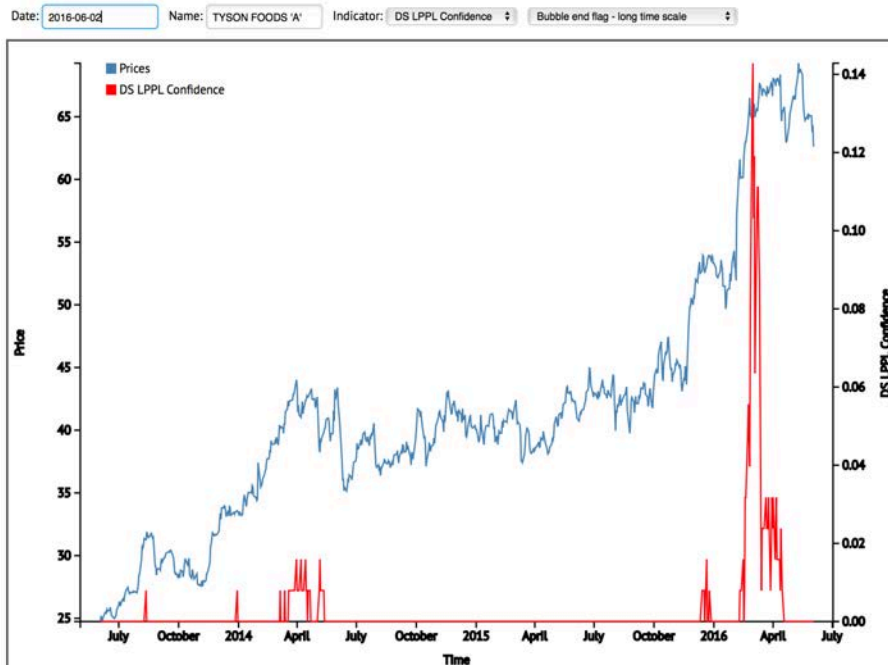
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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Eiffage SA	France	Industrials	Capital Goods	25.6%	14.5%	84%	90%
Baxter International Inc	United States of America	Health Care	Health Care Equipment & Services	19.7%	11.7%	61%	74%
Newmont Mining Corp	United States of America	Materials	Materials	20.3%	14.7%	80%	87%
NiSource Inc	United States of America	Utilities	Utilities	30.5%	16.7%	69%	70%
Tyson Foods Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	50.9%	11.5%	71%	95%

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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 Confidence in red (right hand scale). We can see a clearly spiking warning, indicating the end of a bubble-like regime. But because this stock is also associated with strong fundamentals, a correction is not expected but rather a consolidation of its price in the form of a plateau, likely followed by a resuming upward trend. 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 55%.

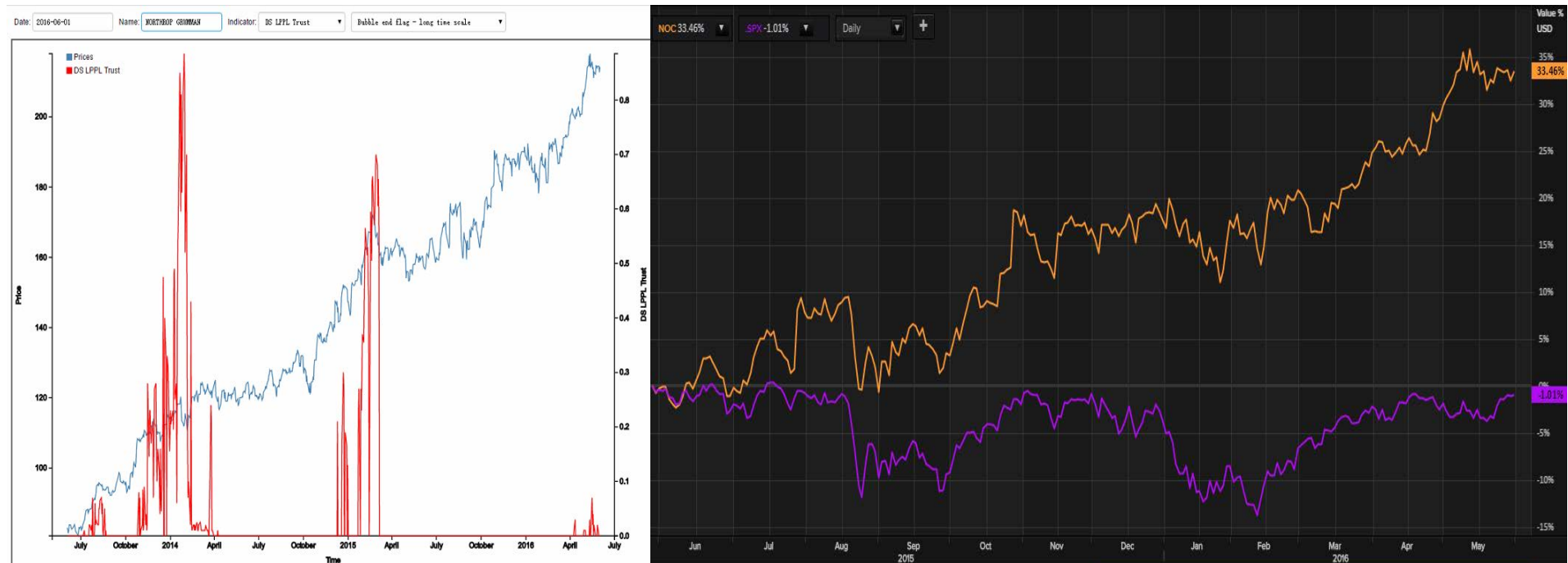
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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Intuitive Surgical Inc	United States of America	Health Care	Health Care Equipment & Services	27.2%	16.4%	8%	52%
Berendsen PLC	United Kingdom	Industrials	Commercial & Professional Services	16.7%	14.5%	36%	36%
adidas AG	Germany	Consumer Discretionary	Consumer Durables & Apparel	61.7%	20.6%	25%	87%
Intertek Group PLC	United Kingdom	Industrials	Commercial & Professional Services	23.4%	23.1%	12%	35%
Rentokil Initial PLC	United Kingdom	Industrials	Commercial & Professional Services	19.3%	14.9%	21%	38%
SGS SA	Switzerland	Industrials	Commercial & Professional Services	17.7%	12.9%	14%	51%
Straumann Holding AG	Switzerland	Health Care	Health Care Equipment & Services	53.0%	18.9%	5%	77%
C R Bard Inc	United States of America	Health Care	Health Care Equipment & Services	27.3%	10.7%	12%	67%
Edwards Lifesciences Corp	United States of America	Health Care	Health Care Equipment & Services	50.1%	13.9%	5%	68%
Johnson & Johnson	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	12.7%	16.5%	34%	61%
Northrop Grumman Corp	United States of America	Industrials	Capital Goods	32.6%	18.3%	22%	47%
Constellation Brands Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	27.6%	14.3%	27%	72%
Sysco Corp	United States of America	Consumer Staples	Food & Staples Retailing	29.0%	17.0%	19%	63%
Waste Management Inc	United States of America	Industrials	Commercial & Professional Services	23.0%	16.7%	33%	59%

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals, example Northrop Grumman 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. 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 35%.

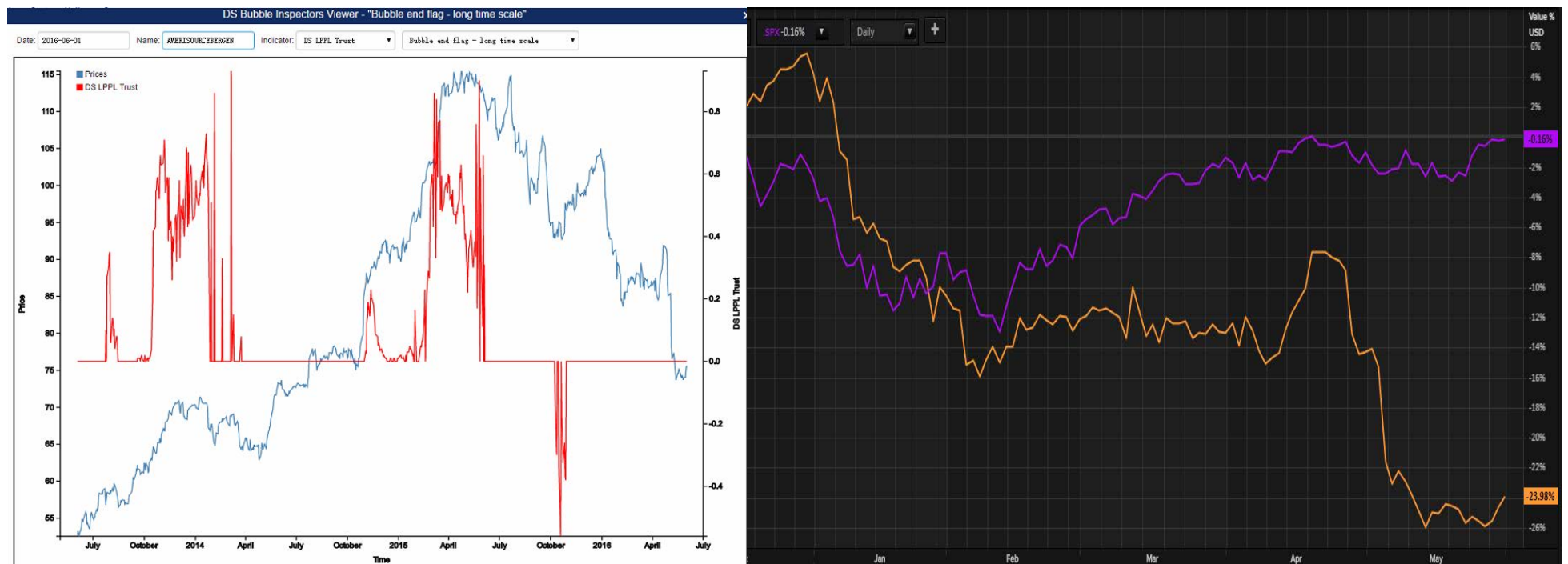
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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Telenet Group Holding NV	Belgium	Consumer Discretionary	Media	-14.5%	-13.5%	15%	67%
Next PLC	United Kingdom	Consumer Discretionary	Retailing	-27.2%	-25.9%	36%	30%
AmerisourceBergen Corp	United States of America	Health Care	Health Care Equipment & Services	-33.3%	-12.0%	38%	79%
L Brands Inc	United States of America	Consumer Discretionary	Retailing	-20.5%	-11.6%	14%	17%

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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals, example AmerisourceBergen 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). The right graph shows the underperformance of the stock over the last year (orange) with respect to the S&P500 benchmark (purple), it is almost -24%.

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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS SectorName	GICS Industry GroupName	Yearly Return	Bubble Score	Value Score	Growth Score
Endo International PLC	Ireland; Republic of	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	-81.1%	-10.7%	97%	8%
Symantec Corp	United States of America	Information Technology	Software & Services	-28.7%	-16.8%	93%	56%
Cobham PLC	United Kingdom	Industrials	Capital Goods	-45.1%	-22.2%	78%	26%
Thomas Cook Group plc	United Kingdom	Consumer Discretionary	Consumer Services	-47.2%	-12.6%	98%	39%
H & R Block Inc	United States of America	Consumer Discretionary	Consumer Services	-33.2%	-24.7%	94%	17%

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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals, example H & R Block 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 FTSE benchmark (purple), it is -33%. We can see a correction starts, which is in line with the diagnostic of a negative bubble signal with strong fundamentals, calling for a contrarian buyer position.

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Sectors

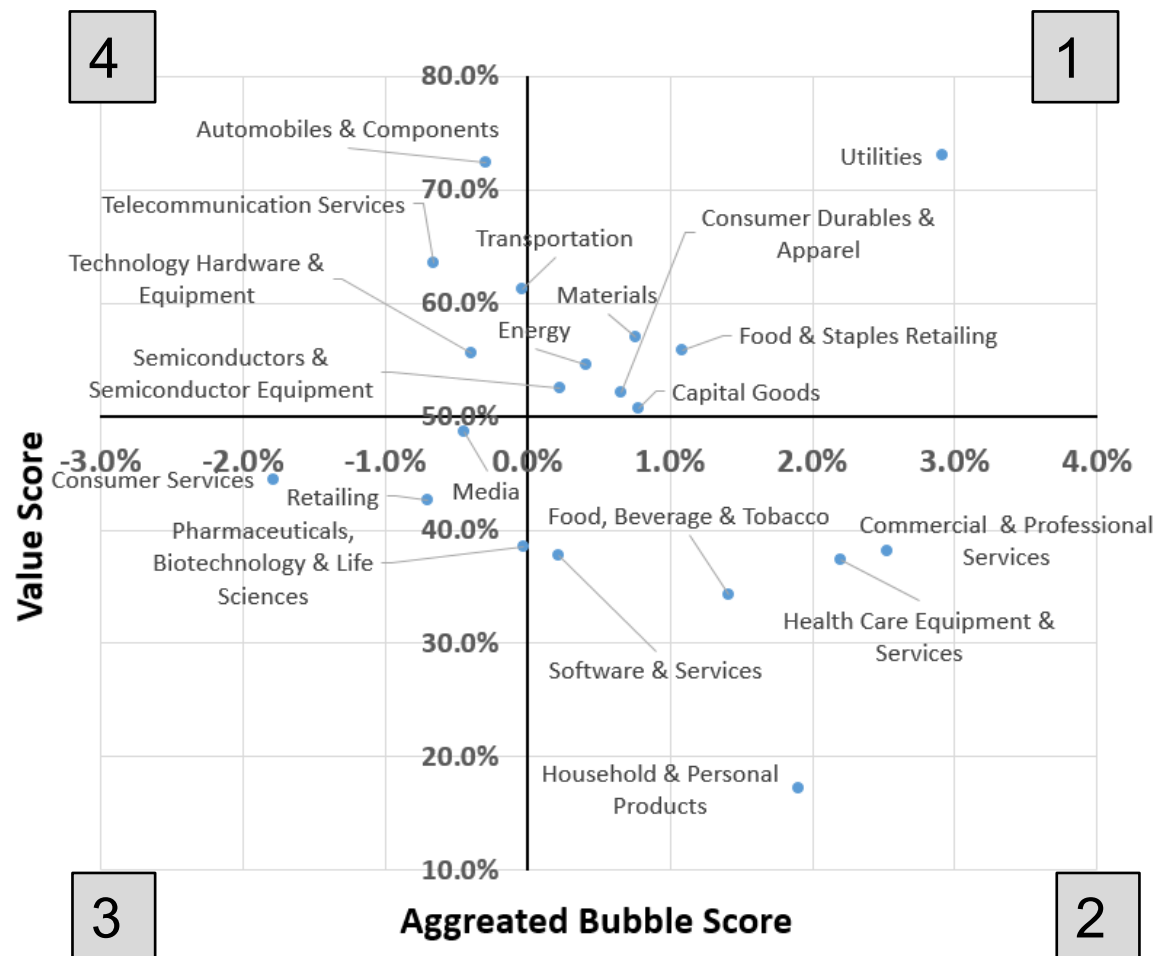
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GICS Industry Group Name	Yearly Return		Bubble Score		Value Score		Growth Score	
	June 1 st	May 1 st	June 1 st	May 1 st	June 1 st	May 1 st	June 1 st	May 1 st
Pharmaceuticals, Biotechnology & Life Sciences	-2.5%	-6.3%	0.0%	-1.9%	38.5%	40.2%	54.5%	57.8%
Consumer Services	-4.6%	-5.2%	-1.8%	-1.3%	44.5%	50.4%	49.0%	50.7%
Retailing	-8.1%	-4.8%	-0.7%	-0.6%	42.6%	42.7%	50.1%	53.6%
Transportation	-4.3%	-5.4%	0.0%	-0.4%	61.2%	61.0%	51.3%	51.2%
Consumer Durables & Apparel	-0.7%	-0.2%	0.7%	-0.4%	52.1%	51.9%	60.0%	67.1%
Semiconductors & Semiconductor Equipment	-6.1%	-5.2%	0.2%	-0.4%	52.5%	54.4%	50.8%	51.0%
Technology Hardware & Equipment	-12.3%	-11.2%	-0.4%	-0.4%	55.5%	59.5%	39.3%	34.5%
Automobiles & Components	-17.1%	-14.4%	-0.3%	-0.3%	72.4%	72.3%	71.0%	71.1%
Telecommunication Services	-10.6%	-10.8%	-0.7%	-0.1%	63.5%	58.6%	56.3%	55.6%
Energy	-18.1%	-20.4%	0.4%	0.0%	54.6%	52.7%	22.1%	19.9%
Software & Services	9.9%	6.4%	0.2%	0.1%	37.7%	42.1%	61.4%	60.5%
Materials	-7.7%	-4.7%	0.8%	0.2%	57.0%	55.4%	47.2%	45.4%
Health Care Equipment & Services	7.5%	5.4%	2.2%	0.3%	37.4%	39.2%	70.3%	69.7%
Capital Goods	-3.0%	-2.1%	0.8%	0.4%	50.6%	51.4%	47.4%	47.2%
Media	-7.3%	-4.8%	-0.4%	0.9%	48.7%	45.6%	57.1%	56.7%
Commercial & Professional Services	0.4%	-0.9%	2.5%	1.2%	38.2%	38.9%	48.0%	49.4%
Food & Staples Retailing	0.0%	-4.7%	1.1%	1.4%	55.8%	56.5%	48.8%	48.3%
Household & Personal Products	9.8%	7.1%	1.9%	3.3%	17.2%	17.8%	49.9%	48.3%
Food, Beverage & Tobacco	11.1%	11.8%	1.4%	3.9%	34.2%	31.8%	47.9%	48.9%
Utilities	3.8%	2.4%	2.9%	5.3%	73.0%	70.9%	41.2%	41.2%

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.

- The sector *Automobiles & Components* we recommended last month still maintain very strong value scores. Combined with the negative bubble score, we can find that the investment opportunity still exists;
- The sector *Telecommunication Services* has an increase in both value score and bubble score, showing a possible contrarian long opportunity in this sector.

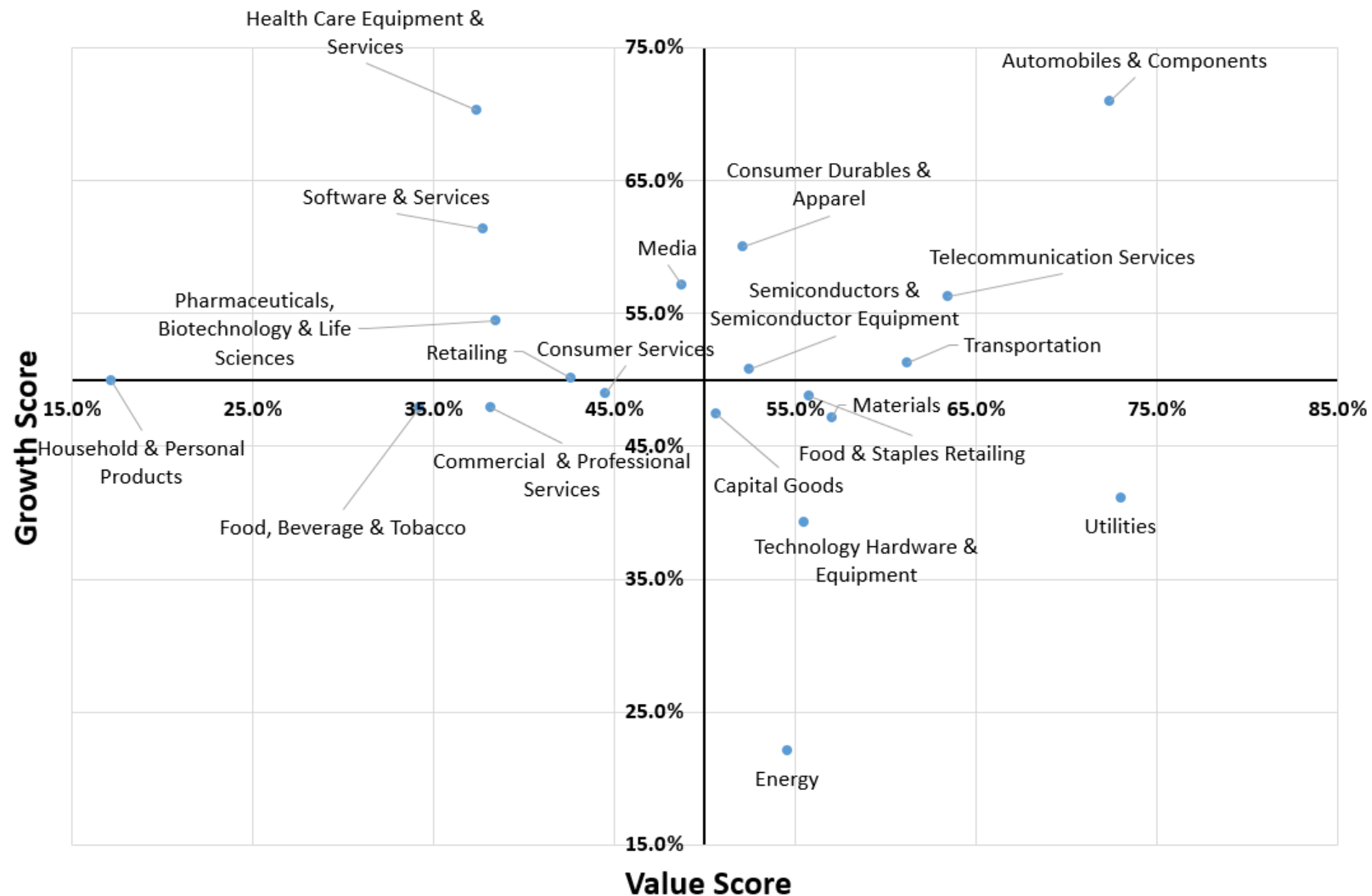
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By plotting the value score versus the aggregated bubble score, we can also divide the sectors into four quadrants:

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