The FCO Cockpit – Global Bubble Status Report

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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 809 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)*
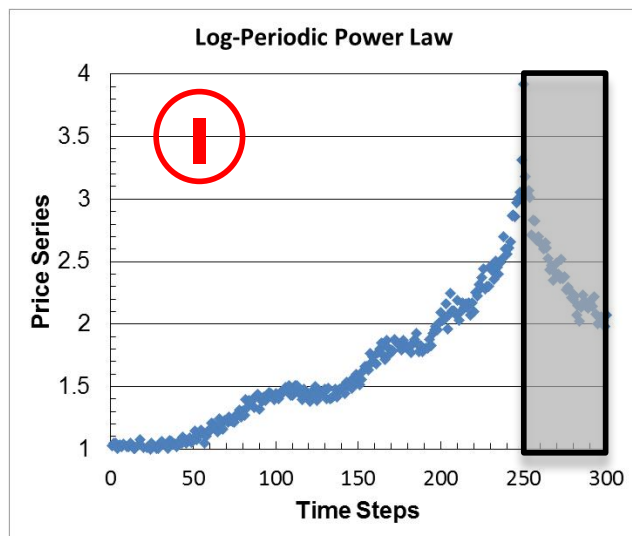
The FCO Cockpit –
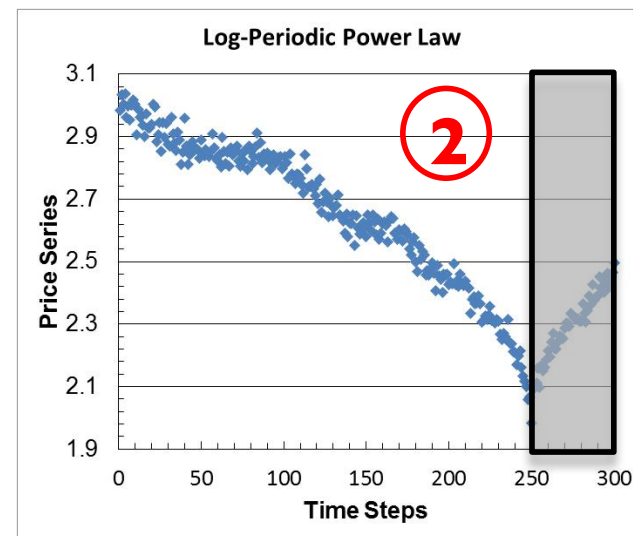# Global Bubble Status February 1st, 2017

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
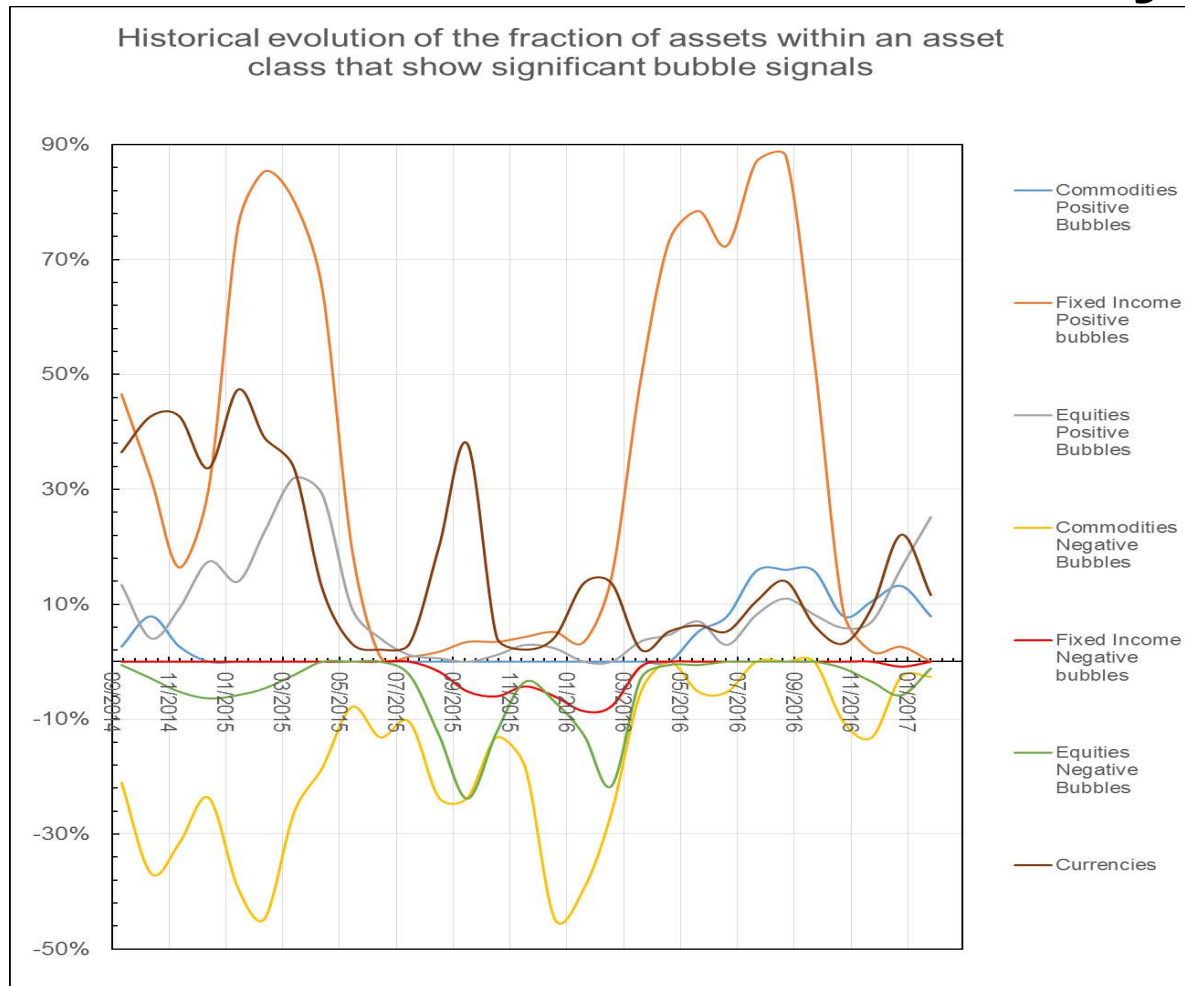there is imitation in **buying**

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

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General Result

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Historical evolution of the fraction of assets within an asset class that show significant bubble signals

Legend:
- Commodities Positive Bubbles
- Fixed Income Positive bubbles
- Equities Positive Bubbles
- Commodities Negative Bubbles
- Fixed Income Negative bubbles
- Equities Negative Bubbles
- Currencies

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

For the first month nearly in a year and a half, absolutely no bubble signals in any of the bond indices that were analyzed; confirming that the very strong momentum that has lifted the entire asset class faded away, and the fixed income sector ended showing a bubble-like behavior.

For the second month one can observe the beginning of a trend in the growth of positive equity bubbles.

There is no current general trend in commodities after nearly two years of strong negative bubble signals in the asset class and in its related stocks and currencies. Mixed bubble signals are now seen in few commodities indices.

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Other interesting highlights from this report

- The surge in bubble signals in currencies that was observed last month, specifically in USD crosses, cooled down this month;

- Over the last three months, we reported that the strong rally in the governments and corporate bonds, that was observed globally over the last year, cooled down and did not show a bubble signal anymore. This is confirmed in this report;

- For the fourth consecutive month, we see mixed bubble signals among a few commodities indices. Three out of the four indices that are showing bubble signals this month are positive ones. It is interesting that all of these three indices are metal indices;

- There is a significant increase in positive bubble signals in equities. The most interesting result was found in Pakistan, Morocco, and Hungary stock market indices that are showing signs of a positive bubble for the third consecutive month. It is worth mentioning that now around 60% of the indices that are showing signs of bubbles are developed markets indices;

- In our analysis of single stocks, we find a stronger positive bubble in the sector *Semiconductors & Semiconductor Equipment*, which we reported in last month. At the same time, we can see that the defensive sectors such as *Capital Goods, Media, Commercial & Professional Services, Food & Staples Retailing* all show positive bubble scores, some of which turned to positive bubbles from negative bubbles. This shows a unstable expectation for the future economy after the inauguration of the US new president.

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 & Corporate bonds

Over the last three months, we reported that the positive bubbles in both government and corporate bonds are cooling down, and this is confirmed in this report: No single index among the 34 government bond indices or among the 82 corporate bond indices that were analyzed is showing bubble signals;

The Barclays Global Aggregate Bond Index shows the remarkable bubble that started last year in this asset class, stopped and started to take an opposite direction over the last four months with increased volatility.

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Commodities

Commodities Indices	Yearly Return	DS LPPL Trust		DS LPPL Confidence	
Positive Bubbles					
Gold ER Index	5.3%		9.0%		10.1%
Indtr Mtls ER Index	27.8%		8.6%		6.6%
Prcs Mtls ER Index	8.8%		7.6%		6.1%
Negative Bubbles					
Cocoa ER Index	-22.9%		22.0%		19.3%

For the fourth consecutive month, we see mixed bubble signals among a few commodity indices. There are four indices showing bubble signals this month, three of them are showing positive bubble signals and one is showing a negative bubble signal. It is interesting to see that all the indices that are showing positive bubble signals are still metal indices, and the only index that is showing a negative bubble signal is still in the agriculture sector;

It is worth stressing that Cocoa is showing negative bubble signals for the third consecutive month. In addition, the negative bubble signals that were seen in the Tin and Lead indices over the last three months disappeared.
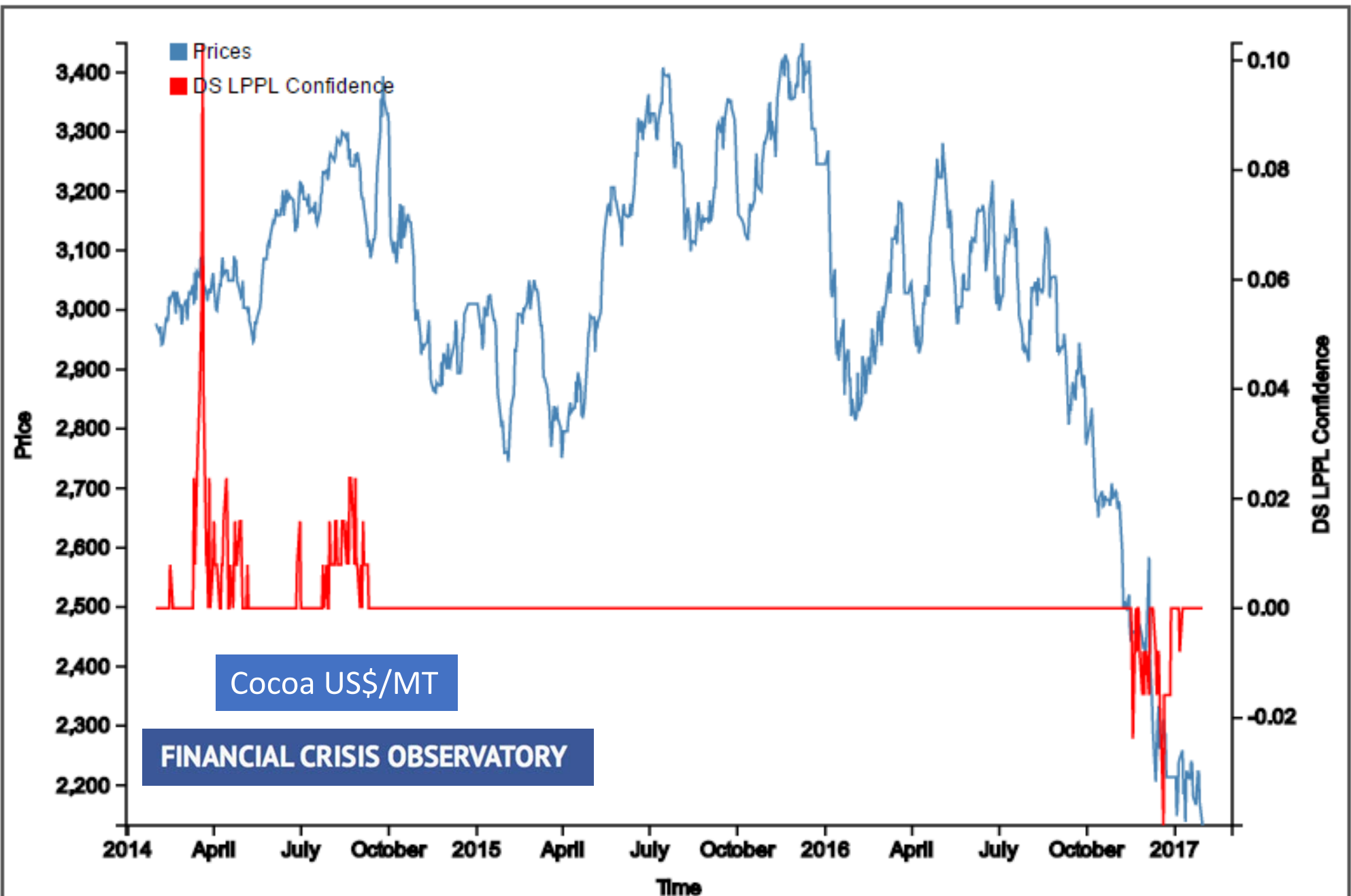
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Currencies

FX	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Turkish Lira/Swiss Franc	–24.5%	23.5%	51.5%
US Dollar/Turkish Lira	30.6%	22.9%	40.1%
Turkish Lira/Euro	–21.7%	22.8%	48.9%
Taiwan Dollar/Euro	8.9%	17.6%	11.3%
Russian Rouble/Euro	30.4%	14.9%	27.3%
US Dollar/Mexican Peso	14.0%	11.5%	25.9%
US Dollar/Argentine Peso	14.9%	10.6%	9.2%
Russian Rouble/Swiss Franc	25.8%	10.5%	25.7%
Indian Rupee/Euro	2.2%	8.8%	7.3%
Japanese Yen/Euro	5.6%	6.6%	5.2%
US Dollar/Korean Won	–2.4%	5.3%	8.2%

The dollar rally, which has been the main theme of the currency market since the U.S. election November 2016, cooled down this month after the new U.S. administration shock comment that the dollar is "too strong", signaling the end of a two-decade policy of publicly favoring a strong currency;

For the third consecutive month, there are signs of a negative bubble in the Turkish Lira. Three of the 11 pairs that are showing bubble signals are crosses with the Lira. In addition, the Mexican Peso joined the Argentinian Peso and started to show signs of a negative bubble as tensions rise between the new U.S. administration and Mexico. On the other hand, the Russian Rouble and the Indian Rupee stand unique in the emerging market currencies as they started to show positive bubble signals for the first month;

Finally, the positive bubble signals that were shown in the Iceland Krona over the last nine months, and the negative bubble signals that were shown in the Swedish Krona over the last three months, and in the Chinese Renminbi and Singapore Dollar over the last two months, disappeared.

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Stocks country indices

Equities Countires Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence	Country
Karachi SE 100 Index	60.2%	41.1%	44.3%	Pakistan
Casablanca SE All Share Index	40.3%	35.5%	44.7%	Morocco
Budapest SE Index	37.6%	30.9%	63.5%	Hungary
EGX 30 Index	118.7%	21.9%	19.3%	Egypt
OMX Tallinn_GI	24.4%	21.2%	39.5%	Estonia
RTS Index	64.4%	19.2%	22.1%	Russia
Austrian Traded Index	28.3%	18.5%	32.5%	Austria
Oslo Stock Exchange Equity Index	29.5%	17.0%	24.7%	Norway
OMX Stockholm 30 Index	15.4%	14.9%	12.0%	Sweden
TOPIX Stock Price Index	11.3%	14.5%	6.3%	Japan
TSX-Toronto Stock Exchange 300 Composite Index	23.7%	11.6%	24.7%	Canada
Athex General Composite Share Price Index	17.4%	10.9%	15.2%	Greece
Kuwait Main Index	36.8%	10.6%	21.4%	Kuwait
Warsaw SE WIG Poland Index	27.1%	10.1%	36.2%	Poland
CAC 40 Index	12.0%	8.2%	21.3%	France
OMX Helsinki 25 Index	17.6%	7.4%	17.9%	Finland
Deutsche Boerse DAX Index	22.6%	7.4%	28.9%	Germany
Dow Jones Composite Index	26.4%	6.3%	11.0%	United States
EURO STOXX 50 EUR Price Index	10.9%	6.0%	18.8%	Eurozone
Dow Jones Industrial Average Index	25.0%	5.5%	14.9%	United States
Negative Bubbles				
CSE All Share Index	-2.9%	9.4%	19.2%	Sri Lanka

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Stocks country indices

There is a tendency for the appearance of new positive bubble in equities. The most interesting result was found in Pakistan, Morocco, and Hungary stock market indices that are showing signs of positive bubbles for the third consecutive month. It is worth mentioning that around 60% of the indices that are showing signs of bubbles are now developed markets indices.

The positive bubble signals that were found in the Latvia stock market index over the last three months, in the Ukraine and Chile stock market indices over the last two months, in addition to the negative bubble signals in the Denmark and Philippines over the last two months, disappeared.

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

Date: 2017-01-30   Name: MOROCCO ALL SHARE (MA   Indicator: DS LPPL Confidence ▾   Bubble end flag - long time scale ▾

MOROCCO ALL SHARE (MASI)

FINANCIAL CRISIS OBSERVATORY

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Single Stocks

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What is this?

For 809 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 <u>value score</u> 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 <u>growth score</u> 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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The four quadrants: value versus bubble score
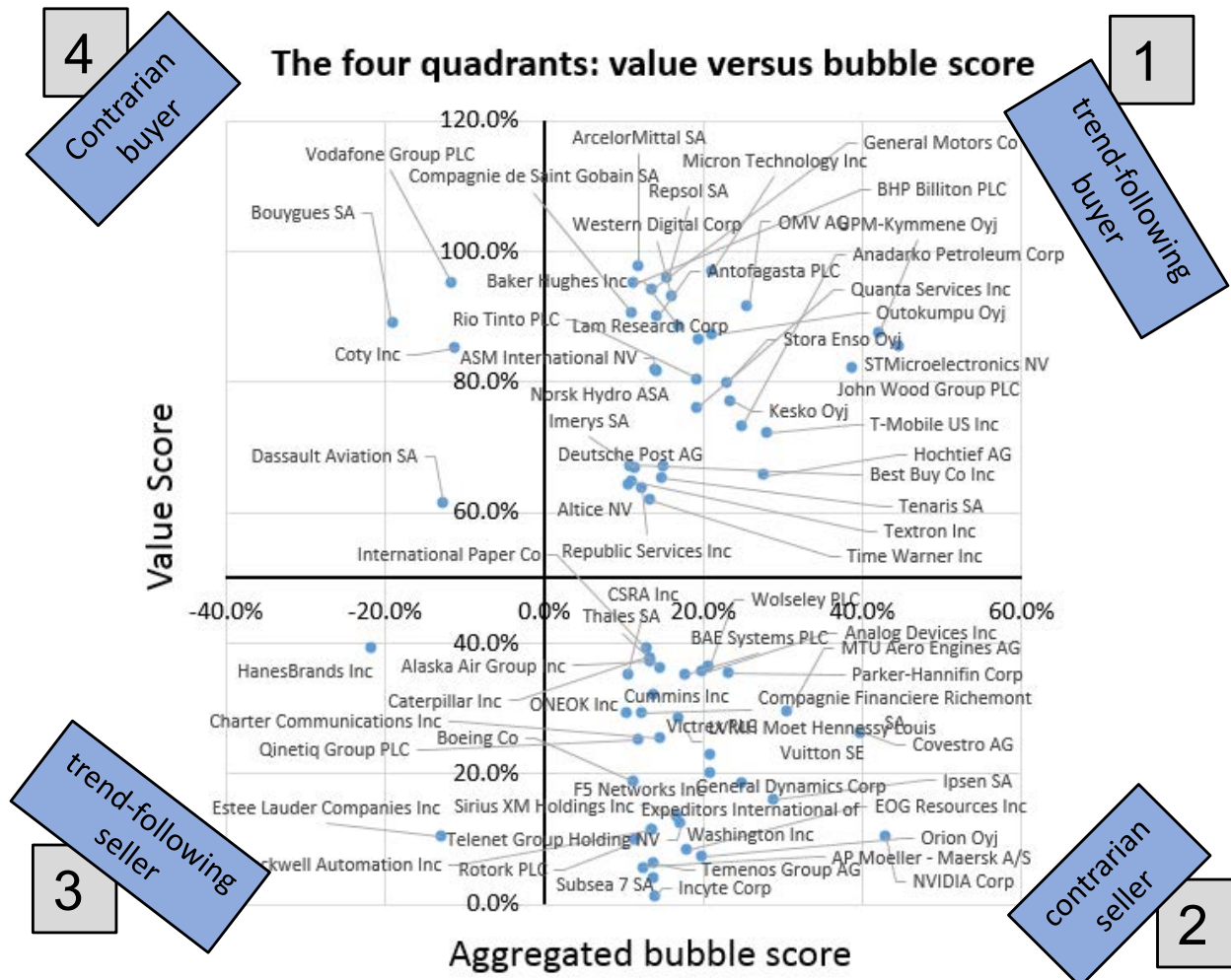
By plotting the value score against the aggregated bubble score, we can divide the stocks into four quadrants*:

1. Quadrant 1: Stocks with a strong positive bubble score and a strong value score (e.g. Tenaris SA);
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. HanesBrands Inc);
4. Quadrant 4: Stocks with strong negative bubble score and a strong financial strength (e.g. Bouygues SA)

*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%.
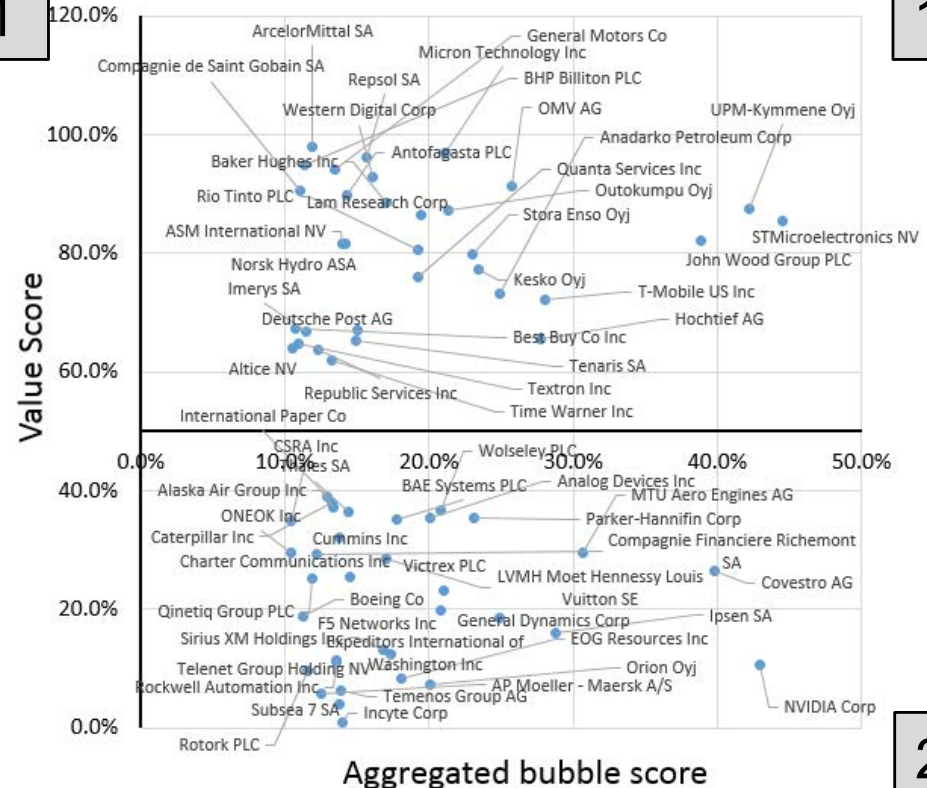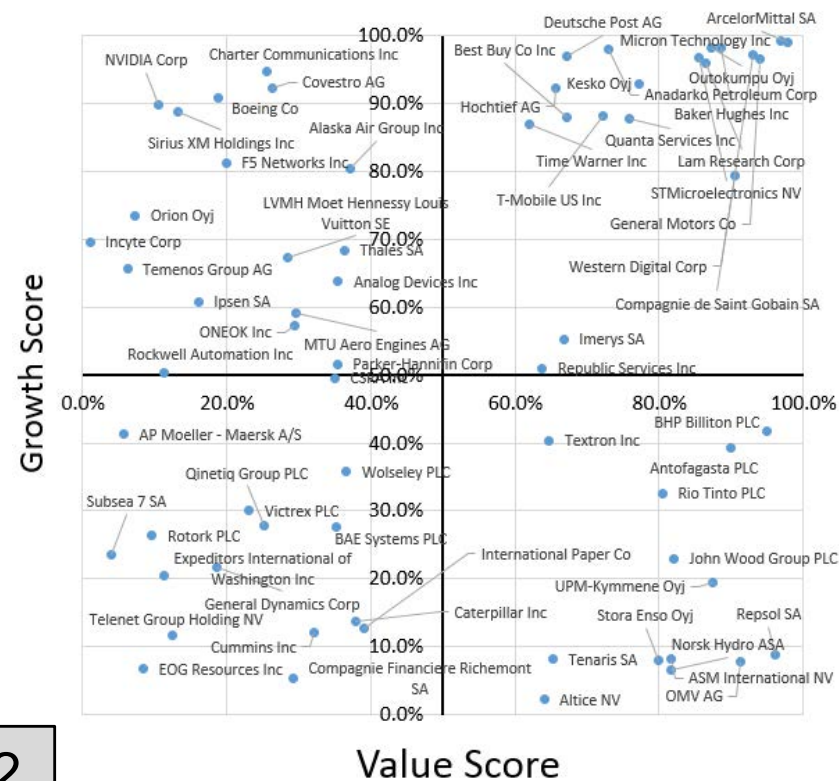
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Each quadrant has its own specs:

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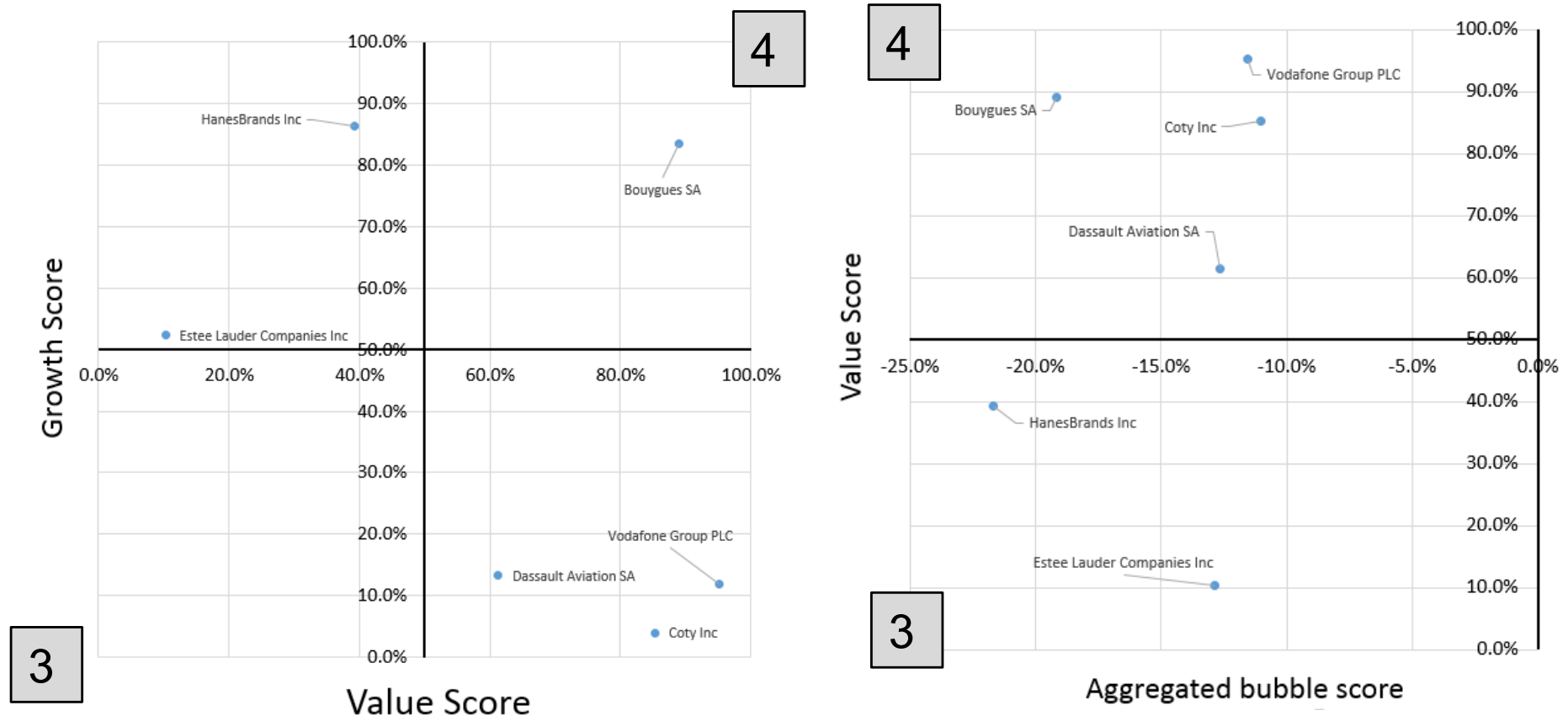
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Quadrant 1 and 2 stocks: strong positive bubble signals with strong (respectively weak) fundamentals

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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
Lam Research Corp	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	59.7%	19.5%	86.4%	95.9%
Micron Technology Inc	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	120.6%	21.1%	96.9%	99.3%
T-Mobile US Inc	United States of America	Telecommunication Services	Telecommunication Services	50.6%	28.0%	72.2%	88.1%
Western Digital Corp	United States of America	Information Technology	Technology Hardware & Equipment	61.0%	16.1%	93.0%	97.3%
Antofagasta PLC	United Kingdom	Materials	Materials	117.6%	14.3%	89.9%	39.3%
BHP Billiton PLC	United Kingdom	Materials	Materials	108.7%	11.3%	94.9%	41.8%
Deutsche Post AG	Germany	Industrials	Transportation	41.0%	15.0%	67.1%	96.9%
Hochtief AG	Germany	Industrials	Capital Goods	55.4%	27.7%	65.6%	92.2%
Repsol SA	Spain	Energy	Energy	57.4%	15.6%	96.0%	8.9%
Imerys SA	France	Materials	Materials	31.5%	11.5%	66.7%	55.3%
Compagnie de Saint Gobain SA	France	Industrials	Capital Goods	22.4%	11.0%	90.5%	79.5%
ASM International NV	Netherlands	Information Technology	Semiconductors & Semiconductor Equipment	21.7%	14.0%	81.7%	8.3%
Altice NV	Netherlands	Consumer Discretionary	Media	47.5%	10.5%	64.0%	2.2%
ArcelorMittal SA	Luxembourg	Materials	Materials	176.1%	11.9%	97.9%	99.1%
STMicroelectronics NV	Switzerland	Information Technology	Semiconductors & Semiconductor Equipment	114.2%	44.5%	85.5%	96.8%
Tenaris SA	Luxembourg	Energy	Energy	72.8%	14.9%	65.3%	8.2%
Stora Enso Oyj	Finland	Materials	Materials	46.0%	22.9%	79.9%	7.9%
Kesko Oyj	Finland	Consumer Staples	Food & Staples Retailing	28.1%	23.4%	77.1%	93.0%
Outokumpu Oyj	Finland	Materials	Materials	271.2%	21.3%	87.3%	98.3%
UPM-Kymmene Oyj	Finland	Materials	Materials	58.6%	42.2%	87.5%	19.4%
Norsk Hydro ASA	Norway	Materials	Materials	69.6%	14.2%	81.6%	6.6%

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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals (cont'd)

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
OMV AG	Austria	Energy	Energy	40.7%	25.7%	91.3%	7.8%
Rio Tinto PLC	United Kingdom	Materials	Materials	106.4%	19.2%	80.5%	32.6%
Anadarko Petroleum Corp	United States of America	Energy	Energy	79.9%	24.9%	73.1%	98.0%
Best Buy Co Inc	United States of America	Consumer Discretionary	Retailing	54.8%	10.7%	67.2%	87.9%
Baker Hughes Inc	United States of America	Energy	Energy	42.8%	17.0%	88.5%	98.1%
General Motors Co	United States of America	Consumer Discretionary	Automobiles & Components	20.7%	13.4%	94.1%	96.5%
Quanta Services Inc	United States of America	Industrials	Capital Goods	95.1%	19.2%	75.9%	87.8%
Republic Services Inc	United States of America	Industrials	Commercial & Professional Services	31.0%	12.3%	63.8%	50.9%
Time Warner Inc	United States of America	Consumer Discretionary	Media	33.5%	13.2%	62.1%	87.0%
Textron Inc	United States of America	Industrials	Capital Goods	43.0%	11.0%	64.8%	40.3%
John Wood Group PLC	United Kingdom	Energy	Energy	31.2%	38.8%	82.1%	23.0%

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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals, example Republic Services Inc.
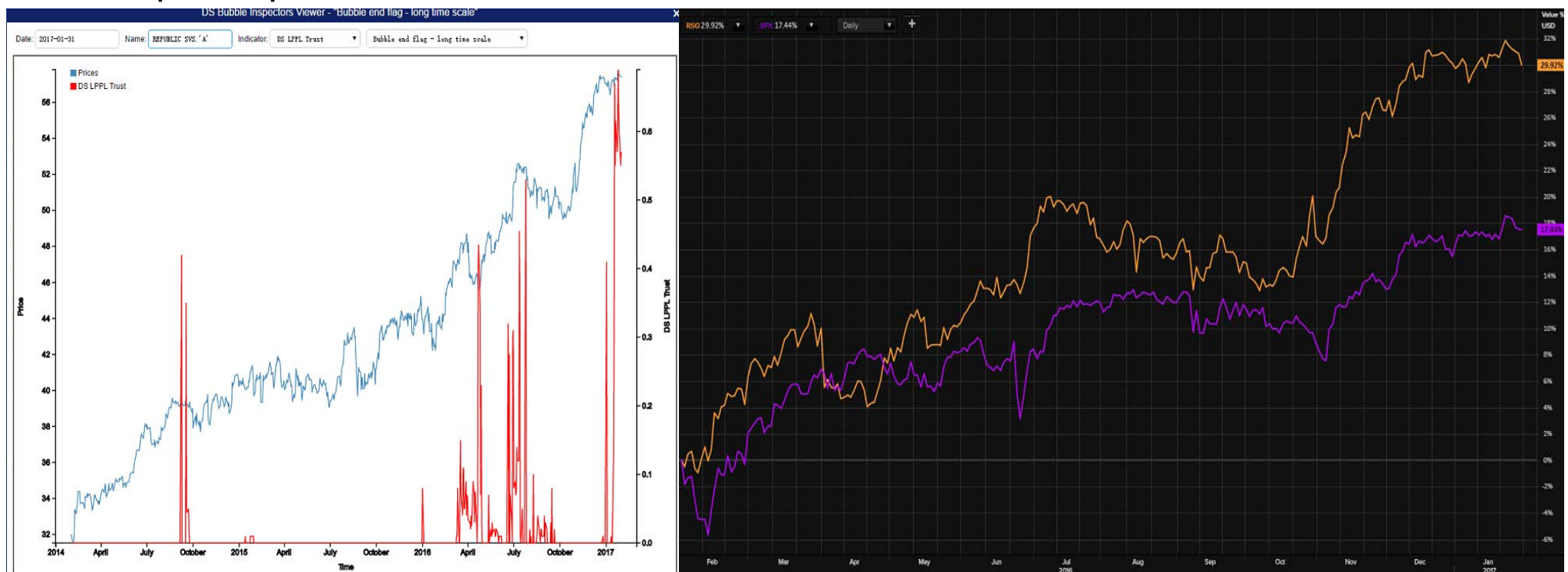
The left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning, indicating the convergence towards 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), it is almost 12%.

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

Note that a rebound has started after a small correction. The small correction in the short term is in synchrony with our DS LPPL trust indicator, while a clear rebound happened afterwards, in synchrony with the strong fundamentals.

Last month signal (1st Jan. 2017)

This month signal (1st Feb. 2017)

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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
Analog Devices Inc	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	43.5%	20.0%	35.5%	63.8%
Charter Communications Inc	United States of America	Consumer Discretionary	Media	67.1%	14.5%	25.5%	94.8%
Expeditors International of Washington Inc	United States of America	Industrials	Transportation	17.3%	13.6%	11.2%	20.5%
F5 Networks Inc	United States of America	Information Technology	Technology Hardware & Equipment	43.3%	20.8%	19.9%	81.3%
Incyte Corp	United States of America	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	62.9%	14.0%	1.0%	69.6%
NVIDIA Corp	United States of America	Information Technology	Semiconductors & Semiconductor Equipment	275.5%	42.9%	10.5%	89.7%
Sirius XM Holdings Inc	United States of America	Consumer Discretionary	Media	28.0%	16.8%	13.2%	88.8%
Telenet Group Holding NV	Belgium	Consumer Discretionary	Media	4.7%	17.3%	12.4%	11.6%
BAE Systems PLC	United Kingdom	Industrials	Capital Goods	14.9%	17.8%	35.1%	27.7%
Covestro AG	Germany	Materials	Materials	124.2%	39.8%	26.3%	92.3%
MTU Aero Engines AG	Germany	Industrials	Capital Goods	31.7%	30.7%	29.5%	59.1%
AP Moeller - Maersk A/S	Denmark	Industrials	Transportation	30.3%	12.5%	5.7%	41.3%
Thales SA	France	Industrials	Capital Goods	22.6%	14.4%	36.3%	68.4%
Ipsen SA	France	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	36.0%	28.7%	16.1%	60.8%
LVMH Moet Hennessy Louis Vuitton SE	France	Consumer Discretionary	Consumer Durables & Apparel	24.8%	17.0%	28.4%	67.2%
Orion Oyj	Finland	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	39.5%	20.0%	7.3%	73.5%

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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
Subsea 7 SA	United Kingdom	Energy	Energy	124.2%	13.8%	4.0%	23.6%
Qinetiq Group PLC	United Kingdom	Industrials	Capital Goods	12.8%	11.9%	25.2%	27.8%
Rotork PLC	United Kingdom	Industrials	Capital Goods	50.9%	11.6%	9.6%	26.3%
Compagnie Financiere Richemont SA	Switzerland	Consumer Discretionary	Consumer Durables & Apparel	15.7%	12.2%	29.2%	5.3%
Temenos Group AG	Switzerland	Information Technology	Software & Services	46.4%	13.8%	6.2%	65.6%
Alaska Air Group Inc	United States of America	Industrials	Transportation	34.0%	13.3%	37.1%	80.5%
Boeing Co	United States of America	Industrials	Capital Goods	36.2%	11.2%	18.8%	90.9%
Caterpillar Inc	United States of America	Industrials	Capital Goods	54.4%	13.2%	37.8%	13.7%
Cummins Inc	United States of America	Industrials	Capital Goods	61.2%	13.8%	32.0%	12.1%
CSRA Inc	United States of America	Information Technology	Software & Services	15.9%	10.5%	35.0%	49.6%
EOG Resources Inc	United States of America	Energy	Energy	46.5%	18.1%	8.4%	6.7%
General Dynamics Corp	United States of America	Industrials	Capital Goods	36.6%	24.8%	18.5%	21.6%
International Paper Co	United States of America	Materials	Materials	66.9%	12.9%	39.1%	12.7%
ONEOK Inc	United States of America	Energy	Energy	129.4%	10.4%	29.4%	57.4%
Parker-Hannifin Corp	United States of America	Industrials	Capital Goods	52.9%	23.1%	35.4%	51.7%
Rockwell Automation Inc	United States of America	Industrials	Capital Goods	58.1%	13.5%	11.4%	50.4%
Victrex PLC	United Kingdom	Materials	Materials	22.9%	21.0%	23.1%	30.0%
Wolseley PLC	Switzerland	Industrials	Capital Goods	42.3%	20.8%	36.6%	35.7%

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals, example Charter Communications Inc.
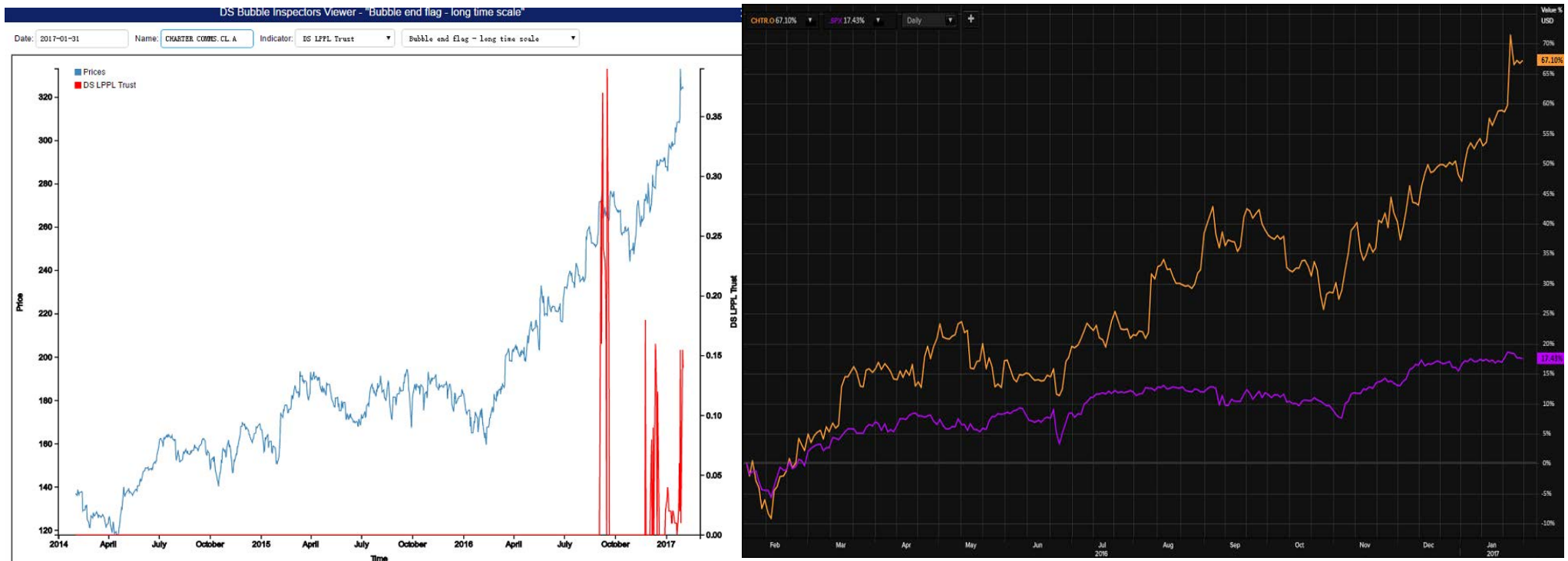
The left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning. The right graph shows the outperformance of the stock over the last year (orange) with respect to the S&P500 benchmark (purple), it is almost 50% 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, EOG Resources Inc.

Note that the correction has started to occur, in synchrony with our DS LPPL trust indicator and weak fundamentals. At the same time, this stock is still identified with a strong positive bubble signal and weak fundamentals, suggesting to continue shorting or getting out of a long position on this stock.

Last month signal (1ˢᵗ Jan. 2017)   This month signal (1ˢᵗ Feb. 2017)

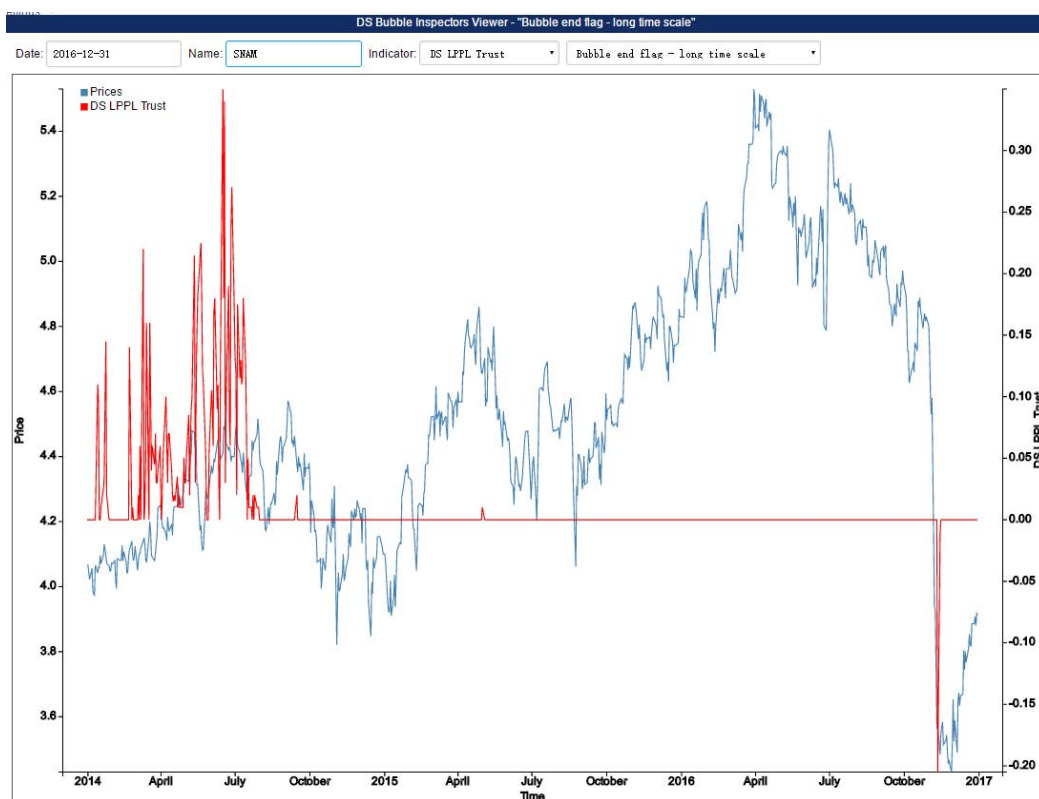# The FCO Cockpit –
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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Estee Lauder Companies Inc	United States of America	Consumer Staples	Household & Personal Products	-5.4%	-12.9%	10.3%	52.3%
HanesBrands Inc	United States of America	Consumer Discretionary	Consumer Durables & Apparel	-25.2%	-21.7%	39.3%	86.4%

Last month example: strong negative bubble signals with weak fundamentals, Prosiebensat 1 Media SE.

Note that the correction continued in the past month, in synchrony with our DS LPPL trust indicator, but in contradiction with the weak fundamentals. This is an example illustrating the power of market psychology over fundamentals. However, one should remain cautious as there is still downward risk for this stock.

Last month signal (1st Jan. 2017)   This month signal (1st Feb. 2017)
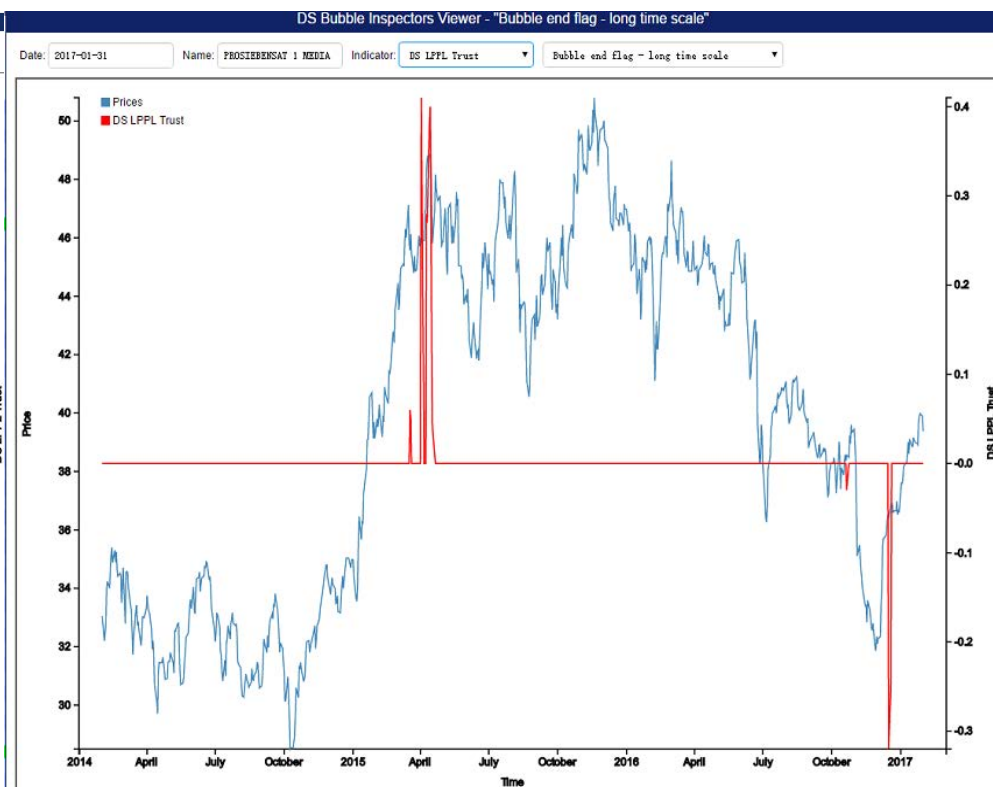
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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals

| Company Name	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Vodafone Group PLC	United Kingdom	Telecommunication Services	Telecommunication Services	-23.9%	-11.6%	95.2%	11.9%
Dassault Aviation SA	France	Industrials	Capital Goods	-0.7%	-12.7%	61.3%	13.2%
Bouygues SA	France	Industrials	Capital Goods	-5.3%	-19.1%	89.0%	83.6%
Coty Inc	United States of America	Consumer Staples	Household & Personal Products	-22.5%	-11.0%	85.3%	4.0%

Last month example: strong negative bubble signals with strong fundamentals, Snam SpA.

Note that a drawdown occurred after the recent rebound, which is in contradiction with our DS LPPL trust indicator and the strong fundamentals. We expect this stock to appreciate in the future due to the strong fundamentals.
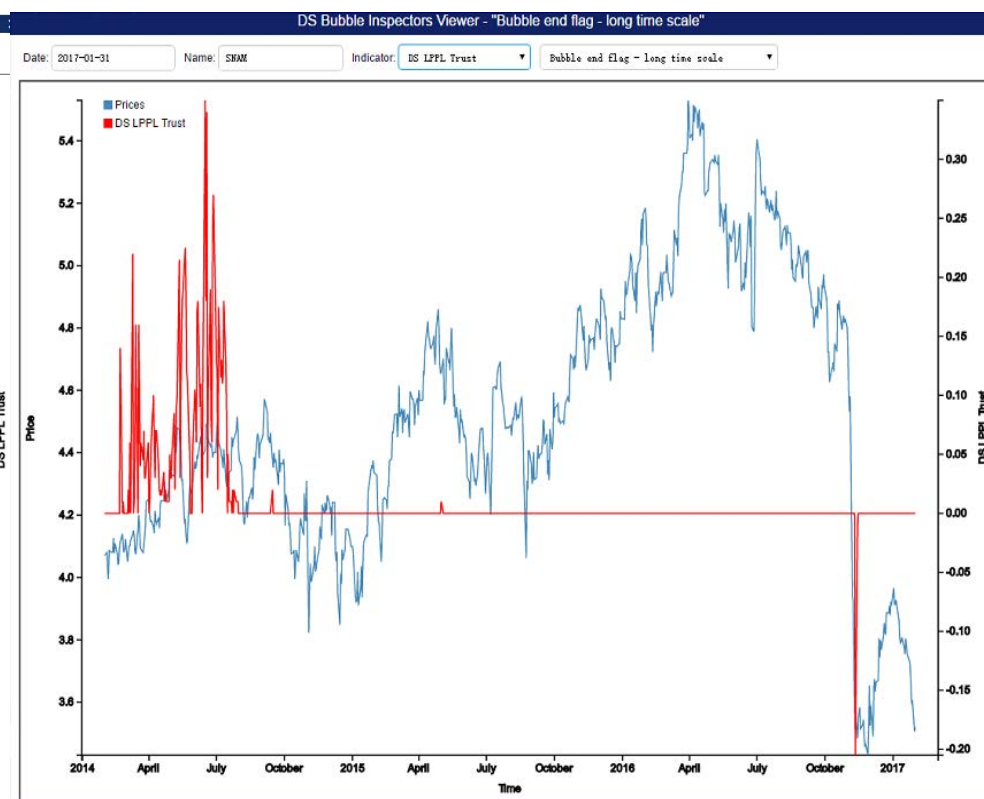
Last month signal (1st Jan. 2017)   This month signal (1st Feb. 2017)

Sectors

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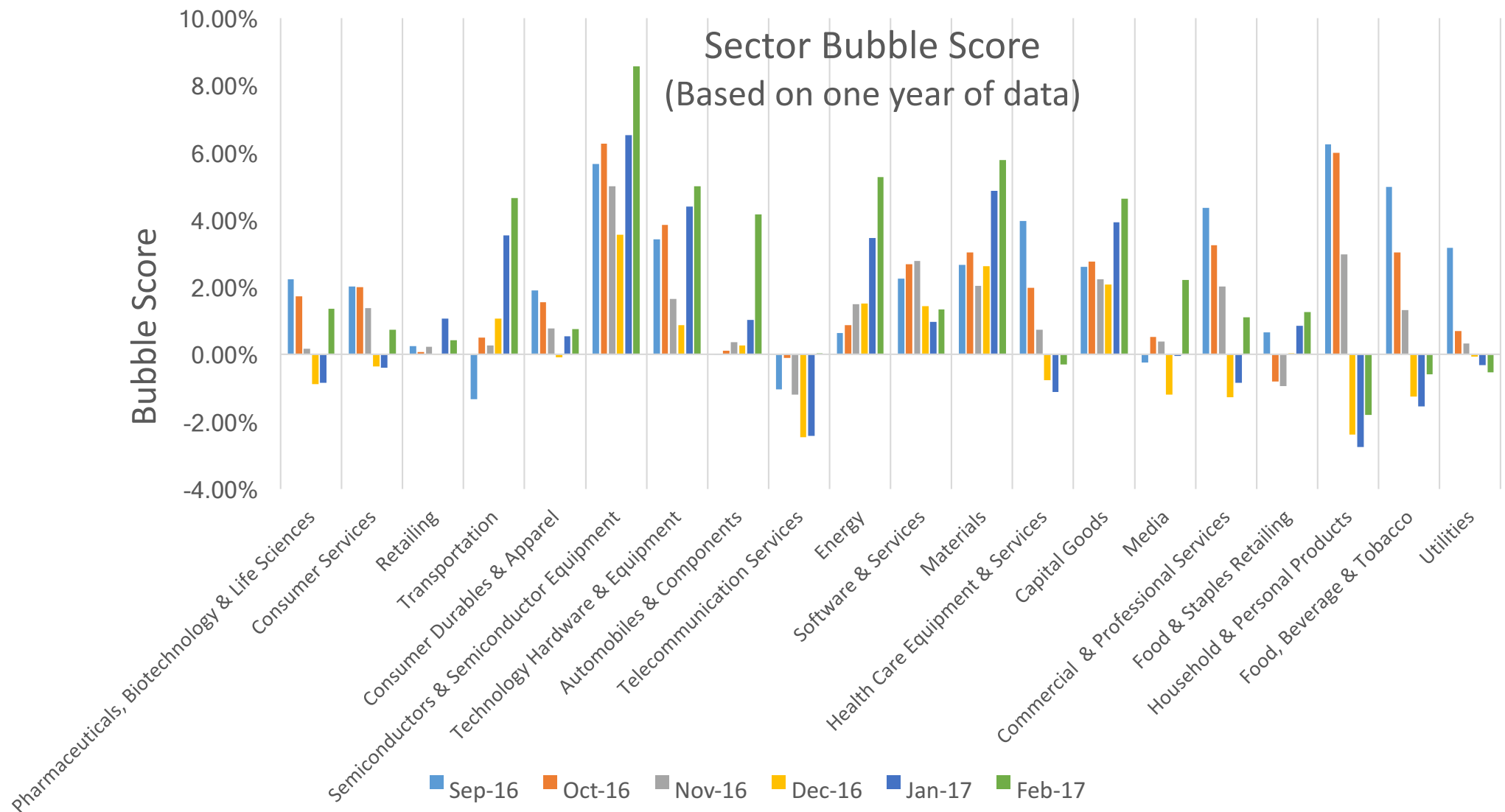| GICS Industry Group Name	Yearly Return		Bubble Score		Value Score		Growth Score	
	Feb 1st	Jan 1st	Feb 1st	Jan 1st	Feb 1st	Jan 1st	Feb 1st	Jan 1st
Pharmaceuticals, Biotechnology & Life Sciences	9.2%	-4.7%	1.4%	-0.8%	41.8%	40.9%	52.3%	57.0%
Consumer Services	5.4%	-0.5%	0.7%	-0.4%	40.1%	41.5%	45.1%	48.7%
Retailing	2.4%	-2.1%	0.4%	1.1%	42.6%	41.0%	49.3%	49.6%
Transportation	20.3%	9.3%	4.6%	3.5%	56.0%	55.9%	45.6%	44.1%
Consumer Durables & Apparel	10.3%	4.6%	0.7%	0.5%	49.4%	47.8%	59.0%	58.2%
Semiconductors & Semiconductor Equipment	52.6%	31.6%	8.6%	6.5%	49.0%	51.3%	67.1%	64.4%
Technology Hardware & Equipment	28.9%	15.3%	5.0%	4.4%	54.9%	53.5%	54.7%	54.7%
Automobiles & Components	20.3%	-1.5%	4.2%	1.0%	69.3%	70.7%	70.2%	70.2%
Telecommunication Services	-5.7%	-8.2%	0.0%	-2.4%	66.9%	65.7%	58.5%	52.8%
Energy	37.1%	32.1%	5.3%	3.5%	62.5%	57.6%	33.7%	24.7%
Software & Services	18.8%	6.8%	1.3%	1.0%	36.3%	39.3%	56.2%	60.2%
Materials	54.1%	28.5%	5.8%	4.9%	54.7%	55.7%	49.6%	49.4%
Health Care Equipment & Services	8.5%	2.1%	-0.3%	-1.1%	43.8%	43.5%	61.8%	61.4%
Capital Goods	26.4%	16.3%	4.6%	3.9%	45.4%	46.8%	46.1%	45.5%
Media	7.5%	2.2%	2.2%	0.0%	52.7%	53.5%	48.2%	49.9%
Commercial & Professional Services	6.9%	2.3%	1.1%	-0.8%	40.6%	40.3%	42.3%	42.7%
Food & Staples Retailing	7.3%	6.8%	1.3%	0.8%	53.7%	55.5%	50.3%	47.0%
Household & Personal Products	-1.4%	-1.4%	-1.8%	-2.7%	25.9%	24.7%	49.1%	46.2%
Food, Beverage & Tobacco	2.0%	3.5%	-0.6%	-1.6%	36.7%	37.0%	48.3%	51.3%
Utilities	2.6%	6.4%	-0.5%	-0.3%	78.1%	78.8%	43.8%	47.8%

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 *Semiconductors & Semiconductor Equipment* we reported last month has a stronger bubble score, which indicates that the market still has a high expectation towards this sector.
- The defensive sectors such as *Capital Goods, Media, Commercial & Professional Services, Food & Staples Retailing* all show positive bubble scores, some of which turned to positive bubbles from negative bubbles. This shows an unstable expectation for the future economy after the inauguration of the US new president.
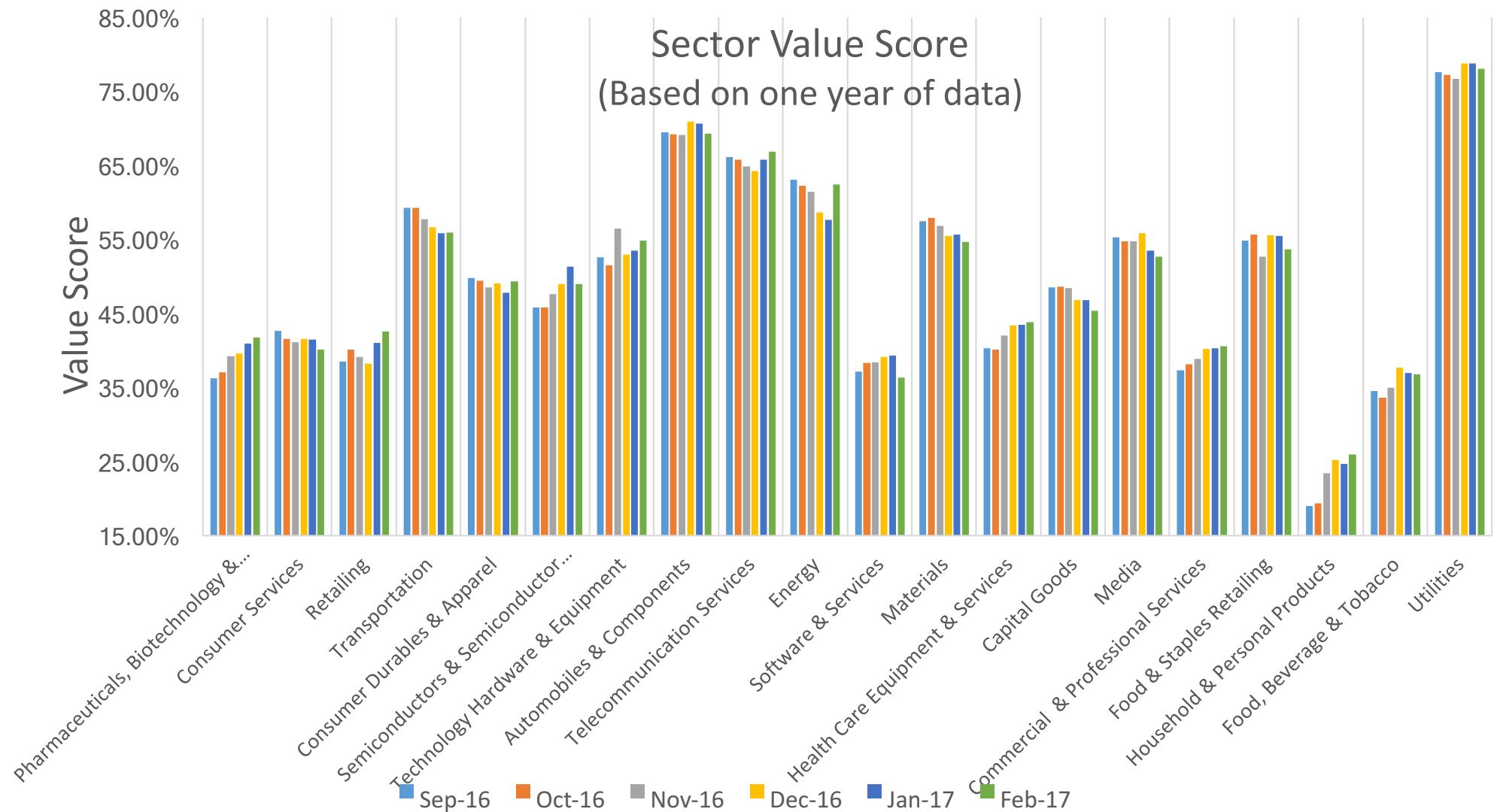
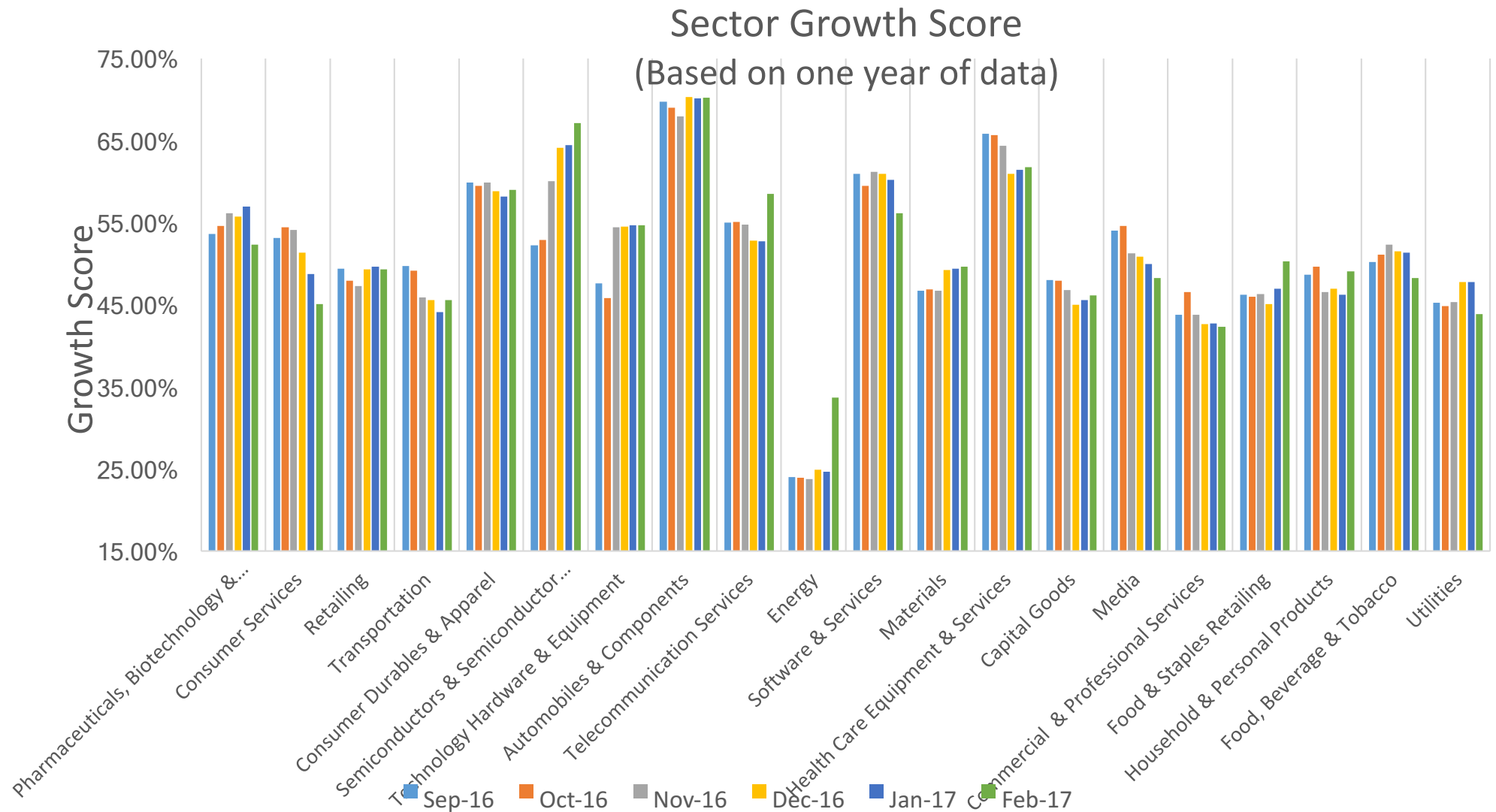# The FCO Cockpit – Global Bubble Status February 1st, 2017
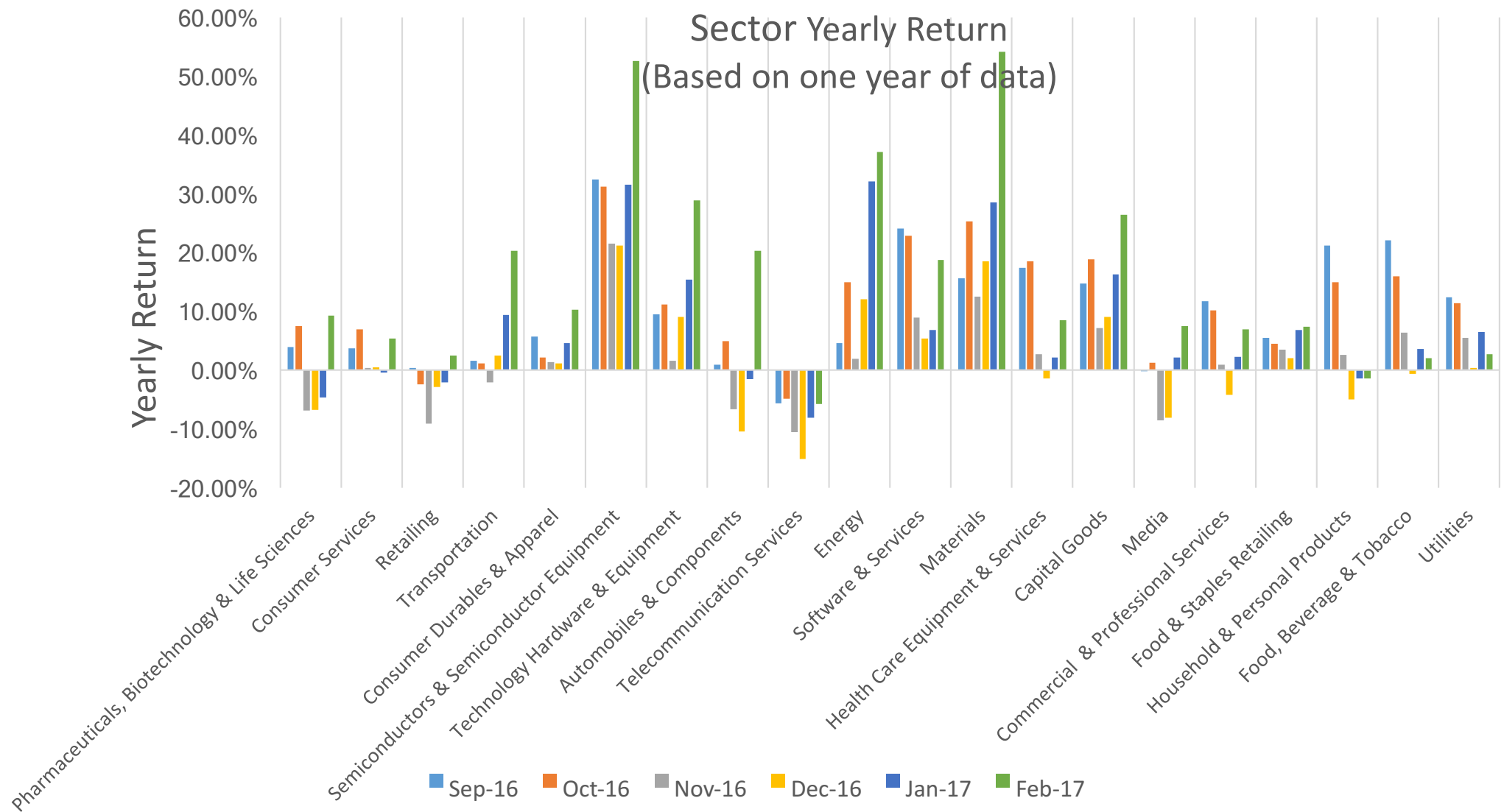
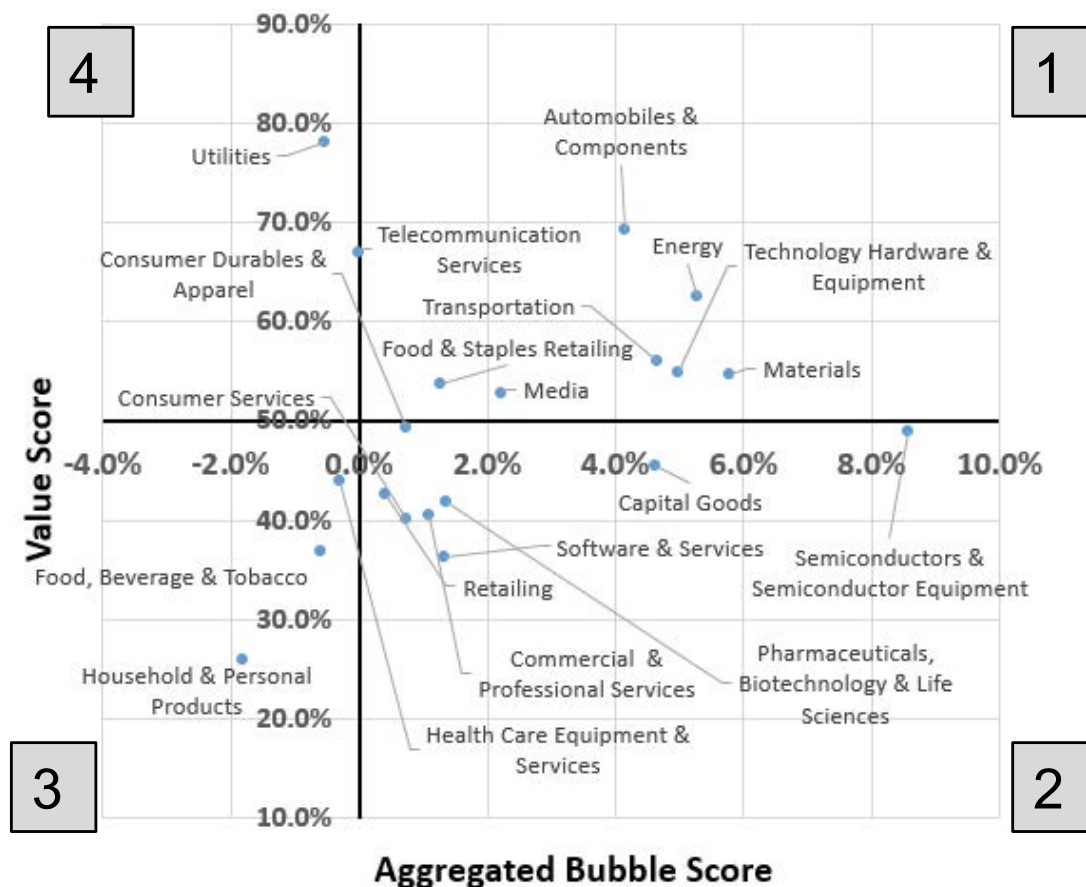# The FCO Cockpit –
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Sector Bubble Score
(Based on one year of data)

Sep-16　Oct-16　Nov-16　Dec-16　Jan-17　Feb-17

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Sector Value Score
(Based on one year of data)

Value Score

Sep-16   Oct-16   Nov-16   Dec-16   Jan-17   Feb-17

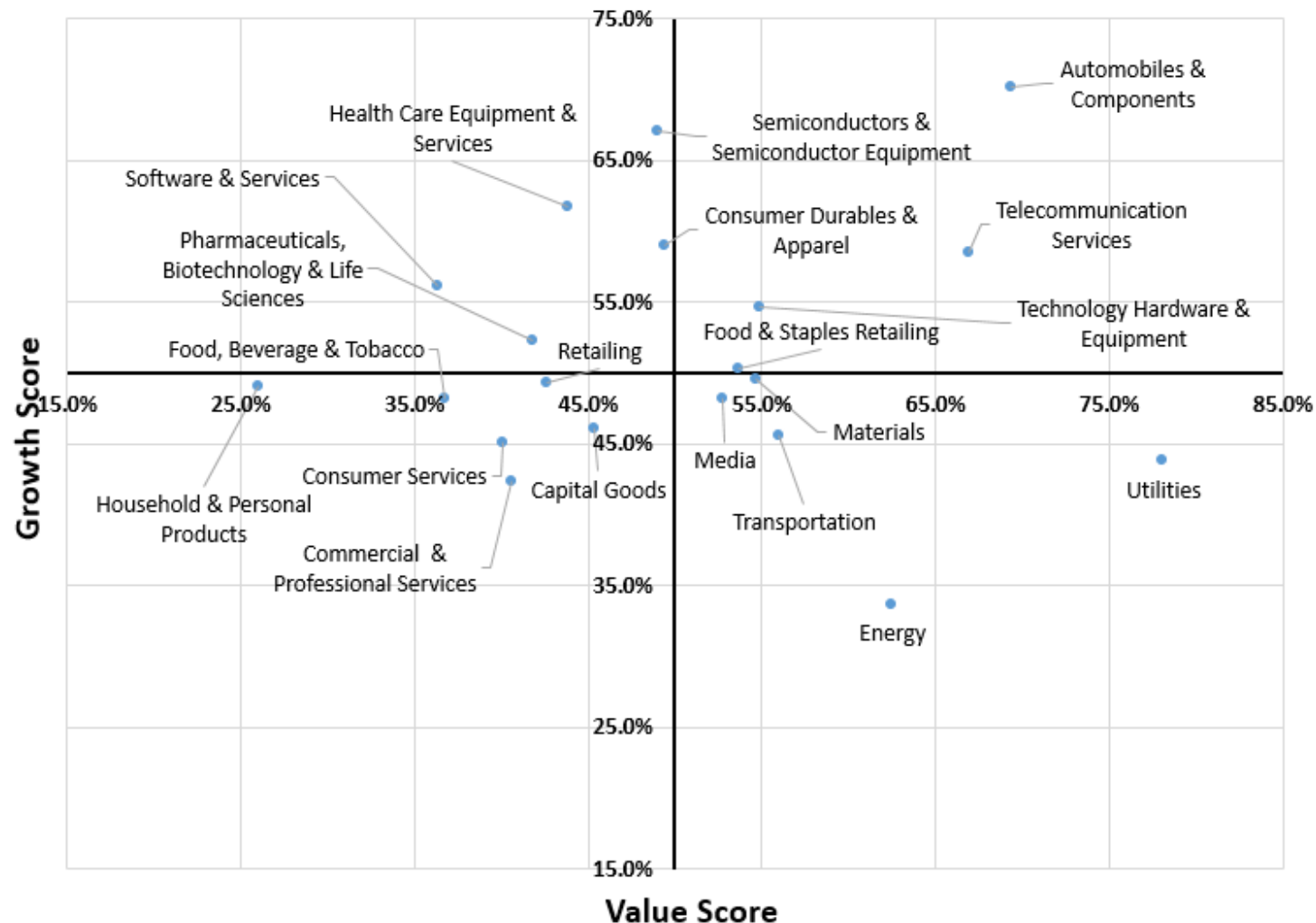# The FCO Cockpit –
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By plotting the value score versus the aggregated bubble score, we can also divide the sectors into four quadrants*:

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.

*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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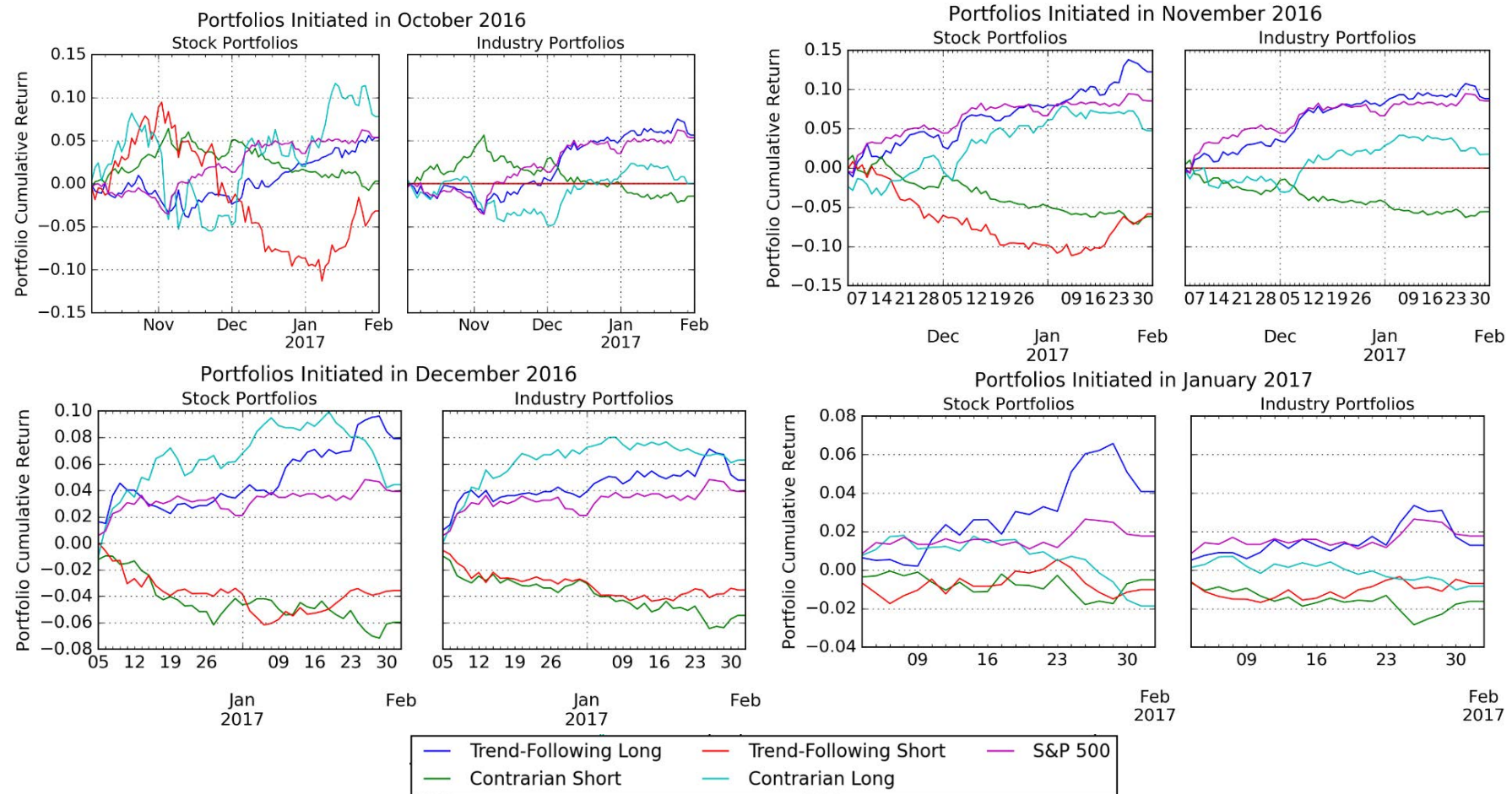
This month, we find that Long portfolios still play out and outperform the market in most portfolios initiated in October, November, December and January 2017. This is due to the strong rallies of the market in December and early January in 2017. Contrarian Portfolios are more delicate to use due to 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. This is illustrated by the Contrarian Long Stock Portfolio initiated in October 2016.

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For information, see

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