

# The FCO Cockpit Global Bubble Status Report

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Jan-Christian Gerlach, Didier Sornette & Ke Wu

Chair of Entrepreneurial Risks  
Department of Management, Technology and Economics  
ETH Zurich  
Scheuchzerstrasse 7  
8092 Zurich, Switzerland

November 1<sup>st</sup>, 2017

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The Financial Crisis Observatory (FCO) 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 about 450 systemic assets and about 850 single stocks. The systemic assets are bond, equity and commodity indices, as well as a selection of currency pairs. The single stocks are mainly US and European equities. The data is from Thomson Reuters.

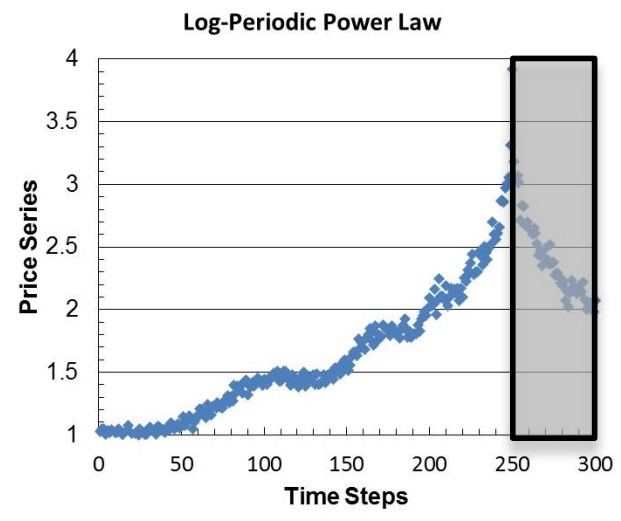
In the first part of this report, we present the state of the world, based on the analysis of the systemic assets. In the second part, we zoom in on the bubble behavior of single stocks and discuss some specific cases.

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>

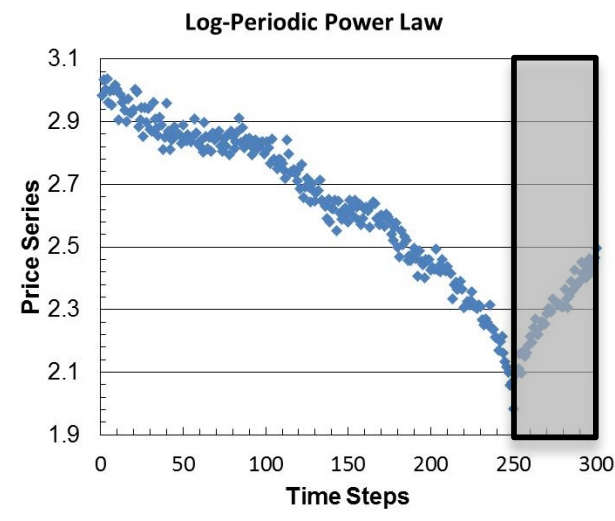
We use the Log-Periodic Power Law Singularity (LPPLS) model to hunt for the distinct fingerprint of **Bubbles**:

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

Starting Nov 2017, we have a major upgrading of our LPPLS bubble warning signals. The new method significantly increases the prediction power of the signal, and better normalizes the signal values. A bubble signal is identified if our new bubble indicator is larger than 0%. Bubble Size is the cumulative return since the starting point of the bubble we identified.



Positive bubble: imitation in buying



Negative bubble: imitation in selling

# Announcement:

In this month's report, we introduce a revised version of the DS LPPL Confidence Indicator that makes redundant the calculation of the DS LPPL Trust Indicator. It provides higher asset selectivity, meaning a smaller number of signals are obtained in general over the different asset classes; however, when identified, signals are more trustworthy.

The confidence indicator reveals how frequently an asset is identified to be in a bubble state over multiple timescales. A high value of the confidence indicator states that we detect consistent bubble characteristics over a large range of differently sized time windows. Note, however, that a high confidence value not necessarily means that a bubble is about to burst. It is solely a measure for how consistently bubble properties are identified in an asset at different time scales.

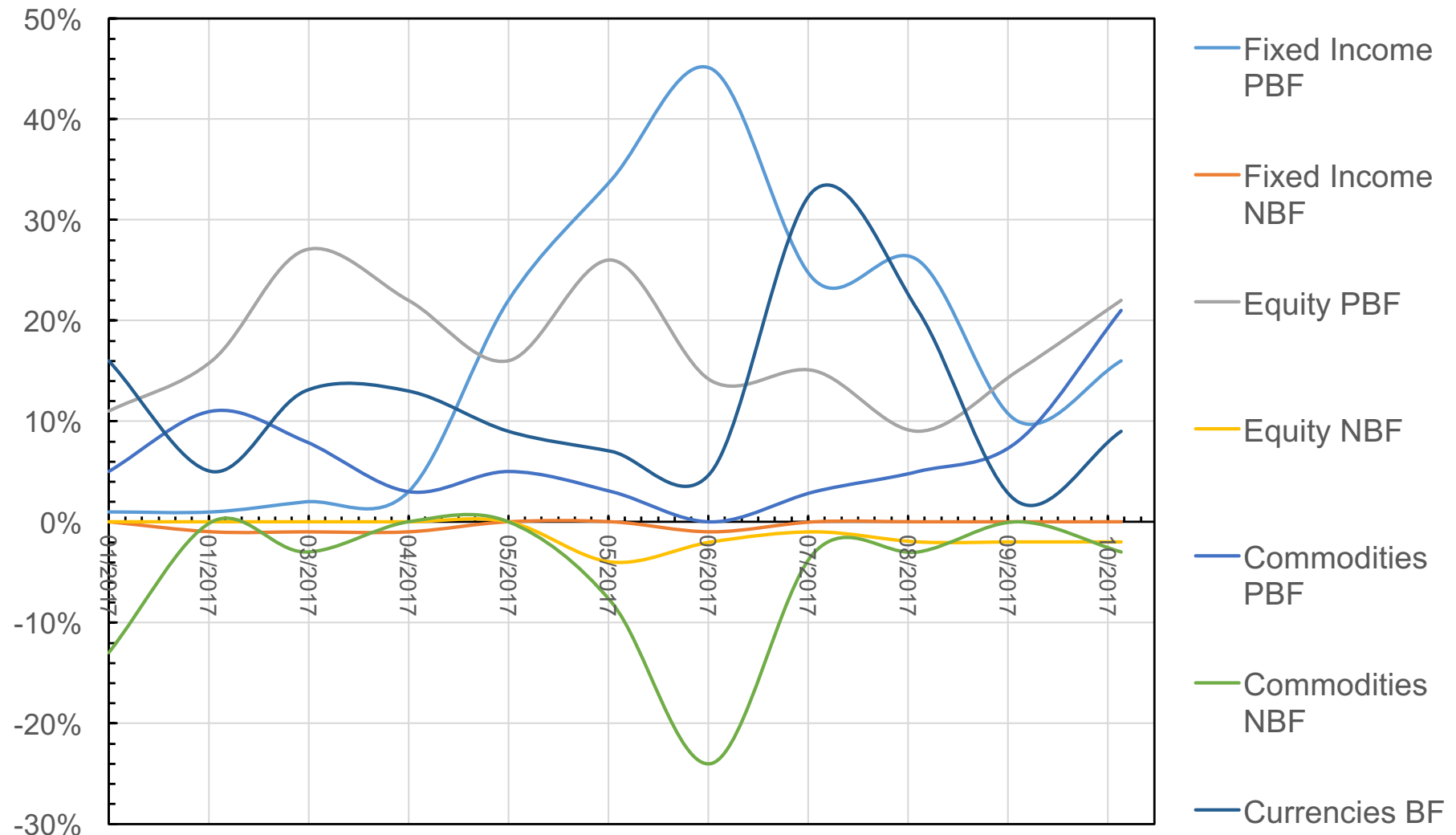
Additionally, we provide a new indicator, the bubble size associated with the corresponding bubble signal. The bubble size is calculated as the asset price return from the time where the start of a bubble has been identified to the current (1<sup>st</sup> of month) price of the bubbly asset. Hence, it shows the magnitude of a bubble, as well as the type of bubble (positive or negative), depending on its sign.

The values of the confidence indicator combined with the bubble size provide a measure for not only how certain the bubble state is, but also how far the bubble growth has already progressed in terms of return.

As usual, the next slide shows the general bubble overview, which depicts the fractions of assets identified to be in a positive, respectively, negative bubble state amongst different asset classes. The overview has been recalculated according to the new confidence indicator for the year 2017.

# General Results – The Big Picture

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



PBF: positive bubble fraction; NBF: negative bubble fraction; BF: bubble fraction

# General Results – This Month's Overview

Asset Class	Subtype	Analyzed Assets	PBF	NBF
<b>Fixed Income</b>		<b>155</b>	<b>16%</b>	<b>0%</b>
	Government Bonds	67	16%	0%
	Finance and Insurance	21	24%	0%
	Corporate Bonds	67	13%	0%
<b>Equity</b>		<b>169</b>	<b>22%</b>	<b>2%</b>
	Country Indices	73	27%	1%
	Europe	36	14%	0%
	United States	60	22%	5%
<b>Commodities</b>		<b>38</b>	<b>21%</b>	<b>3%</b>
<b>Forex</b>		<b>93</b>	<b>6%</b>	<b>3%</b>

PBF – Fraction of assets in asset class showing positive bubble signals,

NBF – Fraction of assets in asset class showing negative bubble signals

During October, an increase of positive bubble signals over all asset classes could be determined, as visible from the graphic on the previous slide. The fixed income sector is still dominated by bubble signals originating from the Finance and Insurance sector with about a quarter of the 21 analyzed F&I bond indices showing signs for positive bubbles. No negative bubbles were determined in the F&I sector. This is also consistent with the fraction of negative bubbles amongst the other asset classes, which has been continuously low during the last months, except for the commodities sector which now, however, also accelerates towards positive bubble formations. The largest positive bubble fraction was detected in the Equity asset class where about 27% of all analyzed Country Indices are showing positive bubble signals.

# Fixed Income - Government Bonds

Name	YOY-Return	Bubblesize	DS LPPL Confidence
iBoxx GEMX Kenya Index	15%	14%	63%
iBoxx GEMX Brazil Index	20%	20%	62%
iBoxx Asia Thailand Government Index	3%	5%	42%
iBoxx Asia Thailand Index	3%	4%	41%
iBoxx EUR Ireland Index	2%	3%	26%
iBoxx GEMX Russia Index	14%	9%	23%
iBoxx GEMX Sri Lanka Index	21%	20%	3%

In the Government Bond sector, this month, Kenyan and Brazilian Government Bonds are leading in terms of positive bubble signals, both showing confidence indicator values of more than sixty percent. The important value to focus on, here, is however the bubble size. For both the Kenya and the Brazil Indices, the bubble size is already around or larger than 15%, indicating that the risk of being invested in those assets is quite significant due to the progress of bubble growth.

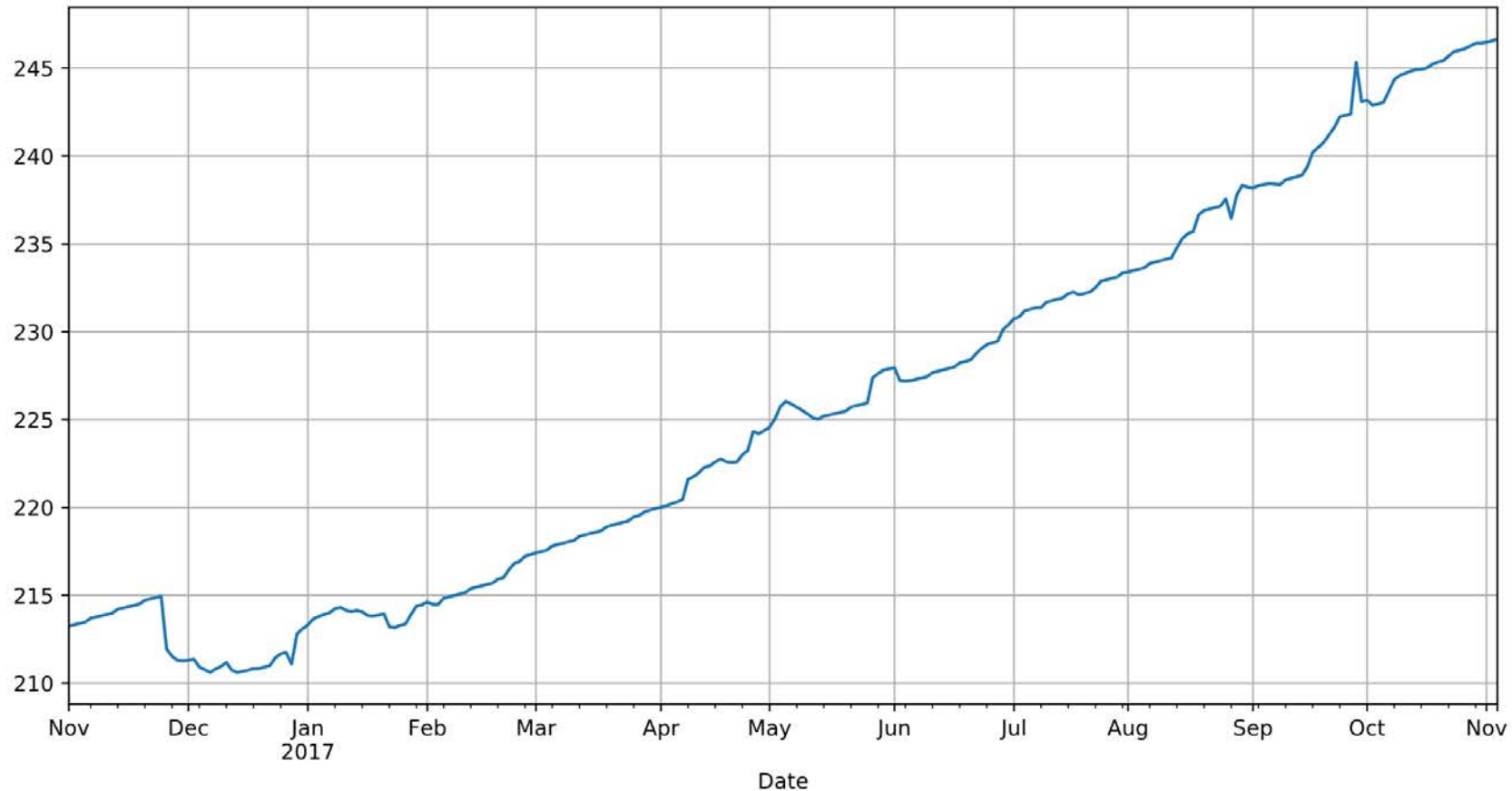
As mentioned in the previous report, the Thailand Government Index is still in a positive bubble state.

No negative bubbles were detected in the sector.



# Fixed Income - Government Bonds

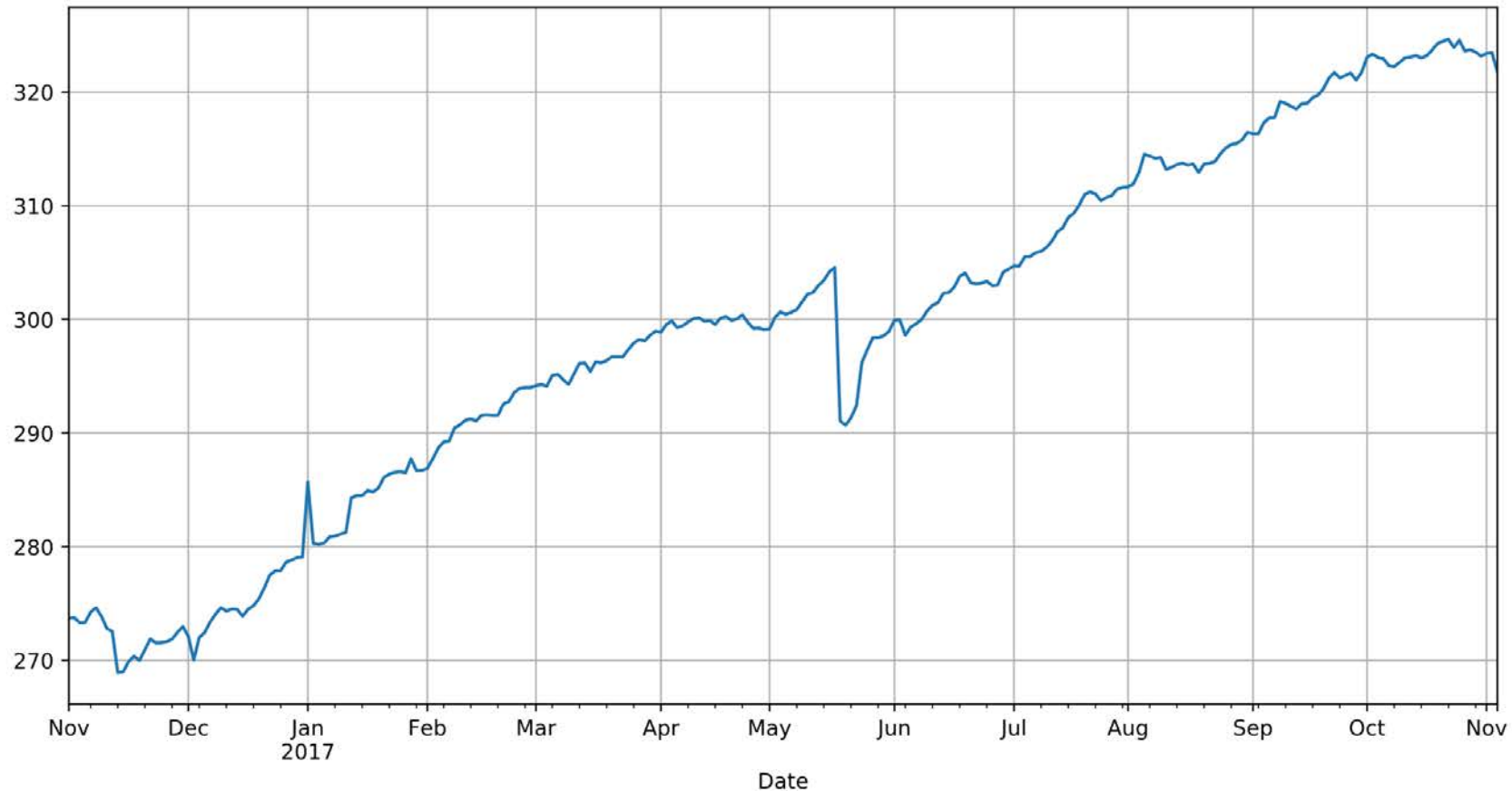
iBoxx GEMX Kenya Index



[Source: Thomson Reuters]

# Fixed Income - Government Bonds

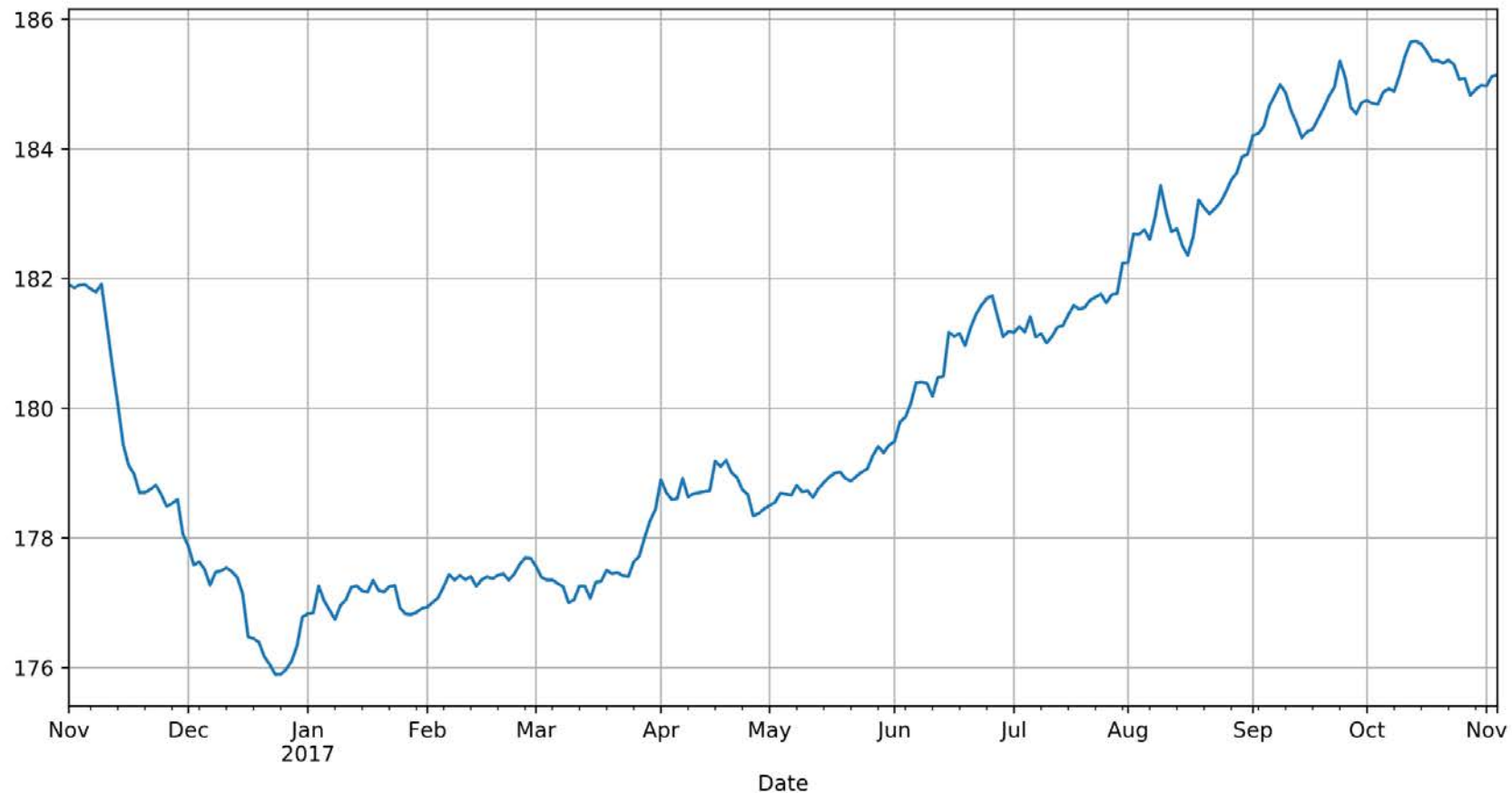
iBoxx GEMX Brazil Index



[Source: Thomson Reuters]

# Fixed Income - Government Bonds

iBoxx Asia Thailand Government Index



[Source: Thomson Reuters]

# Fixed Income - Corporate Bonds

Name	YOY-Return	Bubblesize	DS LPPL Confidence
iBoxx EUR Automobiles & Parts Index	3%	3%	93%
iBoxx USD Oil Equipment, Services & Distribution Index	9%	4%	64%
iBoxx USD Oil & Gas Index	8%	4%	49%
iBoxx EUR Utilities Index	3%	3%	37%
iBoxx EUR Oil & Gas Index	4%	3%	37%
iBoxx USD Oil & Gas Producers Index	7%	4%	35%
iBoxx EUR Non-Financials Index	3%	3%	19%
iBoxx EUR Media Index	3%	2%	12%
iBoxx EUR Retail Index	2%	2%	3%

At the beginning of November, Corporate bonds show strong positive signals within the European Automobiles and European, as well as US Oil sector.

The next slide depicts the EUR Automobiles Index, which has noticeably risen during October. From a chart technical view, this sharp price rise is a strong trigger for the generation of bubble signals.

Signals in the oil sector can be explained by the recent surge of Oil prices, which have increased by about 10% during the previous month. Indices for Brent and WTI Crude Oil are now close to their two-year-highs, a fact that is possibly attributable to intentions of the OPEC to extend the phase of reduced production until the end of 2018.

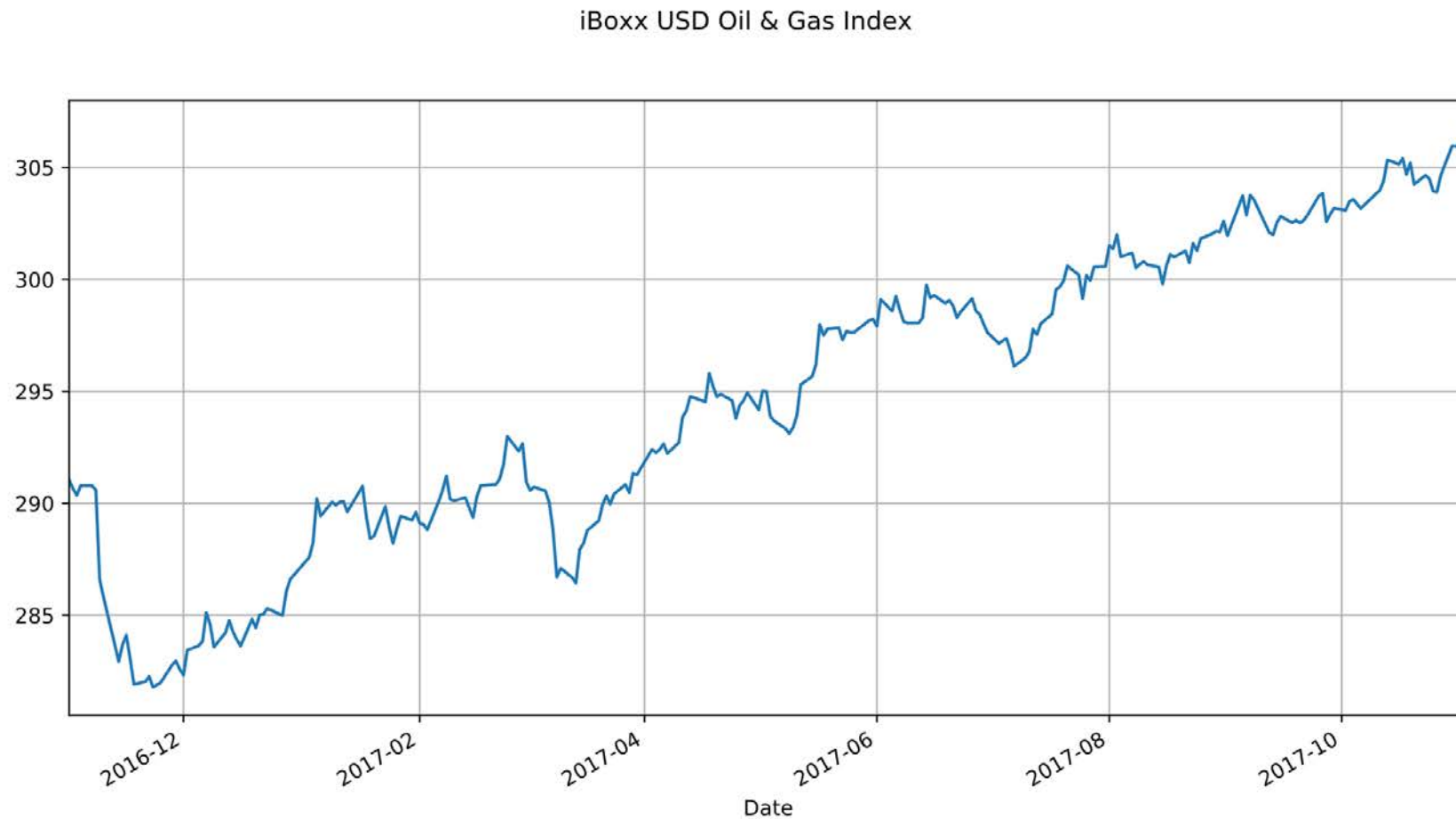
# Fixed Income - Corporate Bonds

iBoxx EUR Automobiles & Parts Index



[Source: Thomson Reuters]

# Fixed Income - Corporate Bonds



[Source: Thomson Reuters]

# Fixed Income - Financial and Insurance Sectors

Name	YOY-Return	Bubblesize	DS LPPL Confidence
iBoxx EUR Financial Services Subordinated Index	4%	2%	41%
iBoxx EUR Financial Services Index	2%	2%	24%
iBoxx EUR Financial Services Senior Index	2%	2%	21%
iBoxx EUR Insurance Senior Index	2%	3%	12%
iBoxx EUR Insurance Index	10%	6%	11%

The Financial Services Subordinated Index shows positive bubble signs for the second month in a row. Additionally, all other indices that exhibit bubble trends belong to the iBoxx EUR series, which covers only European bond markets. This is in contradiction with the previous month's results where signs of positive bubble formation could also be detected in the US F&I sector.

Nevertheless, it must be mentioned at this point that the bubbles that were identified are still in a very early stage of growth, because the actual asset prices are just about two percent above the price level that was identified as the beginning of the bubble. Due to the early stage of bubble formation, it may still makes sense to be invested, in order to 'surf' the bubble during its future growth phase.

# Fixed Income - Financial and Insurance Sectors

iBoxx EUR Financial Services Subordinated Index



[Source: Thomson Reuters]



# Equities - Country Performance

Name	YOY-Return	Bubblesize	DS LPPL Confidence
SZSE 100 Index	20%	25%	100%
PFTS Index	13%	7%	100%
Vietnam Index	25%	19%	100%
PX Prague SE Index	18%	9%	57%
Budapest SE Index	31%	21%	30%
FTSE China 25 Index	30%	20%	24%
CNX Nifty Index	29%	20%	8%
Bursatil Index	2617%	2206%	8%
Qatar Exchange General Index	-16%	-21%	17%

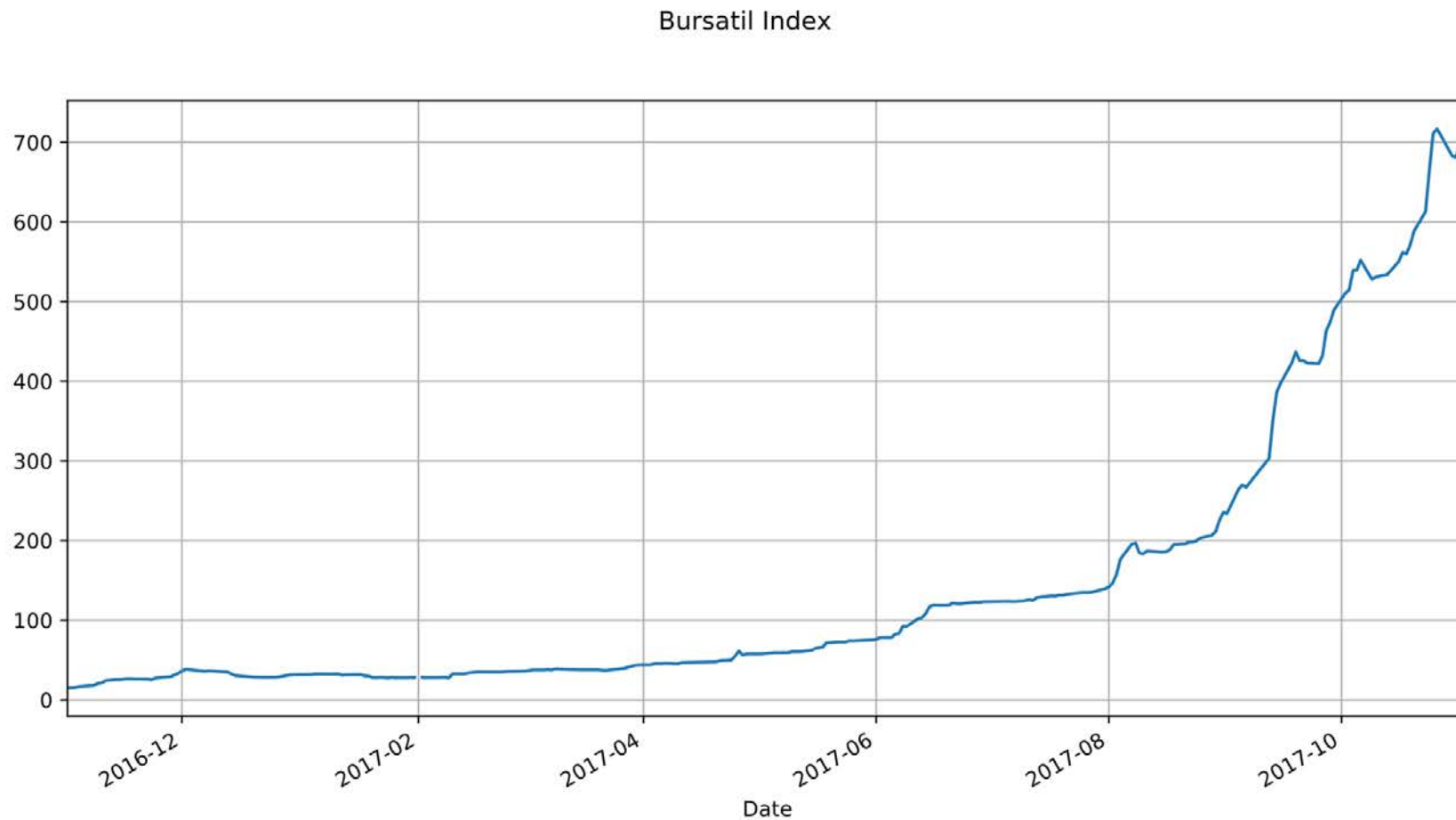
Depicted in the Table are nine out of the 21 country indices that show bubble signs in the beginning of November. As in the other asset classes, the fraction of negative bubbles is fairly low, with the Qatar Index being the only identified asset that is in an ongoing negative bubble and has lost about 16% in value year over year.

Lowest in the DS LPPL confidence indicator ranking, however worth mentioning due to its extreme (inflation-based) bubble size is the Venezuelan Bursatil Index, which has risen by 2617% in the course of the Venezuelan Socioeconomic Crisis, as pointed out in last month's report.

The leaders of this month are the Chinese Shenzhen Stock Exchange Index, the Ukrainian PFTS Index and the Vietnamese Country Index, which all show maximum levels of the confidence indicator.

Recall that a large indicator value means that bubble signals could be detected over all the investigated asset price time windows. This circumstance supports the credibility of signals and explains the large value of the confidence indicator.

# Equities - Country Performance



[Source: Thomson Reuters]

# Equities - Country Performance



[Source: Thomson Reuters]

# Equities - United States and Europe

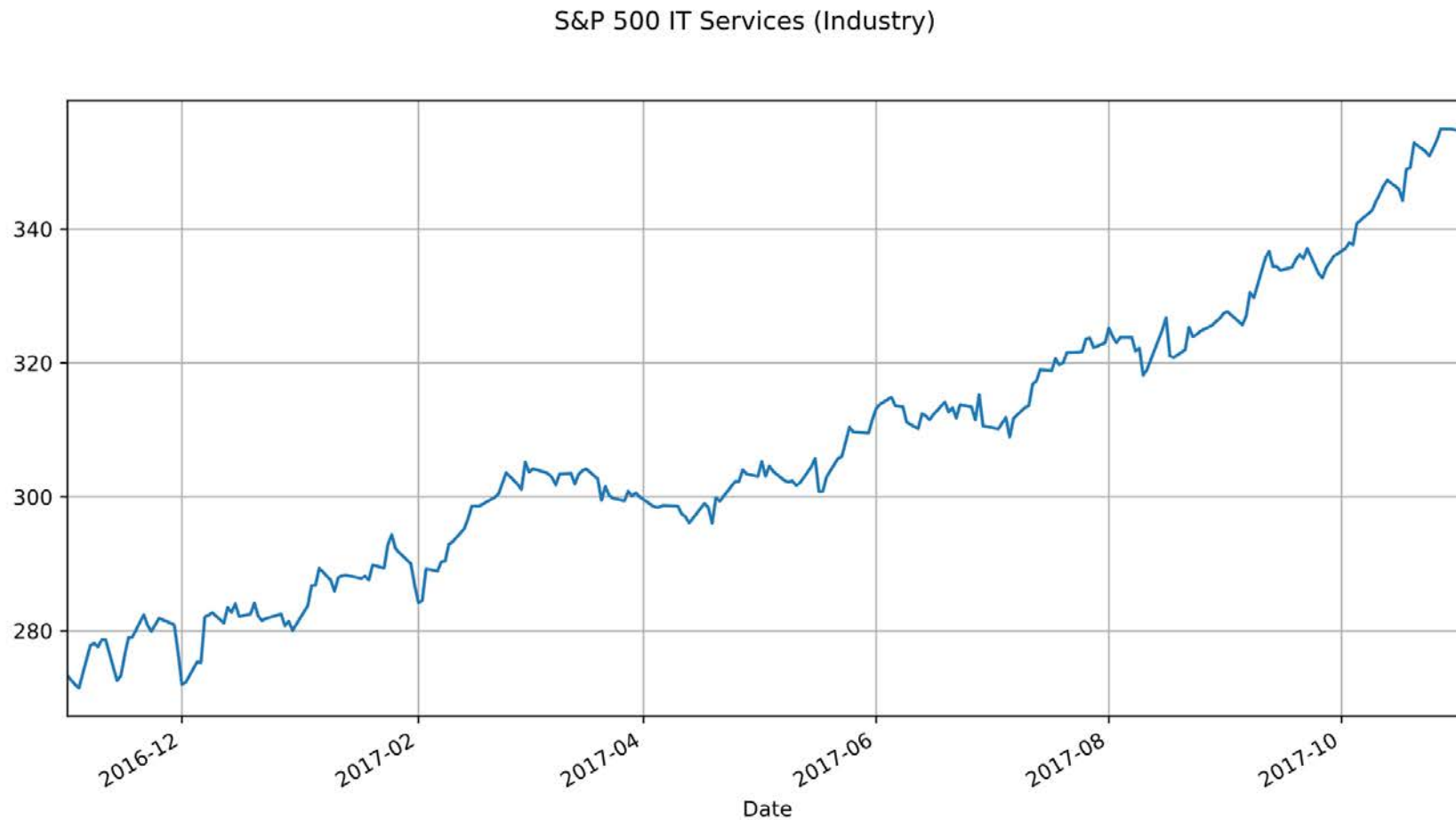
Name	YOY-Return	Bubblesize	DS LPPL Confidence
STOXX Europe 600 Optimised Cyclical EUR Price Index	21%	14%	45%
STOXX Europe 600 Industrial Goods & Services EUR Price Index	25%	13%	40%
STOXX Europe 600 Industrials EUR Price Index	23%	6%	30%
STOXX Europe 600 Automobiles & Parts EUR Price Index	28%	10%	11%

Name	YOY-Return	Bubblesize	DS LPPL Confidence
S&P 500 IT Services (Industry)	30%	14%	99%
S&P 500 Banks (Industry)	23%	16%	73%
S&P 500 Software (Industry)	42%	17%	61%
S&P 500 Consumer Finance (Industry)	14%	20%	55%
S&P 500 Diversified Financial Services (Industry)	19%	12%	43%
S&P 500 Media (Industry)	4%	-8%	100%
S&P 500 Food Products (Industry)	-5%	-10%	10%
S&P 500 Tobacco (Industry)	12%	-10%	7%

The separate tables for European (top) and United States equity markets show mixed behavior this month. While in the European Indices, no negative bubbles were detected, a fraction of about five percent was detected amongst the United States equity indices.

The S&P500 IT Services and Media sectors both reach peak indicator values, in positive, respectively, negative bubble signals, as indicated by the sign of the bubble size. In European stock markets, the detected positive bubble signals are of medium size. Identified assets are somewhat different from previous month's results, due to the change of the confidence indicator calculation methodology, which introduces improved selectivity to the indicator.

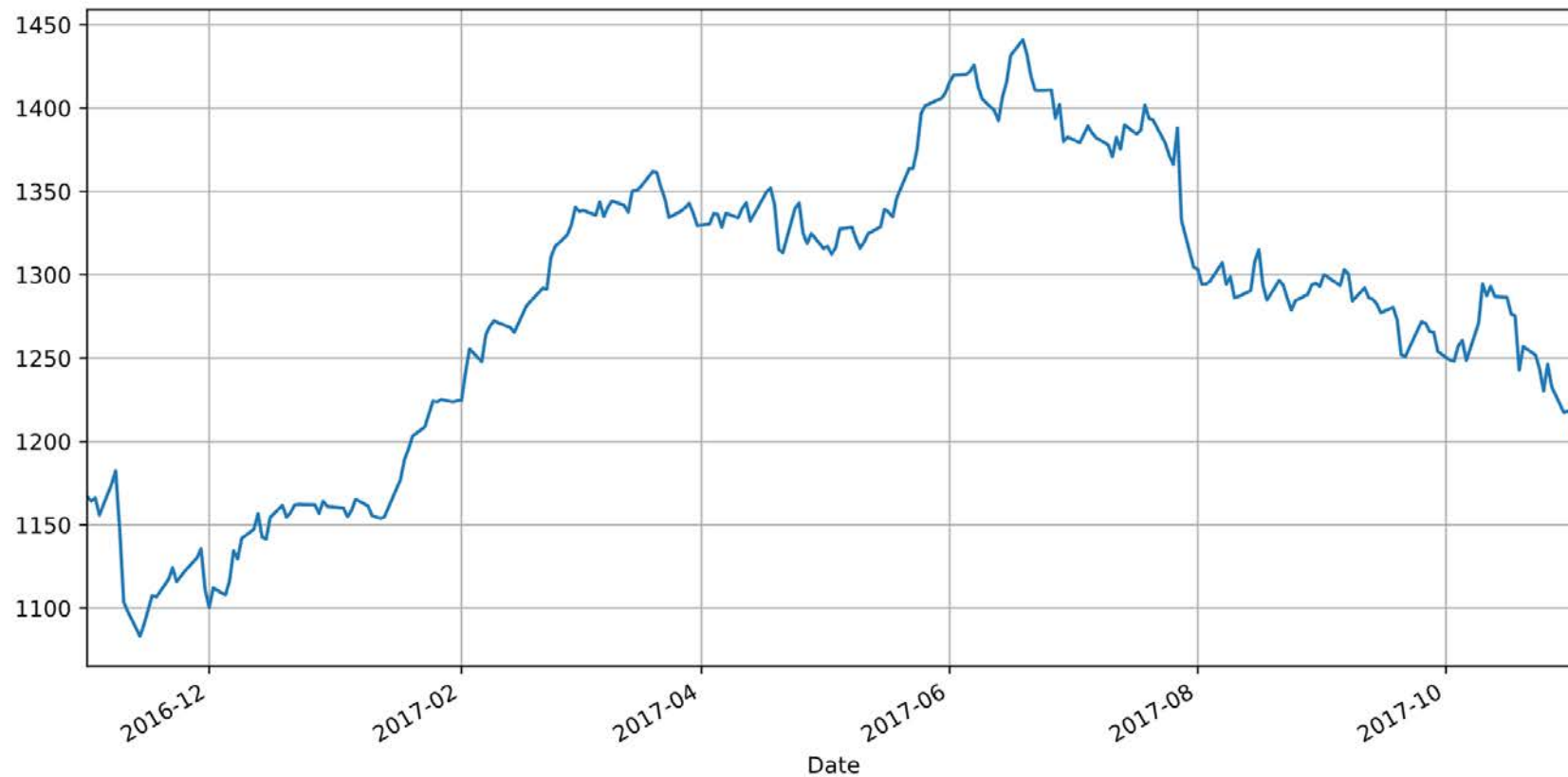
# Equities - United States and Europe



[Source: Thomson Reuters]

# Equities - United States and Europe

S&P 500 Tobacco (Industry)



[Source: Thomson Reuters]

# Commodities

Name	YOY-Return	Bubblesize	DS LPPL Confidence
Petroleum ER Index	15%	23%	46%
Energy ER Index	13%	20%	39%
Brent Crude ER Index	19%	28%	34%
HG Copper ER Index	22%	23%	28%
Indtr Mtls ER Index	21%	19%	24%
Palladium ER Index	42%	31%	23%
Copper ER Index	23%	18%	22%
Gasoil ER Index	28%	26%	10%
Natural Gas ER Index	-19%	-16%	34%

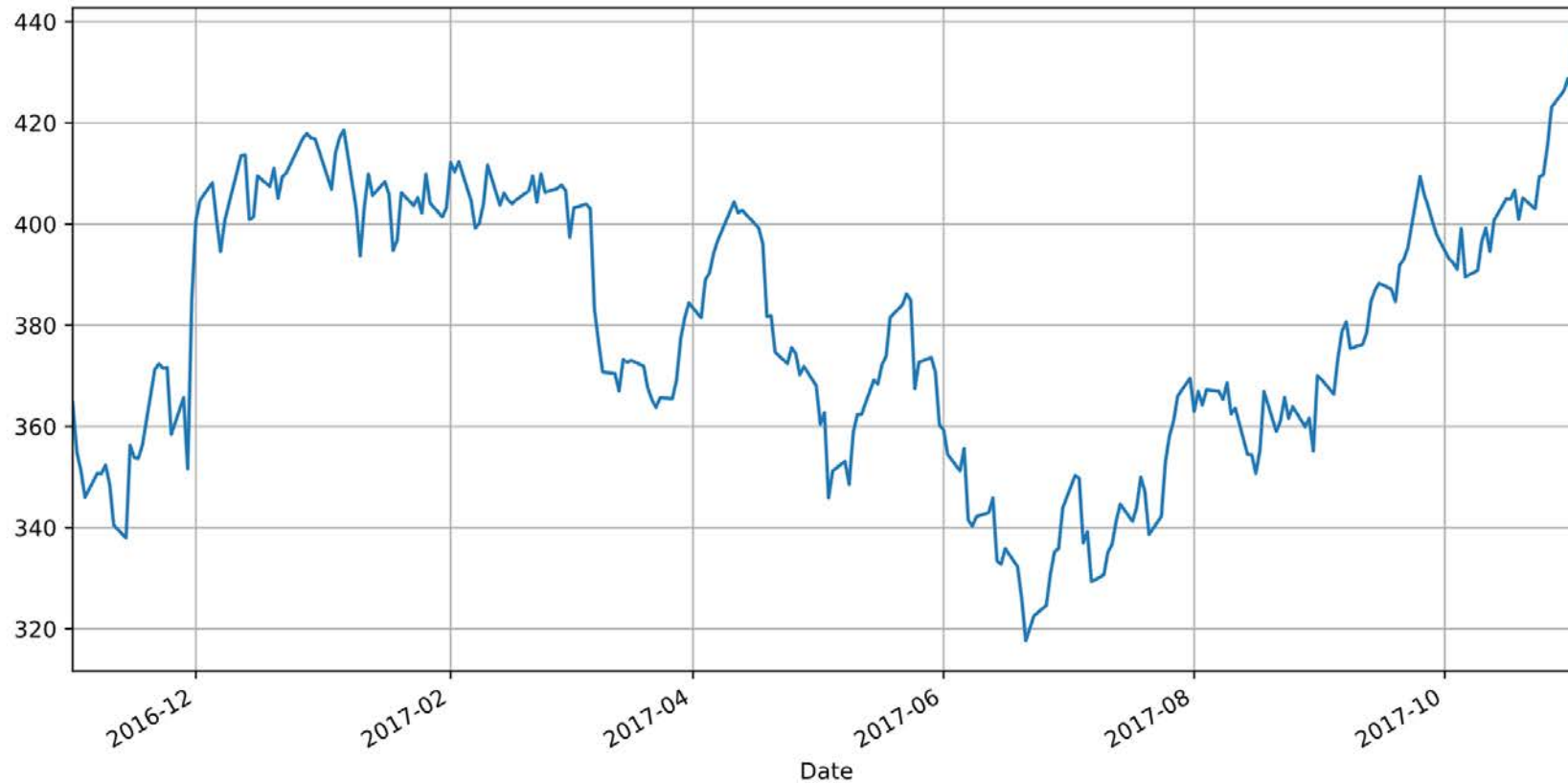
In the commodities asset class, one fifth of the 38 analyzed assets exhibit positive bubble characteristics. Palladium, which has been steadily growing during October by approximately another 10%, has been by now in a positive bubble state for several consecutive months, as pointed out in previous reports. The identified bubble size is about 30% while the Palladium index shows an increase of 42% over the last year.

At the beginning of this month, significant bubble signals could also be detected in Petroleum and Brent Crude Oil Indices, which is again in accordance with our findings from the Corporate Bonds sector analysis presented earlier in this report.

Furthermore, signals in Copper Indices are present for the second month now.

# Commodities

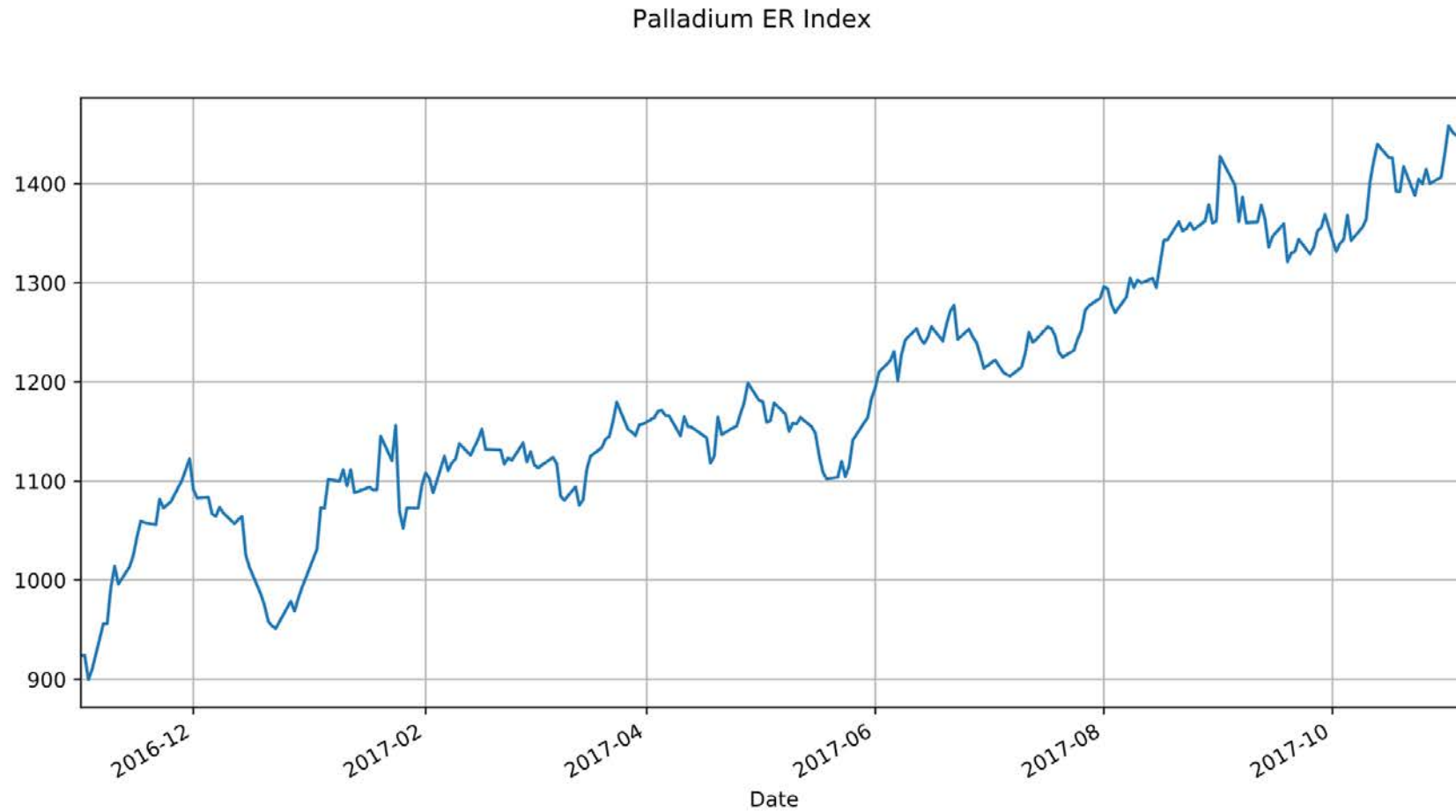
Brent Crude ER Index



[Source: Thomson Reuters]



# Commodities



[Source: Thomson Reuters]

# Commodities

HG Copper ER Index



[Source: Thomson Reuters]

# Currencies

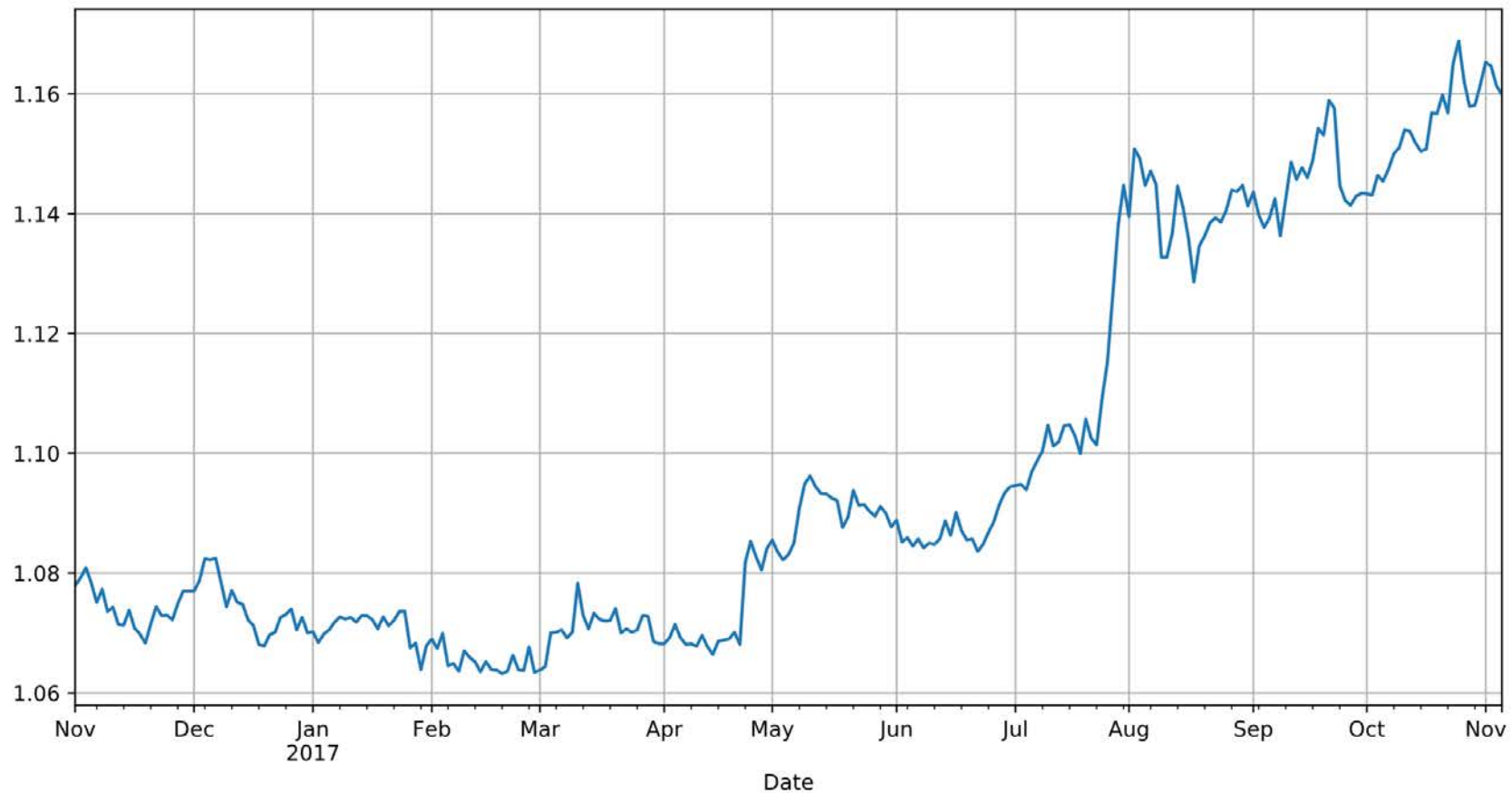
Name	YOY-Return	Bubblesize	DS LPPL Confidence
Singapore Dollar/Swiss Franc	0,04	0,05	0,92
South African Rand/Euro	-0,07	-0,11	0,63
Chinese Renminbi/Swiss Franc	0,04	0,05	0,58
US Dollar/South African Rand	-0,01	0,09	0,54
US Dollar/Qatar Rial	0,04	0,04	0,43
New Zealand Dollar/Euro	-0,11	-0,11	0,41
Polish Zloty/Swiss Franc	0,13	0,12	0,34
Czech Koruna/Swiss Franc	0,15	0,15	0,21
Turkish Lira/Euro	-0,2	-0,11	0,16

Just a low fraction of overall nine percent of the 93 monthly analyzed currency pairs show bubble signals of positive or negative nature (depending on the direction of the currency pair). The strongest couple is the Singapore Dollar vs. the Swiss Franc. The Swiss Franc has weakened in the second half of 2017. It is now to be determined whether the recent weakening of the CHF is sustainable or will possibly lead to some sudden exchange rate jumps.

Another striking fact is the three negative bubbles in currency pairs couples to the Euro. This is representative for the recent appreciation in the Euro, which could originate partly from the election of French president Macron as well as the intention of the ECB to further continue with its reduced quantitative easing program until September 2018.

# Currencies

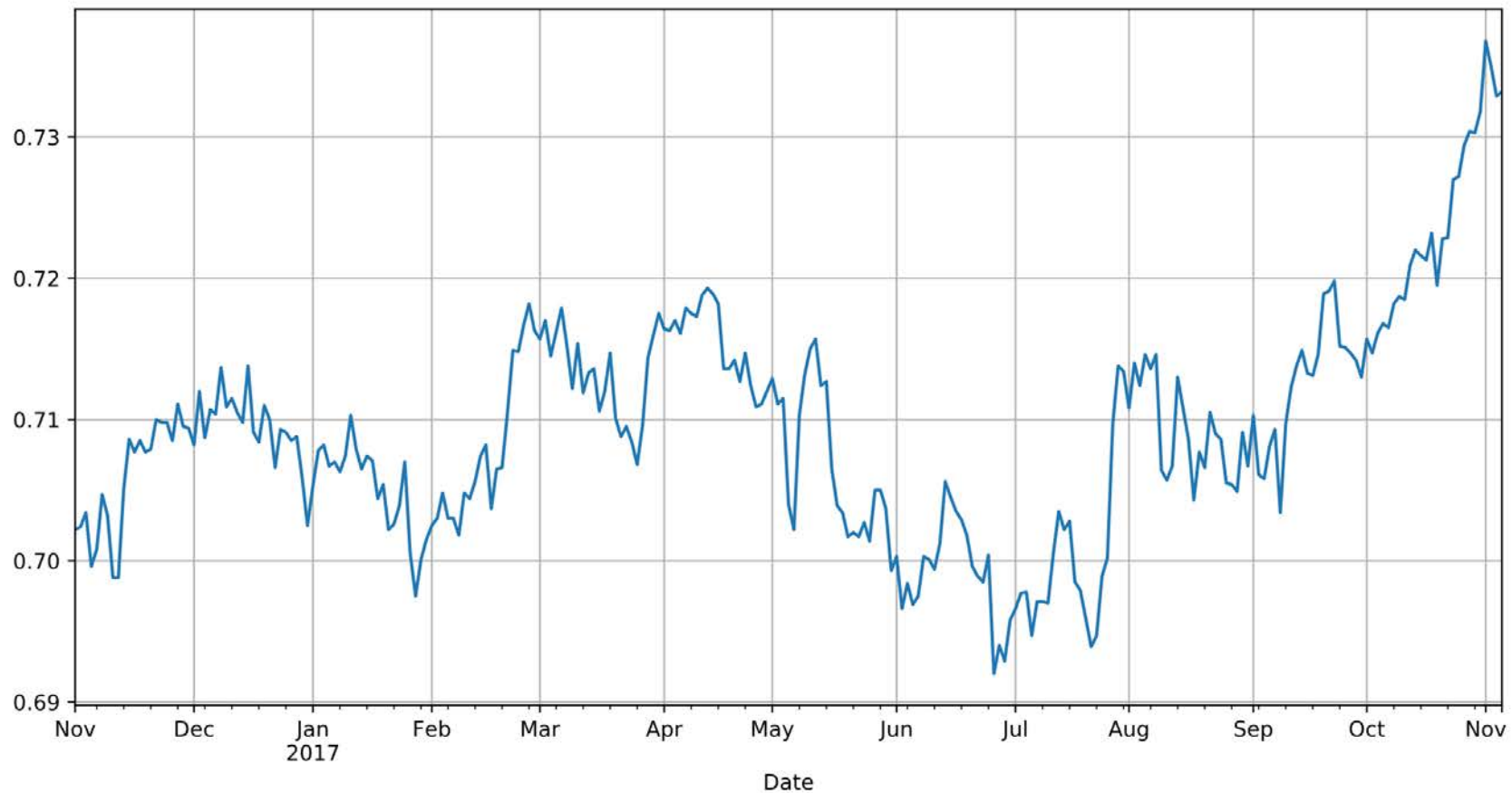
Euro/Swiss Franc



Read as: 1EUR = ... CHF  
[Source: Thomson Reuters]

# Currencies

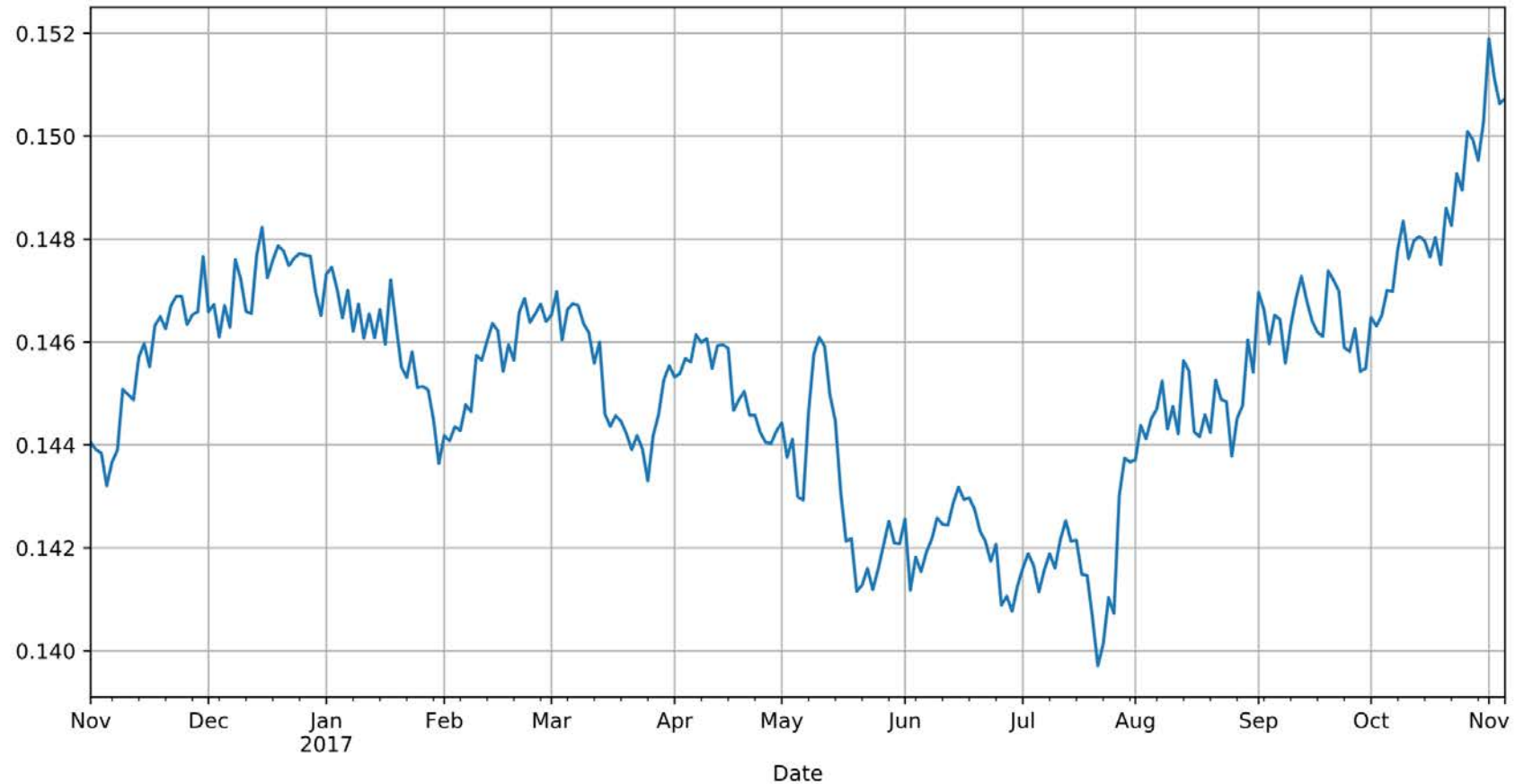
Singapore Dollar/Swiss Franc



[Source: Thomson Reuters]

# Currencies

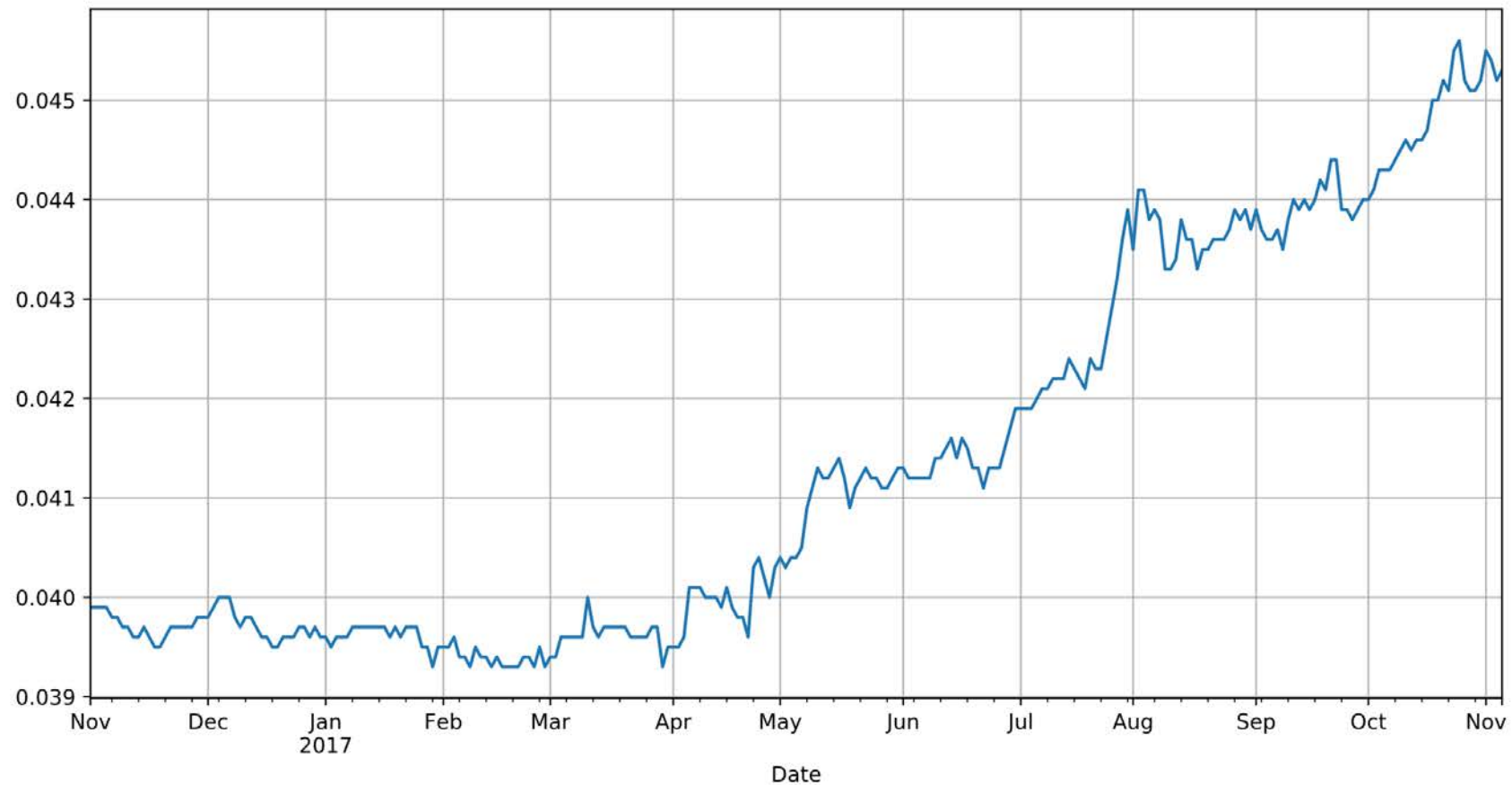
Chinese Renminbi/Swiss Franc



[Source: Thomson Reuters]

# Currencies

Czech Koruna/Swiss Franc



[Source: Thomson Reuters]

For 847 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;

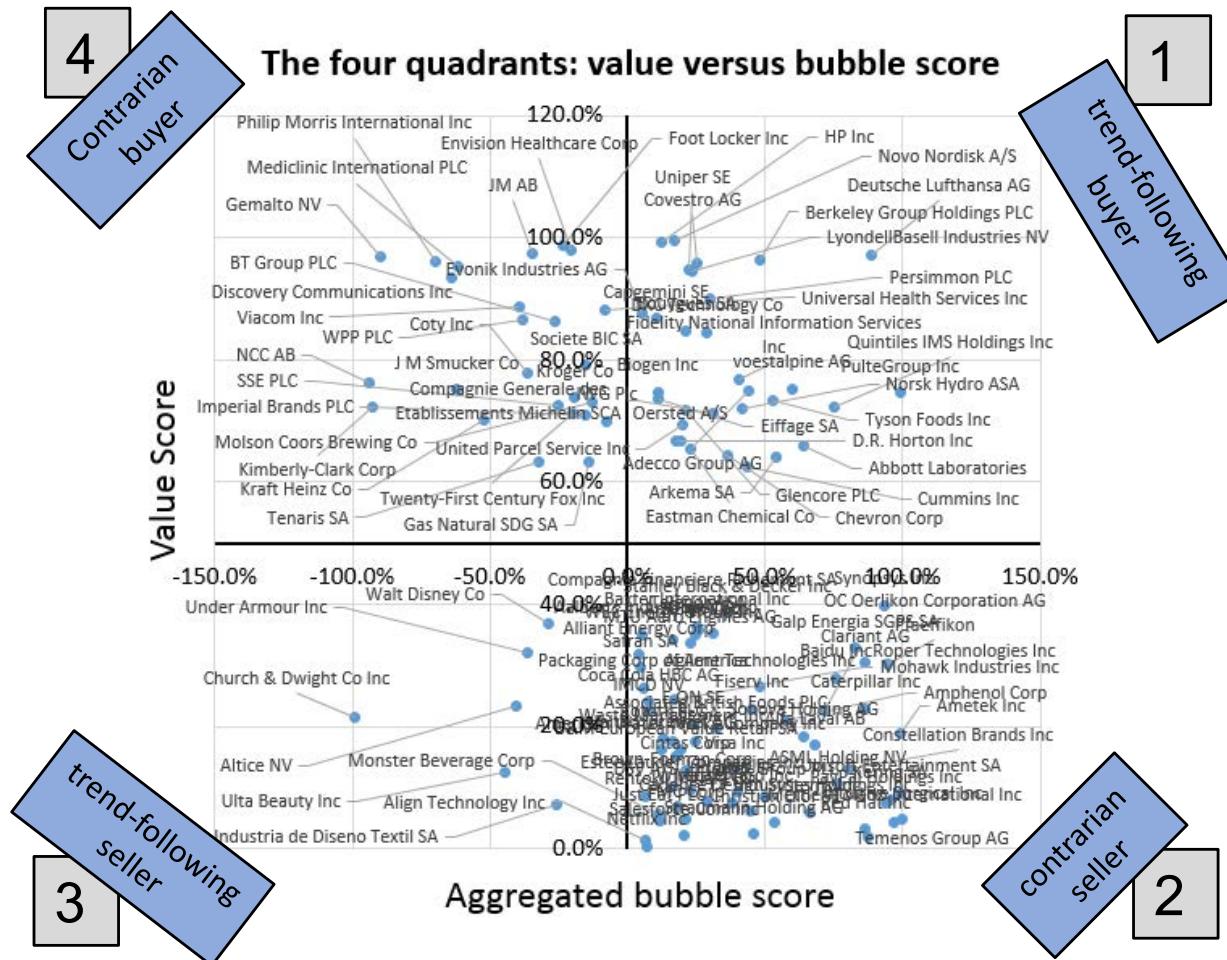
A growth score that has characteristics similar to the PEG ratio, which is the Price to Earnings ratio normalized for expected EPS-growth (Earnings per Share).

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.

We upgrade the calculation method of the value score, which takes into account the ROIC heterogeneity among different industries.



# Single Stocks



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. HP Inc);
2. [Quadrant 2](#): Stocks with a strong positive bubble score and a weak value score (e.g. Amphenol Corp);
3. [Quadrant 3](#): Stocks with a strong negative bubble score and a weak value score (e.g. Altice NV);
4. [Quadrant 4](#): Stocks with strong negative bubble score and a strong financial strength (e.g. SSE PLC)

\*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%.

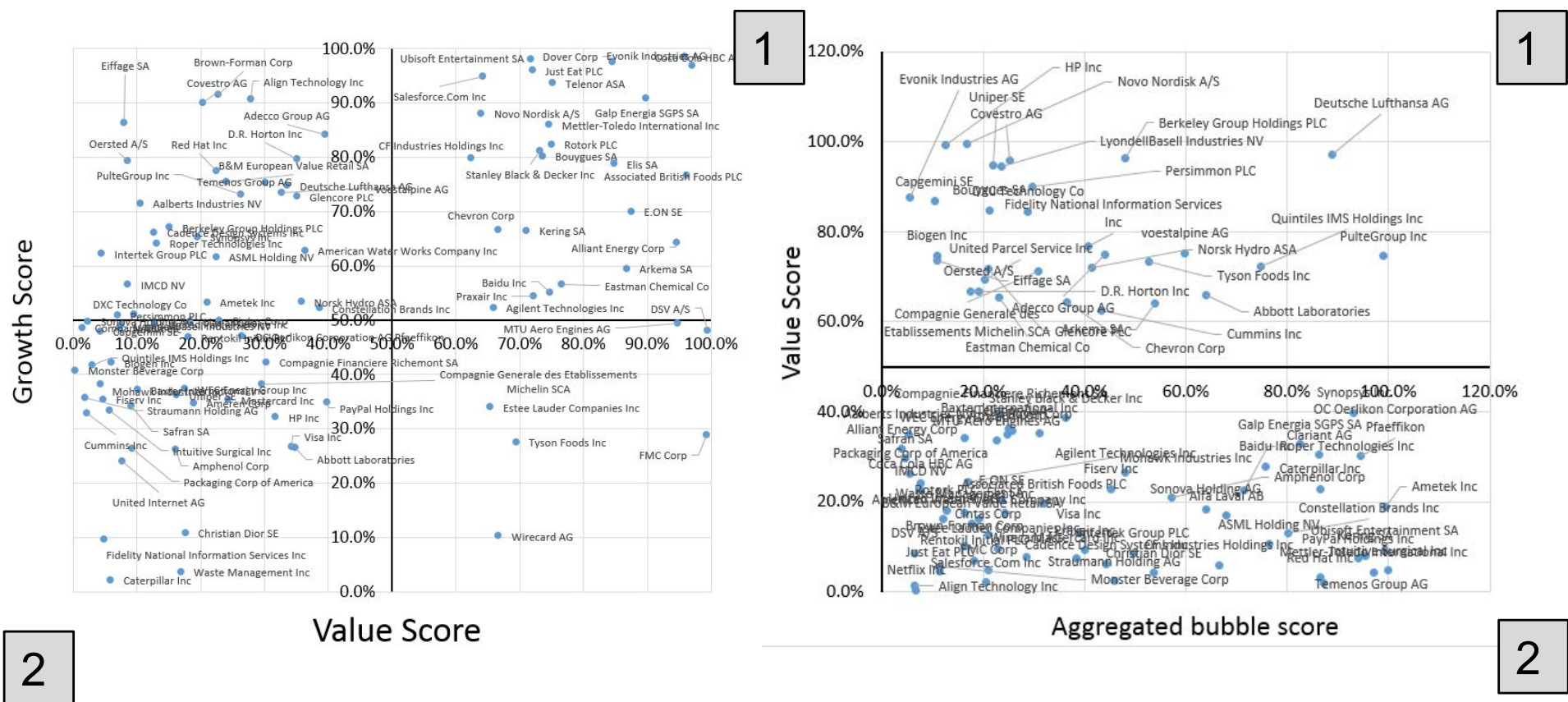
Each quadrant has its own specs:

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.*

# Single Stocks

## Quadrant 1 and 2 stocks

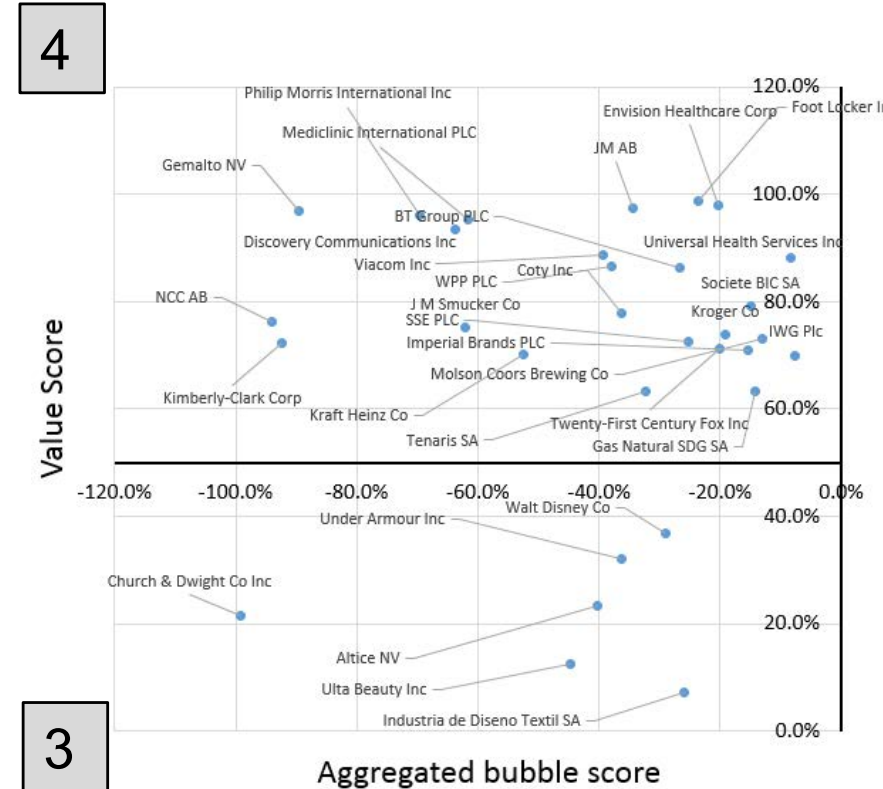
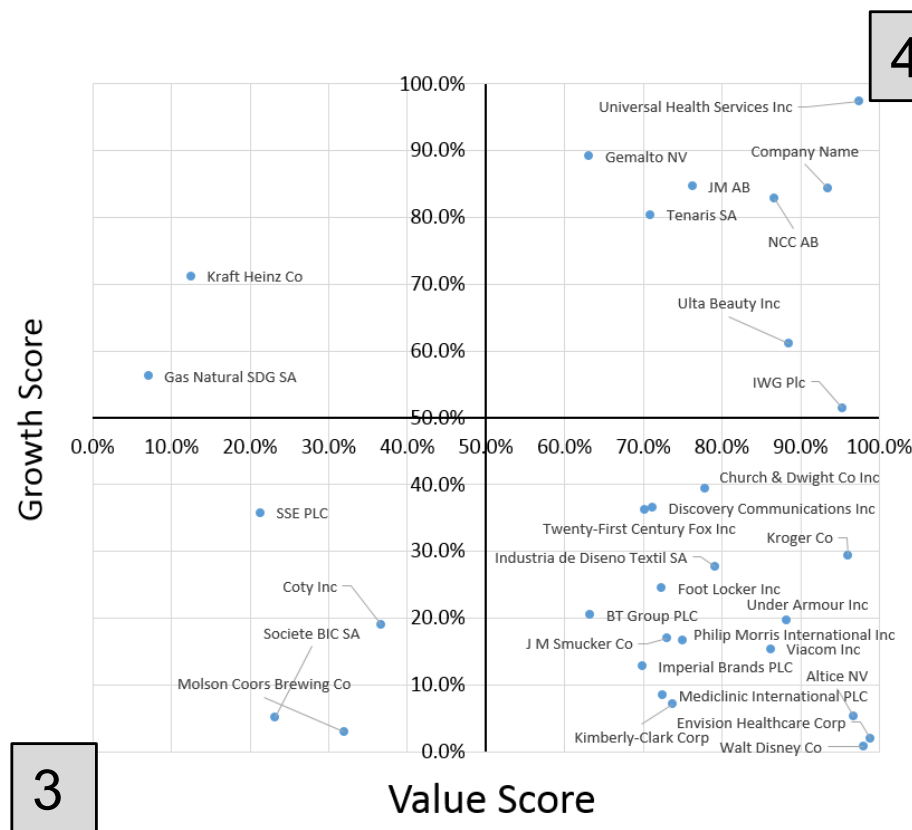
Strong positive bubble signals with strong (respectively weak) fundamentals



# Single Stocks

## Quadrant 3 and 4 stocks

Strong negative bubble signals with weak respectively strong fundamentals





# Single Stocks

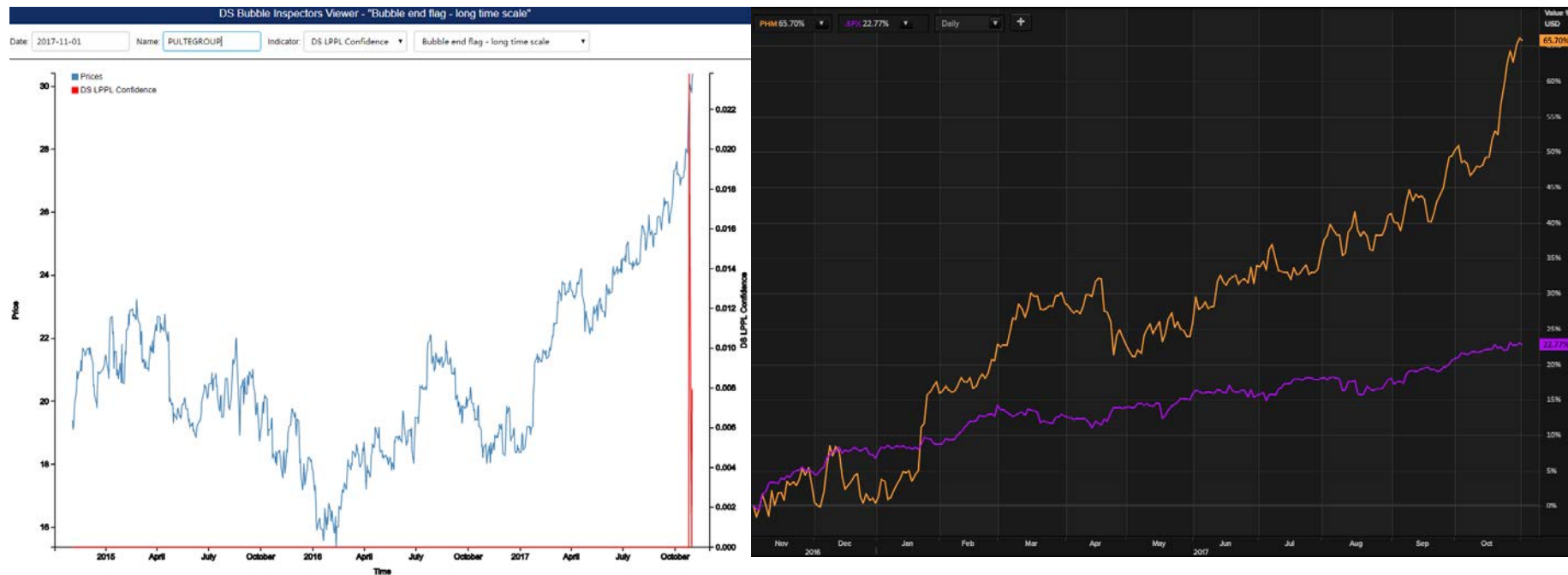
## Quadrant 1 stocks: strong positive bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Industry Group Name	Yearly Return	Bubble Size	Bubble Score	Value Score	Growth Score
Biogen Inc	United States of America	Pharmaceuticals, Biotechnology & Life Sciences	5.2%	18.9%	10.9%	74.7%	55.1%
Berkeley Group Holdings PLC	United Kingdom	Consumer Durables & Apparel	54.1%	28.6%	48.0%	96.2%	76.6%
Covestro AG	Germany	Materials	45.9%	23.9%	25.2%	95.9%	98.5%
Evonik Industries AG	Germany	Materials	21.7%	6.8%	5.5%	87.5%	70.0%
Deutsche Lufthansa AG	Germany	Transportation	114.2%	73.5%	88.9%	97.0%	96.8%
Uniper SE	Germany	Utilities	98.7%	51.9%	22.1%	94.8%	49.4%
Oersted A/S	Denmark	Utilities	44.4%	33.1%	19.1%	66.7%	10.3%
Novo Nordisk A/S	Denmark	Pharmaceuticals, Biotechnology & Life Sciences	39.0%	15.8%	16.8%	99.4%	48.1%
Arkema SA	France	Materials	24.7%	19.0%	53.9%	64.0%	88.1%
Capgemini SE	France	Software & Services	45.8%	12.5%	10.4%	86.8%	59.5%
Bouygues SA	France	Capital Goods	36.8%	11.1%	21.3%	84.8%	78.7%
Eiffage SA	France	Capital Goods	46.7%	15.0%	10.9%	73.6%	80.2%
Compagnie Generale des Etablissements Michelin SCA	France	Automobiles & Components	30.7%	21.7%	30.9%	71.1%	66.5%
Glencore PLC	Switzerland	Materials	28.4%	18.2%	21.1%	71.8%	98.0%
Norsk Hydro ASA	Norway	Materials	58.9%	36.6%	41.4%	72.0%	96.0%
voestalpine AG	Austria	Materials	32.5%	18.0%	59.8%	75.2%	93.6%
Persimmon PLC	United Kingdom	Consumer Durables & Apparel	61.1%	36.0%	29.8%	89.8%	90.8%
Adecco Group AG	Switzerland	Commercial & Professional Services	29.9%	10.1%	43.9%	75.0%	82.4%
Abbott Laboratories	United States of America	Health Care Equipment & Services	38.3%	16.6%	63.9%	65.9%	52.3%
Cummins Inc	United States of America	Capital Goods	31.3%	18.1%	43.2%	62.3%	79.8%
Chevron Corp	United States of America	Energy	8.7%	10.7%	36.4%	64.2%	94.8%
D.R. Horton Inc	United States of America	Consumer Durables & Apparel	58.1%	33.6%	17.5%	66.6%	66.6%
DXC Technology Co	United States of America	Software & Services	51.2%	22.5%	28.9%	84.5%	97.5%
Eastman Chemical Co	United States of America	Materials	22.3%	15.8%	23.1%	65.4%	34.0%
Fidelity National Information Services Inc	United States of America	Software & Services	23.4%	19.5%	40.7%	76.6%	56.7%
HP Inc	United States of America	Technology Hardware & Equipment	33.9%	18.0%	12.6%	99.3%	28.8%
LyondellBasell Industries NV	United States of America	Materials	25.6%	26.4%	23.5%	94.6%	64.2%
PulteGroup Inc	United States of America	Consumer Durables & Apparel	62.2%	27.5%	99.0%	74.6%	86.0%
Quintiles IMS Holdings Inc	United States of America	Pharmaceuticals, Biotechnology & Life Sciences	40.6%	25.1%	74.9%	72.1%	54.4%
Tyson Foods Inc	United States of America	Food, Beverage & Tobacco	6.5%	22.6%	52.8%	73.2%	81.1%
United Parcel Service Inc	United States of America	Transportation	4.1%	12.8%	20.2%	69.4%	27.5%

# Single Stocks - Quadrant 1 stocks

**Quadrant 1 stocks:** strong positive bubble signals with strong fundamentals

Example: PulteGroup 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 Confidence 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 43%.

# Single Stocks - Quadrant 1 stocks

**Last month example:** strong positive bubble signals with strong fundamentals, Eastman Chemical Co.

Note that the stock went up again after a few days corrections, in synchrony with our DS LPPL Trust indicator, and the strong fundamentals. One should remain cautious as this stock is still identified with strong bubble signal this month.

Last month signal (1<sup>st</sup> Oct. 2017)



This month signal (1<sup>st</sup> Nov. 2017)



# Single Stocks - Quadrant 2 stocks

**Quadrant 2 stocks:** strong positive bubble signals with weak fundamentals

This month we again observe an abnormally large number of stocks in this Quadrant.

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.



# Single Stocks - Quadrant 2 stocks

## Quadrant 2 stocks: strong positive bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Industry Group Name	Yearly Return	Bubble Size	Bubble Score	Value Score	Growth Score
Align Technology Inc	United States of America	Health Care Equipment & Services	164.9%	154.1%	6.4%	1.4%	48.6%
Baidu Inc	China	Software & Services	50.8%	35.5%	75.8%	27.9%	90.7%
Cadence Design Systems Inc	United States of America	Software & Services	69.2%	24.3%	44.3%	6.0%	42.1%
Cintas Corp	United States of America	Commercial & Professional Services	36.7%	19.5%	21.0%	12.8%	66.1%
Fiserv Inc	United States of America	Software & Services	29.3%	11.4%	45.2%	22.9%	49.9%
Intuitive Surgical Inc	United States of America	Health Care Equipment & Services	80.3%	22.9%	100.0%	4.7%	35.4%
Monster Beverage Corp	United States of America	Food, Beverage & Tobacco	41.7%	30.6%	11.4%	5.7%	33.4%
Netflix Inc	United States of America	Retailing	73.2%	36.4%	6.8%	0.4%	40.7%
PayPal Holdings Inc	United States of America	Software & Services	87.0%	39.0%	93.9%	7.3%	48.5%
Synopsys Inc	United States of America	Software & Services	44.6%	22.0%	93.2%	39.8%	34.9%
Associated British Foods PLC	United Kingdom	Food, Beverage & Tobacco	32.4%	29.8%	32.0%	19.5%	65.3%
B&M European Value Retail SA	Luxembourg	Retailing	66.2%	13.4%	17.7%	15.1%	67.1%
Coca Cola HBC AG	Switzerland	Food, Beverage & Tobacco	54.1%	33.1%	7.7%	24.1%	75.6%
E.ON SE	Germany	Utilities	62.1%	65.3%	23.7%	20.3%	90.0%
MTU Aero Engines AG	Germany	Capital Goods	52.4%	19.5%	22.6%	33.5%	74.7%
United Internet AG	Germany	Software & Services	47.4%	11.5%	12.2%	16.2%	36.1%
Wirecard AG	Germany	Software & Services	107.1%	53.6%	28.5%	7.7%	24.0%
DSV A/S	Denmark	Transportation	73.0%	28.4%	6.5%	8.5%	79.3%
Christian Dior SE	France	Consumer Durables & Apparel	68.8%	48.6%	53.7%	4.3%	47.9%
Elis SA	France	Commercial & Professional Services	64.7%	18.6%	24.4%	17.6%	10.9%
Kering SA	France	Consumer Durables & Apparel	101.2%	38.4%	95.4%	8.0%	86.4%
Safran SA	France	Capital Goods	43.3%	19.2%	4.6%	29.6%	38.3%
Ubisoft Entertainment SA	France	Software & Services	114.8%	49.9%	99.2%	9.1%	34.2%
Aalberts Industries NV	Netherlands	Capital Goods	48.5%	22.2%	5.2%	35.1%	72.7%
ASML Holding NV	Netherlands	Semiconductors & Semiconductor Equipment	67.4%	28.2%	76.4%	10.5%	71.5%
IMCD NV	Netherlands	Capital Goods	53.1%	38.5%	7.7%	22.4%	61.6%
Intertek Group PLC	United Kingdom	Commercial & Professional Services	78.6%	62.5%	49.7%	8.6%	56.6%
Just Eat PLC	United Kingdom	Software & Services	39.2%	43.6%	11.5%	4.5%	62.2%
Telenor ASA	Norway	Telecommunication Services	37.6%	33.8%	25.6%	35.8%	53.4%
Galp Energia SGPS SA	Portugal	Energy	38.8%	17.1%	82.5%	32.7%	73.4%
Rentokil Initial PLC	United Kingdom	Commercial & Professional Services	60.8%	31.5%	18.2%	7.0%	50.9%
Rotork PLC	United Kingdom	Capital Goods	29.7%	10.8%	12.7%	18.1%	46.9%

# Single Stocks - Quadrant 2 stocks

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

Company Name	Country of Headquarters	GICS Industry Group Name	Yearly Return	Bubble Size	Bubble Score	Value Score	Growth Score
Compagnie Financiere Richemont SA	Switzerland	Consumer Durables & Apparel	39.8%	21.3%	23.5%	39.6%	84.2%
Clariant AG	Switzerland	Materials	53.2%	22.4%	86.4%	30.3%	42.3%
Sonova Holding AG	Switzerland	Health Care Equipment & Services	37.9%	38.1%	63.9%	18.3%	49.7%
Straumann Holding AG	Switzerland	Health Care Equipment & Services	99.7%	32.7%	45.9%	2.4%	49.8%
Temenos Group AG	Switzerland	Software & Services	87.5%	34.0%	87.2%	1.9%	35.7%
OC Oerlikon Corporation AG Pfaeffikon	Switzerland	Capital Goods	77.6%	25.5%	94.4%	30.1%	75.3%
Agilent Technologies Inc	United States of America	Pharmaceuticals, Biotechnology & Life Sciences	50.1%	16.0%	48.1%	26.4%	47.0%
Ameren Corp	United States of America	Utilities	27.5%	22.2%	24.9%	34.8%	26.6%
Ametek Inc	United States of America	Capital Goods	41.1%	14.3%	99.4%	18.9%	34.7%
Amphenol Corp	United States of America	Technology Hardware & Equipment	30.6%	21.1%	57.3%	21.0%	53.2%
American Water Works Company Inc	United States of America	Utilities	24.3%	21.1%	19.1%	16.1%	26.2%
Baxter International Inc	United States of America	Health Care Equipment & Services	43.2%	16.0%	25.1%	36.4%	62.8%
Brown-Forman Corp	United States of America	Food, Beverage & Tobacco	26.0%	12.5%	16.3%	10.2%	37.2%
Caterpillar Inc	United States of America	Capital Goods	44.2%	36.6%	86.4%	22.8%	91.5%
CF Industries Holdings Inc	United States of America	Materials	34.7%	38.1%	66.5%	5.9%	2.1%
Salesforce.Com Inc	United States of America	Software & Services	40.7%	15.1%	20.5%	2.1%	32.9%
Dover Corp	United States of America	Capital Goods	34.4%	19.9%	31.1%	35.2%	79.7%
Estee Lauder Companies Inc	United States of America	Household & Personal Products	44.1%	36.4%	23.0%	9.6%	51.1%
FMC Corp	United States of America	Materials	76.0%	30.2%	21.1%	4.8%	9.7%
Alliant Energy Corp	United States of America	Utilities	21.8%	10.6%	4.0%	31.8%	32.1%
Mastercard Inc	United States of America	Software & Services	47.1%	27.6%	38.4%	7.6%	49.0%
Mohawk Industries Inc	United States of America	Consumer Durables & Apparel	32.7%	12.6%	17.1%	24.3%	35.3%
Mettler-Toledo International Inc	United States of America	Pharmaceuticals, Biotechnology & Life Sciences	62.8%	18.2%	97.0%	4.4%	38.1%
Packaging Corp of America	United States of America	Materials	35.2%	17.2%	5.7%	26.3%	73.2%
Praxair Inc	United States of America	Materials	25.1%	17.2%	40.0%	9.2%	26.3%
Red Hat Inc	United States of America	Software & Services	60.0%	46.6%	86.4%	3.1%	41.7%
Roper Technologies Inc	United States of America	Capital Goods	43.8%	25.0%	71.4%	22.6%	77.4%
Constellation Brands Inc	United States of America	Food, Beverage & Tobacco	48.1%	21.5%	80.2%	13.1%	64.1%
Stanley Black & Decker Inc	United States of America	Capital Goods	32.5%	30.6%	36.3%	38.6%	52.2%
Visa Inc	United States of America	Software & Services	40.3%	27.8%	38.8%	12.9%	49.2%
WEC Energy Group Inc	United States of America	Utilities	23.5%	11.7%	16.3%	34.2%	26.7%
Waste Management Inc	United States of America	Commercial & Professional Services	21.3%	16.5%	16.4%	17.5%	37.3%
Alfa Laval AB	Sweden	Capital Goods	60.4%	22.5%	68.0%	16.9%	3.7%

# Single Stocks - Quadrant 2 stocks

**Quadrant 2 stocks:** strong positive bubble signals with weak fundamentals  
Example: Red Hat 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 Confidence 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% up. The strong positive bubble signals and weak fundamentals indicate a high probability of correction in the future.

# Single Stocks - Quadrant 2 stocks

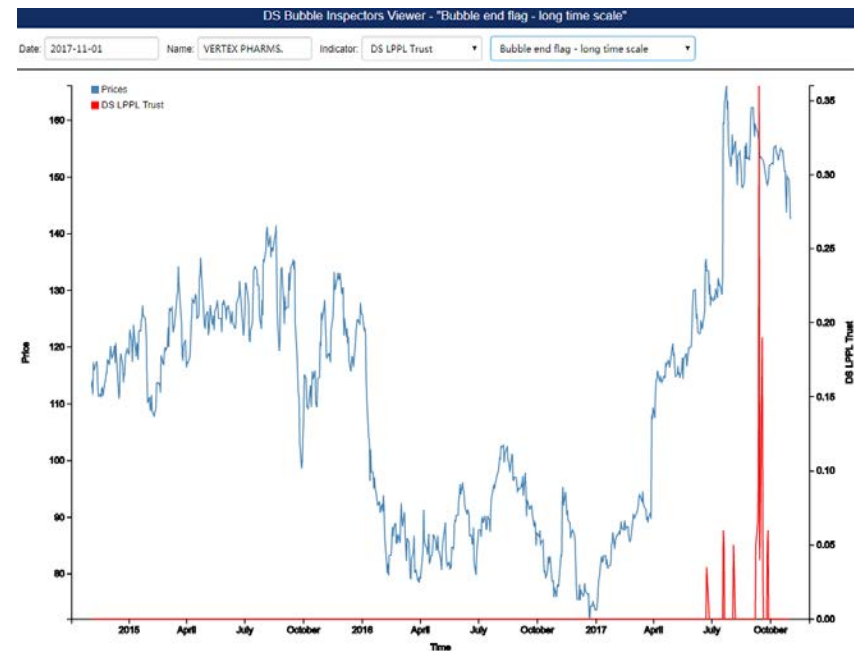
**Last month example:** strong positive bubble signals with weak fundamentals, Vertex Pharmaceuticals Inc.

Note that the stock has started a strong correction recently, in synchrony with our DS LPPL Trust indicator and weak fundamentals. The bubble score has come back to zero this month, following the recent corrections, however, the value score is still at a very low level. Therefore, one should be cautious as the correction may continue.

Last month signal (1<sup>st</sup> Oct. 2017)



This month signal (1<sup>st</sup> Nov. 2017)



# Single Stocks - Quadrant 3 stocks

**Quadrant 3 stocks:** strong negative bubble signals with weak fundamentals

Company Name	Country of Headquarters	GICS Industry Group Name	Yearly Return	Bubble Size	Bubble Score	Value Score	Growth Score
Ulta Beauty Inc	United States of America	Retailing	-16.1%	-24.9%	-44.6%	12.5%	71.2%
Industria de Diseno Textil SA	Spain	Retailing	3.9%	-8.3%	-25.9%	7.1%	56.2%
Altice NV	Netherlands	Media	-0.6%	-29.3%	-40.3%	23.3%	5.1%
Church & Dwight Co Inc	United States of America	Household & Personal Products	2.8%	-14.1%	-99.2%	21.4%	35.8%
Walt Disney Co	United States of America	Media	-0.1%	-11.8%	-29.0%	36.7%	19.0%
Under Armour Inc	United States of America	Consumer Durables & Apparel	-53.7%	-40.3%	-36.4%	32.0%	3.0%

# Single Stocks - Quadrant 3 stocks

**Last month example:** strong negative bubble signals with weak fundamentals, Pioneer Natural Resources Co.

Note that the stock has gone sideways with higher volatility over the last month. One should remain cautious as there is still downward risk and higher volatility for this stock.

Last month signal (1<sup>st</sup> Oct. 2017)



This month signal (1<sup>st</sup> Nov. 2017)





# Single Stocks - Quadrant 4 stocks

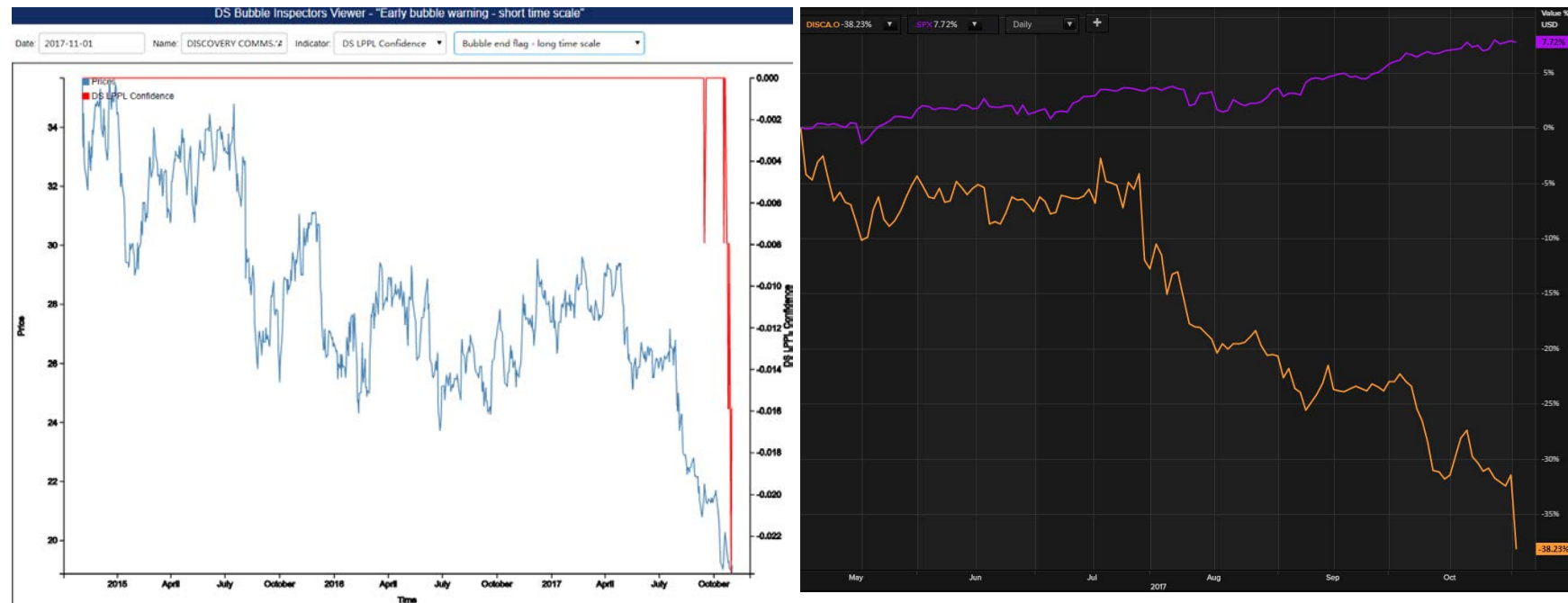
## Quadrant 4 stocks: strong negative bubble signals with strong fundamentals

Company Name	Country of Headquarters	GICS Industry Group Name	Yearly Return	Bubble Size	Bubble Score	Value Score	Growth Score
Discovery Communications Inc	United States of America	Media	-33.4%	-29.5%	-63.7%	93.5%	84.4%
Twenty-First Century Fox Inc	United States of America	Media	-6.9%	-11.8%	-20.1%	71.2%	36.5%
Kraft Heinz Co	United States of America	Food, Beverage & Tobacco	-3.4%	-17.3%	-52.4%	70.2%	36.2%
Viacom Inc	United States of America	Media	-38.2%	-41.5%	-39.4%	88.5%	61.0%
BT Group PLC	United Kingdom	Telecommunication Services	-27.2%	-19.5%	-26.6%	86.2%	15.3%
Gas Natural SDG SA	Spain	Utilities	14.1%	-13.0%	-14.2%	63.3%	20.4%
Societe BIC SA	France	Commercial & Professional Services	-23.8%	-14.5%	-15.0%	79.1%	27.7%
Gemalto NV	Netherlands	Software & Services	-27.7%	-37.1%	-89.6%	96.8%	5.3%
Tenaris SA	Luxembourg	Energy	-18.7%	-30.8%	-32.4%	63.2%	89.1%
Imperial Brands PLC	United Kingdom	Food, Beverage & Tobacco	-10.3%	-13.4%	-15.3%	71.0%	80.4%
IWG Plc	Switzerland	Commercial & Professional Services	-5.9%	-28.5%	-7.5%	69.9%	12.8%
Mediclinic International PLC	United Kingdom	Health Care Equipment & Services	-21.4%	-32.2%	-61.6%	95.3%	51.5%
SSE PLC	United Kingdom	Utilities	-3.8%	-8.2%	-25.3%	72.5%	8.4%
Coty Inc	United States of America	Household & Personal Products	-15.6%	-18.9%	-36.4%	77.9%	39.4%
Envision Healthcare Corp	United States of America	Health Care Equipment & Services	-33.0%	-36.4%	-20.3%	98.0%	0.7%
Foot Locker Inc	United States of America	Retailing	-57.9%	-58.8%	-23.6%	98.8%	1.9%
Kimberly-Clark Corp	United States of America	Household & Personal Products	-0.5%	-14.7%	-92.4%	72.4%	24.4%
Kroger Co	United States of America	Food & Staples Retailing	-40.2%	-40.2%	-19.2%	73.8%	7.1%
Philip Morris International Inc	United States of America	Food, Beverage & Tobacco	19.8%	-12.4%	-69.6%	96.0%	29.3%
J M Smucker Co	United States of America	Food, Beverage & Tobacco	-17.7%	-19.8%	-62.0%	75.1%	16.6%
Molson Coors Brewing Co	United States of America	Food, Beverage & Tobacco	-16.5%	-17.7%	-13.1%	73.1%	17.0%
Universal Health Services Inc	United States of America	Health Care Equipment & Services	-15.2%	-15.3%	-8.4%	88.2%	19.6%
JM AB	Sweden	Consumer Durables & Apparel	-8.2%	-31.1%	-34.4%	97.4%	97.4%
NCC AB	Sweden	Capital Goods	-14.7%	-24.5%	-93.9%	76.3%	84.7%
WPP PLC	United Kingdom	Media	-19.8%	-23.1%	-37.9%	86.7%	82.8%

# Single Stocks - Quadrant 4 stocks

**Quadrant 4 stocks:** strong negative bubble signals with strong fundamentals

Example: Discovery Communications 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 Confidence 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 -45%. 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.

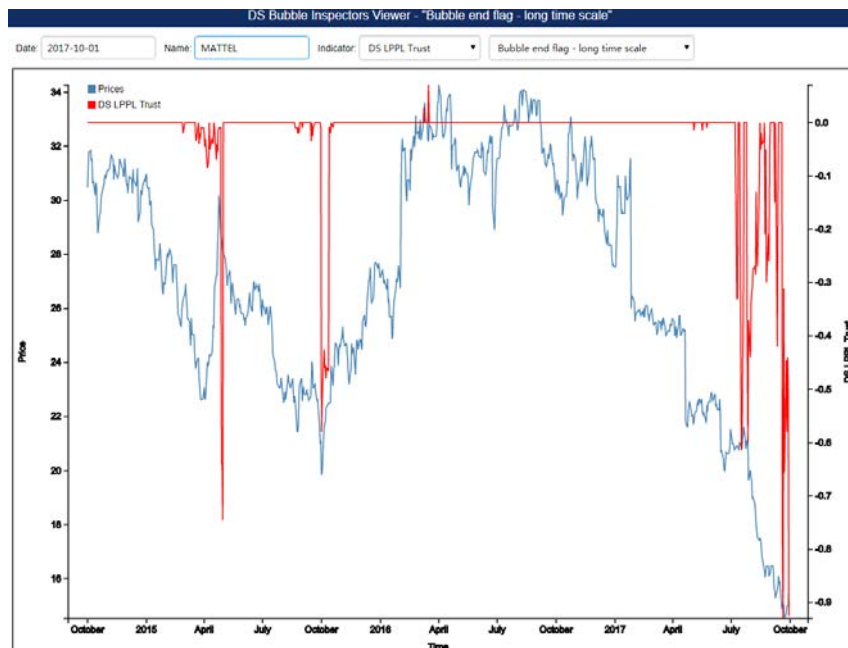


# Single Stocks - Quadrant 4 stocks

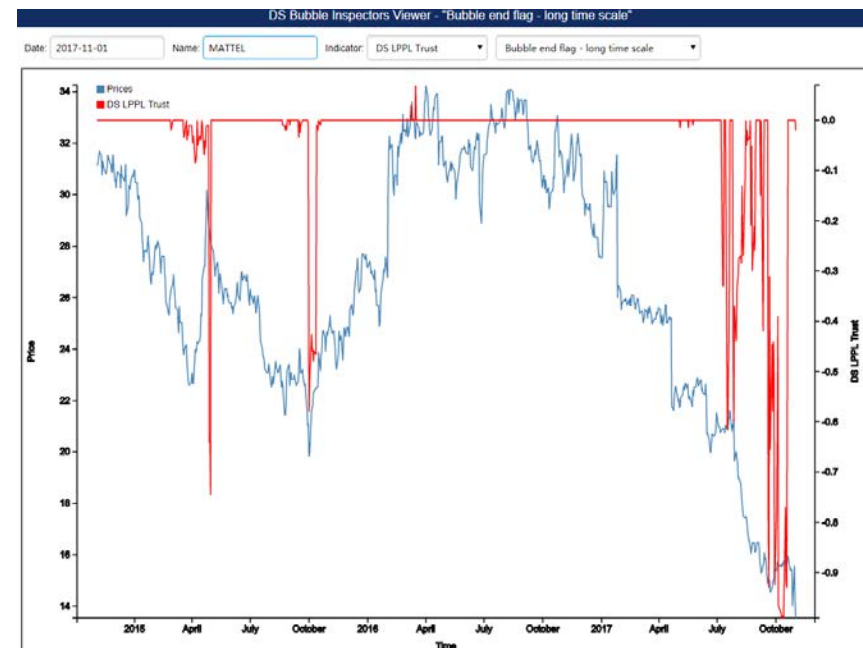
**Last month example:** strong negative bubble signals with strong fundamentals, Mattel Inc.

Note that, after a timid rebound, the stock had a further drawdown. Given our DS LPPL Trust indicator and the strong fundamentals, we expect this stock to appreciate in the future due to the strong fundamentals and following its neglect by investors in previous months.

Last month signal (1<sup>st</sup> Oct. 2017)



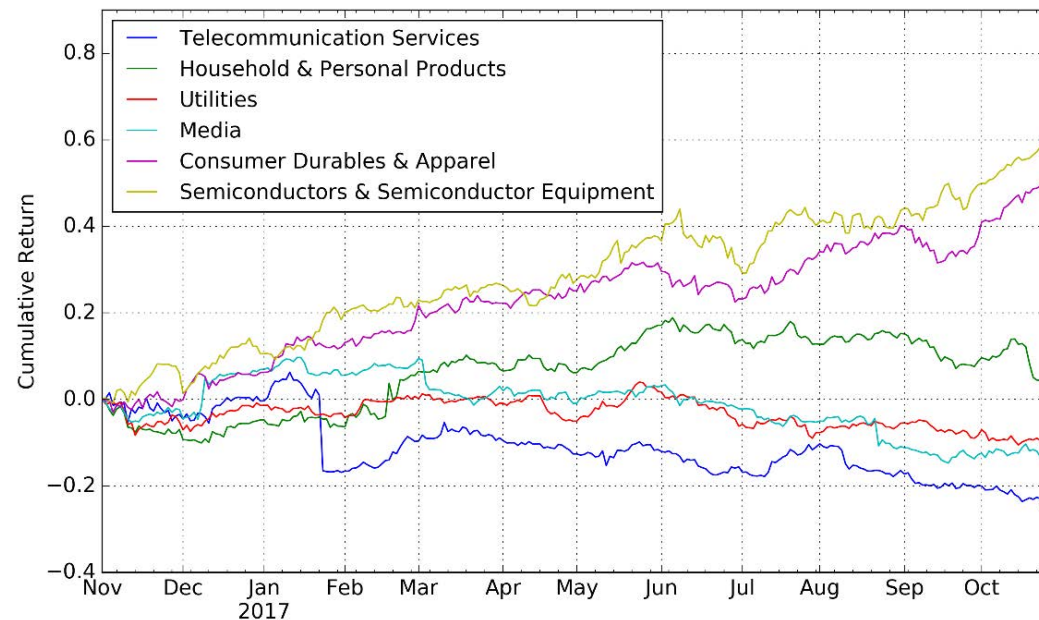
This month signal (1<sup>st</sup> Nov. 2017)



# Sectors

GICS Industry Group Name	Yearly Return		Bubble Size		Bubble Score		Value Score		Growth Score	
	Nov 1st	Oct 1st	Nov 1st	Oct 1st	Nov 1st	Oct 1st	Nov 1st	Oct 1st	Nov 1st	Oct 1st
Pharmaceuticals, Biotechnology & Life Sciences	6.1%	18.2%	0.0%	-	0.0%	4.0%	62.9%	42.2%	45.0%	51.0%
Consumer Services	23.7%	15.9%	0.0%	-	0.0%	-0.1%	26.6%	45.8%	48.1%	48.5%
Retailing	3.4%	6.5%	0.0%	-	0.0%	-2.4%	17.3%	53.0%	36.4%	43.6%
Transportation	32.2%	35.1%	0.0%	-	0.0%	5.8%	58.0%	53.8%	45.3%	39.9%
Consumer Durables & Apparel	46.5%	20.5%	16.6%	-	3.5%	2.3%	26.6%	54.7%	53.1%	50.5%
Semiconductors & Semiconductor Equipment	51.2%	53.4%	41.3%	-	30.4%	1.2%	52.1%	55.2%	76.7%	75.2%
Technology Hardware & Equipment	29.1%	21.7%	0.0%	-	0.0%	2.8%	62.7%	62.5%	39.7%	49.1%
Automobiles & Components	9.4%	32.6%	0.0%	-	0.0%	3.3%	71.0%	72.7%	70.4%	62.3%
Telecommunication Services	-22.9%	7.9%	-16.6%	-	-57.4%	1.4%	60.4%	53.3%	35.0%	38.4%
Energy	15.8%	1.2%	0.0%	-	0.0%	-4.1%	55.8%	52.0%	84.7%	69.4%
Software & Services	26.0%	26.3%	0.0%	-	0.0%	9.1%	31.5%	39.1%	37.9%	48.5%
Materials	12.8%	22.7%	0.0%	-	0.0%	3.5%	53.0%	55.5%	62.7%	53.2%
Health Care Equipment & Services	18.8%	13.8%	0.0%	-	0.0%	2.0%	52.6%	41.0%	40.9%	50.4%
Capital Goods	18.0%	23.0%	0.0%	-	0.0%	3.2%	46.1%	44.1%	49.5%	52.4%
Media	-8.2%	2.4%	-17.0%	-	-6.7%	-4.1%	48.1%	57.7%	42.0%	47.5%
Commercial & Professional Services	33.9%	11.5%	0.0%	-	0.0%	2.4%	32.2%	41.4%	47.7%	40.1%
Food & Staples Retailing	-2.8%	-1.4%	0.0%	-	0.0%	-2.7%	54.5%	62.7%	33.4%	37.6%
Household & Personal Products	16.3%	3.1%	-7.6%	-	-42.2%	3.0%	35.2%	33.3%	51.6%	47.4%
Food, Beverage & Tobacco	14.7%	1.7%	0.0%	-	0.0%	0.4%	41.3%	40.7%	43.5%	47.6%
Utilities	-1.8%	10.0%	-10.3%	-	-20.1%	4.7%	49.9%	63.6%	32.9%	37.9%

# Sectors



Due to the general upgrade of bubble and value scores mentioned before, for industries, we change the method which aggregates the calculations that were done at the single stock level. For bubble size and bubble score, we construct our own industry index which is the market cap weighted average of all the stocks in the same industry. For aggregation of value scores and growth scores, we also consider market cap weightings.

As we can see from the results showed in the previous slide, we found 4 industries with significant negative bubble scores: *Telecommunication Services*, *Household & Personal Products*, *Utilities*, *Media*. Also, we found 2 industries with significant positive bubble scores: *Consumer Durables & Apparel*, *Semiconductors & Semiconductor Equipment*.

The figure above shows the cumulative return of these 6 industries. Note that the negative bubble of *Household & Personal Products* started in June this year, which has been down 16%, with a relatively low bubble score. The most significant bubble exists in *Telecommunication Services*, with a high Value Score, calling for a contrarian position in this industry. Note that the big drop in January 2017 of Telecom industry was mainly due to a one-day 20% drop of the telecom giant BT Group, due to the accounting scandal.

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.

# Portfolio Construction & Performance

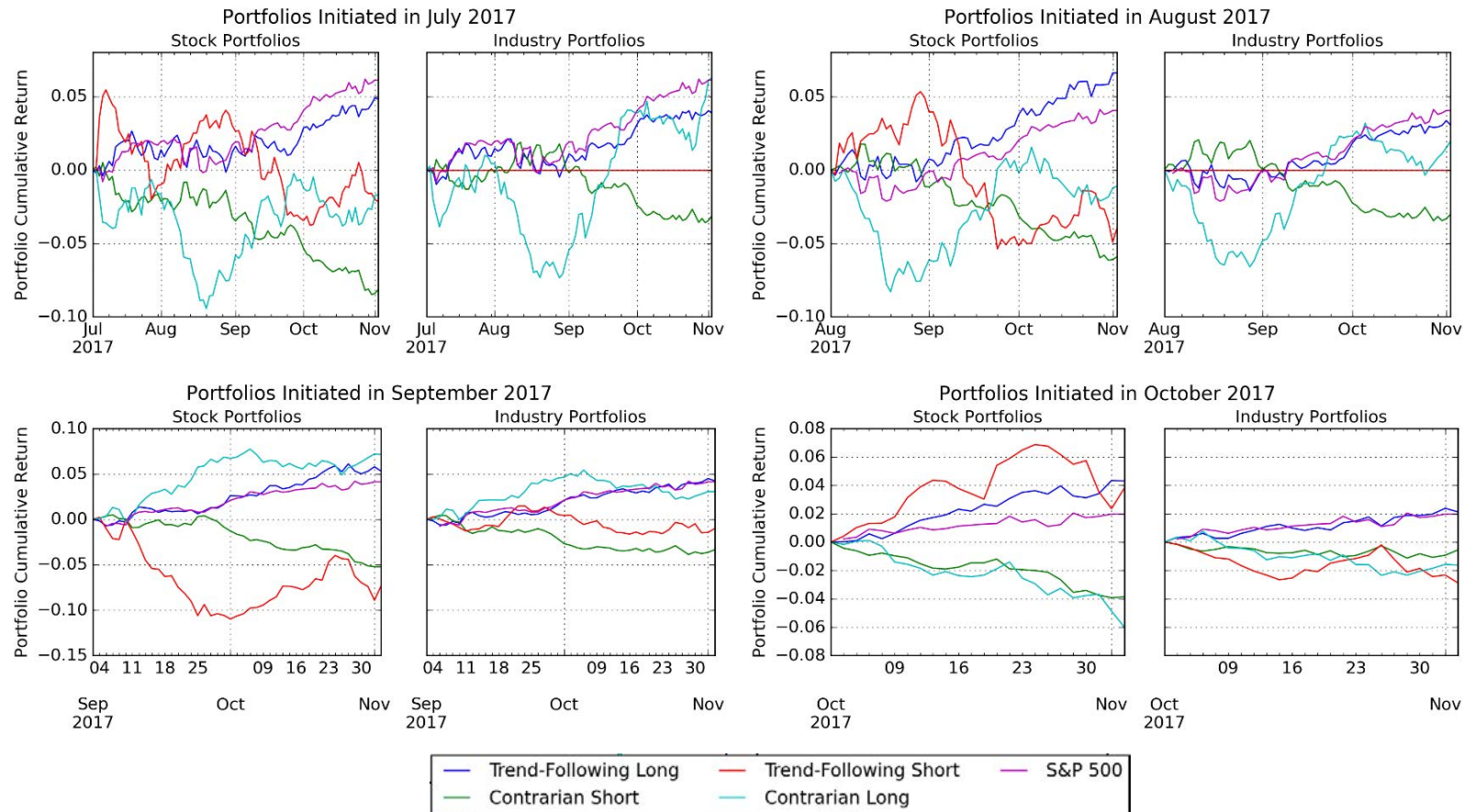
At the same time, we also classified 20 industries into 4 quadrants. We also constructed 4 type of industry portfolios based on the 4 industry quadrants. Each portfolio consists of all the stocks in the industries listed in the corresponding quadrant. Following the same definitions as above, we have 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.

**Starting next month, we will not update the portfolio performance with the old bubble signals and algorithm. A new portfolio based on new bubble signals will be presented.**



# Portfolio Construction & Performance



This month, we find that Trend-Following Long portfolios initiated in July, August, September and October 2017 have good performances. This is mainly due to the continuing appreciation of the market. 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.

Visit the Financial Crisis Observatory for more information

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