The FCO Cockpit – Global Bubble Status Report

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What is this?

This 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 433 systemic assets and 219 single stocks. The systemic assets are bond, equity and commodity indices and a selection of currency pairs. The single stocks are mainly US, European, Japanese and Chinese equities.
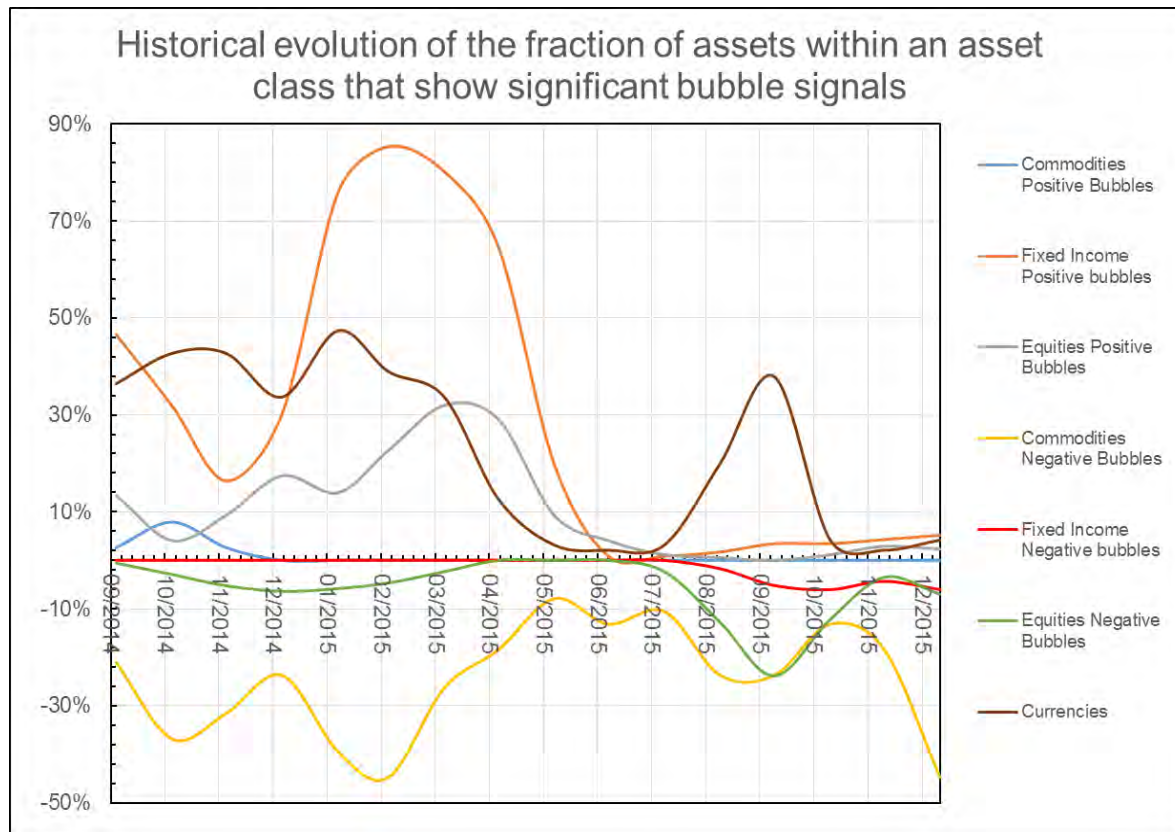
For each of the 652 time series that were analyzed, the bubble indicators called DS LPPS Trust and Confidence[+] are calculated. This allows us to observe the fraction of analyzed assets within a certain asset class that shows significantly strong bubble warning signals.

[+] *For an intuitive explanation of the methodology used and the specifics of these indicators 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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general results

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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.

Main results

There are no noteworthy positive bubble signals in any of the asset classes.

45% of the commodity indices that were analyzed show negative bubble signals. The effect is seen across all commodities: energy, soft and metals. It is the result of herding. People sell the asset class because the price goes down. This results in a positive feedback mechanisms and mispricing.

This sell off in commodities has an effect on corporate bonds. We see that 6% of all bond indices have negative bubble signals. This is mainly in mining, oil & gas, basic resources, industrial metals ...

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results per asset class

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commodities

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Commodities	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
None			
Negative Bubbles			
Natural Gas ER Index	-46%	41%	53%
Feeder Cattle ER Index	-20%	20%	48%
Heating Oil ER Index	-43%	19%	50%
Live Stock ER Index	-21%	18%	36%
Gasoil ER Index	-41%	16%	49%
Live Cattle ER Index	-16%	16%	39%
Zinc ER Index	-27%	16%	39%
Energy ER Index	-42%	13%	42%
Platinum ER Index	-29%	11%	31%
HG Copper ER Index	-26%	9%	11%
Brent Crude ER Index	-47%	9%	31%
Nickel ER Index	-43%	8%	21%
Indtr Mtls ER Index	-26%	8%	12%
Petroleum ER Index	-42%	7%	25%
Metals ER Index	-20%	7%	11%
Copper ER Index	-25%	7%	11%
Crude Oil ER Index	-45%	5%	15%

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bond indices

The sell off in commodities has an effect on corporate bonds. We see that 6% of all bond indices that were analyzed show negative bubble warning signals. This is mainly in mining, oil & gas, basic resources, industrial metals ...

Country Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx Asia China Government Index	7.4%	39.8%	62.1%
iBoxx Asia India Government Index	8.3%	35.7%	10.0%
iBoxx Asia Taiwan Government Index	7.5%	28.0%	25.6%
iBoxx Asia Thailand Government Index	5.2%	10.5%	30.5%
Negative Bubbles			
None			
Sector Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
None			
Negative Bubbles			
iBoxx USD Oil Equipment, Services & Distribution Index	-9.2%	33.3%	71.9%
iBoxx USD Mining Index	-14.6%	26.7%	65.1%
iBoxx USD Basic Resources Index	-12.0%	25.8%	58.8%
iBoxx EUR Basic Resources Index	-15.3%	24.3%	25.8%
iBoxx USD Basic Materials Index	-8.0%	21.7%	50.0%
iBoxx USD Industrial Metals Index	-11.2%	10.0%	11.9%
iBoxx USD Oil & Gas Index	-5.3%	5.5%	23.8%

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stock indices

Equities Country Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence	Country
Positive Bubbles				
SAX Index	31.5%	27.2%	7.9%	Slovakia
Negative Bubbles				
PFTS Index	-37.8%	33.6%	20.8%	Ukraine
CSE General Index	-20.9%	24.8%	50.5%	Sri Lanka
Colombia SE General Index	-26.5%	18.2%	25.7%	Colombia
Dubai Financial Market General	-16.5%	14.7%	38.4%	Dubai
Warsaw SE WIG Poland Index	-9.6%	14.2%	38.1%	Poland
Qatar Exchange General Index	-15.1%	8.1%	16.9%	Qatar
EGX 30 Index	-21.5%	5.9%	10.6%	Egypt
Muscat SE General Index	-14.9%	5.0%	16.0%	Oman
Equities Sector Indices	**Yearly Return**	**DS LPPL Trust**	**DS LPPL Confidence**	
Positive Bubbles				
S&P 500 Internet&Catalog Retail	83.4%	24.0%	31.7%	
S&P 500 Internet Software&Serv	33.3%	14.2%	21.8%	
Negative Bubbles				
S&P 500 Indp Pwr Prdcr&EngTrdrs	-43.1%	41.3%	45.0%	
S&P 500 Multiline Retail	-13.0%	9.6%	2.2%	
STOXX Europe 600 Basic Resources	-34.9%	6.9%	15.9%	

There are some interesting specific bubble cases but globally, from a systemic risk point of view, equity indices do not show a significant bubble risk.

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single stocks

Single Stocks	Yearly Return	DS LPPL Trust	DS LPPL Confidence	Sector	Country
Positive Bubbles					
Amazon.com Inc	118%	26%	48%	Other Department Stores	US
Nike Inc	30%	26%	20%	Sports & Outdoor Footwear	US
Facebook Inc	34%	14%	22%	Social Media & Networking	US
Home Depot Inc	26%	12%	33%	Other Home Improvement Products & Services Retailers	US
Starbucks Corp	46%	10%	12%	Other Restaurants & Bars	US
Negative Bubbles					
Electricite de France SA	-41%	25%	52%	Conventional Electricity	EU
BHP Billiton PLC	-41%	22%	58%	General Mining	EU
Toshiba Corp	-51%	17%	25%	Industrial Conglomerates	JP
Qualcomm Inc	-33%	13%	43%	Other Communications & Networking	US

There are some interesting specific bubble cases that we will discuss in more detail later in this report. But, globally, from a systemic risk point of view, stocks do not show a significant bubble risk.

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currencies

FX	Yearly Return	DS LPPL Trust	DS LPPL Confidence
US Dollar/Argentine Peso	51%	14%	54%
US Dollar/South African Rand	34%	14%	50%
US Dollar/Norwegian Krone	19%	7%	14%

There are no noteworthy bubble signals in currencies.

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case studies

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Henry Hub Natural Gas– strong negative bubble signal

This is a standard output from the Financial Crisis Observatory.

It shows the historical price evolution of Henry Hub natural gas in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale).

The red line is what we call a bubble end flag; it gives positive values for positive bubbles and vice versa.

We see a clear spiky negative bubble warning signal. This suggests a strong over reaction in the market; herding, when people are selling because the price drops, leading to a feedback mechanism and mispricing.

Source: Financial Crisis Observatory, Chair of Entrepreneurial Risk ETH Zurich

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SAX Index – Slovakia – strong positive bubble signal

Source: Financial Crisis Observatory, Chair of Entrepreneurial Risk ETH Zurich

Source: Thomson Reuters Eikon

Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the SAX Index in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). The red line is what we call a bubble end flag. We can see a clearly spiking warning.
The right graph shows the 43% outperformance of the SAX Index over the last two years (orange) with respect to the Eurostoxx benchmark (purple).

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WIG Index – Poland– strong negative bubble signal

Source: Financial Crisis Observatory, Chair of Entrepreneurial Risk ETH Zurich

Source: Thomson Reuters Eikon

Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the WIG Index in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). The red line is what we call a bubble end flag. We can see a clearly spiking warning.
The right graph shows the 17% underperformance of the WIG Index over the last two years (orange) with respect to the Eurostoxx benchmark (purple).

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Starbucks – strong positive bubble signal

Source: Financial Crisis Observatory, Chair of Entrepreneurial Risk ETH Zurich

Source: Thomson Reuters Eikon

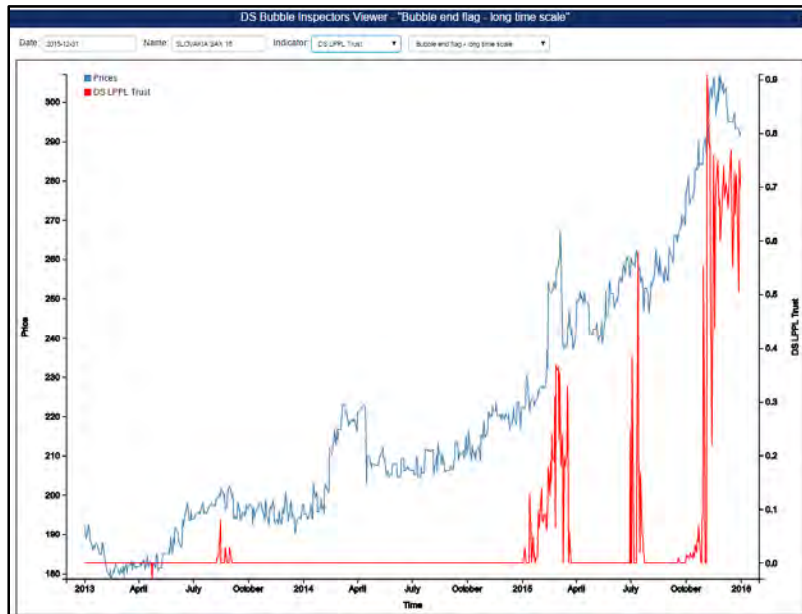Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the Starbucks stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). The red line is what we call a bubble end flag. We can see a clearly spiking warning.

The right graph shows the 44% outperformance of the stock over the last two years (orange) with respect to the S&P500 benchmark (purple). Starbucks has shown solid earnings growth of 34% in the last year but is currently trading at a historical price earnings ratio around 48. This analysis suggests an overshooting in the price and a correction may be expected.

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Electricité de France – strong negative bubble signal

Source: Financial Crisis Observatory, Chair of Entrepreneurial Risk ETH Zurich

Source: Thomson Reuters Eikon

Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the EDF stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). The red line is what we call a bubble end flag. We can see a clearly spiking warning suggesting a positive correction. The right graph shows the 58% underperformance of the EDF stock over the last two years (orange) with respect to the Eurostoxx benchmark (purple).

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thank you