

The FCO Cockpit – Global Bubble Status Report

Peter Cauwels & Didier Sornette
Chair of Entrepreneurial Risk

March 1st, 2016

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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 811 single stocks. The systemic assets are bond, equity and commodity indices and a selection of currency pairs. The single stocks are mainly US and European, equities.

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

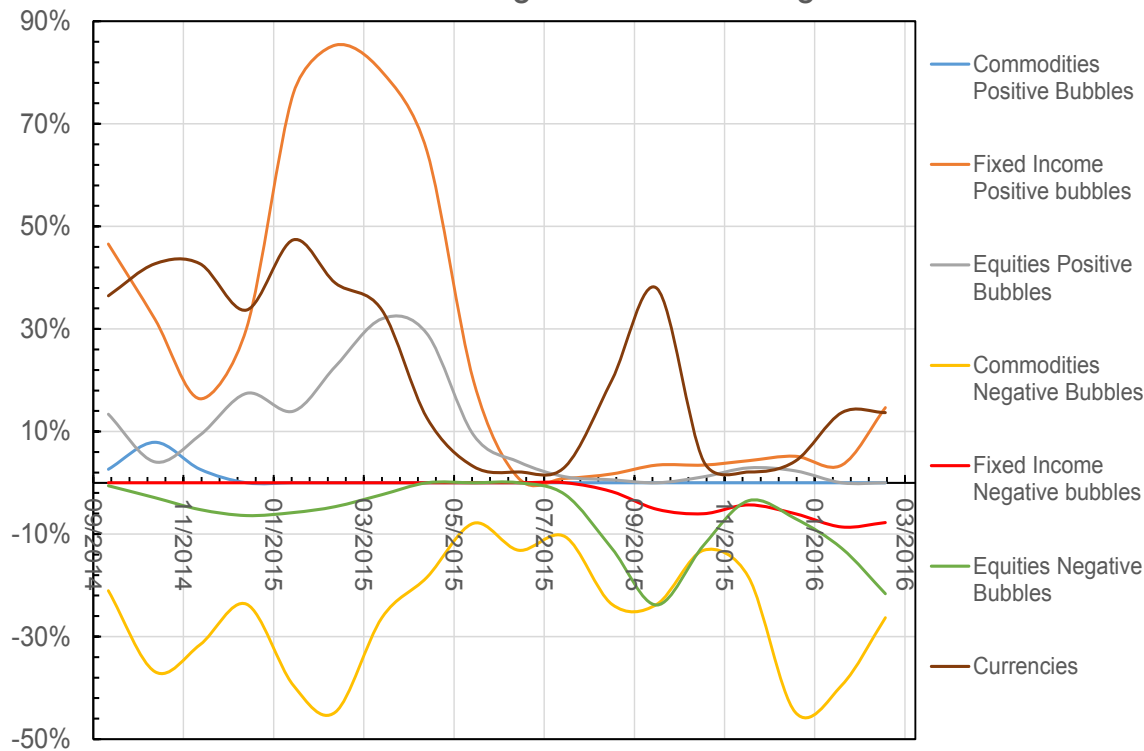
⁺ For an intuitive explanation of the methodology and the specifics of the indicators that are used in this report, we refer to: D. Sornette and P. Cauwels, *Financial bubbles: mechanisms and diagnostics*. *Review of Behavioral Economics* 2 (3), 279-305 (2015) (<http://arxiv.org/abs/1404.2140> and <http://ssrn.com/abstract=2423790>)

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general result

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



The big picture

Last month, around 40% of the commodities indices showed negative bubble signals. Now we see that commodities are touching bottom. About 25% still show negative bubble signals mainly in energy related products.

An interesting divergence can be seen in corporate bond indices. On the one hand, mining, materials, oil & gas and metals continue to show negative bubble signals. On the other hand, we can see positive bubble signals appearing in non-cyclical corporate bonds like in health care, pharma, personal & household goods, consumers.

The spillover from commodities into equities has had a strong effect on equities in commodities exporting countries. The result is an increase in negative bubble signals for equity indices of exporters.

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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Some interesting highlights from this report

- Bonds:
 - We continue to see strong positive bubble signals in Asian government bonds like Taiwan and China;
- Currencies:
 - There is a strengthening of the bubble signal on the GBP/USD exchange rate. There is strong negative sentiment on the British Pound, undoubtedly this is related to the Brexit talks;
- Equities:
 - Besides the clear negative bubble signals that can be seen in commodities exporting countries, we see a clustering of negative bubble signals in southern and eastern European countries;
 - What we see now is a strongly increased negative sentiment in banks, financials and capital markets institutes.

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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commodities

26% of the commodity indices that were analyzed show negative bubble signals. Last month, this was still 39%.

This decrease in negative bubble signals suggests that commodities are touching bottom. The strong negative momentum, caused by a strong negative sentiment, is turning.

Commodities	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
<i>None</i>			
Negative Bubbles			
Gasoil ER Index	-49%	44%	14%
Heating Oil ER Index	-52%	41%	12%
Energy ER Index	-50%	41%	26%
Brent Crude ER Index	-53%	34%	21%
Petroleum ER Index	-50%	30%	33%
Robsta Coffee ER Index	-34%	20%	42%
Gasoline ER Index	-36%	15%	29%
Copper ER Index	-20%	14%	8%

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government bonds

















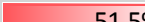
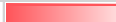










Country Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx Asia China	5.5%	57.8%	57.0%
iBoxx Asia Taiwan	9.3%	56.5%	80.3%
iBoxx Sovereign Japan	5.2%	33.3%	67.6%
iBoxx Asia Thailand	7.0%	32.6%	64.8%
iBoxx Asia Malaysia	4.0%	12.2%	30.5%
iBoxx Asia Korea	6.3%	11.1%	33.6%
Negative Bubbles			
None			

We continue to see strong positive bubble signals in Asian government bonds. The price trajectory of the iBoxx Asia Taiwan bond index is a classic example of a positive bubble



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corporate bonds

Sector Indices	Yearly Return	DS LPPL Trust	DS LPPL Confidence
Positive Bubbles			
iBoxx USD Real Estate Index	2.4%	 13.2%	 33.5%
iBoxx USD Pharmaceuticals & Biotechnology Index	1.3%	 9.2%	 33.5%
iBoxx USD Health Care Index	0.9%	 7.6%	 32.7%
iBoxx USD Electronic & Electrical Equipment Index	3.1%	 7.6%	 29.7%
iBoxx USD Support Services Index	2.7%	 7.3%	 30.8%
iBoxx USD Personal & Household Goods Index	2.3%	 5.7%	 23.8%
iBoxx USD Consumer Goods Index	1.1%	 5.7%	 24.6%
Negative Bubbles			
iBoxx USD Basic Materials Index	-9.0%	 51.9%	 38.1%
iBoxx USD Basic Resources Index	-13.1%	 51.5%	 40.0%
iBoxx USD Oil Equipment, Services & Distribution Index	-13.6%	 51.5%	 78.6%
iBoxx USD Mining Index	-15.0%	 33.2%	 29.2%
iBoxx USD Oil & Gas Index	-10.1%	 23.2%	 41.2%
iBoxx USD Industrial Metals Index	-13.0%	 18.8%	 17.8%
iBoxx USD Oil & Gas Producers Index	-8.9%	 14.3%	 35.1%

















An interesting divergence can be seen in corporate bond indices. On the one hand, mining, materials, oil & gas and metals continue to show negative bubble signals. On the other hand, we can see some preliminary positive bubble signals appearing in non-cyclical corporate bonds like in health care, pharma, personal & household goods, consumers ...

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currencies

The sell off in commodities has had a spill-over effect in currencies of commodities exporting countries. This has been particularly the case for the South African Rand.

Additionally, we see a strengthening of the bubble signal on the GBP/USD exchange rate. There is strong negative sentiment on the British Pound, undoubtedly this is related to the Brexit talks.

FX	Yearly Return	DS LPPL Trust	DS LPPL Confidence
US Dollar/South African Rand	39%	 27%	 6%
Euro/South African Rand	26%	 23%	 8%
Swiss Franc/South African Rand	25%	 20%	 6%
US Dollar/Argentine Peso	77%	 20%	 8%
US Dollar/Chinese Renminbi	4%	 13%	 7%
US Dollar/UK Pound Sterling	10%	 12%	 8%
US Dollar/Mexican Peso	22%	 11%	 23%
US Dollar/Indian Rupee	11%	 5%	 29%

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currencies



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Stocks country indices

The sell off in commodities has had a spill-over effect in the stock indices of commodities exporting countries like United Arab Emirates, Canada, Brazil ...

Besides the group of commodities exporting countries, we see a clustering of negative bubble signals in southern and eastern European countries.































<i>Negative Bubbles</i>					
Warsaw SE WIG Poland Index	-14.1%		25.4%		16.5% Poland
Kuwait Main Index	-21.0%		15.4%		35.3% Kuwait
Qatar Exchange General Index	-20.2%		14.8%		18.3% Qatar
Muscat SE General Index	-17.9%		12.7%		14.2% Oman
Sao Paulo SE Bovespa Index	-19.4%		12.4%		23.0% Brazil
Dubai Financial Market General Index	-17.8%		12.0%		9.1% Dubai
SET Index	-15.4%		11.6%		6.8% Thailand
PX Prague SE Index	-15.4%		10.2%		31.0% Czech Republic
TSX-Toronto Stock Exchange 300	-16.0%		9.5%		17.1% Canada
IBEX 35 Index	-25.3%		9.3%		27.8% Spain
Athex General Composite Share Price	-42.4%		8.7%		35.6% Greece
EGX 30 Index	-34.0%		8.0%		20.6% Egypt
FTSE Italia All-Share Index	-19.6%		6.2%		24.2% Italy
Hang Seng China Enterprises Index	-34.1%		5.7%		21.0% China
OMX Stockholm 30 Index	-18.9%		5.1%		19.8% Sweden

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Stocks sector indices

In the wake of the commodities sell off we see the negative effect on related stocks. This has been the case since a few months.

What we see now is a strongly increased negative sentiment in banks, financials and capital markets institutes.

Equities Sector Indices	Yearly Return	DS LPPL Trust		DS LPPL Confidence	
Positive Bubbles					
<i>None</i>					
Negative Bubbles					
STOXX Europe 600 Basic Resources EUR	-43.6%		21.7%		19.2%
S&P 500 Containers & Packaging	-20.4%		19.2%		31.8%
STOXX Europe 600 Banks EUR Price	-28.9%		17.3%		37.2%
S&P 500 Consumer Finance	-25.1%		16.0%		38.6%
S&P 500 Road & Rail	-31.7%		14.4%		22.7%
S&P 500 Health Care Prvdrs&Serv	-4.0%		8.1%		21.3%
STOXX Europe 600 Basic Materials EUR	-28.5%		7.7%		20.3%
S&P 500 Energy Equipment & Serv	-21.8%		7.5%		16.9%
STOXX Europe 600 Financials EUR Price	-23.0%		7.5%		29.4%
S&P 500 Paper& Forest Products	-34.8%		6.4%		11.8%
S&P 500 Household Durables	-15.7%		6.0%		31.0%
STOXX Europe 600 Optimised Cyclicals	-20.6%		5.7%		21.9%
S&P 500 Computers & Peripherals	-25.3%		5.6%		28.7%
S&P 500 Capital Markets	-21.7%		5.3%		24.9%
S&P 500 -Real Estate Mgmt&Devp	-23.5%		5.3%		11.3%

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single stocks

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What is this?

For 811 stocks we calculate the bubble warning indicators as well as two newly-developed financial strength indicators.

The stocks are the constituents of the Stoxx Europe 600, the S&P 500 and the Nasdaq 100 indices. From these, all doubles and stocks with incomplete data are removed. Because our financial strength indicators are specifically designed for corporates, all financial institutions are taken out of the set as well.

The two financial strength indicators are:

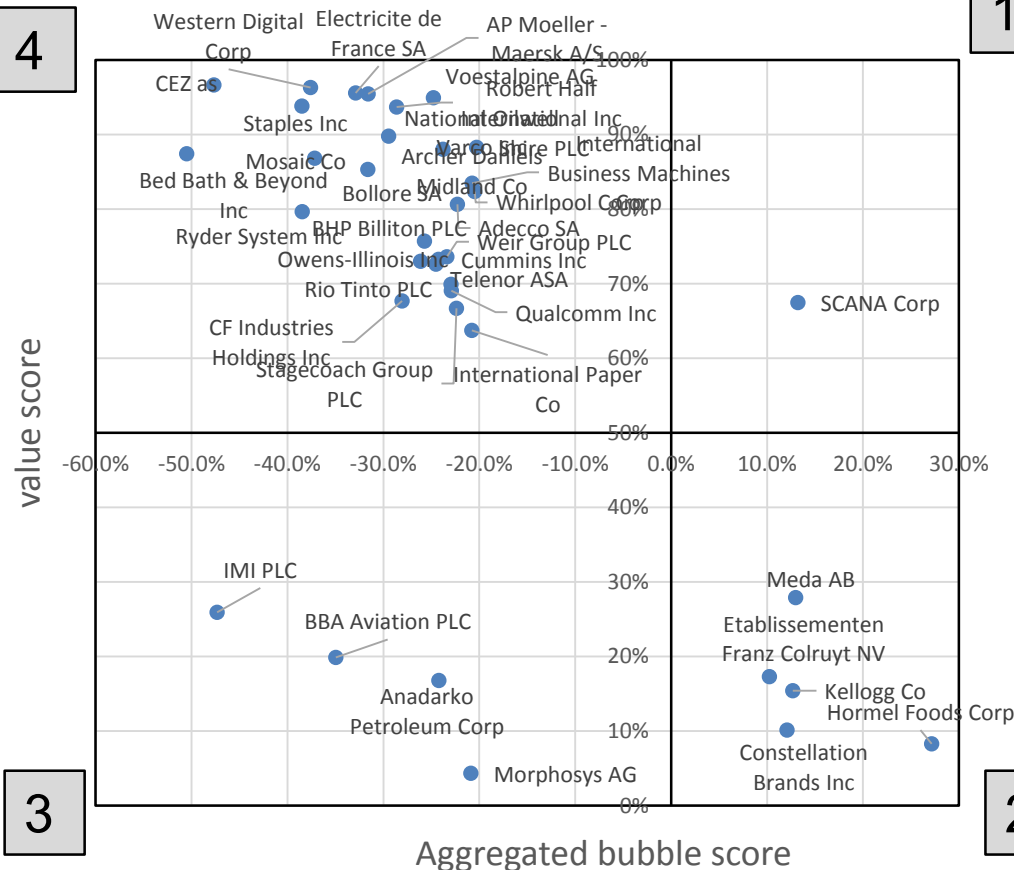
- A value score that is based on the ROIC (Return on Invested Capital) taking into account the EV (Enterprise Value) to normalize for high/low market valuations and/or high/low debt;
- A growth score that has characteristics similar to the PEG ratio, which is the Price to Earnings ratio normalized for expected EPS-growth (Earnings per Share).

Both scores give a value between zero and one, one being the best of the set and zero the worst, so the higher the score, the higher the financial strength.

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The four quadrants: value versus bubble score

4



1

By plotting the value score against the aggregated bubble score, we can divide the stocks into four quadrants:

1. [Quadrant 1](#): Stocks with a strong positive bubble score and a strong value score (e.g. Scana Corp);
2. [Quadrant 2](#): Stocks with a strong positive bubble score and a weak value score (e.g. Hormel Foods Corp);
3. [Quadrant 3](#): Stocks with a strong negative bubble score and a weak value score (e.g. Anadarko Petroleum Corp);
4. [Quadrant 4](#): Stocks with strong negative bubble score and a strong financial strength (e.g. Bed Bath & Beyond).

3

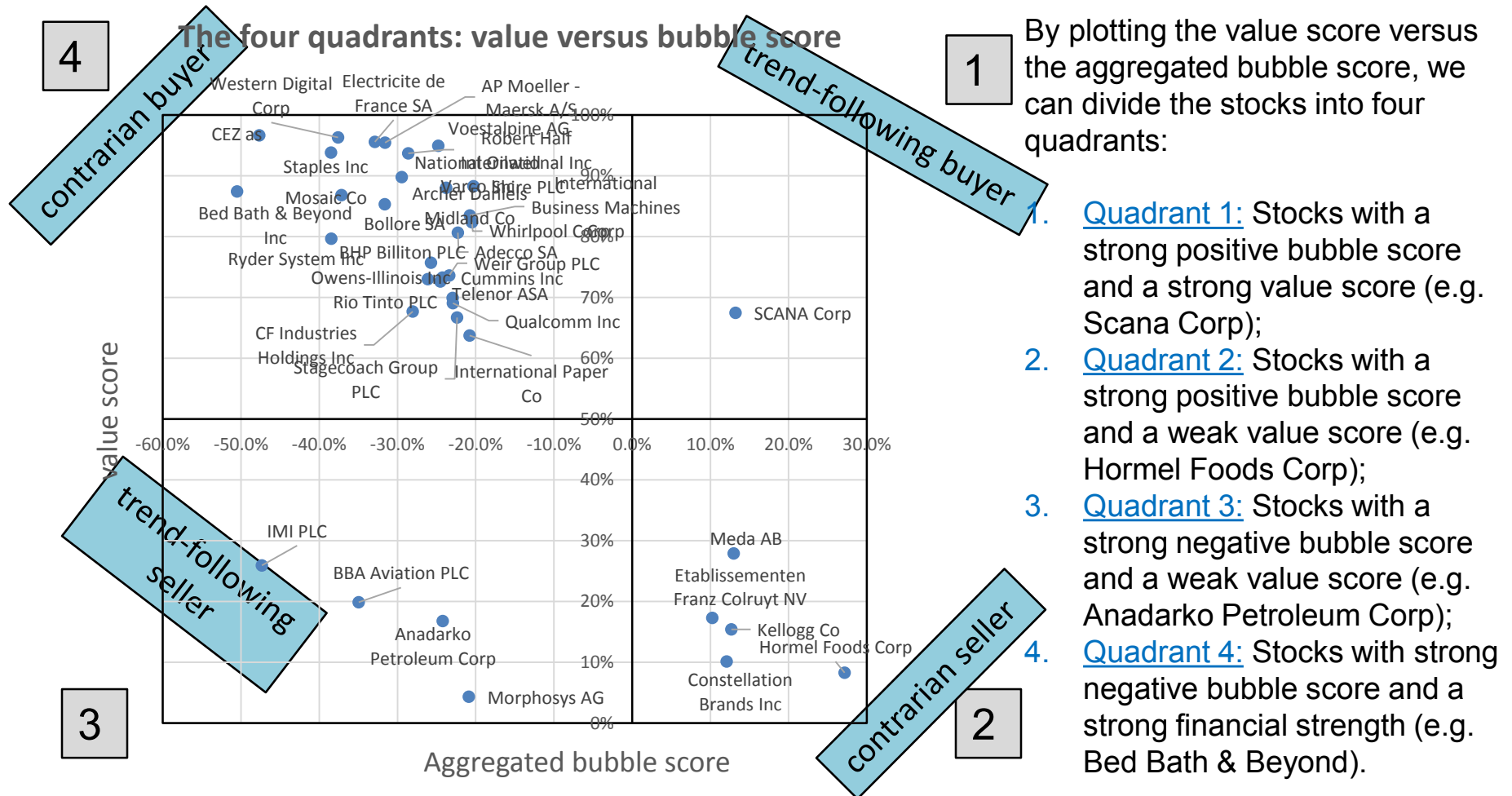
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Each quadrant has its own specs:

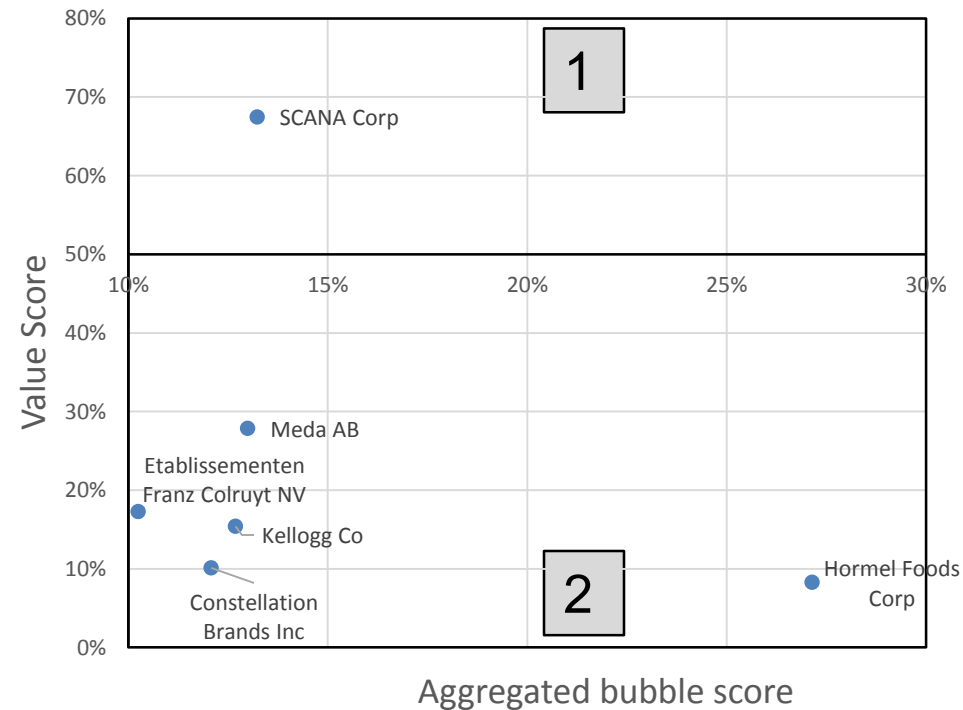
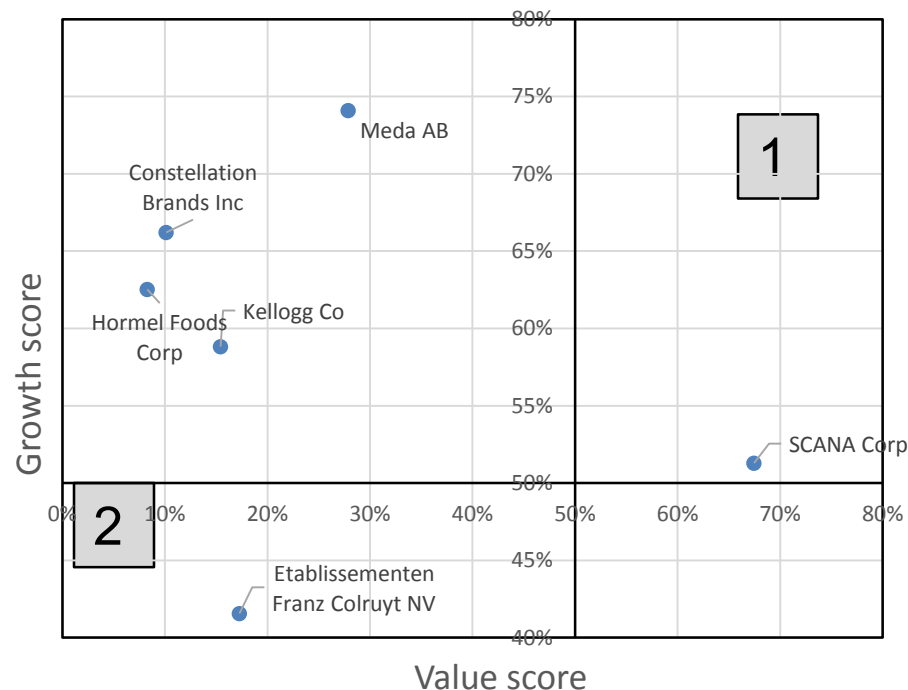
1. Quadrant 1: Stocks with a strong value score are cheap relative to their earnings potential. The strong positive bubble signal should be interpreted as a momentum indicator possibly the consequence of a repricing based on the fundamentals. **As an investor, one could be a trend-following buyer.**
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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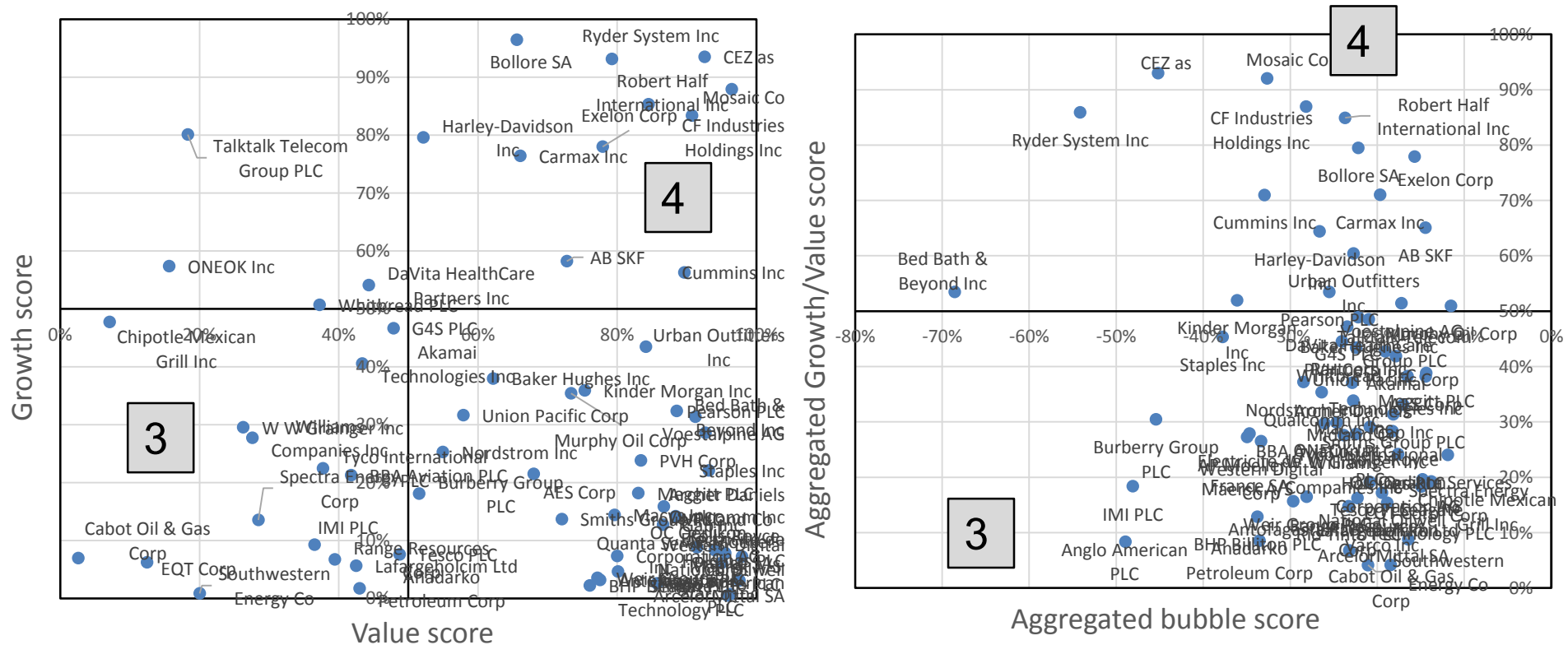
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Quadrant 1 and 2 stocks: positive bubble signals with strong respectively weak fundamentals



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



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Quadrant 1 stocks: strong positive bubble signals with strong fundamentals

Quadrant 1	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
SCANA Corp	United States of America	Utilities	Utilities	13.7%	13.2%	67%	51%

Quadrant 2 stocks: strong positive bubble signals with weak fundamentals

Quadrant 2	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Hormel Foods Corp	United States of America	Consumer Staples	Food, Beverage & Tobacco	47.0%	27.1%	8%	63%
Meda AB	Sweden	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	13.0%	13.0%	28%	74%
Kellogg Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	13.6%	12.7%	15%	59%
Constellation Brands Inc	United States of America	Consumer Staples	Food, Beverage & Tobacco	22.7%	12.1%	10%	66%
Etablissements Franz Colruyt NV	Belgium	Consumer Staples	Food & Staples Retailing	18.5%	10.2%	17%	42%

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



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 two years (orange) with respect to the S&P500 benchmark (purple).

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Quadrant 2 stocks: strong positive bubble signals with weak fundamentals, example Colruyt.



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 two years (orange) with respect to the Eurostoxx benchmark (purple).

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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals

Quadrant 3	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
IMI PLC	United Kingdom	Industrials	Capital Goods	-38.8%	-47.3%	26%	17%
BBA Aviation PLC	United Kingdom	Industrials	Transportation	-24.5%	-35.0%	20%	20%
Anadarko Petroleum Corp	United States of America	Energy	Energy	-55.4%	-24.2%	17%	8%
Morphosys AG	Germany	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	-50.2%	-20.9%	4%	91%

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Quadrant 3 stocks: strong negative bubble signals with weak fundamentals, example Anadarko Petroleum Corp.



Left graph is a standard output from the Financial Crisis Observatory. It shows the historical price evolution of the stock in blue (left hand scale) and the calculated bubble warning index DS LPPL Trust in red (right hand scale). We can see a clearly spiking warning. The right graph shows the performance of the stock over the last two years (orange) with respect to the S&P500 benchmark (purple).

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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals

Quadrant 4	Country of Headquarters	GICS Sector Name	GICS Industry Group Name	Yearly Return	Bubble Score	Value Score	Growth Score
Bed Bath & Beyond Inc	United States of America	Consumer Discretionary	Retailing	-33.6%	-50.5%	87%	30%
CEZ as	Czech Republic	Utilities	Utilities	-40.4%	-47.7%	97%	95%
Staples Inc	United States of America	Consumer Discretionary	Retailing	-42.1%	-38.5%	94%	20%
Ryder System Inc	United States of America	Industrials	Transportation	-38.9%	-38.4%	80%	24%
Western Digital Corp	United States of America	Information Technology	Technology Hardware & Equipment	-59.1%	-37.6%	96%	4%
Mosaic Co	United States of America	Materials	Materials	-49.6%	-37.2%	87%	4%
Electricite de France SA	France	Utilities	Utilities	-61.2%	-32.9%	96%	98%
Bolloré SA	France	Industrials	Transportation	-30.0%	-31.6%	85%	97%
AP Moeller - Maersk A/S	Denmark	Industrials	Transportation	-42.5%	-31.6%	95%	98%
National Oilwell Varco Inc	United States of America	Energy	Energy	-45.9%	-29.4%	90%	2%
Robert Half International Inc	United States of America	Industrials	Commercial & Professional Services	-36.1%	-28.6%	94%	67%
CF Industries Holdings Inc	United States of America	Materials	Materials	-43.0%	-28.1%	68%	6%
Owens-Illinois Inc	United States of America	Materials	Materials	-42.2%	-26.1%	73%	87%
BHP Billiton PLC	United Kingdom	Materials	Materials	-52.4%	-25.7%	76%	1%
Voestalpine AG	Austria	Materials	Materials	-25.8%	-24.8%	95%	24%
Telenor ASA	Norway	Telecommunication Services	Telecommunication Services	-16.9%	-24.5%	73%	99%
Cummins Inc	United States of America	Industrials	Capital Goods	-31.3%	-24.3%	73%	16%
Archer Daniels Midland Co	United States of America	Consumer Staples	Food, Beverage & Tobacco	-26.8%	-23.8%	88%	28%
Weir Group PLC	United Kingdom	Industrials	Capital Goods	-46.2%	-23.4%	74%	11%
Rio Tinto PLC	United Kingdom	Materials	Materials	-41.7%	-23.0%	70%	4%
Qualcomm Inc	United States of America	Information Technology	Technology Hardware & Equipment	-28.3%	-22.9%	69%	13%
Stagecoach Group PLC	United Kingdom	Industrials	Transportation	-19.9%	-22.4%	67%	22%
Adecco SA	Switzerland	Industrials	Commercial & Professional Services	-22.1%	-22.3%	81%	91%
International Paper Co	United States of America	Materials	Materials	-37.9%	-20.8%	64%	17%
International Business Machines Corp	United States of America	Information Technology	Software & Services	-17.9%	-20.7%	83%	14%
Whirlpool Corp	United States of America	Consumer Discretionary	Consumer Durables & Apparel	-27.4%	-20.5%	82%	89%
Shire PLC	Ireland; Republic of	Health Care	Pharmaceuticals, Biotechnology & Life Sciences	-26.7%	-20.3%	88%	86%

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Quadrant 4 stocks: strong negative bubble signals with strong fundamentals, example Bed Bath & Beyond.



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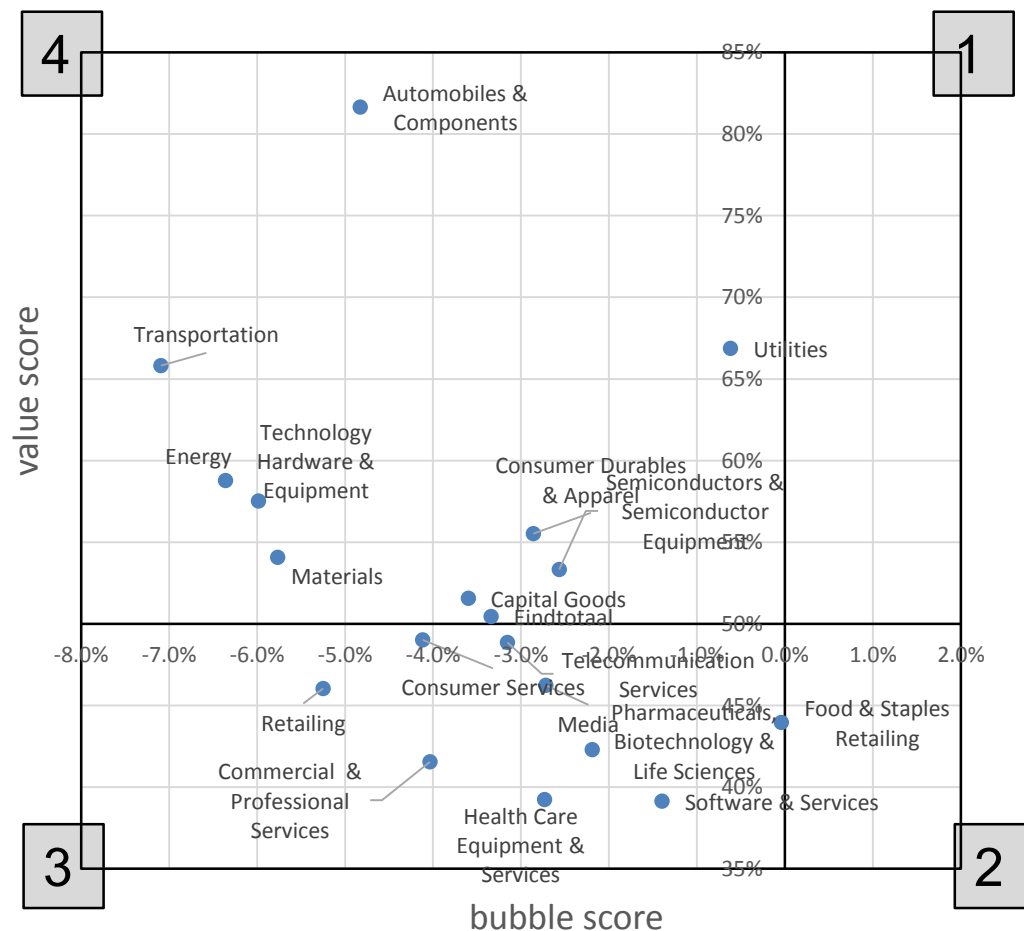
sectors

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	Average Yearly Return	Average Bubble Score	Average Value Score	Average Growth Score
Transportation	-7.5%	-7.1%	65.8%	55.1%
Energy	-32.6%	-6.4%	58.8%	25.0%
Technology Hardware & Equipment	-15.3%	-6.0%	57.5%	43.7%
Materials	-14.3%	-5.8%	54.1%	45.9%
Retailing	-4.6%	-5.2%	46.0%	52.3%
Automobiles & Components	-20.7%	-4.8%	81.6%	63.1%
Consumer Services	-3.0%	-4.1%	49.0%	64.3%
Commercial & Professional Services	-4.9%	-4.0%	41.6%	52.4%
Capital Goods	-7.4%	-3.6%	51.6%	48.7%
Eindtotaal	-7.4%	-3.3%	50.4%	50.4%
Telecommunication Services	-7.7%	-3.2%	48.9%	50.3%
Consumer Durables & Apparel	-2.0%	-2.9%	55.5%	62.9%
Health Care Equipment & Services	-1.6%	-2.7%	39.2%	66.0%
Media	-7.8%	-2.7%	46.2%	58.3%
Semiconductors & Semiconductor Equipment	-10.6%	-2.6%	53.3%	46.1%
Pharmaceuticals, Biotechnology & Life Sciences	-3.6%	-2.2%	42.3%	55.4%
Software & Services	3.7%	-1.4%	39.1%	58.4%
Utilities	-4.5%	-0.6%	66.9%	42.0%
Food & Staples Retailing	-5.6%	0.0%	44.0%	44.6%
Household & Personal Products	7.7%	1.1%	19.2%	43.8%
Food, Beverage & Tobacco	7.9%	2.0%	33.7%	50.5%

By aggregating the calculations that were done on a single stock level in the previous section, we can see the bubble, value and growth score on a sector level. Clearly, there is value in Automobiles & Components and in Transportation (mainly the airline sector)

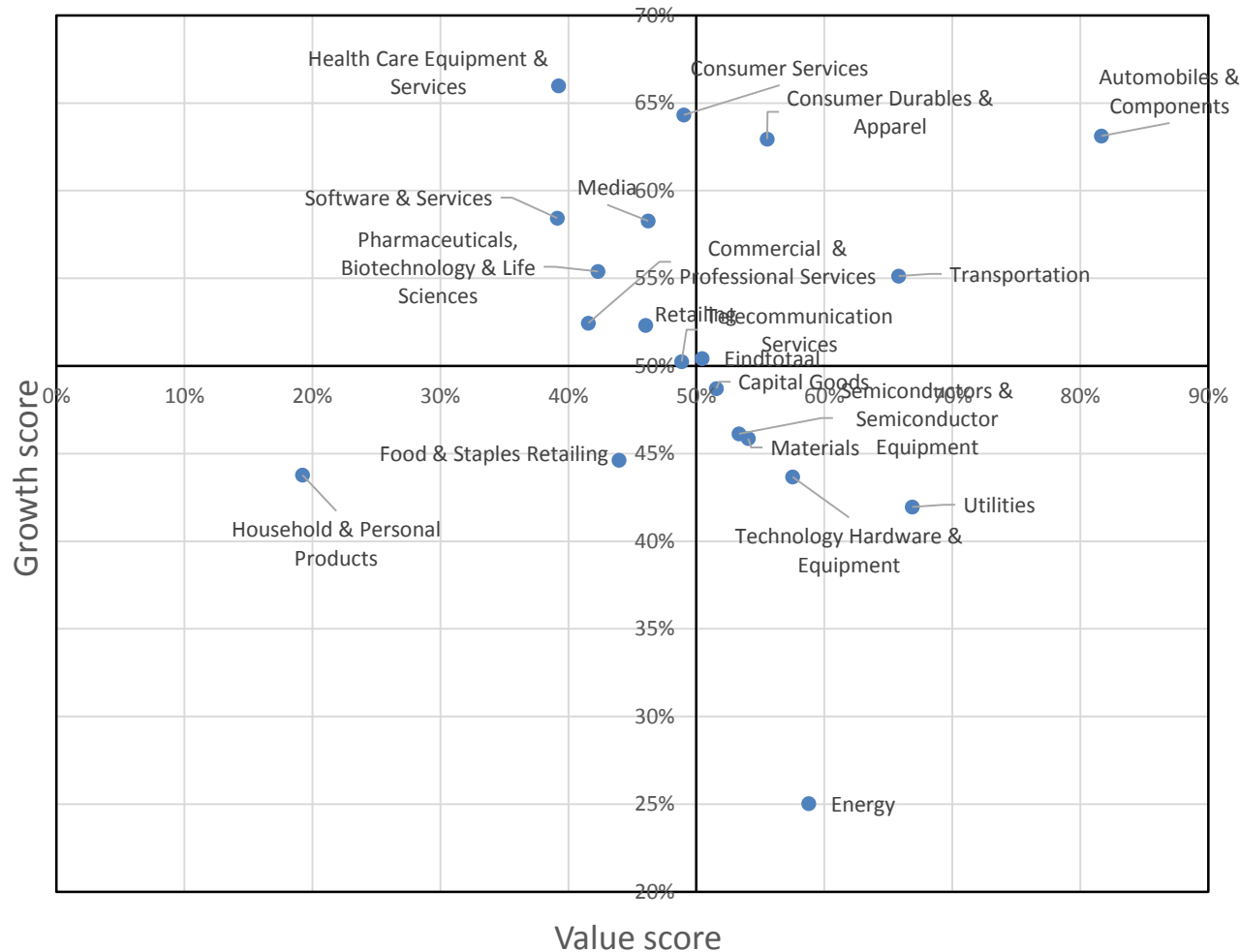
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By plotting the value score versus the aggregated bubble score, we can also divide the sectors into four quadrants:

1. [Quadrant 1](#): Sectors with an average positive bubble score and a strong value score;
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thank you