

SECTOR

Biotechnology

Analysis and Synthesis - World



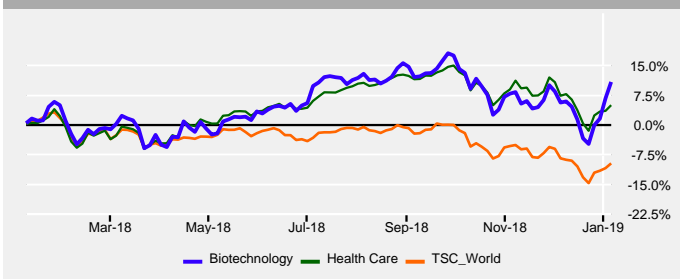
January 8, **2019**



Biotechnology (WO)

Closing price of January 8, 2019

Comparison [January 9, 2018 - January 8, 2019]



The sector Biotechnology represents approximately 15% of the market capitalization of the group Health Care and approximately 1% of the World market with 130 companies being regularly followed by the Screener.

The sector Biotechnology is currently trading 6% below its 52 week high and 18% above its 52 week low (bi-weekly closing).

Performance since January 9, 2018: 10.4% vs. 4.7% for the group Health Care and -10.0% for the TSC_World.

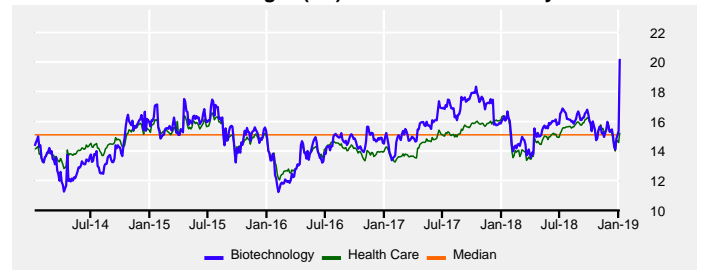
The current % of stocks over their Medium Term technical trend (MTT) is 53.1%.

	Market Value	Perf YtD	Nb of Stocks	Mkt Cap in \$bn	Stars	Sensitivity	G/PE Ratio	LT P/E	LT Growth	4wk Perf	% of Stocks in Uptrend
Biotechnology (WO)	800.69	9.2%	130	818.39	★★★★★	📈	0.86	20.1	16.3%	5.7%	53.1%
Health Care (WO)	220.99	1.6%	471	6,034.88	★★★★★	📈	0.99	15.2	13.1%	-1.6%	31.6%
TSC_World (WO)	271.85	2.1%	5,879	64,631.40	★★★★★	📈	1.21	11.8	11.2%	-1.0%	32.2%

Price evaluation rating

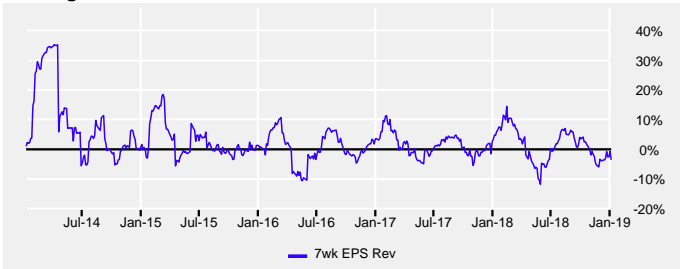
In order to assess whether an index is correctly valued, we focus on Peter Lynch's broadly accepted methodology of comparing the projected earnings growth and dividend with the estimated PE ratio. Based on this approach, we feel this sector is currently fairly valued. A "Forecasted Growth + Estimated Dividend Yield/ Estimated Price Earnings" ratio below 0.9 indicates that investors must pay a premium for the estimated growth potential: 4.9% premium.

"Price to Estimated Earnings" (PE) - Evolution over five years



The estimated PE is calculated on the basis of the underlying stocks. While the PE of the sector Biotechnology is 20.1, the PE of the group to which it belongs (Health Care is markedly lower (15.2); this indicates that the sector is trading higher than its group. Historically speaking, this sector is currently trading significantly higher than its median of 15.0.

Earnings revision trend

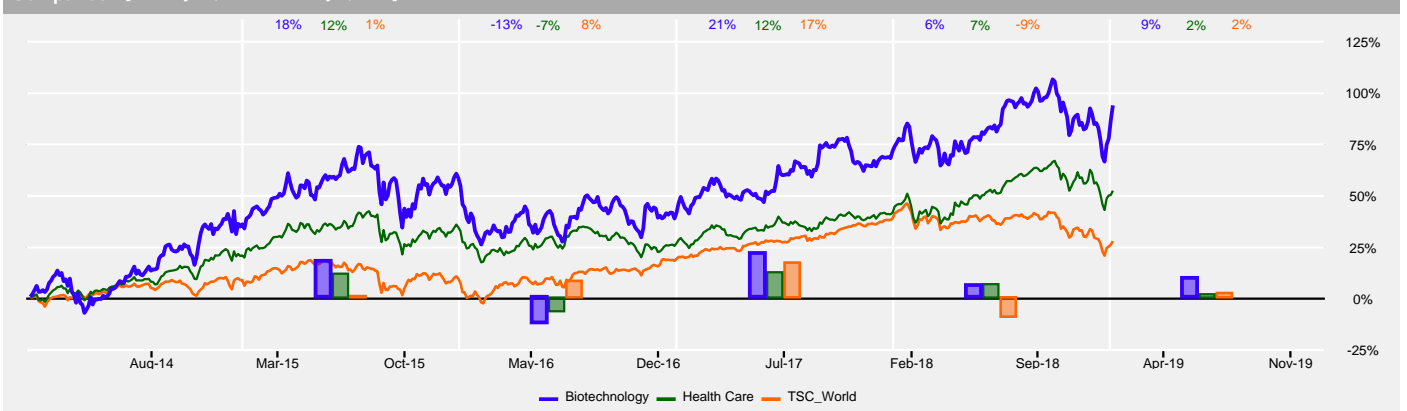


Compared to seven weeks ago, the analysts have lowered (-3.8%) their earnings estimates. This negative pressure began November 6, 2018 at a price of 779.2.

Technical trend

The 40-day Medium Term Technical Trend has been positive since January 4, 2019. The confirmed Technical Reverse point (Tech Reverse - 1.75%) is currently 8% lower. This positive technical trend is confirmed by the fact that 53.1% percent of stocks are trading above their average. This would indicate that a significant number of stocks in this sector are part of the current market rise.

Comparison [January 10, 2014 - January 8, 2019]



Performance over 5 years

On a 5 year moving average, the performance of the sector Biotechnology is 93.1%, vs. 52.0% for the group Health Care and 27.3% for the TSC_World. During this period, the high of 853.3 was reached on September 2018 and the low of 381.9 in the month of April 2014.

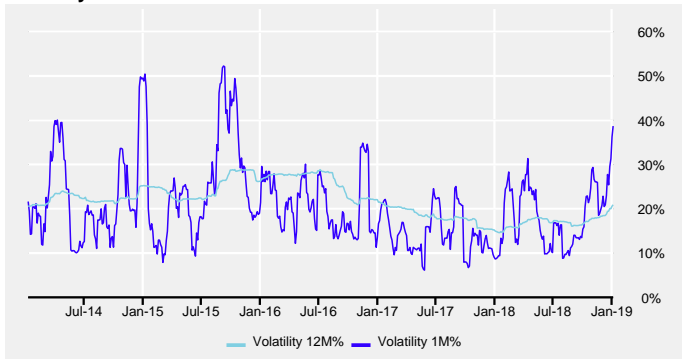


Biotechnology (WO)

Closing price of January 8, 2019

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Volatility



The volatility is also used as a sensitivity factor. It measures the magnitude of the upward and downward movements of a stock or index. The higher the volatility, the more sensitive a sector is considered to be.

As of the last update, the monthly volatility of (38.5%) is higher than the last few years' average of (20.1%). The high magnitude of short term price fluctuations indicates the market is very nervous.

On the other hand, long term volatility 20.7% of the sector is clearly higher than that of the group Health Care (15.3%), reflecting much higher price variations at the sector level than at the level of the group to which it belongs.

Sensitivity factor in declining markets

The "Bear Market Factor" measures the behavior of a sector in declining markets. In this context, the sector Biotechnology has a tendency to drop in the same proportion as the index TSC_World.

The sector shows average sensitive reactions to market corrections.

Sensitivity factor in rising markets

The "Bad News Factor" measures a sector's corrections in a rising market phase.

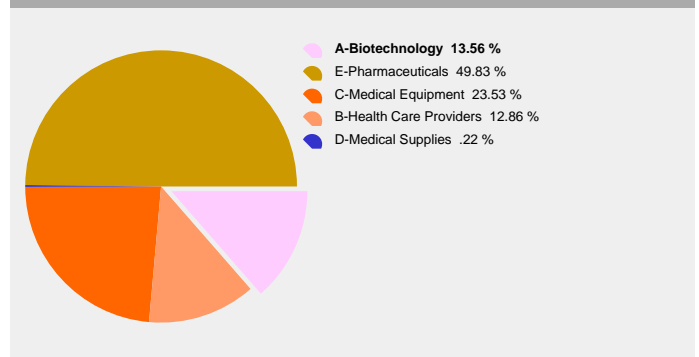
In this configuration, the market slightly sanctions the sector Biotechnology when there is specific pressure in this particular economic activity.

When the sector declines in a rising market its average deviation is -1.05%.

Sensitivity analysis summary

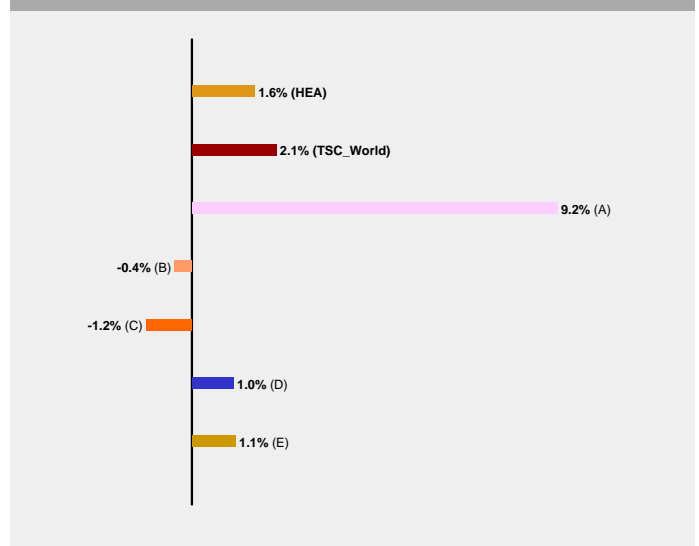
Generally speaking, the Biotechnology sector shows an average sensitive behaviour with an average Bear Market and a low Bad News factor.

Allocation by sector, of the group Health Care



The largest sector in terms of market capitalization Pharmaceuticals represents 49.8% of the group Health Care. These sectors follow, in size order, Medical Equipment with 23.5% Biotechnology with 13.6%.

2019 sector evolution



From the beginning of the year, the sector Biotechnology recorded a variation of 9.2%, while the group Health Care evolved by 1.6%. This industry group is made up of 5 sectors, in which the extreme variations were from -1.2% to 9.2%.

Checklist (Biotechnology)

Stars	★★★★★	Strong interest since January 4, 2019.
Earnings Rev Trend	★	Analysts negative since November 6, 2018
Valuation Rating	★	Fairly priced
MT Tech Trend	★	Market positive since January 4, 2019
4wk Rel Perf	5.7% ★	vs. TSC_World
Sensitivity		The industry has been on the moderate-sensitivity level since December 25, 2018.
Bear Mkt Factor		Average sensitivity to market corrections
Bad News Factor		Slight market sanction in case of specific pressure

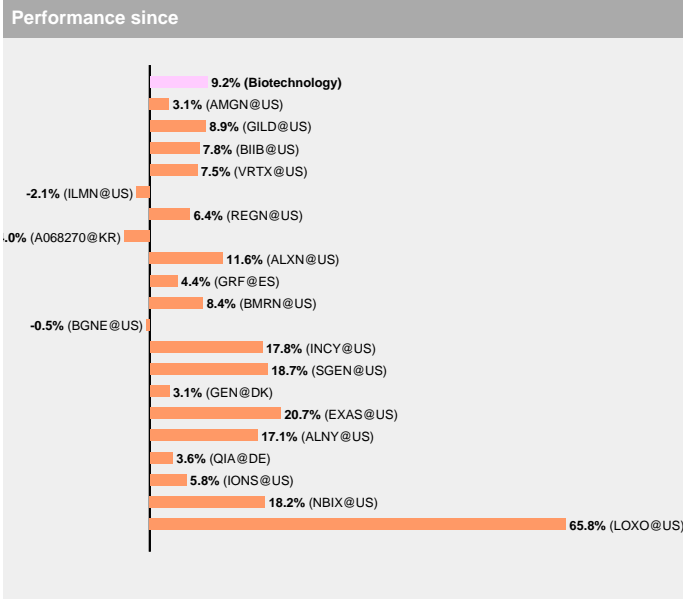


Biotechnology (WO)

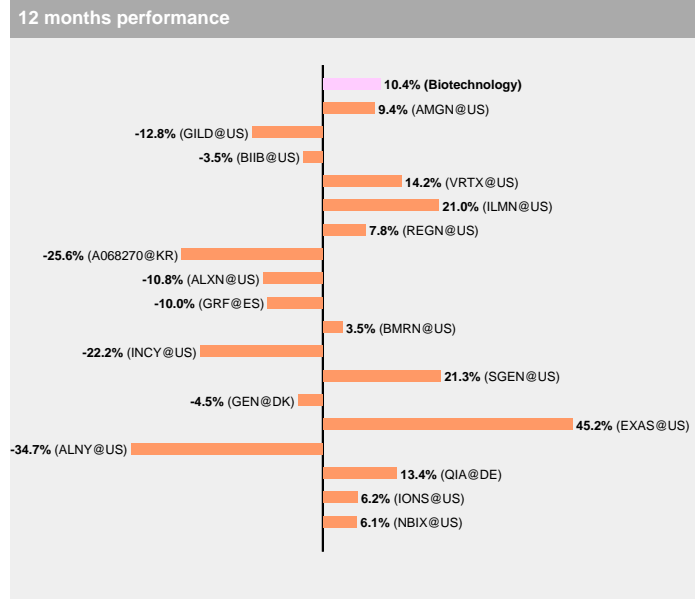
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The performance of the 20 largest stocks of the sector is presented below.

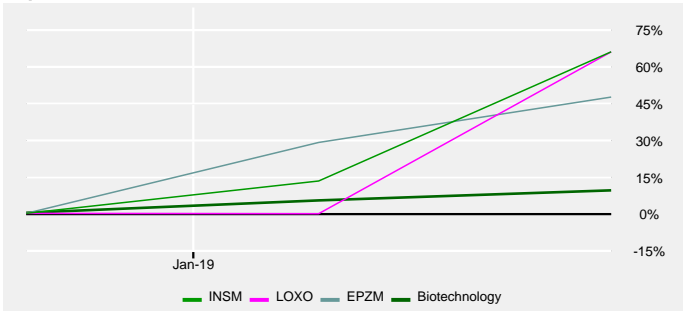


The analysis and details of the above stock can be found on page 6



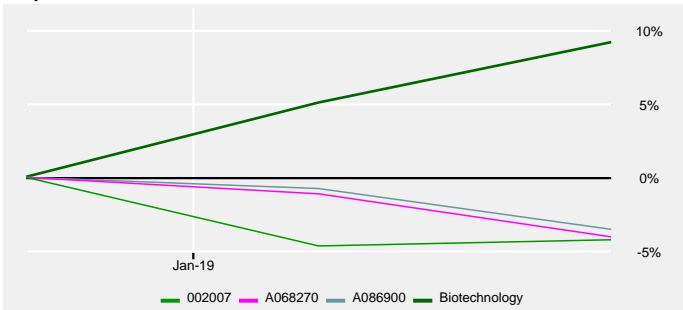
The analysis and details of the above stock can be found on page 6

Top Stocks 2019



From the beginning of the year, the performance of the sector was 9.2%; as for the three best stocks, (INSMED INCO. (INSM), LOXO ONCOLOGY (LOXO) and EPIZYME (EPZM)), their performance was 65.9%, 65.8% and 47.4% respectively.

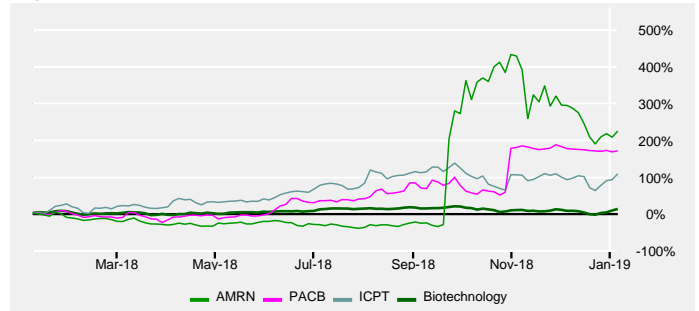
Flop Stocks 2019



HUALAN BIOLOGICAL ENGR. (002007), CELLTRION INCORPORATED (A068270) and MEDY TOX INCO. (A086900) with -4.2%, -4.0% and -3.5% recorded the three worst performances from the beginning of the year. For the sector Biotechnology, the variation was 9.2%.

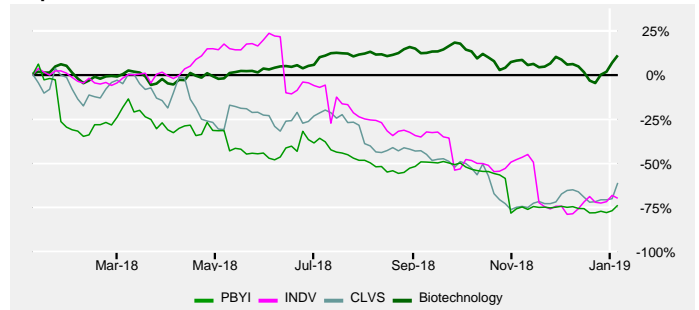
Only companies with a market capitalization exceeding \$500 million are mentioned.

Top Stocks 12 months



Since 12 months ago, the performance of the sector has been 10.4%; the three best stocks, (AMARIN CORP.PL. (AMRN), PACIFIC BSCS.OF CAL.INCO (PACB) and INTERCEPT PHARMS.INCO. (ICPT)) recorded a performances of 223.5%, 170.0% and 107.5% respectively.

Flop Stocks 12 months



The three worst performances in 12 months were recorded by PUMA BIOTECHNOLOGY INCO. (PBYI), INDIVIOR PLC. (INDV) and CLOVIS ONCOLOGY INCO. (CLVS) with -74.1%, -70.2% and -61.5%. As for the sector Biotechnology, it recorded a variation of 10.4%.

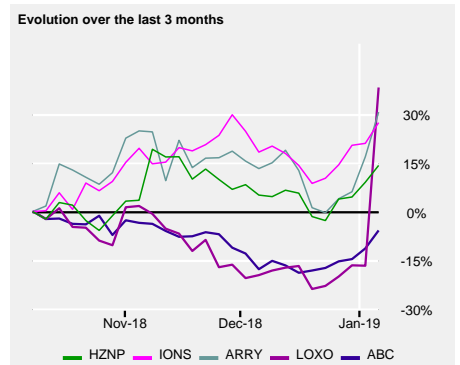


Biotechnology (WO)

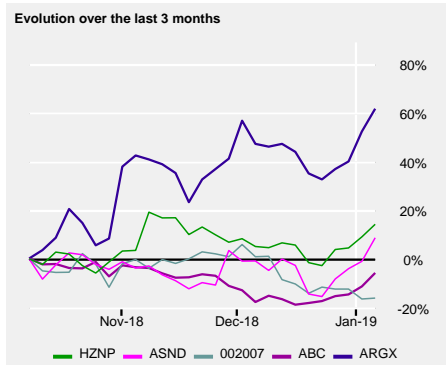
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Stocks with the best valuations

Symbol Market	Name Sector	Price Ccy	Mkt Cap in \$bn	7wk EPS Rev	Stars	Sensitivity	Global Evaluation
HZNP US	HORIZON PHARMA PLC. Biotechnology	21.36 USD	3.58	9.5%	★★★★★	Low	High
IONS US	IONIS PHARMS.INCO. Biotechnology	57.20 USD	7.87	70.9%	★★★★★	Low	High
ARRY US	ARRAY BIOPHARMA INCO. Biotechnology	17.55 USD	3.74	46.5%	★★★★★	Low	High
LOXO US	LOXO ONCOLOGY Biotechnology	232.29 USD	7.11	14.4%	★★★★★	Low	High
ABC GB	ABCAM PLC. Biotechnology	1,203.00 GBp	3.15	12.2%	★★★★★	Low	High



The global rating (Global Evaluation) is a multi-criteria approach that identifies the stocks with the best valuations. This assessment is the compilation of fundamental (PE, growth, earnings revisions, dividend, etc.), technical (moving average, relative performance), and sensitivity (behaviour in declining markets and sensitivity to bad news) factors. In order to present the best selection, only companies with a market capitalization greater than \$1bn and showing good earnings growth valuations, are listed. Furthermore, the eligible stocks must have a minimum rating of two stars, a neutral to positive valuation, and a low to moderate sensitivity. When the global rankings are identical, the analysts' 7 week earnings per share revision (7 wk EPS rev) acts as the deciding classification element.



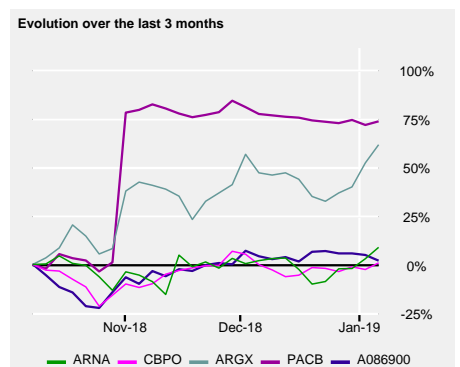
The best defensive stocks

Symbol Market	Name Sector	Price Ccy	Mkt Cap in \$bn	Bear Mkt Factor	Stars	Sensitivity	Global Evaluation
HZNP US	HORIZON PHARMA PLC. Biotechnology	21.36 USD	3.58	-90	★★★★★	Low	High
ASND US	ASCENDIS PHARMA Biotechnology	70.94 USD	2.98	-75	★★★★★	Low	High
002007 CN	HUALAN BIOLOGICAL ENGR. Biotechnology	31.41 CNY	4.26	-67	★★★★★	Low	High
ABC GB	ABCAM PLC. Biotechnology	1,203.00 GBp	3.15	-59	★★★★★	Low	High
ARGX BE	ARGENX SE Biotechnology	98.40 EUR	4.04	-98	★★★★★	Low	High

The sensitivity assessment is essentially based on two criteria: the stock's "behaviour in declining markets" (Bear Market Factor), and the stock's "sensitivity to bad news" (Bad News Factor). By positioning a stock according to the world averages, three sensitivity levels can be attributed (low, moderate, high). Combining these elements makes it possible to create a final ranking of stocks in the market. To present the most useful selection, only companies with a market capitalization greater than \$1bn and showing good earnings growth valuations are listed. Furthermore, the eligible stocks must have a minimum rating of two stars, a neutral to positive valuation, and a low to moderate sensitivity. In case of a tie, the stock's "behaviour in declining markets" will act as the deciding classification element.

The stocks with the lowest correlations

Symbol Market	Name Sector	Price Ccy	Mkt Cap in \$bn	Correlation	Stars	Sensitivity	Global Evaluation
ARNA US	ARENA PHARMS.INCO. Biotechnology	43.27 USD	2.14	0.18	★★★★★	Low	High
CBPO US	CHIN.BIOLOGIC PRDS.HDG. Biotechnology	77.47 USD	3.05	0.23	★★★★★	Low	High
ARGX BE	ARGENX SE Biotechnology	98.40 EUR	4.04	0.23	★★★★★	Low	High
PACB US	PACIFIC BSCS.OF CAL.INCO Biotechnology	7.37 USD	1.10	0.26	★★★★★	Low	High
A086900 KR	MEDY TOX INCO. Biotechnology	557,400.00 KRW	2.88	0.30	★★★★★	Low	High

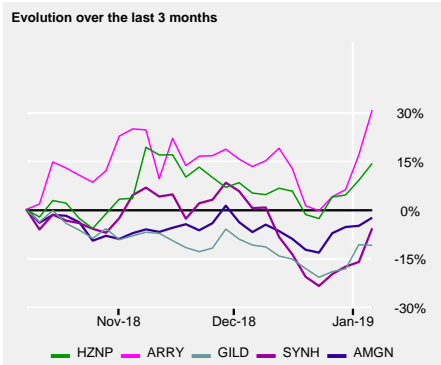


The correlation coefficient permits to identify the stocks whose dependence on the market is the weakest. If this value is very low, less than 0.5, it means that less than 50% of the movements of the stock are explained by market movements. On the contrary, a number close to 1 indicates that the value is very close to the evolutions of the market. In order to present the best selection, only companies with a market capitalization higher than \$1bn and showing good earnings growth valuations are listed. Furthermore, the eligible stocks must have a minimum rating of two stars, a neutral to positive valuation, a low to moderate sensitivity, and a correlation of maximum 0.66. In the case of a tie in the ranking, the stock's correlation in ascending order acts as the deciding classification element.



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The stocks with the lowest PE

Symbol Market	Name Sector	Price Ccy	Mkt Cap in \$bn	LT P/E	Stars	Sensitivity	Global Evaluation
HZNP US	HORIZON PHARMA PLC. Biotechnology	21.36 USD	3.58	9.1	★★★★	📈	📊
ARRY US	ARRAY BIOPHARMA INCO. Biotechnology	17.55 USD	3.74	9.2	★★★★	📈	📊
GILD US	GILEAD SCIENCES INCO. Biotechnology	68.09 USD	88.08	9.7	★★★★	📈	📊
SYNH US	SYNEOS HEALTH INCO. Biotechnology	45.00 USD	5.12	12.6	★★★★	📈	📊
AMGN US	AMGEN INCO. Biotechnology	200.61 USD	127.83	12.8	★★★★	📈	📊

The price to earnings ratio (PE) helps to find undervalued stocks. It is commonly accepted that if the PE of a stock is lower than the PE of its reference market, the stock may have upside potential. In order to present the best selection, only companies with a market capitalization greater than \$1bn and showing good earnings growth valuations are listed. Furthermore, the eligible stocks must have: a minimum rating of two stars, a neutral to positive valuation, and a low to moderate sensitivity. When the PE ratios are identical, the analysts' 7 week earnings per share revision (7 wk EPS rev) acts as the deciding classification element.

The 20 top stocks classified by market capitalization

Symbol Market	Name Sector	Price Ccy	Perf YtD	Mkt Cap in \$bn	G/PE Ratio	LT P/E	LT Growth	4wk Rel Perf	Div	Volatility 1M	Stars	Sensitivity	Global Evaluation
AMGN US	AMGEN INCO. Biotechnology	200.61 USD	3.1%	127.83	0.84	12.8	8.0%	7.0%	2.8%	34.8%	★★★★	📈	📊
GILD US	GILEAD SCIENCES INCO. Biotechnology	68.09 USD	8.9%	88.08	0.91	9.7	5.1%	2.1%	3.7%	41.7%	★★★★	📈	📊
BIIB US	BIOGEN INCO. Biotechnology	324.44 USD	7.8%	65.37	0.69	10.9	7.5%	4.7%	0.0%	45.4%	★★★★	📈	📊
VRTX US	VERTEX PHARMS.INCO. Biotechnology	178.19 USD	7.5%	45.54	0.92	32.5	29.7%	5.7%	0.0%	41.6%	★★★★	📈	📊
ILMN US	ILLUMINA INCO. Biotechnology	293.75 USD	-2.1%	43.18	0.68	38.0	25.9%	-6.4%	0.0%	59.2%	★★★★	📈	📊
REGN US	REGENERON PHARMS.INCO. Biotechnology	397.26 USD	6.4%	43.00	0.76	14.5	11.1%	8.8%	0.0%	46.2%	★★★★	📈	📊
A068270 KR	CELLTRION INCORPORATED Biotechnology	213,500.00 KRW	-4.0%	24.30	0.86	54.4	46.7%	-7.7%	0.0%	49.7%	★★★★	📈	📊
ALXN US	ALEXION PHARMS.INCO. Biotechnology	108.61 USD	11.6%	24.23	1.24	9.6	11.9%	-3.8%	0.0%	60.8%	★★★★	📈	📊
GRF ES	GRIFOLS SA Biotechnology	23.90 EUR	4.4%	16.69	0.93	18.7	15.6%	-2.2%	1.8%	20.0%	★★★★	📈	📊
BMRN US	BIOMARIN PHARM.INCO. Biotechnology	92.30 USD	8.4%	16.44	13.04	31.5	410.8%	1.8%	0.0%	51.7%	★★★★	📈	📊
BGNE US	BEIGENE LTD. Biotechnology	139.53 USD	-0.5%	16.12	-0.20	-21.9	-4.3%	3.6%	0.0%	71.2%	★★★★	📈	📊
INCY US	INCYTE CORP. Biotechnology	74.90 USD	17.8%	15.94	1.95	18.9	37.0%	18.3%	0.0%	65.8%	★★★★	📈	📊
SGEN US	SEATTLE GENETC.INCO. Biotechnology	67.23 USD	18.7%	10.85	1.31	67.2	87.9%	14.3%	0.0%	66.9%	★★★★	📈	📊
GEN DK	GENMAB A/S Biotechnology	1,100.50 DKK	3.1%	10.37	1.36	23.2	31.4%	10.2%	0.0%	27.7%	★★★★	📈	📊
EXAS US	EXACT SCIS.CORP. Biotechnology	76.16 USD	20.7%	9.36	-0.45	-515.2	-231.6%	8.5%	0.0%	99.0%	★★★★	📈	📊
ALNY US	ALNYLAM PHARMS.INCO. Biotechnology	85.34 USD	17.0%	8.62	0.66	155.8	103.0%	17.0%	0.0%	88.5%	★★★★	📈	📊
QIA DE	QIAGEN NV Biotechnology	30.51 EUR	3.6%	8.06	0.84	20.2	16.9%	-1.3%	0.0%	22.9%	★★★★	📈	📊
IONS US	IONIS PHARMS.INCO. Biotechnology	57.20 USD	5.8%	7.87	2.32	30.0	69.5%	9.9%	0.0%	39.1%	★★★★	📈	📊
NBIX US	NEUROCRINE BSCS.INCO. Biotechnology	84.42 USD	18.2%	7.66	11.20	18.1	202.9%	2.5%	0.0%	89.2%	★★★★	📈	📊
LOXO US	LOXO ONCOLOGY Biotechnology	232.29 USD	65.8%	7.11	1.21	37.7	45.4%	74.3%	0.0%	186.6%	★★★★	📈	📊

Number of Stocks

This is the number of stocks in the index that can be analyzed.

Mkt Cap in \$bn

This number represents the Market Capitalization in USD bn. It is calculated by multiplying a firm's share price by the number of outstanding shares. For reasons of comparison, all results are in USD.

Valuation Rating

Our Valuation Rating indicates if a stock is "expensive" or "cheap" relative to its growth potential. This is used to determine whether or not the investor is paying a premium for anticipated growth.

To estimate a stock's value relative to its current price, our Valuation Rating combines:

- stock price
- projected earnings
- projected earnings growth
- dividends

We establish our rating by combining these elements.

There are five ratings, ranging from strongly undervalued 🟢🟢 to strongly overvalued 🟡🔴.

Stars

theScreener.com's star rating system is designed to enable you to identify high-quality stocks quickly and easily.

In this easy-to-use rating system, stars are earned for each element specified below:

- Earnings Rev Trend 🟢 = ★★★★★
- Valuation Rating 🟢, 🟢🟢, 🟢🟢🟢 = ★★★★★
- MT Tech Trend 🟢 = ★★★★★
- 4 week Relative Performance > 1% = ★★★★★

Therefore, a stock can earn a maximum of four stars.

The lowest rating a stock can have is no stars.

Once a stock has earned a star, it will keep it until:

- Earnings Rev Trend becomes negative 🟡
- Valuation Rating becomes negative 🟡, 🟡🔴, 🟡🔴🔴
- MT Tech Trend becomes negative 🟡
- 4 week Relative Performance drops below -1% (<-1%)

Div

This is the dividend in % for the next 12 months.

Even if the same number is shown, the dividend value can appear in one of four colors, depending on the earnings coverage:

- 0%, no dividend
- 4%, the dividends are covered (between 0% and 40% of earnings)
- 4%, the dividends represent between 40% and 70% of earnings
- 4%, the dividends are higher than 70% of earnings, which implies that the dividend coverage is not guaranteed.

Earnings Rev. Trend

The symbol 🟢 shows that compared with their earnings revisions of seven weeks ago, the analysts have now raised their estimates (7wk EPS Rev; > 1%); the symbol 🟡 indicates that compared with their earnings revisions of seven weeks ago, the analysts have now lowered their estimates (7wk EPS Rev < -1%).

When the earnings revisions (7wk EPS Rev) fall between +1% and -1%, the trend is considered to be neutral 🟢.

The symbol 🟢 indicates that the last significant revisions have been trending positive.

The symbol 🟡 indicates that the last significant revisions have been negative.

7wk EPS Rev

This is an abbreviation for 7 week Earnings Per Share Revision. This column indicates the value of these revised earnings. A figure of 2.8 signifies that compared with seven weeks ago, the analysts have now revised and raised their estimates by 2.8%. On the contrary, a negative number means that the earnings would have been revised lower.

G/PE Ratio

In order to establish our Valuation Rating, we calculate the estimated growth of future earnings (LT Growth) plus dividend in %, divided by the estimated future PE ratio (Long Term P/E).

LT PE

This is the relationship between the price (P) and the estimated long-term future earnings (E LT).

LT Growth

This is the estimated annual growth rate of future earnings, normally projected over the next two to three years.

MT Tech Trend

The MT Tech Trend indicates the current trend, positive 🟢 or negative 🟡, and the Tech Reverse indicates up to which price this trend will remain valid.

When a price falls to 1.75% above or below the Tech Reverse, the MT Tech Trend is considered neutral 🟢.

Once the price breaks out of the +1.75% neutral zone, the MT Tech Trend will change to positive.

The symbol 🟢 indicates that the previous MT Tech Trend was positive.

The symbol 🟡 indicates that the previous MT Tech Trend was negative.

4wk (Rel) Perf.

This figure measures the performance of a stock relative to its national or regional index (compared to four weeks ago). As for an Index, it measures the net performance over 4 weeks.

Bad News Factor

To determine the "Bad News Factor" we analyze a stock's declines in rising markets. In this purely objective analysis, the actual reasons for a stock's behavior are not important. If a stock price falls while its relative index goes up, it can be assumed that the stock's performance has been affected by bad news - hence the name, "Bad News Factor".

Here a stock's movements are measured on a bi-weekly basis, during a sliding 52 week period. Every time a stock drops while its reference index rises, the difference is calculated in %, integrated into a yearly average and expressed in basis points.

The higher the "Bad News Factor," the more a stock has proven to be sensitive to bad news. The lower the "Bad News Factor," the less the stock has proven to be sensitive to bad news.

Bear Market Factor

To determine the "Bear Market Factor" we analyze a stock's price movements in declining markets.

This is the analysis of the movements, in a bi-weekly intervals, during a sliding 52 week period.

The higher the "Bear Market Factor," the greater the probability a stock would drop when its relative index drops.

A "Bear Market Factor" that is strongly negative means the stock has been more resistant to losses in declining markets.

Sensitivity

Stock price developments are generally volatile and contain high risks that can result in a total loss. Based on a their historical behaviour, stocks are classified by sensitivity level. These sensitivity levels have to be considered solely in relative historical comparison to other stocks. Please note that even "Low Sensitivity" stocks are equities and therefore high risk investments that can lose up to all of their value, and that past performance is no indication of current or future performance.

"Sensitivity" is determined by measuring the "Bear Market Factor" and the "Bad News Factor" against its benchmark.

There are three grades of sensitivity levels:

- Low Sensitivity: The sensitivity indicators fall below the world reference average.
- Moderate Sensitivity: The sensitivity indicators are situated higher than the world reference average, but lower than standard deviation.
- High Sensitivity: The sensitivity indicators are at levels higher than standard deviation.

Volatility 12 M

Volatility measures the magnitude of upwards and downwards movements of a stock or index. The volatility 12 M shows the average volatility over the last 12 months.

% of Stocks in Uptrend

This is the percentage of stocks in a given list that have a positive Medium Term Technical Trend. If, for example, the aggregate of Technology / World, (which is made up of 458 stocks) has 8% "of stocks in Uptrend," it means that 38 of the stocks within that aggregate have a positive Medium Term Technical Trend.

Beta

Beta is often used as a measure of sensitivity. Where a Beta is greater than 100, the stock is more volatile than its reference index.

Correlation

Correlation is the degree of similarity (in %) in which a stock fluctuates in relation to its reference index.

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