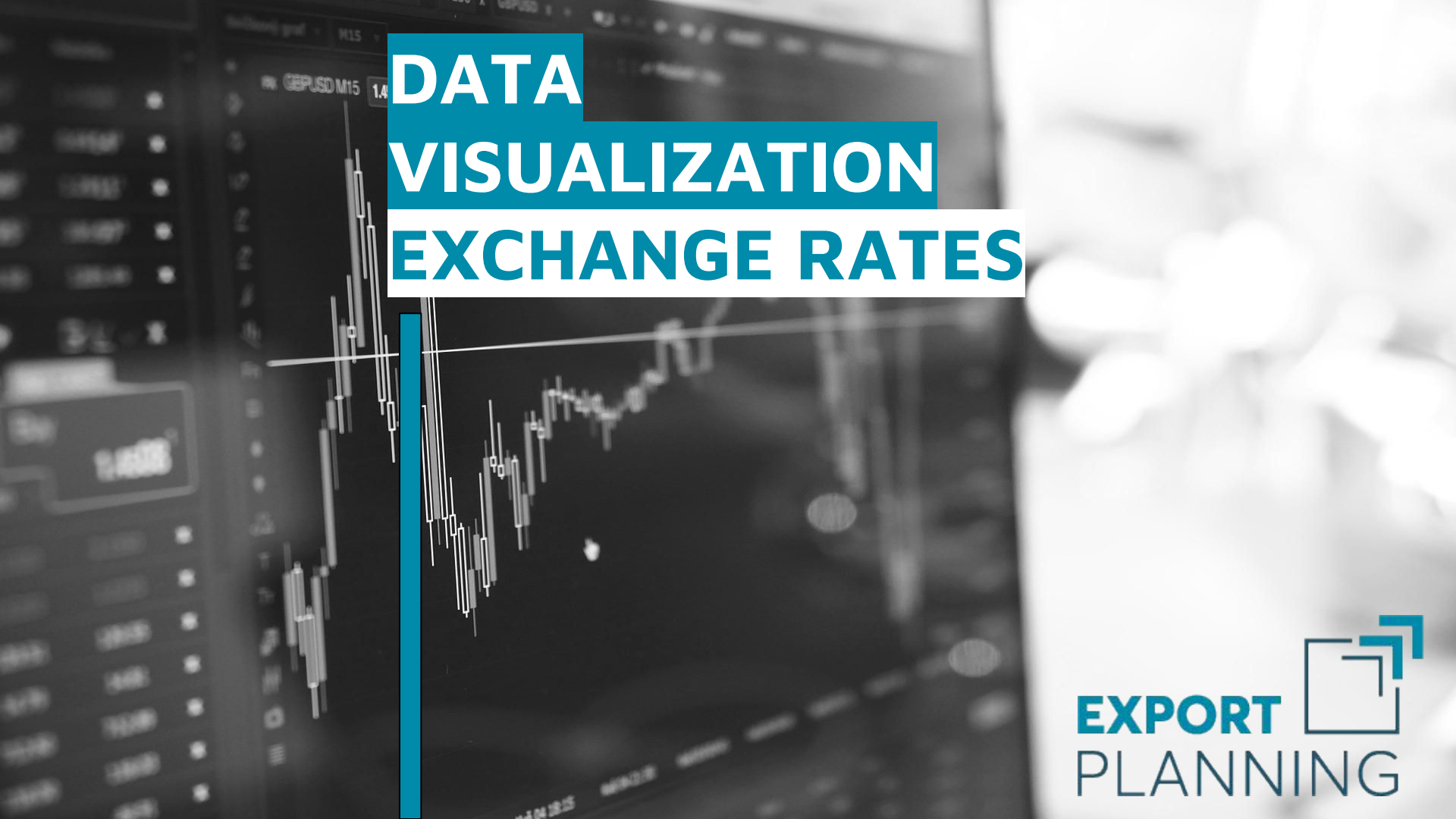
DATA
VISUALIZATION
EXCHANGE RATES
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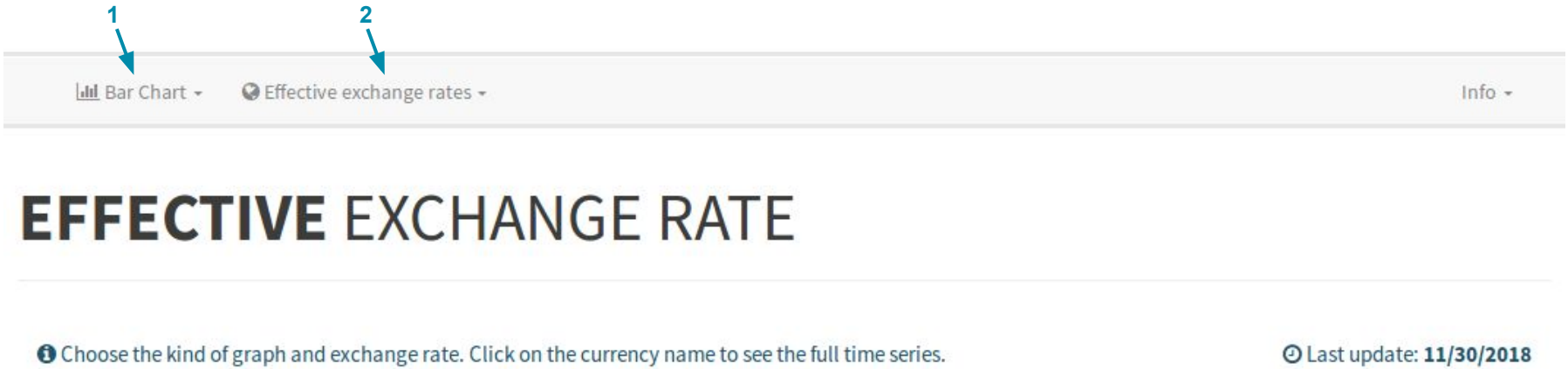
The “Exchange Rates” tool

The "Exchange Rates" tool provides a synthetic overview of the evolution of about 120 exchange rates, through interactive graphs updated every day around 5:30 pm.
The user can customize the analysis: the dropdown menu on the left (1) allows you to choose between ***bar chart*** *and* ***world map****, while using the dropdown menu on the right (2) you can select the type of* ***exchange rate*** *you want to display (****against the Euro****,* ***against the Dollar*** *and* ***Effective Exchange Rates****).*



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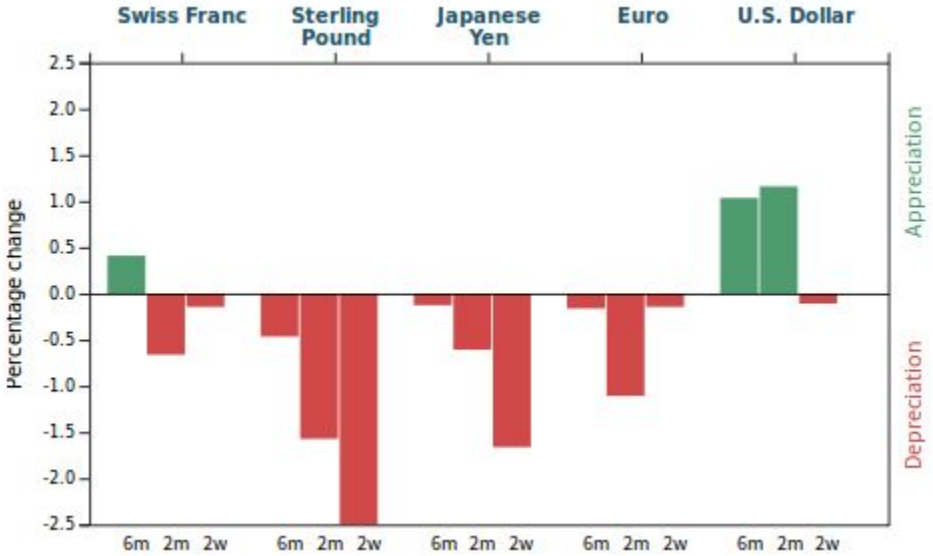
1. “Bar chart” section [1/2]

In this section you can find exchange rates about 30 major global currencies. Data are downloaded every day from the European Central Bank website (www.ecb.europa.eu) and are presented in two ways:

1. *The first way provides a synthetic overview of the evolution of exchange rates in the short term, through bar charts. For every currency, the bars display the percentage deviation from three moving averages: six months moving average (6m), two months moving average (2m) and two weeks moving average (2w).*



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1. “Bar chart” section [2/2]

2. *In the second way each exchange rate is presented individually, using a line graph that highlights the dynamics of the series over time. You can access this graph by clicking on the currency of interest.*

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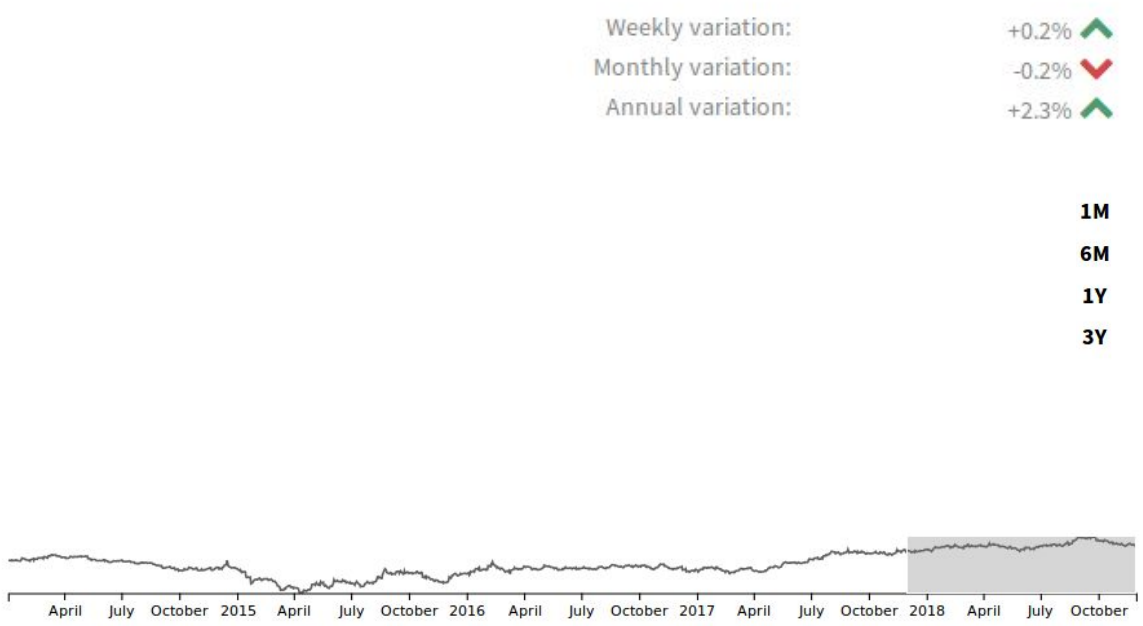
Elements of the line graph



This box collects ***percentage variations*** *of the exchange rate, as compared to the value it had one week, one month or one year ago.*

These ***buttons*** *can be used to set the* ***length of the series*** *shown in the line graph (1M = 1 month, 6M = 6 months, 1Y = 1 year, 3Y = 3 years).*

*This element called "****brush****" shows the entire time series available in the tool (from 2014 to present) and allows you to select the period of interest (grey area) that you want to see in the line graph.*

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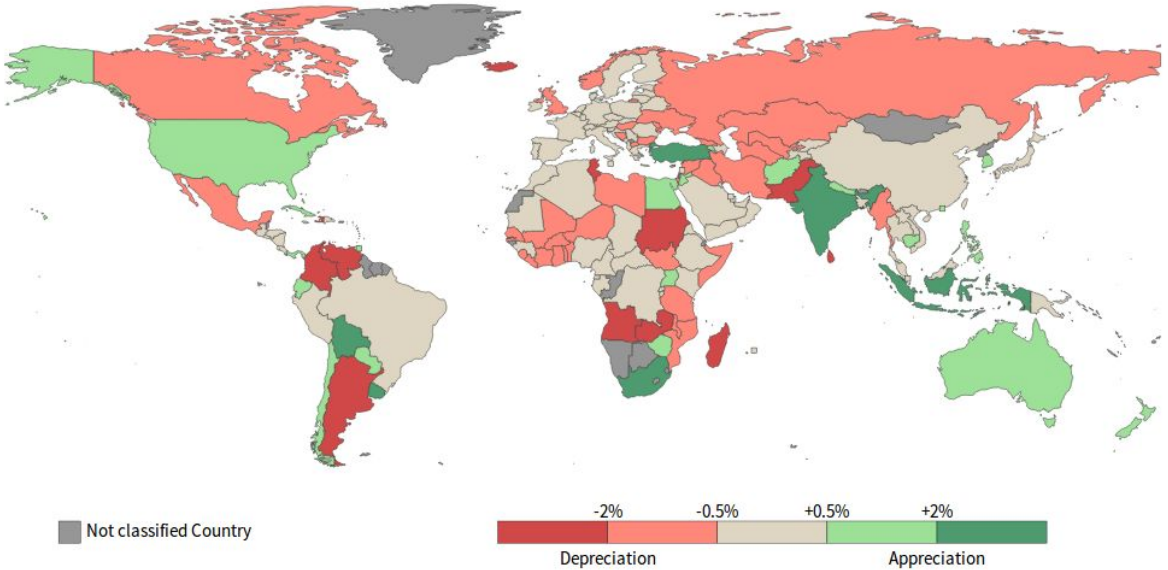
2. “World map” section

This section shows 120 exchange rates. Data are downloaded on a daily basis from the Bank of Italy (www.bancaditalia.it). In this section, exchange rates are presented using a map chart where each country can take five ***different color shades****,* ***depending on the different appreciation or depreciation dynamics*** *that characterizes the exchange rate considered.*

These five color shades are defined using the distance between the last observation of the daily exchange rate and the three exchange rate moving averages (6 months, 2 months and 2 weeks). This operation allows to synthesize, in a single number, the short-term dynamics of the exchange rate considered.



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As in the bar chart section, in the world map section you can obtain a line graph showing the dynamics of a single exchange rate over time, just by clicking on the country of interest.

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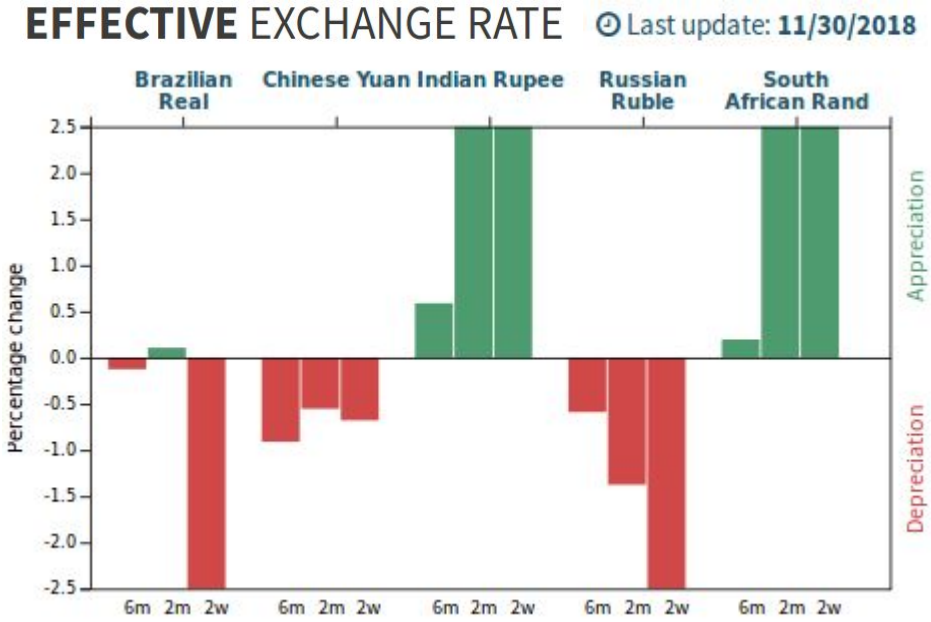
EXAMPLE [1/3] - Bar charts

The analysis of effective exchange rates for a group of emerging countries through ***bar charts*** *shows that, on November 30, 2018, Indian Rupee and South African Rand are strengthening (positive percentage changes for the three moving averages). On the contrary, Chinese Yuan and Russian Ruble are weakening (negative percentage changes for the three moving averages).*



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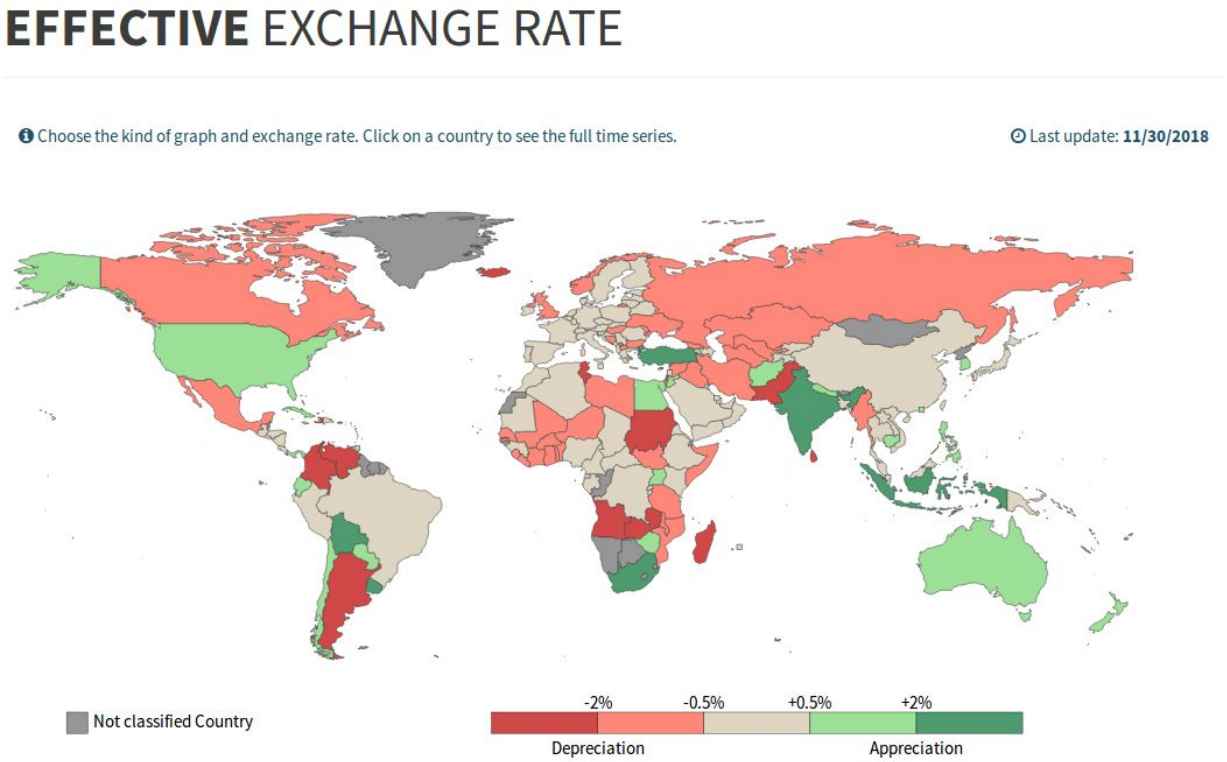
EXAMPLE [2/3] - World map

The analysis of Effective Exchange Rates through the world map gives a quick overview of the evolution of many exchange rates.
You can notice, for example, that on November 30, 2018, Australian Dollar is undergoing a phase of moderate appreciation (+0.5%/+2%), while Mexican Peso is experiencing a depreciation (-0.5%/-2%).



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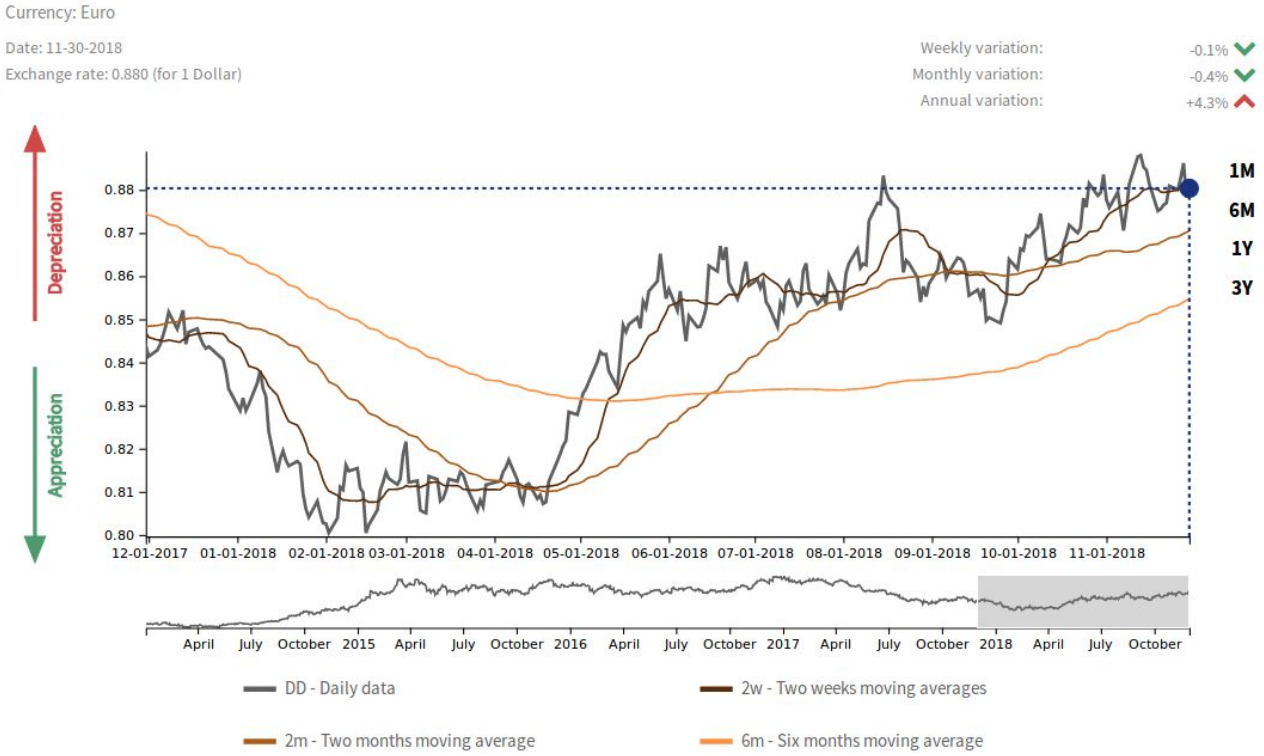
EXAMPLE [3/3] - Line graph

You can access the line graph from both sections of the tool (bar charts and world map), by clicking on the currencies/countries of interest. In this graph, for example, you can notice that, on November 30, 2018, the Euro is experiencing a depreciation against US Dollar: it lost 4.3% of its value compared to one year before. The exchange rate is 0.88€ per dollar.



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REFERENCES: What are exchange rates?

The ***exchange rate*** *is the price at which one currency can be exchanged with another.*

The exchange between different currencies takes place in the currency market, where prices vary over time based on the demand and supply of the very same currency. Naturally, the exchange rate of a currency varies depending on the reference currency. In this case we talk about ***BILATERAL EXCHANGE RATE****.*

It is possible to construct a synthetic measure of multiple bilateral exchange rates. In this case we talk about ***EFFECTIVE EXCHANGE RATE****.*

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REFERENCES: Bilateral Exchange Rates [1/2]

Bilateral exchange rate (BER) *is the exchange value between two currencies. This value can be expressed as:*

- *Units of national currency required to purchase one unit of foreign currency (in this case the foreign currency is the reference currency);*
- *Units of foreign currency required to purchase one unit of national currency (in this case the national currency is the reference currency);*

In brief, a bilateral exchange rate can be written as in the following example:

$$BER_{\$/€} = 1.136 \quad \text{(euro-dollar exchange rate, U.S. point of view)}$$

$$BER_{€/\$} = 0{,}880 \quad \text{(euro-dollar exchange rate, Eurozone point of view)}$$

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REFERENCES: Bilateral Exchange Rates [2/2]

The price of the euro in terms of dollars is always equal to the reciprocal (or inverse) of the price of dollars in terms of the euro:

$$BER_{\$/€} = \frac{1}{BER_{€/\$}}$$

These prices, therefore, depend on the perspective of the observer: if he/she is American, the exchange rate expressed as the euro price (foreign currency) in terms of dollars (national currency) "$BER_{\$/€}$" will be preferred; if he/she is European, the dollar price (foreign currency) in terms of Euro (national currency) "$BER_{€/\$}$" , will be preferred, instead.

A bilateral exchange rate may change either due to factors influencing the currency considered or due to factors influencing the reference currency. If you are interested in identifying the economic forces on the side of the currency analyzed (and not those that affect the reference currency), the information contained in the bilateral exchange may be a source of ambiguity.

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Note: In "Export Planning" bilateral exchange rates are expressed as units of national currency needed to buy one unit of foreign currency, where the foreign currency can be euro or dollar.

REFERENCES: Effective Exchange Rates

As mentioned before, bilateral exchange rates express a two-currency exchange ratio. Since we live in a world of many countries and currencies, it might be interesting to know whether a particular currency has strengthened or weakened not just against one other currency, but against other currencies in general. The answer to this question can be given using effective exchange rates.

The ***Effective Exchange Rate (EER)*** *is calculated as the weighted average of a basket of bilateral exchange rates (BER) against the currency in question. The weights (w) are proportional to the trade flows (FL) that the country has with the other countries associated with the currencies included in the basket.*

$$w_i = \frac{FL_i}{\sum_{i=1}^{n} FL_i} \qquad EER = \frac{\sum_{i=1}^{n} TCB_i * w_i}{\sum_{i=1}^{n} w_i}$$

The Effective Exchange Rate is therefore a measure of overall weakness or strength of an currency, while bilateral exchange rates reflect the position of a currency compared to a second currency taken as a reference.

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DISCOVER OUR EXCHANGE RATES TOOL and the latest trends of 120 world currencies!