

# TECHNICAL ANALYSIS FOR EVERYONE

A COURSE DESIGNED JUST FOR YOU WHO WANT TO BECOME A TRADER!

## LESSON 6

**Volumes and moving averages:  
strengths and weaknesses**





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## PROGRAM

### 10 LESSONS

1. Basics and Origins of Technical Analysis: The DOW Theory
2. Charts and prices: the main ways to visualize price developments
3. Defining a trend and trending: how to spot and follow them profitably
4. The main chart configurations: supports, resistances and pullbacks
5. Figures of reversal or continuation of a trend: we learn to recognize and exploit them
6. **Volumes and moving averages: strengths and weaknesses**
7. The main indicators and oscillators: how to choose the most useful and suitable for each market condition
8. Charts and time: the right time frame for our operational analysis
9. Intermarket analysis: we learn to define the dominant drivers and trends in the market
10. Leverage, money and risk management: how to control and monitor the sustainability of your investments



# Lesson 6

**Volumes and moving averages:  
strengths and weaknesses**



# Volumes: general rules of interpretation



## «Volumes»

Number of transactions carried out during a certain period of time on a given financial instrument



## Volumes: general rules of interpretation

Volumes must be analysed in close correlation with price trends and for this reason they are represented by a histogram positioned in correspondence with the bar to which they refer





## Volumes: general rules of interpretation

Normally, the volumes traded are represented by a bar chart positioned below the price chart, with the height of the bars highlighting how many stocks or contracts have been traded in the period/time-frame being analysed.







## Volumes: general rules of interpretation

Generally, traded volumes expand during phases of price growth and contract during those of decline: a lack of reaction of volumes that do not expand in rising phases and do not decrease in falling phases is one of the most sought-after signs of potential "trend reversal" and taken into account by operators...



## Volumes: general rules of interpretation

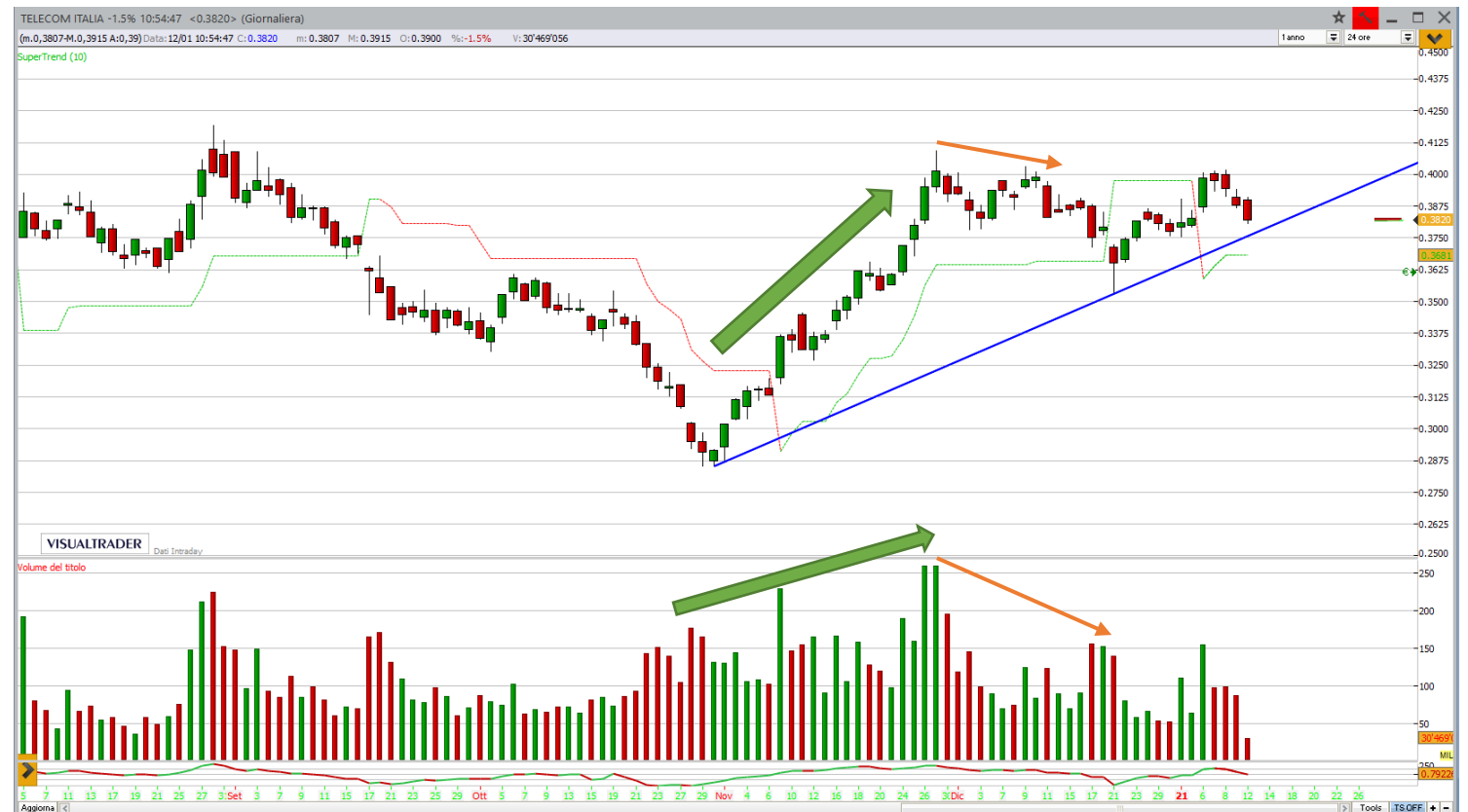
In an uptrend, volumes must increase during bullish phases and decrease during correction phases





## Volumes: general rules of interpretation

In an uptrend, volumes must increase during bullish phases and decrease during correction phases





## Volumes: general rules of interpretation

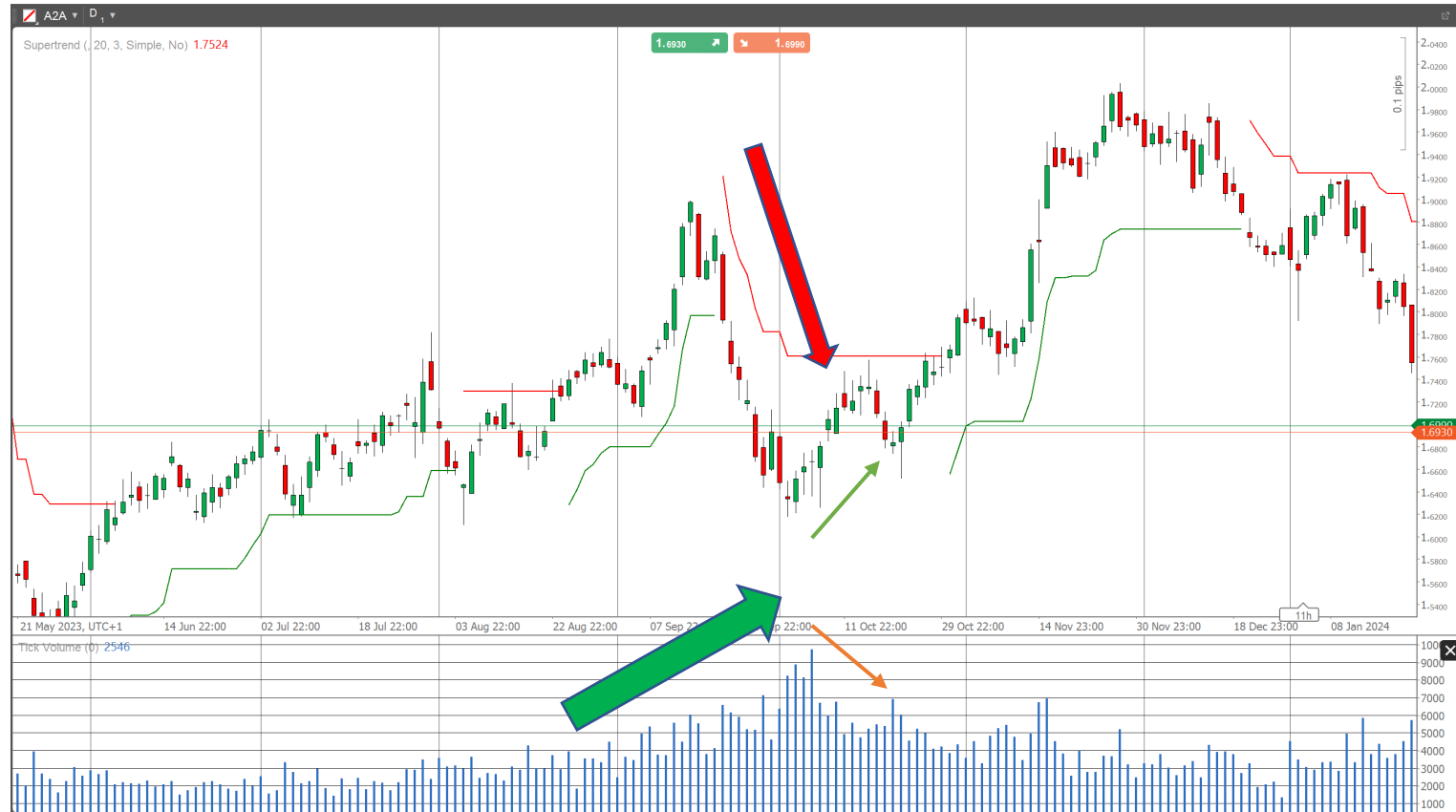
In a downtrend, volumes must increase during downturns and decrease during upwards/rebounds





## Volumes: general rules of interpretation

In a downtrend, volumes must increase during downturns and decrease during upwards/rebounds





## **Volumes: general rules of interpretation**

A "classic" method for analyzing and interpreting traded volumes is that in a bullish or bearish market phase characterized by evident directionality (trend)

Volumes must follow the trend itself



## Volumes: general rules of interpretation

### IN SUMMARY:

*Volumes on the stock exchange always  
accompany prices*

*Volumes are a precursor of future price  
movements*



## **Volumes: general rules of interpretation**

THE 3 FACTORS TO CONSIDER WHEN ANALYZING STOCK MARKET  
VOLUMES

- 1 - VOLUMES MUST ACCOMPANY PRICES IN UPTRENDS
- 2 - VOLUMES IN DOWNTRENDS ARE USUALLY LOW
- 3 - VOLUME/PRICE DIVERGENCES ARE WARNING SIGNS





## Volumes: general rules of interpretation

### 1 - VOLUMES MUST ACCOMPANY PRICES IN UPTRENDS





## **Volumes: general rules of interpretation**

### **2 - VOLUMES IN DOWNTRENDS ARE USUALLY LOW**

Volumes in downtrends are "usually" lower than those traded during uptrends.

Unlike uptrends where volumes must support the increase in prices, in bearish trends prices can also fall due to the simple lack of buyers.

Few trades and prices that fall because they are not supported by purchase demands.



## **Volumes: general rules of interpretation**

### **3 - VOLUME/PRICE DIVERGENCES ARE WARNING SIGNS**

Divergences in volume/price analysis should lead us to suspect that a trend change could take place in the future.

If as prices rise, volumes tend to decrease, there is a bearish divergence, vice versa for price declines, if volumes increase while prices fall, we are faced with a bullish divergence.



## Volumes: general rules of interpretation

### VOLUMES MUST CONFIRM TREND REVERSALS

Movement	Volumes	Signal
Positive	High	Buy
Positive	Low	-
Negative	High	Sell
Negative	Low	-

If prices go up and volumes are high, the trend is very reliable as there are many buyers.

On the other hand, if prices are rising significantly but volumes are low, the trend is unreliable because demand is low.



## Volumes: general rules of interpretation

### VOLUMES: INVERSION FIGURES

Current Trends	Volumes	Signal
Positive on the highs	Decreasing	Sell
Positive – Stable prices	High	Sell
Negative on the lows	High	Buy
Negative – Stable prices	Decreasing	Buy

1. Decreasing volumes near a high/decreasing near a low
2. Peak volumes near a maximum
3. Peak volumes near a minimum



## Volumes: general rules of interpretation

### VOLUMES: OPERATIONAL AND INTERPRETATION ISSUES

The main problem is that if you analyse CFD's charts (currencies, indices and more...) the volumes detected on the platform only concern those traded by the broker's own clients...  
Only the broker's clients and their trades are counted in the chart.





## Volumes: general rules of interpretation

VOLUMES: OPERATIONAL AND INTERPRETATION ISSUES

But we all know that...

Financial markets are much more liquid and larger than those that synthesize the operations of the clients of a single broker!!  
The FOREX market, for example, sees trillions of dollars traded every day, and your broker -whatever it is- will not come to account for even 1% of these trades!!





## Volumes: general rules of interpretation

### VOLUMES: OPERATIONAL AND INTERPRETATION ISSUES

This factor causes no small problems for investors, who are usually completely oblivious to how their broker is actually calculating trading volumes.

If the calculation is done on the small circle of customers, it means that you are not getting reliable numbers and that you risk having completely wrong clues on which to base your analysis.





## Volumes: general rules of interpretation

### VOLUMES: OPERATIONAL AND INTERPRETATION ISSUES

How to avoid this problem?

1. By working only on listed and non-"OTC" securities where the overall market volumes are official and unique for everyone



## Volumes: general rules of interpretation

### VOLUMES: OPERATIONAL AND INTERPRETATION ISSUES

How to avoid this problem?

2. Use a very popular broker so that you can rely on the fact that your clients' volumes are sufficiently representative of the total market volumes.



## **Volumes: general rules of interpretation**

VOLUMES: OPERATIONAL AND INTERPRETATION ISSUES

The second option, which is less 'precise' than the first, nevertheless appears to be the only one that is actually viable.



# **Moving averages: strengths and weaknesses**



## Moving averages: strengths and weaknesses

### «Moving Averages»

Mathematical measurements to «smooth» out erratic price fluctuations

In traditional technical analysis, moving averages are algorithms that allow you to derive a synthetic indicator of the price trend of any financial instrument.



## Moving averages: strengths and weaknesses

From a mathematical point of view, this indicator is an «average» of a certain amount of data (prices...) with respect to a «moving» time window that considers only the latest 'N' measurements in chronological order

*A 200-day moving average, for example, takes into account the values of the last 200 sessions and is recalculated every day, adding the last data and excluding the most remote from the calculation, so that there are always only 200 prices considered.*



## **Moving averages: strengths and weaknesses**

In fact, in the calculation of a moving average, the number of elements (prices) is fixed, while the time window considered is "floating" because the oldest data in the series is replaced every day with the most recent/new one.

This mathematical procedure causes the average to move progressively with the trend of the price of the security being calculated...



## Moving averages: strengths and weaknesses

Generally, the calculation of a moving average takes into account the closing prices, But the maximums, minimums, or opening values of the session can also be used.

This reasoning also applies to the timeframes used: a moving average can also be calculated on a chart with weekly, monthly, hourly candlesticks. In this case, the 'N' periods considered by each moving average will concern the time frame summarized by the single candlestick or bar of the chart.





## Moving averages: strengths and weaknesses

Main Types of Moving Averages

**Simple Moving Average**

**Weighted Moving Average**

**Exponential Moving Average**



## Moving averages: strengths and weaknesses

### Simple Moving Average

$$SMA = \frac{1}{N} \sum_{i=1}^N C_i$$

#### The Simple Moving Average

hence the acronym SMA, is a classic arithmetic average of the price. It is calculated by adding the closing prices of N time periods and dividing the result obtained by N.



## Moving averages: strengths and weaknesses

### Simple Moving Average

The simplicity of calculation, however, hides an obvious limitation/defect:

The simple moving average assigns the same relevance to each individual price, so the last measured value will take on the same weight as the first in the series...

This "defect" is resolved by the "weighted moving average" that we will see later...



## Moving averages: strengths and weaknesses

### Simple Moving Average

Simple moving averages are constructed by adding the closing data for a period defined by the analyst and then dividing the data obtained by the number of days considered.

$$M_t = ( P_t + P_{t-1} + P_{t-2} + \dots + P_{t-n+1} ) / n$$

$M_t$  = Moving Average Value at Time T

p = Price or value of the benchmark index

n = number of observations (moving average amplitude).



## Moving averages: strengths and weaknesses

### Simple Moving Average

To get the following points, simply add the last quote and subtract the first one from the sum obtained the previous day.

$$M_{t+1} = M_t + (P_{t+1} - P_{t-n+1}) / n$$

$M_{t+1}$  = Moving average value of the last day.



## Moving averages: strengths and weaknesses

### Simple Moving Average

The result is a representation that eliminates the annoying "noise" that is typical instead of the erratic and nervous fluctuations of simple prices.

Such a function tends to dampen price erratic and this effect is all the more noticeable the longer the moving average.

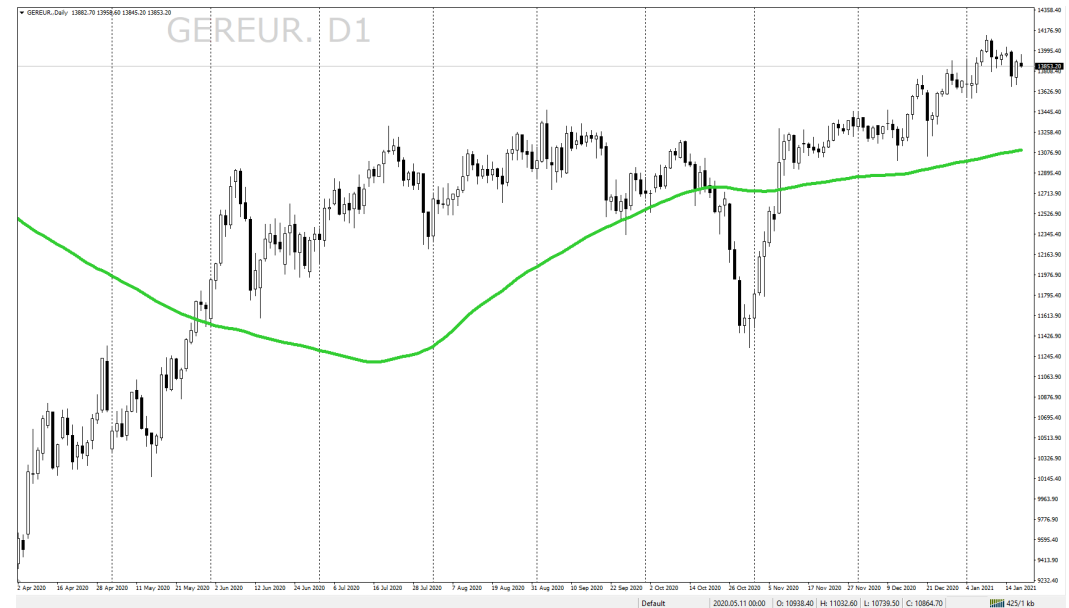


## Moving averages: strengths and weaknesses

### Simple Moving Average

Its graphical representation is a curve that follows the price line with a much more regular trend, as the so-called speculative peaks are eliminated.

DAX INDEX DAILY (SMA 100)





## Moving averages: strengths and weaknesses

### Simple Moving Average

One of the main objectives of using moving averages is to «eliminate the random elements that enter into the formation of the price by causing exasperation in the movements».



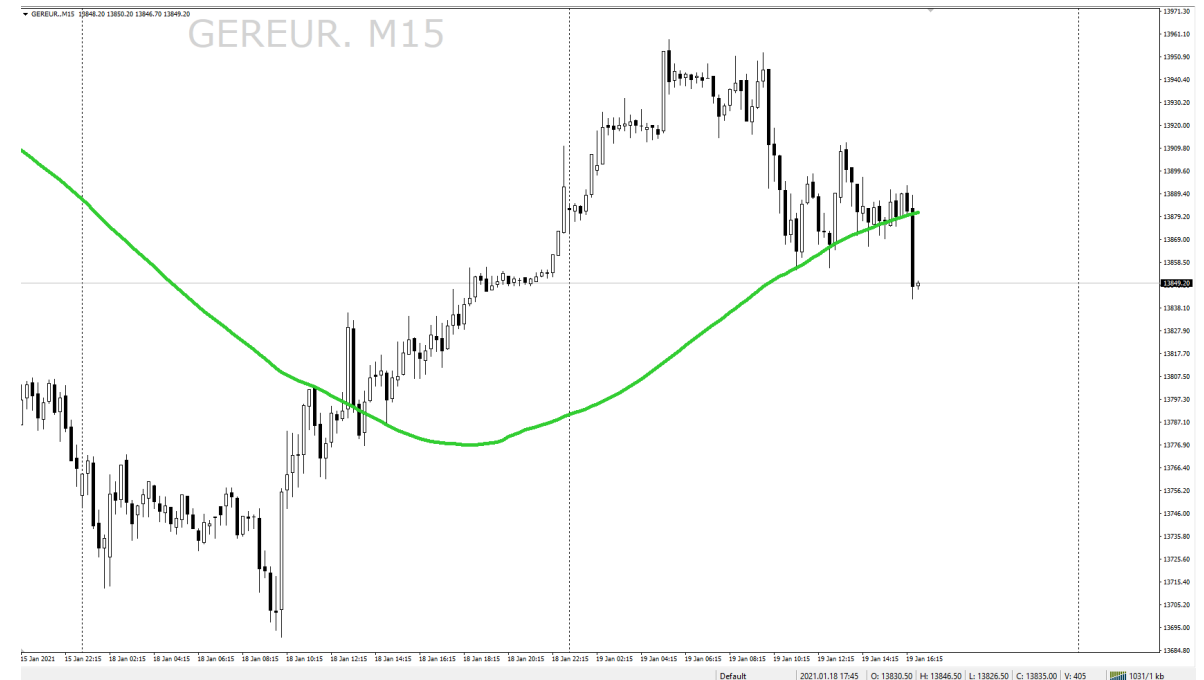


## Moving averages: strengths and weaknesses

### Simple Moving Average

The assumption is therefore that these perturbations are «dampened» by the moving averages.

DAX INDEX M15 (SMA 100)

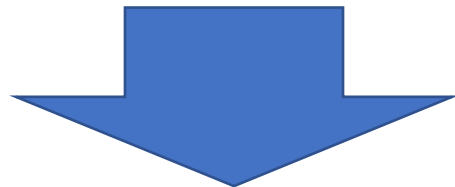




## Moving averages: strengths and weaknesses

### Simple Moving Average

One of the biggest problems with the simple moving average is that all the values entered for the calculation of the average have the same weight. This problem is felt when using 50- or 100-period moving averages that tend to delay the trend reversal with respect to the underlying.





## Simple Moving Average

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DEFINITELY "LATE"  
ENTRIES



## Simple Moving Average «SMA 100»





## Moving averages: strengths and weaknesses

### Weighted Moving Average «WMA»

#### Weighted Moving Average

hence the acronym WMA, it is a classic arithmetic average of the price that assigns greater weight to the most recent data and less to those more distant in time.+

$$WMA = (C_1 * 1 + C_2 * 2 + C_3 * 3 + \dots + C_n * n) / (1 + 2 + 3 + \dots + n)$$



## Moving averages: strengths and weaknesses

### Weighted Moving Average «WMA»

Taking a 10-period moving average as an example, the close of the tenth and final day is multiplied by 10, the close of the previous day (ninth) by nine, that of the eighth day by eight, and so on.

The total will then be divided by the sum of the multiples: in our case  $1+2+3+\dots+10= 55$ . The average is therefore much more reactive to recent events, while "dampening" past swings.



## Moving averages: strengths and weaknesses

### Weighted Moving Average «WMA»

Ultimately

The weighted moving average exceeds the limit presented for the simple moving average, as it 'overweights' the most recent values.



## Weighted Moving Average «WMA»

DAX INDEX DAILY (WMA  
100)

Comparison between

SMA 100 e WMA 100







## Moving averages: strengths and weaknesses

### Exponential Moving Average «EMA»

#### The Exponential Moving Average

hence the acronym EMA, calculates all the data of the time series of a price, with an exponentially decreasing weighting.

- $EMA(i) = EMA(i-1) + SF * [P(i) - EMA(i-1)]$



## Moving averages: strengths and weaknesses

### Exponential Moving Average «EMA»

The weighting of the first data in the series will be lower over time until it becomes infinitesimal, but it will always be part of the calculation. Essentially, the entire history of the stock is taken into account when calculating the EMA.

- $EMA (i) = EMA (i-1) + SF * [P (i) - EMA (i-1)]$



## Moving averages: strengths and weaknesses

### Exponential Moving Average «EMA»

Ultimately

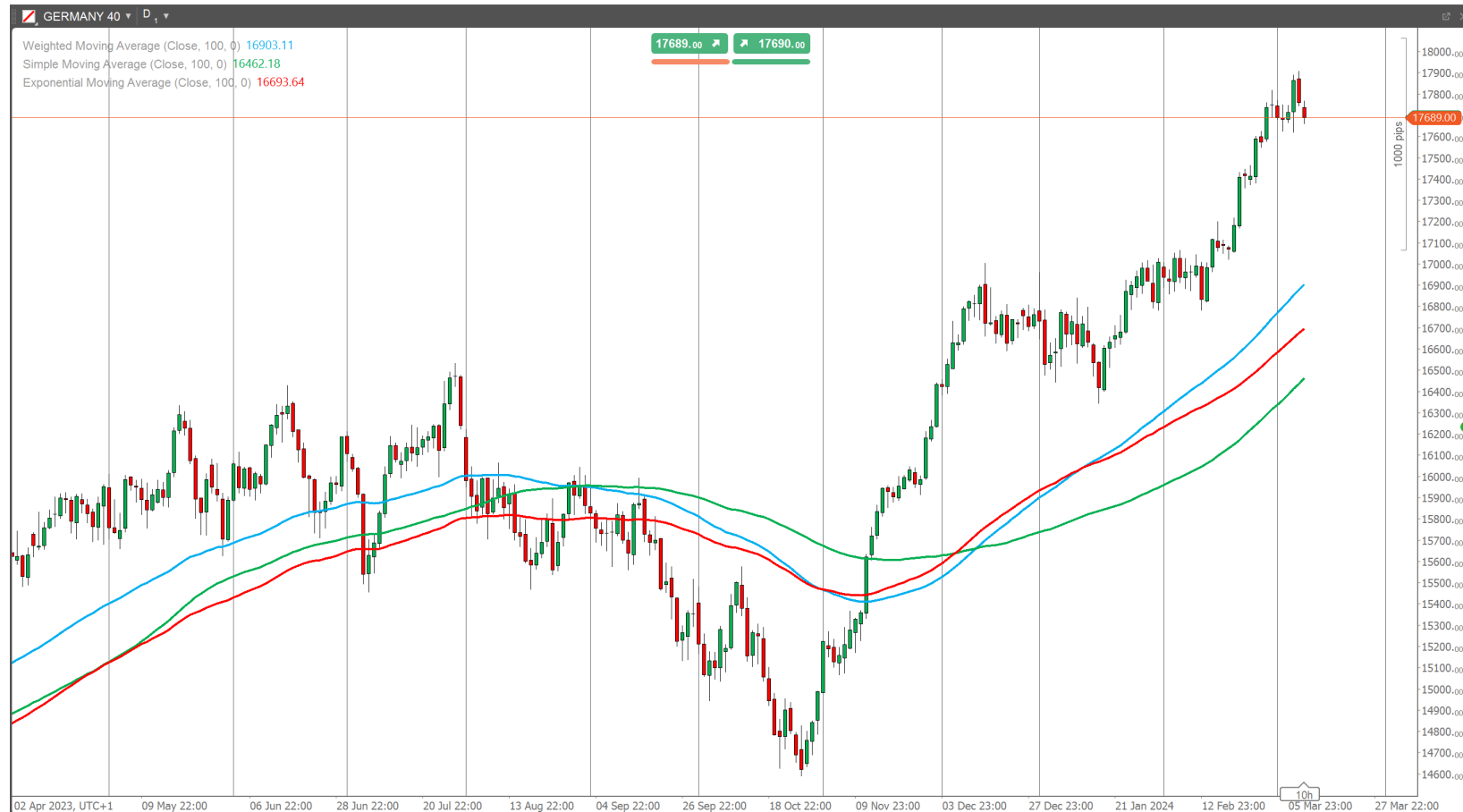
The exponential moving average is always more reactive than the simple one but, above all, it tends to move very close – almost adherent – to the price trend, thus being particularly effective for trading activities based on the crossing of 2 or more moving averages.



## Exponential Moving Average «EMA»

DAX INDEX DAILY (EMA 100)

Comparison between SMA 100 e WMA 100 e EMA 100





**Moving averages: strengths and weaknesses**

**WHICH ONE TO CHOOSE?**



## Moving averages: strengths and weaknesses

### WHICH ONE TO CHOOSE?

The choice of which moving average to use is personal and must adapt to your operational needs, which are different for each trader.

If you want to use a moving average as a dynamic support or resistance level, then the 200-period SMA is ideal.

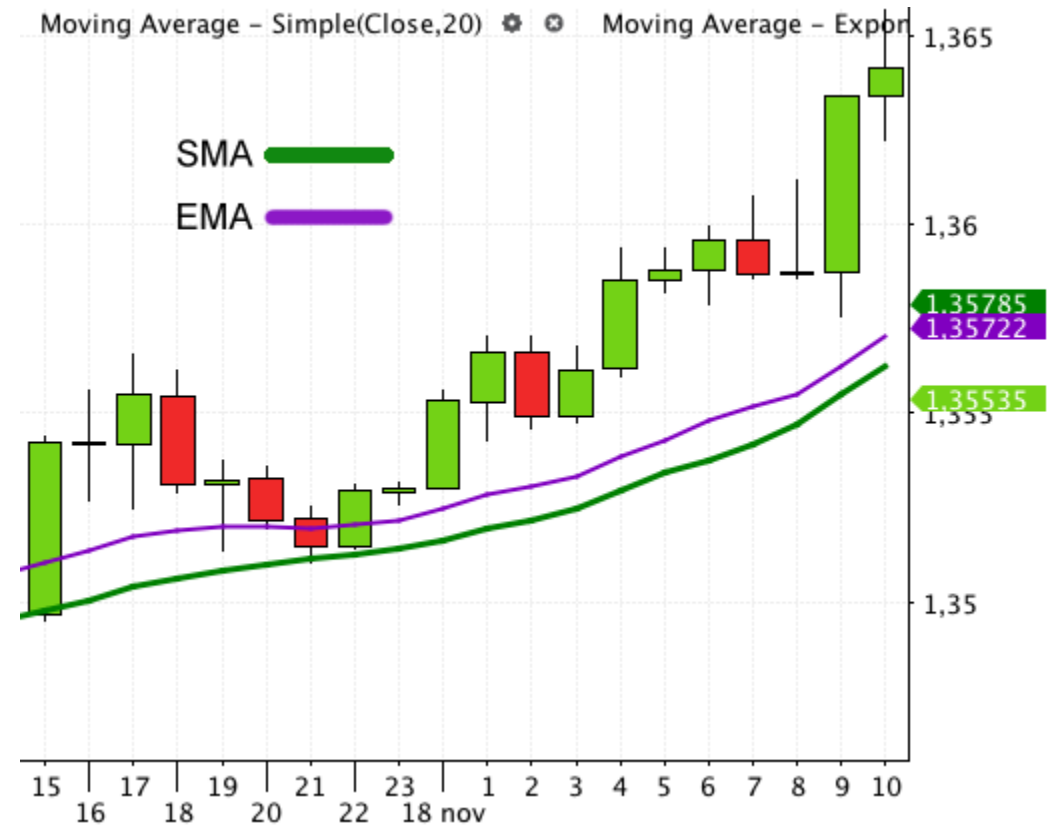
If, on the other hand, you are looking for an average to use for price/average crosses, then an EMA or WMA may be better, as the reactions and consequently the number of signals will be greater.

Mixes of averages, such as a long-term SMA and a short-term EMA, can also be used to provide an operational filter to enter the market.



## Moving averages: strengths and weaknesses

An extremely useful function of moving averages is to provide dynamic zones of support and resistance.





## Moving averages: strengths and weaknesses

It is therefore possible to operate on the seal

(trend following strategies)

or on the break of a moving average, be it simple, weighted or exponential, as would be done with the classic supports and resistances derived from the price in a discretionary way.





## **Moving averages: strengths and weaknesses**

Consider that a longer average (e.g. a 200-period SMA) will give much more reliable dynamic support/resistance levels than a faster one (50 SMA).



## Moving averages: strengths and weaknesses

Identify operational signals for the management of speculative positions

### Price/Average Crossings





**Moving averages:  
strengths and  
weaknesses**

**Identify operational  
signals for the  
management of  
speculative positions  
"crossover" between  
two mediums.**





## **Moving averages: strengths and weaknesses**

Technical analysis uses moving averages to:

1. Identify areas of support/resistance
2. Regularising the 'smoothing' time series
3. Identify operational signals for the management of speculative positions.