Trading – Basic Oscillators

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a.y. 2016/2017
Oscillators

• Stochastic (Fast, Slow and Complete)

• ADX (Average Directional Index)
Stochastic Oscillator

‘Stochastic oscillator does not follow prices or volume. Rather, it follows the speed or the momentum of prices.’

George Lane

**FAST Stochastic**

\[\%K = \text{Price}_{\text{t}} - \text{Lowest low}_{t - \text{lag} \cdot t} / \text{Highest high}_{t - \text{lag} \cdot t} - \text{Lowest low}_{t - \text{lag} \cdot t} \]

\[\%D = \text{SMA (lagd)} \%K\]
Stochastic Oscillator

‘The stochastic oscillator does not follow prices or volume. Rather, it follows the speed or the momentum of prices.’

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**SLOW Stochastic**

\[
\%K(\text{FAST Stochastic}) = \text{Price}_t - \text{Lowest low}_{t-lag} - \frac{t}{\text{Highest high}_{t-lag} - \text{Lowest low}_{t-lag}}.
\]

\[
\%K(\text{SLOW Stochastic}) = \text{SMA (lagd)}\%K(\text{FAST Stochastic})
\]

\[
\%D = \text{SMA (lagd)}\%K
\]
Stochastic Oscillator

Non-clean signals

Clean signals
Stochastic Oscillator

Signals during trends

Not-clean signals

Collapse
ADX (Average Directional Index)

- Developed by J. Welles Wilder, Jr. in 1978.

- Originally designed for commodity and currency securities with a daily frequency approach.

- Used to measure the strength of a trend but it does not provide indications about its direction.

- It is made by three single indicators:
  1. +DI (plus directional indicator)
  2. -DI (minus directional indicator)
  3. Final ADX value
ADX (Average Directional Index)

A directional movement is positive when:

\[ \text{Current high} - \text{Prior high} > \text{Prior low} - \text{Current low} \]

Plus Directional Movement (+DM) = Current high – Prior High (if positive, zero otherwise)

A directional movement is negative when:

\[ \text{Prior low} - \text{Current low} > \text{Current high} - \text{Prior high} \]

Minus Directional Movement (-DM) = Prior low – Current low (if positive, zero otherwise)
ADX (Average Directional Index)

- Smooth +DM and –DM with Wilder’s smoothing technique
- Divide the smoothed +DM and –DM by the smoothed true range (ATR not disclosed in these slides)
- The directional movement index equal the absolute value of +DI minus –DI divided by the sum of +DI and –DI
- The ADX is the moving average of the DX and the subsequent value of the ADS are smoothed with Wilder’s technique.
ADX (Average Directional Index)

According to his designer:

- 150 observation are needed in order to have a consistent ADX indicator because of the smoothing procedure.
- A level of the index above 25 indicates the presence of a trend while a values below 20 indicate that no trend is present.
ADX (Average Directional Index)

Bearish crossover
Bullish crossover
ADX
+DI
-DI
ADX (Average Directional Index)

False signals

Bullish signal
ADX (Average Directional Index)

Bearish signal

Bullish signal