

International Online traders Summit.

Saturday January 16th

Thinking out of the box with

 MetaStock

Introduction

Users of Metastock have at their disposition a wide range of ready-to-use technical indicators, systems, explorations and experts which will no doubt satisfy the demands of the average user.

However, there is a wealth of potential stacked into this software just waiting to be uncovered for those who have the desire to examine the various built-in functions and experiment with them.

In this presentation, I would like to take a closer look at some of the functions included in this software and unfold ways in which one can access market information and characteristics which on first sight may not be apparent.

My name is Timothy Straiton, born in London and domiciled in Zurich, Switzerland. During the 1970's I worked for Bank Leu in Zurich as a precious metal trader. Since then, I held various leading positions in the financial industry. I was a board member and active lecturer with the Swiss Association of Market Technicians from 1988 until 2015.

I have been an official distributor and coach for Metastock Chart analysis software for Switzerland, Austria, and Liechtenstein since the late 90's.

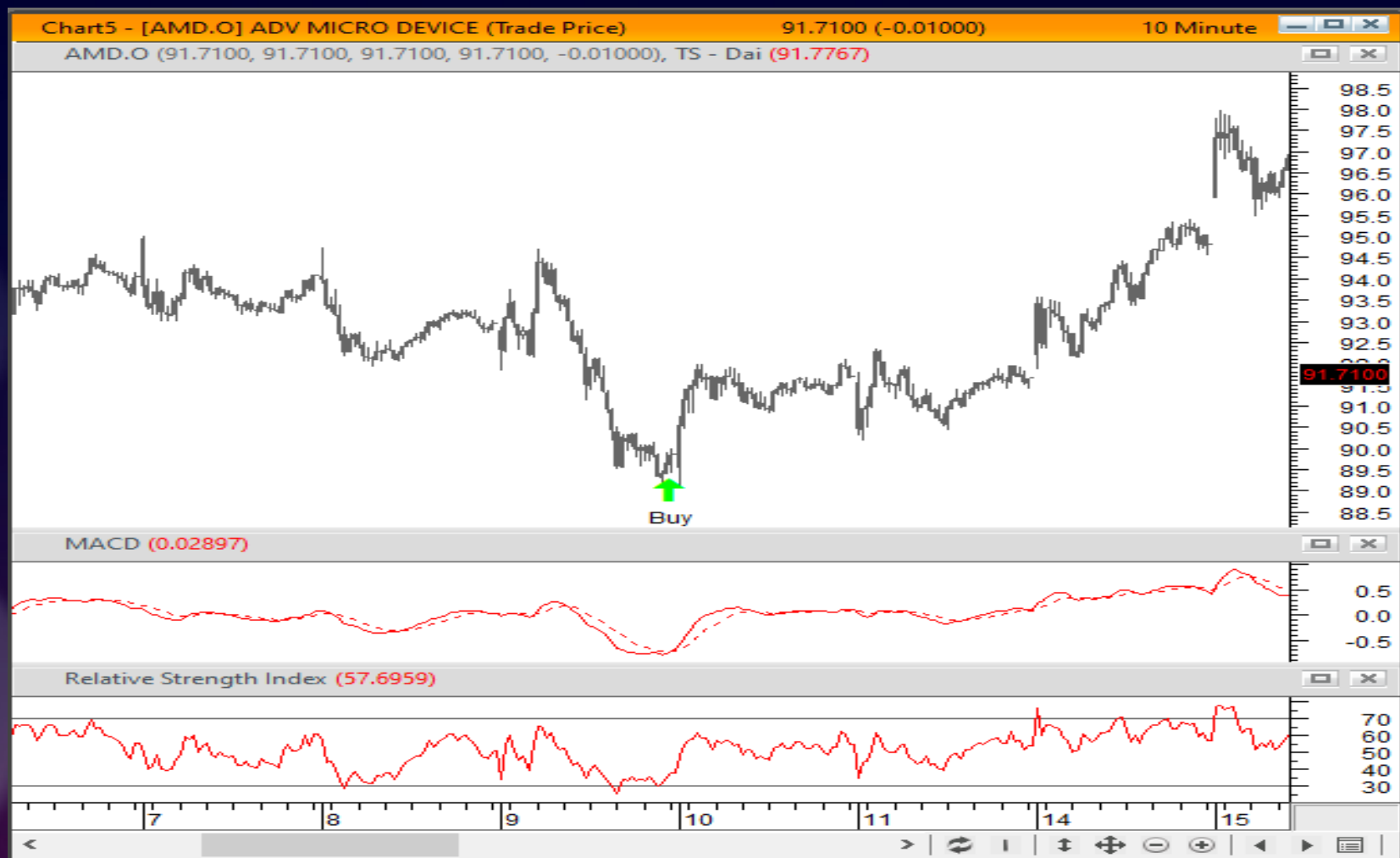
The close association with the people at Metastock has enabled me to come up with original trading concepts which culminated in the production of the **Elasticity Toolkit**, a Metastock Add-on which enables traders and investors to approach the financial markets with discipline and confidence.

Using the alert() function to generate advanced trading signals

The alert() function is used in conjunction with other functions to extend a true signal for a specified number of periods.

The following example illustrates the use of the alert() function. It could be used as a buy symbol in the Expert Advisor.

```
Buy:= Cross(MACD() , Mov( MACD(), 9, EXPONENTIAL)) AND  
Alert(Cross(RSI(14),30),5);
```



In the above example a buy signal would be generated when the MACD crosses above its 9 period exponential moving average and the 14 period relative strength index crosses above the 30 level at any time over the current and previous four time periods. The “RSI cross above 30 condition” would hold true over the entire five time periods even if the RSI falls back under the 30 level during that 5 period time span.



Same chart but with buy signal without the alert() function

If you removed the alert function in this example, both conditions would have to be true simultaneously for the buy signal to be generated. By using the alert function, the “RSI cross above 30 condition” is extended over the five period time span, thus increasing the chances of a buy signal being generated.

The Average True Range Indicator

The average true range is an effective way of measuring volatility and market noise.

It is the moving average of the true range for a given period. The true range is the greatest of the following:

- The difference between the current high and the current low
- The difference between the current high and the previous close
- The difference between the current low and the previous close

In trading, it is wise to use functions which separate emotions from trading decisions. The average true range can be of immense help in this respect.

How is the average true range implemented in trading?

- As a protective stop loss indicator
- Together with rising volume to indicate the development of a deterministic trend
- Used to sort volatility levels of selected stocks

It is worth bearing in mind that the average true range doesn't indicate the direction in which a stock is moving. It merely measures the amount of volatility inherent in the stock under scrutiny.

The average true range as a volatility weighted stop loss indicator

The volatility weighted long and short stop indicators calculate the stop levels using market volatility. The higher the volatility the further away is the distance of the stop to the current price.

This minimizes the chance that the stop will get hit, however in high volatility market situations, if the stop does get hit, the resulting loss will be considerable.

Metastock Code for Volatility Weighted Stops

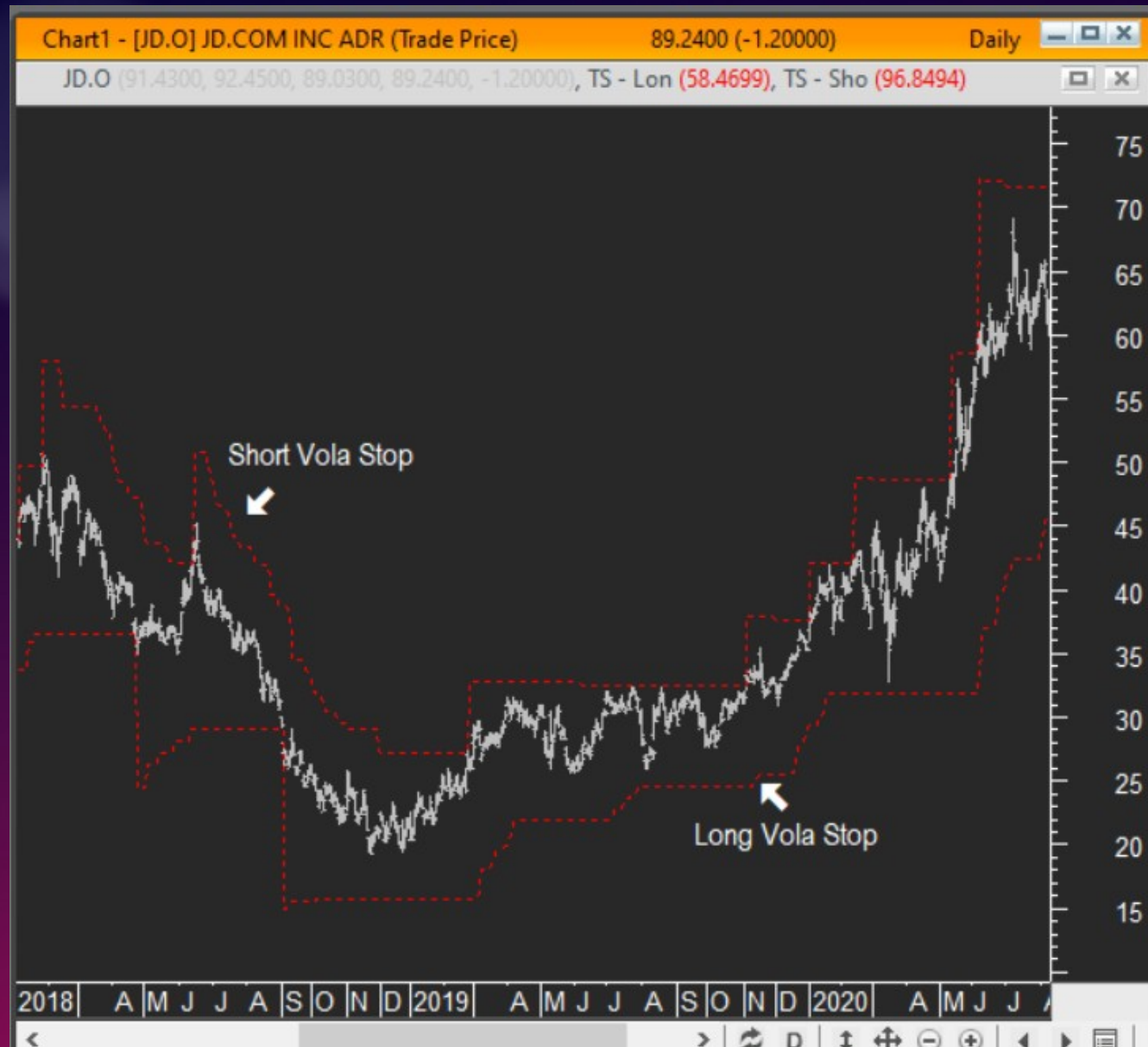
{Long Stop Volatility Weighted}

```
NumAtr:=Input("Select Volatility Factor",1,8,5);
Atrpds:=Input("Select Atr Lookback Periods",1,14,2);
LLPds:= Input("Select Review Lookback Periods",1,14,2);
LSL:=LLV(L,LLPds)-Numatr*ATR(Atrpds);
LVal:= If(L<PREV,LSL,If(LSL>PREV,LSL,PREV));
LStop:=Ref(LVal,-1);
LStop
```

{Short Stop Volatility Weighted}

```
NumAtr:=Input("Select Volatility Factor",1,8,5);
Atrpds:=Input("Select Atr Lookback Periods",1,14,2);
HHPds:= Input("Select Review Lookback Periods",1,14,2);
SSL:=HHV(H,HHPds)+Numatr*ATR(Atrpds);
SVal:= If(H>PREV,SSL,If(SSL< PREV,SSL,PREV));
SStop:=Ref(SVal,-1);
SStop
```

Atr Volatility Stops



Using the Average true range to sort stocks according to their volatility

In order to sort stocks according to their volatility, it is necessary to adapt the ATR function so that the result is given in percentage terms. Therefore the ATR function must be adapted for this purpose.

The function $ATR(14)$ gives the average true range of a stock in points per stock, however this result will not give the correct rank sort result.

Using the Average true range to sort stocks according to their volatility

The following formula will give a result which can be sorted according to the rate of volatility:

$$\text{ATR}(14)/C*100$$

Exploration Execution

Elapsed Time: 00:00:38

Exploration(s): 1/1 Instrument(s): 505/505

Rejected: 386/505 % Rejected: 76.4 %

Exploration	Run Date/Time	Filter Enabled	Interval	Periods L
TS - ATR in % of Close	1/15/2021 10:25:48 AM	Yes	Daily	

Results (119) Rejects (386)

Instrument Name	ATR in %	ATR	Close	Symbol
APACHE CRPTN ORD	5.6783	1.0420	18.3500	APA.O
OCCIDENTAL PETE	5.3701	1.3017	24.2400	OXY
MARATHON OIL	5.1924	0.4502	8.6700	MRO
TECHNIPFMC PLC	5.1289	0.6329	12.3400	FTI
ETSY INC	5.0345	10.6490	211.5200	ETSY.O
CARNIVAL CORP	5.0269	1.0516	20.9200	CCL
NORWGN CRUS LINE	4.9500	1.3078	26.4200	NCLH.K
DEVON ENERG	4.9339	1.0006	20.2800	DVN
HOLLYFRONTR CORP	4.9131	1.4361	29.2300	HFC
DIAMOND BAK ENGY	4.8614	3.0107	61.9300	FANG.C
TESLA INC	4.6000	38.8703	845.0000	TSLA.O

Trendless markets and their effect on trading performance

Numerous technical indicators will generate buy or sell signals even though the overall market trend force is weak. Trading in trendless markets means that one is allocating funds where the return is most probably limited and most likely will tend to generate numerous consecutive losses.

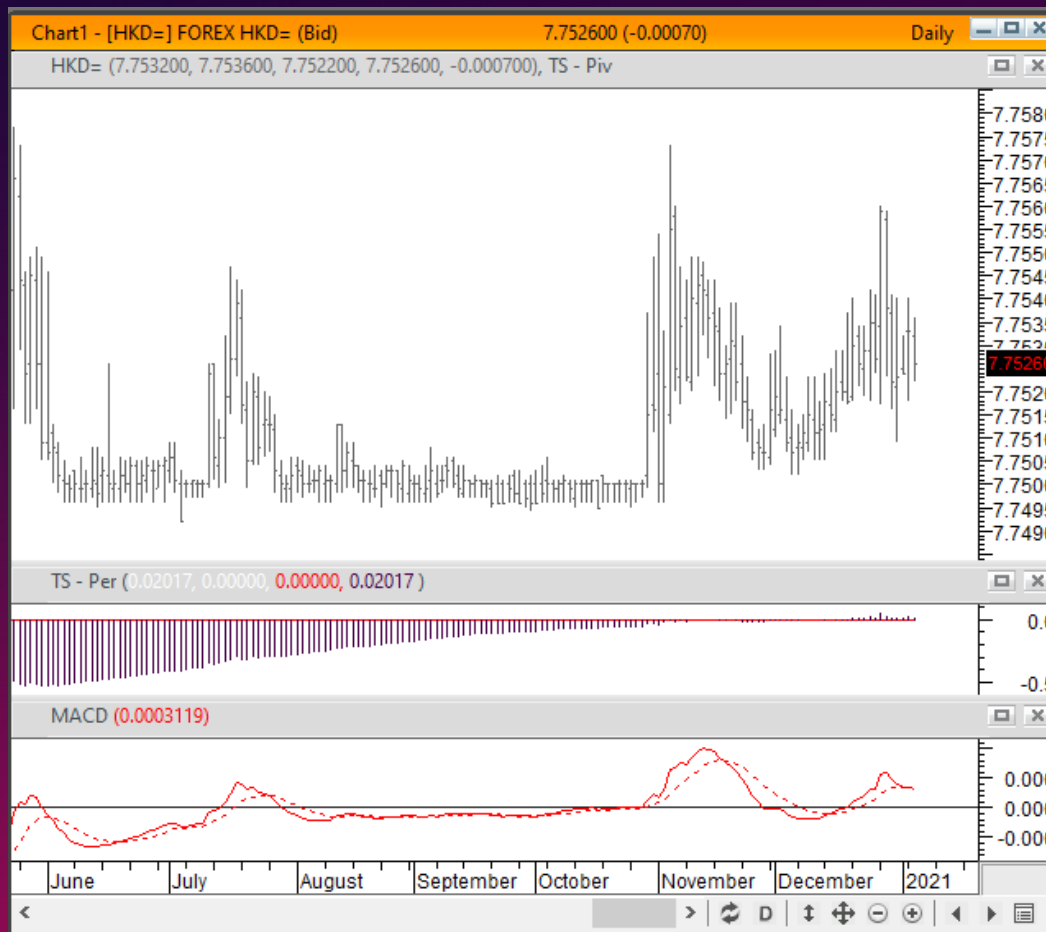
It would therefore make sense to filter out stocks which have had a tendency to move in narrow ranges.

In order to do this, we have developed a trend stagnation exploration in Metastock which allows us to focus on those stocks which have demonstrated strong trend force over a prolonged period of time.

Trendless markets and their effect on trading performance

Imagine the chart of a financial asset which displays no or limited fluctuations over long periods of time.

Below is a daily chart of the Hong Kong Dollar against the US dollar with the MACD indicator and the percentage distance from the 200 day moving average indicator.



Trendless markets and their effect on trading performance

It will not surprise us that using even the most efficient trading system, performance on stocks with weak trend characteristics will be disappointing.

In order to achieve an acceptable level of performance, we need to focus on financial assets which display deterministic trends (trends that are constant, whether positive or negative), coupled with a fair dose of volatility.

Trendless markets and their effect on trading performance

We will demonstrate how trading performance can be improved by avoiding stocks with a low level of deterministic trend strength. We have run the trend stagnation filter on the S&P 500 stocks.

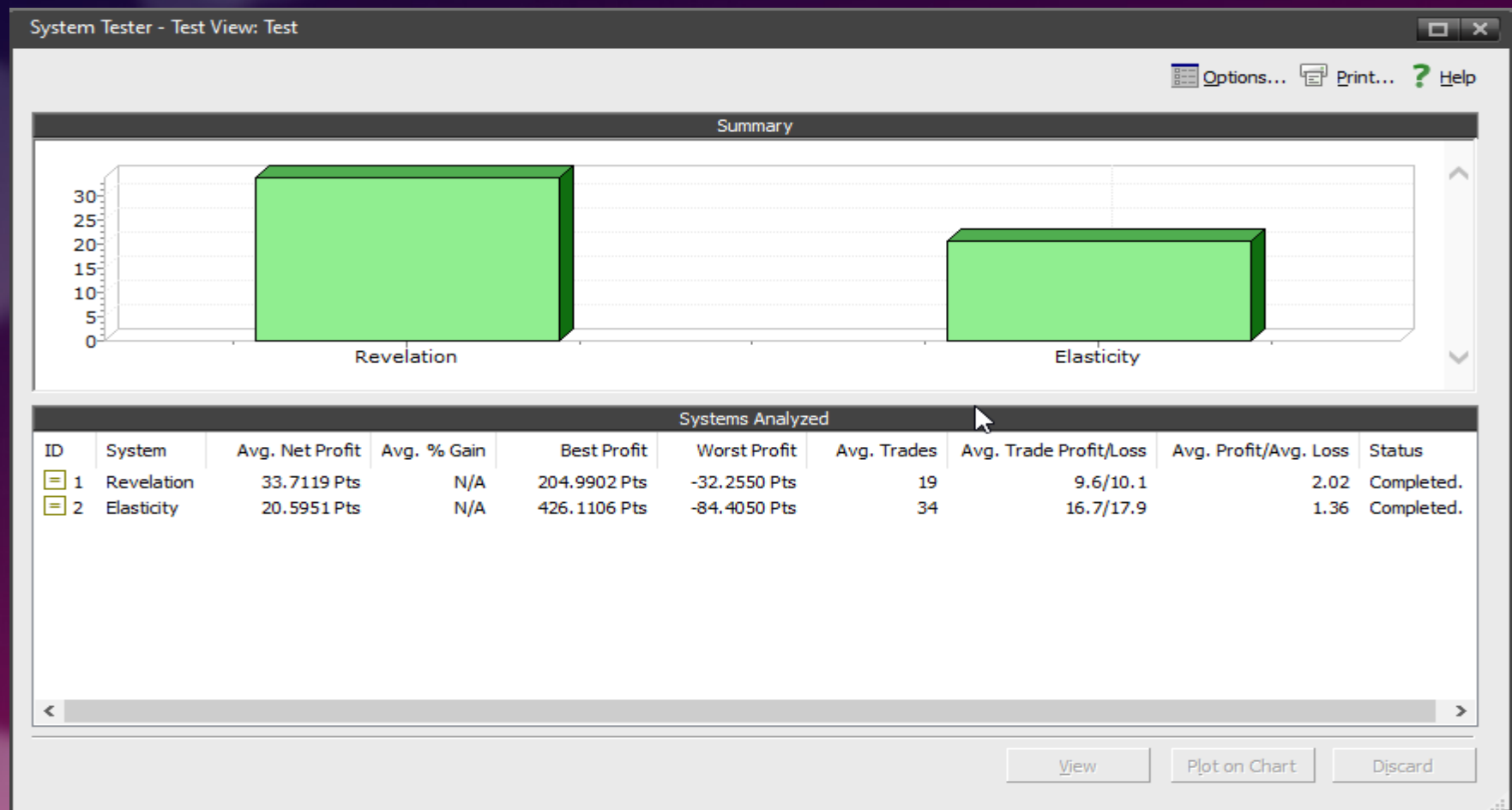
The first exploration will give us a list of stocks which have shown less than 30 days of inactivity over a 100 day period.

The second exploration will give us a list of stocks which have shown more than 70 days of inactivity over the same 100-day period.

Trendless markets and their effect on trading performance

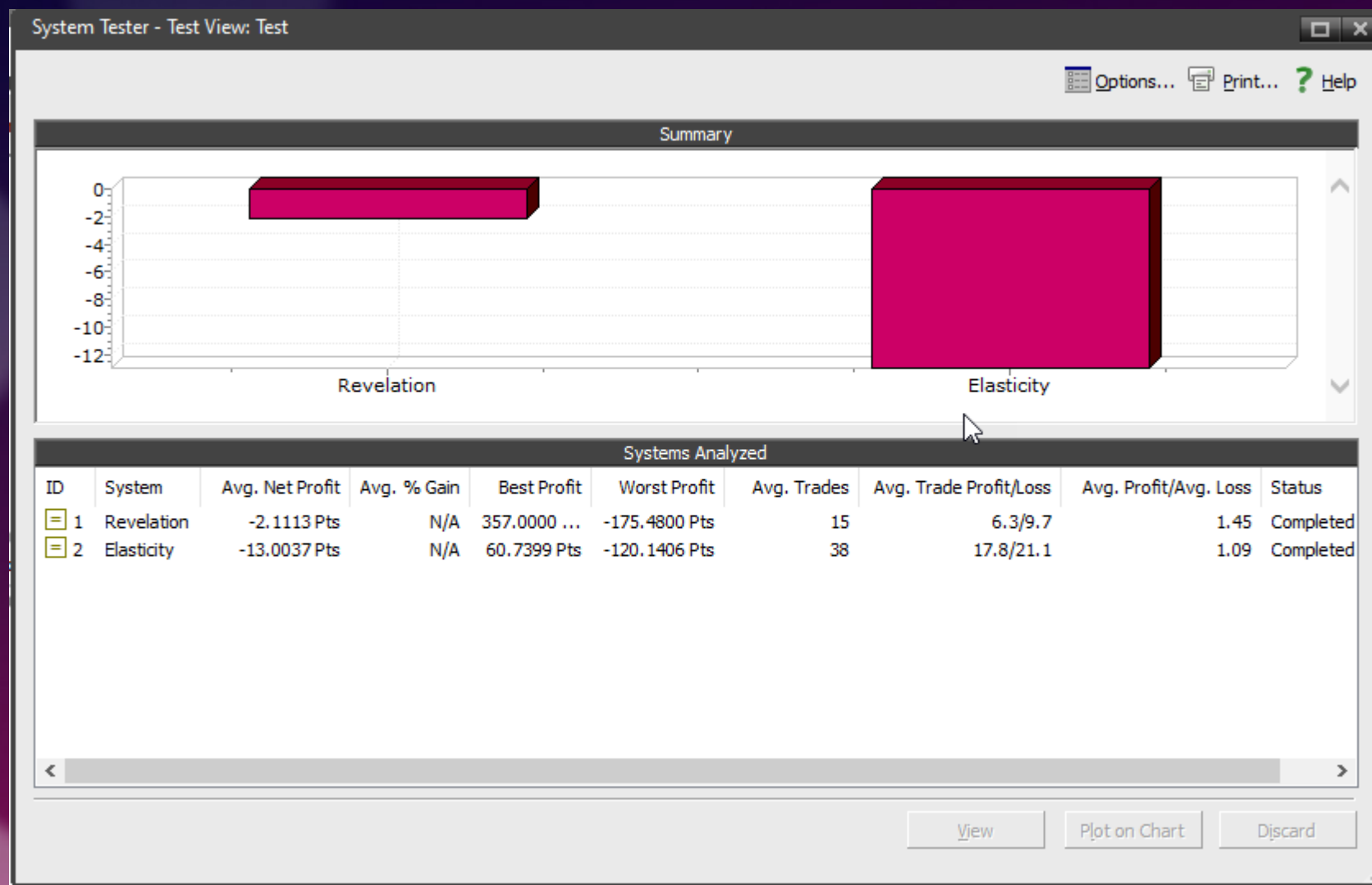
We then run both stock lists over two individual trading systems.
The difference in performance is remarkable.

Stocks with low trend stagnation rates



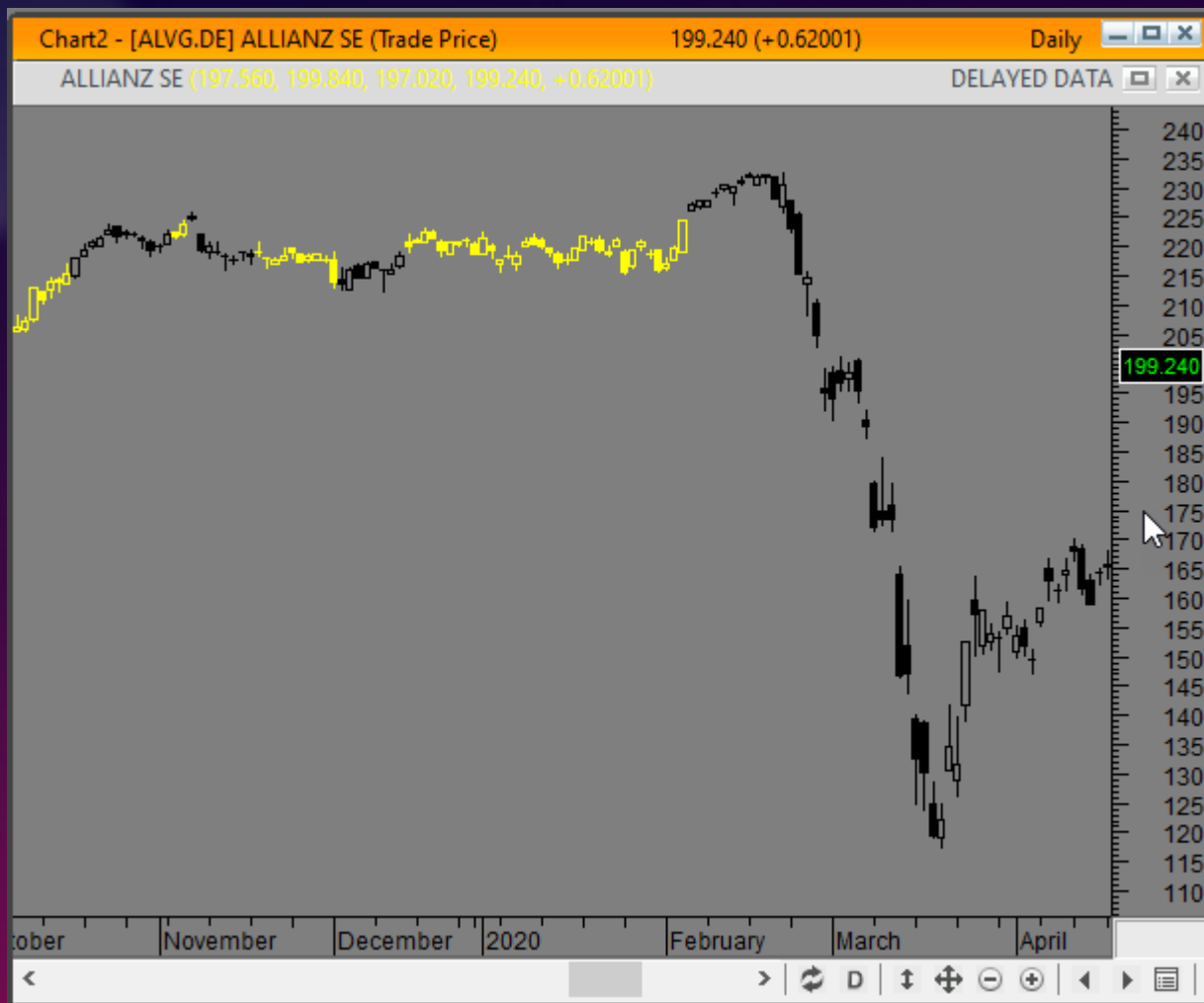
Trendless markets and their effect on trading performance

Stocks with high trend stagnation rates



Trendless markets and their effect on trading performance

The Trend Stagnation filter as yellow highlight



The bars highlighted in yellow indicate areas where no deterministic trend is detected. One should therefore avoid trade action in these areas.

The ValueWhen() Function

SYNTAX

valuewhen (Nth, EXPRESSION, DATA ARRAY)

FUNCTION

Returns the value of the DATA ARRAY when the EXPRESSION was true on the Nth most recent occurrence.

One use of this function is to monitor trading system performance in real time.

The following indicator measures performance of a short sale triggered by the MACD:

```
{TS - MACD Bear Profit in %}  
sig:=ValueWhen(1,Cross(Mov(MACD()),9,E),MACD()),C);  
LV:=(sig-C)/C*100;  
LastValue(LV)
```

The Valuwhen() Function

TS - MACD Bear Profit in %



The summation function

SYNTAX

sum(DATA ARRAY, PERIODS)

FUNCTION

Calculates a cumulative sum of the DATA ARRAY for the specified number of lookback PERIODS (including today).

Implementation Example

{TS - Sum of Cross Events - Counts the number of moving average crossovers over the past 9 periods}

```
crossevent:=Sum(Cross(Mov(C,5,S),Mov(C,9,S)),9)+Sum(Cross(Mov(C,9,S),Mov(C,5,S)),9);
```

```
crossevent
```

This indicator is used to detect trend force levels

The summation function

