Money Management Limits to Trade by Robot Trader for Automatic Trading

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Abstract

In this paper we propose to study some technical indicators and modules in goal to uses it in a robot trader for an automate trading to trade using a good money management technique; we can signalize trading in two main groups, Discretionary trading and Algorithmic trading. The first based on market knowledge, some news, of the trader's intuition. The second consists of two activities: Stock exchange transactions assisted by algorithms that anticipate and promote opportunities for arbitrage, and automated trading that uses algorithms and strategies that are set up as autonomous agent that perform transactions.

Keywords:

Trading;
Discretionary trading;
Algorithmic trading.

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1. Introduction

The main objective of this new technology is to allow people to buy, to trade and to invest without the intervention of banks or other financial institutions; Crypto-currencies are highly volatile and can be profitable for any trader's portfolio. Crypto-currencies are not physical currencies, they are electronic currencies, and they are digital asset that remains a given [1].

The technology behind crypto-currencies controls a large part of their value, guaranteeing a secure way to identify and transfer money. The first electronic currency are Bitcoin and Ethereum are the currency to which all other crypto currencies to compare.With the recent rise in popularity of crypto-currencies, many investors are now trying to determine how to invest into this new asset class. As with any investment into a new technology, there are many factors to consider when assessing their future. In order to make an informed decision one must look at the origins of the technology as well as the potential applications and limitations in the near future [2].

The difference between discretionary trading and automatic trading cannot reduce to psychology. It makes a big difference between discretionary trading which a human who decides to place an order according to his defined rules, and automatic trading which a software place an order according to the rules of a defined calculation.

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Mark the importance of data processing for the automatic trading and mathematical modeling they are essential to have a very high speed of execution to take advantage of all the arbitration opportunities detected. A perfect knowledge and mastership of computer science and algorithmic is necessary. For this reason, the automatic trading needed a serious technical update [3].

This paper aims the mechanism of the Implementation a robot trader for trading automatic with MetaTrader platform, that is an interface of development of trading automatic, it is relative to MetaQuote language (MQL5), source code is developed in .mql5 files, and the resulting automaton requires to be compiled before to be used.

2. Principale of Trading &CryptoTrading

a) Trade:

Trade involves the transfer of goods or services from one person or entity to another, often in exchange for money. A network that allows trade is called a market. Trade consists of the sale of goods or merchandise from a very fixed location, such as a department store, boutique or kiosk, online or by mail, in small or individual lots for direct consumption or use by the purchaser. Trade is defined as the sale of goods that are sold as merchandise to retailers, or institutional, or other professional business users, or to otherwhosalers and related subordinated services [4].

b) Trading Strategy:

Trading strategy is a fixed plan that is designed to achieve a profitable return by going long or short in markets. The main reasons that a properly researched trading strategy helps are its verifiable, quantifiablity, consistency, and objectively. The development and application of a trading strategy follow eight steps: [5] Formulation, Specificationin computer-testable form, Preminary testing, Optimization, Evaluation of performance and robustness, Trading of the strategy, Monitoring of trading performance, Refinement and avaluation.

For every trading strategy one needs to define assets to trade, entry and exit points and money management rules. Bad money management can make a potentially profitable strategy unprofitable [6].Trading strategy is usually verified by backtesting, where the process should follow the scientific method, and by forward testing where they are tested in a simulated trading environment.

The trading strategy is developed by the following methods:

- Automated trading; by programming or byvisual development.
- Discretionary trading; by pen and paper learning from faults during trading.

c) Electonic Money:

The world of finance is about to change drastically, A newcomer has just penetrated this gigantic market of several trillions of dollars and he intends to impose. Currencies around the word, and with them the rest of the financial system, have been regulated and managed centrally for a long time [7].

However, where economic stability and prosperity were expected, economic crises, stock market cracks and even wars were all too often born.During times of crises, people have generally turned to gold for its usefulness as store of value, although it has major disadvantages: it is heavy, expensive to store, its market manipulated, and its purchase additionally regulated in many countries [8], what else besides gold?

The need for a shelter capable of supporting future economic shocks clearly felt: recovery from the global crisis of 2007/2008 remains fragile, and given the future problems resulting from quantitative easing and growing deficits in many countries, there are many reasons to question the stability and health of the word economy in the coming years. The growing demand for faster and more secure transactions may well, in the age of the internet find its answer in crypto-currencies like Bitcoin.

Bitcoin is a digital crypto-currency and payment system that is entirely decentralized, meaning it based on peer-to-peer transactions with no bureaucratic oversight. Transactions and liquidity within the network instead based on cryptography. The system first emerged formally in 2009 and is currently a thriving open-source community and payment network [9]. Based on the uniqueness of Bitcoin's payment protocol and its growing adoption, the Bitcoin ecosystem is gaining lots of attention from businesses, consumers, and investors alike. Namely, for the ecosystem to thrive, we need to replicate financial services and products that currently exist in our traditional, fiat currency world and make them available and custom-tailored to Bitcoin, as well as other emerging crypto-currencies.

d) Crypto-currencies Trading Strategy:

As we have explained before, this is a crypto-currency trading strategy can be used trading all the important crypto-currencies. Actually, this is an Ethereum trading strategy as much as it's a Bitcoin trading strategy. Ethereum is the second most popular crypto-currency. The best Bitcoin trading strategy is 85% buying price action strategy and 15% selling a crypto-currency, trading strategy that uses an indicator [10].

Traders employ many techniques, one of which is the use of charts. Using charts, technical analysts seek to identify price patterns and market trends in financial markets and attempt to exploit those patterns.

Traders use various methods and tools, the study of price charts in one but.Technical analysts widely use market indicator of many sorts, some of which are mathematical transformations of price, often including up and down volume, advance data and other inputs. Traders look for relationships between price and volume indices and market indicators, such as the relative strength index, moving averages, regressions, inter-market and intra-market price correlations, cycles or classically through recognition of chart patterns.

3. Study of Technical Indicators

Technical indicator is a mathematical calculation based on historic price, volume data or open interest information that aims to forecast financial market direction [11], there are over 200 different technical indicators [12]. The follow tableau show same indicators organized in three categories:

INDICATORS		
TRENDS	VOLUMES	OSCILLATORS
AMV	Accumulation	ATR
ADMI	Distribution	CCI
ADMIW	MFI	De Marker
BB	OBV	Force Index
DEMV	Volumes	MACD
Envelopes		MAO
FAMV		Momentum
MV		RSI
SD		ROC
TEMA		Stochastic
VIDA		TEA

We will focus on technical indicators that predict trends. A selection of common technical indicators and their grouping are listed below [13]. Explanations and equation are shown:

Trend Indicators to measure the main direction of the underlying security of market, they are classified as secular trends for long time frames, trends indicators can be enormously profitable and easy to use.

- Simple Moving Averages (SMA):

A moving average is an average of a certain body of data; the term moving is used due to the fact that the average is calculated using the last 10 days prices of a stock [14]. Thus the data moves forward with each new trading day.

The Simple Moving Average for n periods of an indicator p, at (i) period of current period, written:

SMA (n) [i] = (p[i] + p [i+1] +…..p [I + (n-1)]) / N

With: N > 0 and i > 0

- On Balance Volume (OBV):

The Indicator needed for the best trading strategy is the On Balance Volume (OBV); this is the best indicators used to analyze the total money flow in an out of an instrument. The OBV uses a combination of volume and price to tell you what is the total amount of money going in and out of the market.

OBV Indicator

The volume indicator gives an indication of the volume of securities traded over the current period compared to the average volume over n periods. The volume indicator is set based on the following report:

R = VOLUME [0] / VOLUME (n) [0]

With:

VOLUME [0]: the number of shares traded over the current   period.

VOLUME (n) [0]: the average of the volumes traded over the previous n periods.

The number of rods in the volume indicator depends on the (R) value relative to thresholds, the case of low volume and up to five rods in the case of an unusually high volume.

- Oscillators:

Oscillators are indicators that fall within a bound range, e.g. zero and 100 [15]. The principal idea is that the closer the value of the indicator is 100, the more certain the indicator is that a security is overbought.

Likewise, as the indicator's certainly that a security is oversold increases. Buy and sell signals may be generated during the respective periods.

- Relative Strength Index (RSI):

The RSI is the result of Welles Wilder's research. Wilder using a 14-period RSI and this is also what suggested in the literature. We can use a number of different periods. Know that the smaller the fluctuations become important. The formula of RSI is as follows:

RSI = 100 – (100 / (1+RS)

With:

RS = (Earning on bullish periods / N) / (Losses on down   periods / N)

N: number of periods (14 suggested)

RS is actually the ratio of average earnings during period n to average losses during the same period. We use 14 as the number of periods, to reach the overbought at 85% and the oversold at 25%.

- Momentum:

A Momentum of n periods noted MOM (n) is a technical indicator that calculates the variation of n periods of another technical indicator p. At i periods of the current period, the momentum n periods is written:

MOM (n) [i] = p [i] – p [n+1]

The value of n should not be too large to account for a sufficiently recent variation, and not too small to account for too short term fluctuation comparable to noise.

The momentum indicates a gap of duration of n periods. The momentum therefore indicates a speed. Momentum growth, as a variation of speed, measures acceleration.

- Williams %R:

Developed by Larry Williams, is an oscillator that measures the latest close in relation to the stock's price range over a set number of day [16]. The difference between today's close and the price high for the set number of days is divided by the difference between the ranges high and the ranges low. The result is multiplied by -100, creating an upside down stochastic; the equation is as follows [17]:

$\%R = ((high_{Ndays} - close_{today}) / (high_{Ndays} - low_{Ndays})) * -100$

- Rate of Change (ROC):

The Rate of Change is a stock market indicator that used to evaluate the speed of change of a security. We note that a security is overbought when the ROC increases and therefore that the evolution of the security is stronger than that of a previous period. And on the contrary, a stock is oversold when the ROC is low. The formula of the ROC is written:

ROC (i) = (price (i) *100) / price (i-n)

When:

 (i): is the price for the date (i).

n: is the chosen period.

The Rate is an important financial concept because it allows investors to spot security momentum and other trends.

4. Technical Analysis

The Technical Analysis is the study of the evolution of a market, mainly on the basis of graphs, in order to predict future trends. It is based on price evolution is the result of everything the rest, the variation of the course curves follow major and minor trends and the appearance of a frank trend encourages operators to act in the same direction as the trend.

Technical Analysis reveals the regularly repeating market situations by two commonly used methods:

a) Statistical Analysis:

Statistical analysis is based on the study of technical indicators in goal to identify trends. It is generated by market activity based on three assumptions; the market discounts everything, price moves in trends and history trends to repeat itself [18]. Traders take a short-term approach to analyzing the market which all the information they need about a stock can be found in charts.

b) Chartist Analysis:

Chartist analysis is based on the graphical study of price and volume graphs. It is the appearance of certain graphic configurations that generates buying or selling signals. A chart is simply a graphical representation of a series of prices over a set time frame [19]. It shows a stock's price movement over a one year period, where each point on the graph represent the closing price for each day the stock is traded.

5. Trading Simulators

In some cases, we go into more detail regarding the trading simulator, the most differences between the simulators that quality trading of technical analysis should be embraced by even the staunchest and most suborn proponent of fundamental analysis in trading.

a) MetaTrader:

With the sheer number of forex brokers out there, must mention MetaTrader. Although, it is free and has great charting and strategy development features, it is one of the most popular trading software used by spot forex traders [20].

b) NinjaTrader:

NinjaTrader is consistently voted an industry leader by the trading community. Featuring one thousands of applications and added on for unlimited customization, NinjaTrader is used by over 40,000 traders for advanced market analysis, professional charting and fast order execution [21].

c) TradingSim:

Tradingsim is a great platform for both new and experienced traders who want to improve their skills without risking capital. The ability to simulate trading even when the market is closed; at any time of the day or night, makes tradingsim a unique and highly useful tool [22].

d) Investopedia:

The Investopedia is a stock simulator using real data from the markets, the trading occurs in context of a game, which can involve joining an existing game or the creation of a custom game that allows user to configure the rules. Options, margin trading, adjustable commission rates and other choices provide a variety of ways to customize the games [23].

e) TradingSimulator:

Trading simulator is trading simulation software for US markets including futures, the trading time frame is between 1 minute and 4 hours, it has more technical indicators than TradingSim, and it is charting software that has a simulation function. It accepts live data from many sources including major brokres [24].

f) MarketWatch:

MarketWatch is a leader in financial news and market data, blending breaking headlines with incise analysis, market updates, streamlining tools and blod reporting from trusted sources to help guide life's most important monetary decisions for individuals and financial professionals [25].

g) TradingView:

TradingView is an advanced financial visualization platform with the ease of use of a modern website. Whether looking at basic price charts or plotting complex spread symbols with overplayed strategy back testing, it is the most active social network for traders and investors [26].

h) StockFuse:

Stockfuse is so much more than just a virtual trading platform; Find out more about how Stockfuse can help a student, an employer, an educator, or an average person who wants to learn about investing [27].

i) Invertify:

Investify game is an automated trading contest and only automated traders are considered eligible for the game, Only participants from the US are eligible to with the prize, Any form of cheating or taking advantage of differences between real stock market and this virtual platform is strictly prohibited [28].

j) MoneyPot:

Moneypot is a simulated stock market game that combines the joy of trading in the stock market without the fear of losing hard earned money. It aims to connect the online trading community through this virtual trading platform, it is actively used by corporates using an easily deployable with label solution model to meet their marketing and international training need there by assisting them in employee [29].

k) Forex Tester:

Forex Tester is ideal for discretionary price action traders, the learning curve is short, and the drawing tools are robust. For discretionary traders, the ability to replay price action is important. And Forex Tester does this well, there is no plug and play method for getting custom indicators. Hence, this is a drawback if needed to be used custom indicators in discretionary trading [30].

6. Study of Graphic Configurations

The price curves are not chaotic, their variations are not random, and they follow major and minor trends: alternation of upward phases, range and downward phases. A trend reinforced by the mimetic behavior of the operators, the appearance of a frank trend encourages the operators to act in the same direction as the trend.

a)   Resistance:

The graphical study of price and volume graphs is the appearance of certain graphic configurations generates buying and selling signals. Crossing a higher by the so-called peak price curve is a historically high level in the price curve [31]. If we draw a line passing through several vertices of the same level, we obtain a line called resistance (Figure1).
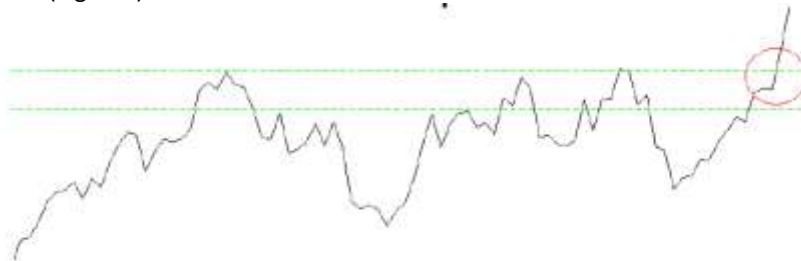

Figure1: Crossing a resistance by the course

The resistance line indicates a psychological brake zone at purchase. Just before crossing line, the sales offer tends to become more important than the purchase demand. Just after crossing a resistance line, the buying demand tends to become more important than the sell offer [32]. Once overcome, resistance acts as a support.

b)   Support:

Conversely, the crossing by the curve of the prices of a lower one generates a signal of sale. A lower is trough on the price curve. A trend line connecting several lows of the same level called support (Figure2).
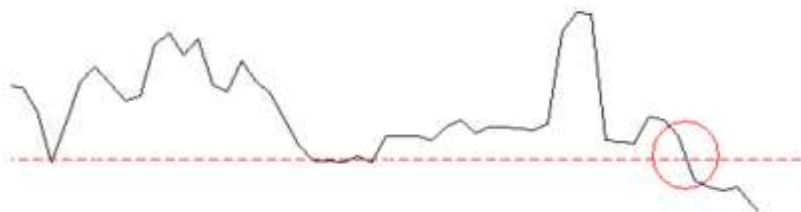

Figure2: Crossing a support by the course

Just before crossing a support line, the demand tends to become more important than the sell offer. Just after crossing a support line, the sales offer tends to become more important than the purchases demand. Once crossed, the support behaves like a resistance.

ALGORITHM 1: Resistance & support

```
IntOnInit ( )
{
SetIndexBuffer(0,ResistanceBuffer,INDICATOR_DATA);
SetIndexBuffer(1,SupportBuffer,INDICATOR_DATA);
SetIndexBuffer(2,FractalsUpBuffer,INDICATOR_CALCULATIONS);
SetIndexBuffer(3,FractalsDownBuffer,INDICATOR_CALCULATIONS);
PlotIndexSetInteger(0,PLOT_ARROW,InpArrowCode);
PlotIndexSetInteger(1,PLOT_ARROW,InpArrowCode);
PlotIndexSetInteger(0,PLOT_ARROW_SHIFT,-5);
PlotIndexSetInteger(1,PLOT_ARROW_SHIFT,5);
PlotIndexSetDouble(0,PLOT_EMPTY_VALUE,EMPTY_VALUE);
PlotIndexSetDouble(1,PLOT_EMPTY_VALUE,EMPTY_VALUE);
IndicatorSetInteger(INDICATOR_DIGITS,Digits+1);
handle_iFractals=iFractals (Symbol( ),Period( ));
if(handle_iFractals==INVALID_HANDLE);
   {
PrintFormat("Failedtocreate, Symbol( ), EnumToString(Period( )), GetLastError( ));
Return(INIT_FAILED);
   }
Return(INIT_SUCCEEDED);
 }
```

7. Modules of Trade Signals

A sign, usually based on technical indicators [33], that it is a good time to buy or sell a particular security. Trade signals come in a variety of forms, including bull or bear pennants, as well as head and shoulders chart patterns.This module of signal based on the follow technical indicators:

a) Bulls Power & Bears Power Signals:

Trading is a battle of buyers (Bulls) pushing prices up and sellers (Bears) pushing prices down. Depending on what party scores off, the day will end with a price that is higher or lower than that of previous day. Intermediate results, first of the entire highest and lowest price, allow to judge about how the battle was developing during the day.

The Bulls Power and Bears Power indicators are set based on the following report:

BULLS = HIGH – EMA

With: HIGH: the highest price of the current bar

EMA: the Exponential Moving Average

EMA = (CLOSE (i) * P) + (SMA (i-1) * (1-P))

With: CLOSE (i): current period close price.

SMA (i-1): value of the Simple Moving Average of a preceding period

P: the percentage of using the price value

SMA = SUM (CLOSE (i)) / N

With: N: number of calculation periods

In final, we obtain

BULLS = HIGH – {(CLOSE (i) * P) + (SUM (CLOSE (i)) / N) * (1-P)}

In addition, The Bears Power indicator is set based on the following report:

BEARS = LOW – EMA

With:

LOW: the lowest price of the current bar

The same demonstration, we obtain:

BEARS = LOW – {(CLOSE (i) * P) + (SUM (CLOSE (i)) / N) * (1-P)}

ALGORITHM 2: Bulls & Bears

```
Void OnInit ( )
{
SetIndexBuffer(0,ExtBullsBuffer,INDICATOR_DATA);
SetIndexBuffer(0,ExtBearsBuffer,INDICATOR_DATA);
SetIndexBuffer(1,ExtTempBuffer,INDICATOR_CALCULATIONS);
IndicatorSetInteger(INDICATOR_DIGITS,Digits( ));
PlotIndexSetInteger(0,PLOT_DRAW_BEGIN,InpBullsPeriod+1);
PlotIndexSetInteger(0,PLOT_DRAW_BEGIN,InpBearsPeriod+1);
IndicatorSetString(INDICATOR_SHORTNAME,"Bulls("-(string)InpBullsPeriod+")");
IndicatorSetString(INDICATOR_SHORTNAME,"Bears("-(string)InpBearsPeriod+")");
ExtEmaHandle=iMA(NULL,0,InpBullsPeriod,0,MODE_EMA,PRICE_CLOSE);
ExtEmaHandle=iMA(NULL,0,InpBearsPeriod,0,MODE_EMA,PRICE_CLOSE);
}
```

b) Parabolic SAR Signals:

This module of signals based on the market of the Parabolic SAR (Stop and Reverse) [34] technical indicator developed for analyzing the trending markets. The indicator constructed on the price chart. This indicator moves with higher acceleration and may change its position in terms of the price. The indicator below the prices on the bull market when the market is bearish, it is above the prices.

It is an outstanding indicator for providing exit points. Long positions should be close when the price sinks below the SAR line, short positions should be close when the price rises above the SAR line. The Parabolic SAR indicator is set based on the following report:

SAR (i) = SAR (i-1) + AF*(EP – SAR (i-1))

Where:

SAR (i-1): value of Parabolic SAR on the previous bar,

AF: acceleration factor, **0.02≤ AF ≤ 0.2**

EP: Extreme Price,

If Long positions, EP is the extreme high price,

If Short positions, EP is the extreme low price,

ALGORITHM 3: Parabolic SAR

Void OnInit ( )

```
{
if (InpSARStep<0.0)
   {
ExtSarStep=0.02;
Print("Input parametrInpSARStep has incorrect value. Indicator will use value",
ExtSarStep,"for calculations.");
   }
 elseExtSarStep=InpSARStep;
 if(InpSARMaximum<0.0)
   {
ExtSarMaximum=0.2;
Print("Input parametrInpSARMaximum has incorrect value. Indicator will use value",
ExtSarMaximum,"for calculations.");
   }
 elseExtSarMaximum=InpSARMaximum;
 SetIndexBuffer(0,ExtSARBuffer,INDICATOR_DATA);
 SetIndexBuffer(1,ExtEPBuffer,INDICATOR_CALCULATIONS);
SetIndexBuffer(2,ExtAFBuffer,INDICATOR_CALCULATIONS);
 IndicatorSetInteger(INDICATOR_DIGITS,Digits+1);
 PlotIndexSetString(0,PLOT_LABEL,"SAR("+
DoubleToString(ExtSarStep,2)+","+
DoubleToString(ExtSarMaximum,2)+")");
 ExtLastRevPos=0;
 ExtDirectionLong=false;
  }
 doubleGetHigh(intnPosition,intnStartPeriod,const double &HiData[])
  {
 double result=HiData[nStartPeriod];
 for(int i=nStartPeriod;i<=nPosition;i++) if(result<HiData[i]) result=HiData[i];
 return(result);
  }
 doubleGetLow(intnPosition,intnStartPeriod,const double &LoData[])
  {
 double result=LoData[nStartPeriod];
 for(int i=nStartPeriod;i<=nPosition;i++) if(result>LoData[i]) result=LoData[i];
 return(result);
  }
```

_____

The indicator value increases if the price of the current bar is higher than previous bullish and vice versa. The acceleration factor will double at the same time, which would cause Parabolic SAR and the price to come together.Weproceeding implementation the last algorithms in a robot trading and execute the compilation and run in MetaTrader platform to new order.

8. Technichal of Money Management:

For a good technical trading plan, using a good money management technique is the most important, the easiest to learn and the hardest to do, because at one time or another, most of us have put all our marbles in on basket, timed it just right, and made a tremendous profit. When this happens, the results are susally two-fold. One, it boosts our ego and confidence to the point that we think we can do it at least one more time; second, the profit was made so quickly that we don't consider it in the same light as if it took us several tears to earn it.

A concept of money management based in two sentences:

- Don't margin more than 10% of total capital on any on commodity.
- Don't margin more than 50% of total capital at any one time.

These are the limits to trade using these criteria on the account money management.

To buy or sell a security at pre-defined conditions in the future with the following instruction:

-     Buy Limit:

Trade request to buy at the ask price that is equal to or better than that specified in the order. The current price level is higher than the value in the order. Usually this order is placed in anticipation of that security price, having fallen to a certain level, will increase.

- Buy Stop:

Trade request to buy at the ask pricethat is equal to or better than that specified in the order. The current price level is lower than the value in the order. Usually this order is placed in anticipation of that the security price, having reached a certain level, will keep on increasing.

- Sell Limit:

Trade request to sell at the Bid price that is equal to or better than that specified in the order. The current price level is lower than the value in the order. Usually this order is placer in anticipation of that the security price, having increased to a certain level, will fall.

- Sell Stop:

Trade request to sell at the Bid price that is equal to or better than that specified in the order. The current price level is higher than the value in the order. Usually this order is placer in anticipation of that the security price, having reached a certain level, will keeping on falling.

- Buy Stop Limits:

This type is the combination of two first being a stop order for placing Buy Limit. As soon as the future Ask price reaches the value indicated in the order, a Buy Limit order will be placed at the level, specified in the order. The current price is lower than that, reaching which the pending order will be placed.

- Sell Stop Limits:

This type is a stop order placing Sell Limit. As soon as the future Bid price reaches the value indicated in the order, a sell Limit order will be placed at the level, specified in the order. The current price in higher than that reaching which the pending order will be placed. The pending order price is higher than the price of its placing.

9. Result and Discussion

A robot is a computer program designed to trade automatically. Such a robot uses exclusively technical analysis signals to open positions. The algorithm study based on one indicator, two modules compensate composed by three indicators, and the signals of the Intraday Time Filter [35] based on the assumption that the efficiency of market models changes in time.

Signal Type	Description of Conditions
For buying	No signals
For selling	No signals
No objections to buying	The current date and time meet the specified parameters
No objections to selling	The current date and time meet the specified parameters

To create robot we use the Assistant MQL5 in MetaTrader platform by selecting an Expert consulting, we adding our robot and update the proprieties of signal, and proprieties of trailing by select the Parabolic SAR.

Trading robot follows the OBV indicators, the Bulls Power & Bears Power module, Parabolic SAR module, and the Time filter improving the efficiency and reliability of digital timeframe. All the algorithm of these indicators will be assemble in one:

ALGORITHM 4: Robot

```
#include <Resistance & support.mql5>
#include < Bulls & Bears.mql5>
#include < Parabolic SAR.mql5>
//+----------------------------------------------------------------+
//| Initialization function of the robot                           |
//+----------------------------------------------------------------+
intOnInit()
  {
if(!ExtExpert.Init(Symbol(),Period(),Expert_EveryTick,Expert_MagicNumber))
   {
```

```
printf(__FUNCTION__+": error initializing expert");
ExtExpert.Deinit();
return(INIT_FAILED);
  }
CExpertSignal *signal=new CExpertSignal;
if(signal==NULL)
   {
printf(__FUNCTION__+": error creating signal");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
ExtExpert.InitSignal(signal);
signal.ThresholdOpen(Signal_ThresholdOpen);
signal.ThresholdClose(Signal_ThresholdClose);
signal.PriceLevel(Signal_PriceLevel);
signal.StopLevel(Signal_StopLevel);
signal.TakeLevel(Signal_TakeLevel);
signal.Expiration(Signal_Expiration);
CSignalBearsPower *filter0=new CSignalBearsPower;
if(filter0==NULL)
   {
printf(__FUNCTION__+": error creating filter0");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
signal.AddFilter(filter0);
filter0.PeriodBears(Signal_BearsPower_PeriodBears);
filter0.Weight(Signal_BearsPower_Weight);
CSignalBullsPower *filter1=new CSignalBullsPower;
if(filter1==NULL)
   {
printf(__FUNCTION__+": error creating filter1");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
signal.AddFilter(filter1);
filter1.PeriodBulls(Signal_BullsPower_PeriodBulls);
filter1.Weight(Signal_BullsPower_Weight);
CTrailingNone *trailing=new CTrailingNone;
if(trailing==NULL)
   {
printf(__FUNCTION__+": error creating trailing");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
if(!ExtExpert.InitTrailing(trailing))
   {
printf(__FUNCTION__+": error initializing trailing");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
CMoneyFixedLot *money=new CMoneyFixedLot;
if(money==NULL)
   {
printf(__FUNCTION__+": error creating money");
ExtExpert.Deinit();
return(INIT_FAILED);
```

```
    }
if(!ExtExpert.InitMoney(money))
   {
printf(__FUNCTION__+": error initializing money");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
money.Percent(Money_FixLot_Percent);
money.Lots(Money_FixLot_Lots);
if(!ExtExpert.ValidationSettings())
   {
ExtExpert.Deinit();
return(INIT_FAILED);
   }
if(!ExtExpert.InitIndicators())
   {
printf(__FUNCTION__+": error initializing indicators");
ExtExpert.Deinit();
return(INIT_FAILED);
   }
return(INIT_SUCCEEDED);
 }
```
_____

To test how well the robot did, we implemented a trading algorithm per indicator and tested them on the stock data from the different sectors. We later realized that we were really testing the chosen algorithm.

The important case to be selected in proprieties is the money management must to be named in Trading with optimized trade volume. In the end, we shown the algorithm to be compiled and debugged.

Finally, running the application we obtain the following figures in MetaTrader console, when the Auto Trading is executed.

Figure3: Show the time to buy or sell

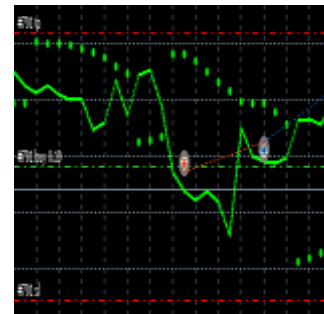Figure4: Show the line of Price ask and Price bid

Figure5: Show the resistance and support line

These are results from our algorithms in figure3, Figure4 and Figure5 show that by one click, the robot is permanently active, passing orders based on signals from mathematical algorithms applied to past prices.

The robot trader could possibly be worse at predicting stock movements related to the stock sector dealing with companies in the quaternary sector of our chosen sectors.

10. Conclusion

The stock market governed by the 16-year cycle. The history of the stock market always has been respected [36]. Hence, the reliability of the technical analysis is crucial. It allows me to know if we sell or buy, during the phase when it goes up, we have to buy, after cash the profit and never stay. It is the moment of enrichment.

Robot trader has the advantage of portraying the forces of purchase and sale in force. Often, the signals of purchases or sales will even precede the news. The robot can therefore take positions even before the

information explaining certain price movements be available. However, robot trader has the main drawback of not being able to explain the reasons behind the price movements.

The market always pays the disciplined trader, just a little to lose everything. Lot of wealth managers around the word uses automatic computer systems, because it makes us leave the market when we win, and leave the market when we lose! We have to make a plan and stick to it. We have to set a winning goal and a potential loss. We must build a method that is as rigorous as possible, and not change it.

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