#

Quantum User Guide 2012

Quantum Automatic Trading System is an intelligent system which helps investors to maximize profits and minimize risks during their trading.

Quantum 2012 User Guide

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1 Introduction: Why Quantum.

With more than 700 stocks in Vietnam Stock Exchange, it is hard task for portfolio manager to manage the pools of interested stocks. Moreover, how to maximize the profit of the portfolio and to avoid risks are the questions that can be headache for portfolio manager.

Quatum 2012 is a high effective expert system, which provide portfolio managers capacities to minimize risks and maximize profits. The Quantum's user take advange of built-in Strategy to evaluate stocks, forex, gold to find out the best time to take action.

Quantum features include:

- Automatic Trading Strategies System helps investors to find automatically Buy/Sell decision;
- Stock Ranking system helps to find the best stocks for trading;
- Strategy Ranking helps to select the best-fit automatic trading strategy;
- Backtesting helps to evaluate the performance of a stock when following a strategy.

This document is organized in 10 sections. The second section will introduce the investment process when using the Quantum software. The third section presents how to launch the system.

2 Investment Cases

We describe the following investment case to guide user quick utilization of Quantum system.

2.1 You have already known what stock you want to trade today

Suppose you want to trade SSI, Saigon Securities Company. Within 3-5 steps and less than 1 minutes you can know what to do with your prefer stock and trade it successfully.

Step 1: Launch Quantum (refer to Section 3, Launch Quantum)

Click on the icon of the application, you will see the login window. Enter your login and password provided by HQ Corporation. In case you are behind the proxy, chose Configuration and set Proxy as Default.

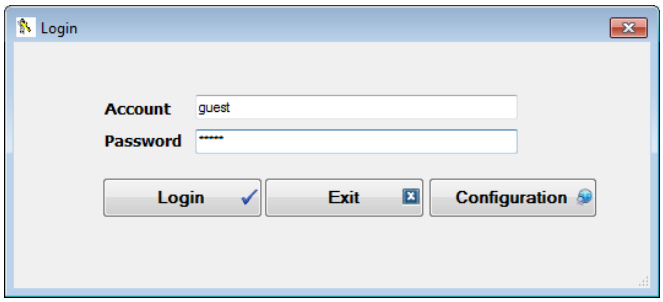

Figure 1: Login window

The Main Window will be shown like following.

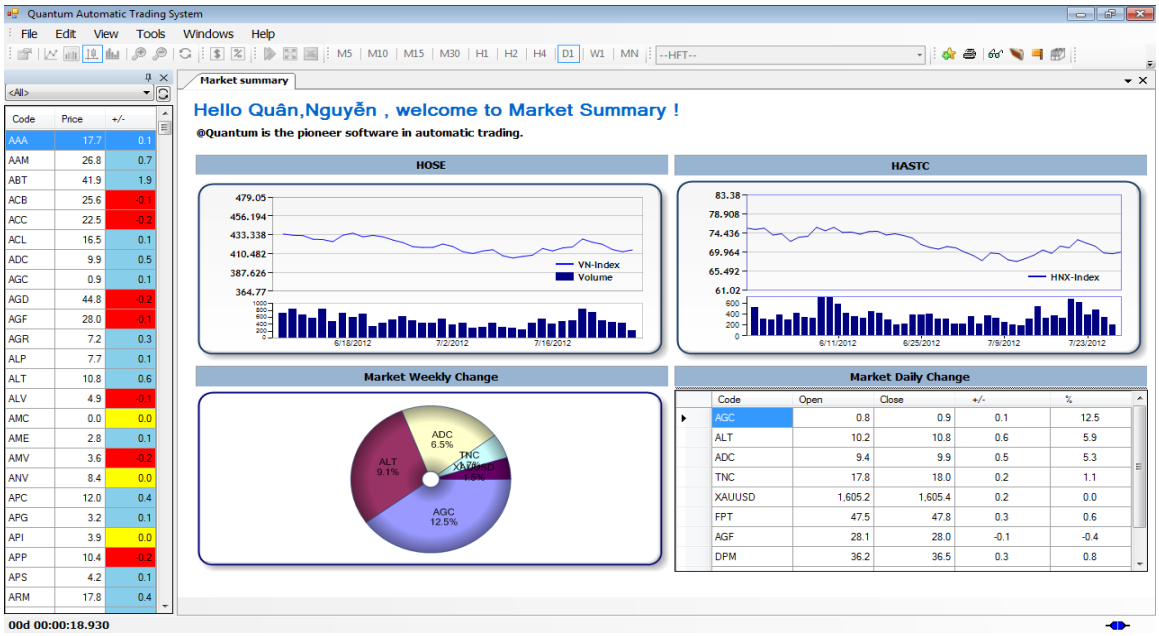

Figure 2: Main interface of Quantum

Normally, you will see two parts: the Watch List (on the left side) and the Market Summary (main window).

***Note** : In some case, in your first login you cannot see the Watch List. So go to View -> Market Watch. The watch list will be shown.*

Step 2: Select SSI in the Watch List and open it (refer to Section 0,

Working with Quantum charts).

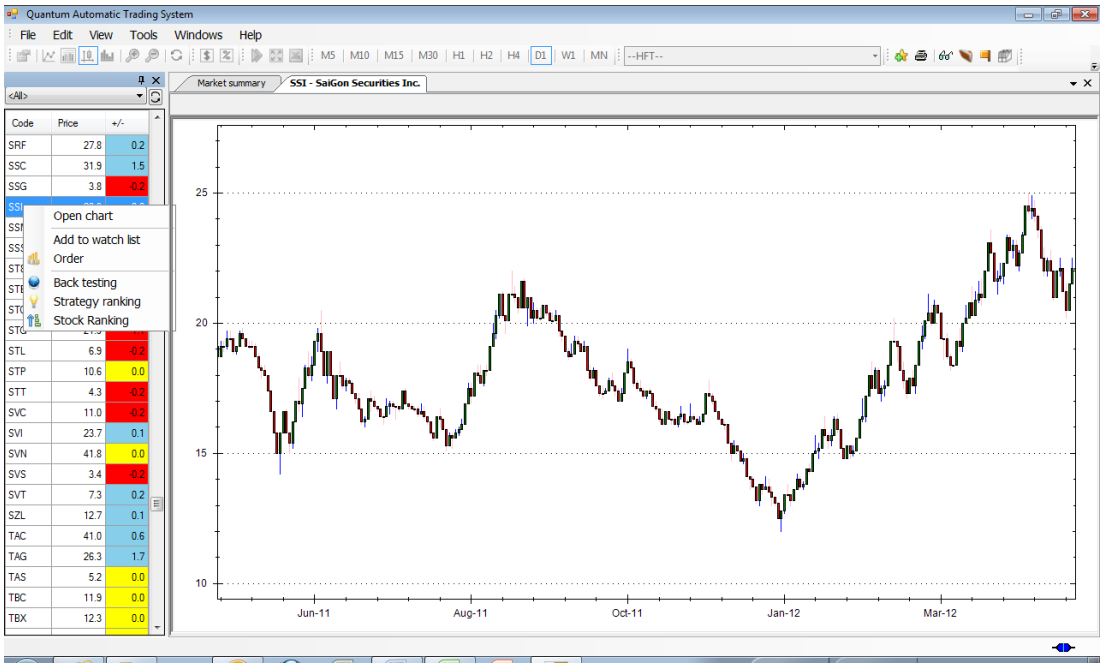

Figure 3: Open SSI's chart

Step 3: Chose a Quantum strategy to know it is time for Buy or Sell SSI stocks (refer to section 6, Decision making with Quantum Strategies).

There are many built-in strategies. Firstly, choose one of the following to see the result of Quantum decision.

- Two Simple Moving Average Waves compared with Price
- Hybrid SAR-EMA
- Keltner-Bollinger-EMA
- Basic MACD and Two SMA cut

You can see then

- The Transaction Window to show the past transactions and the decision making in the bottom-left window. In the detail, it calculates the profit/loss for each transaction.
- Profit Graph Window: to show the profit/loss of the strategy during a specific period.

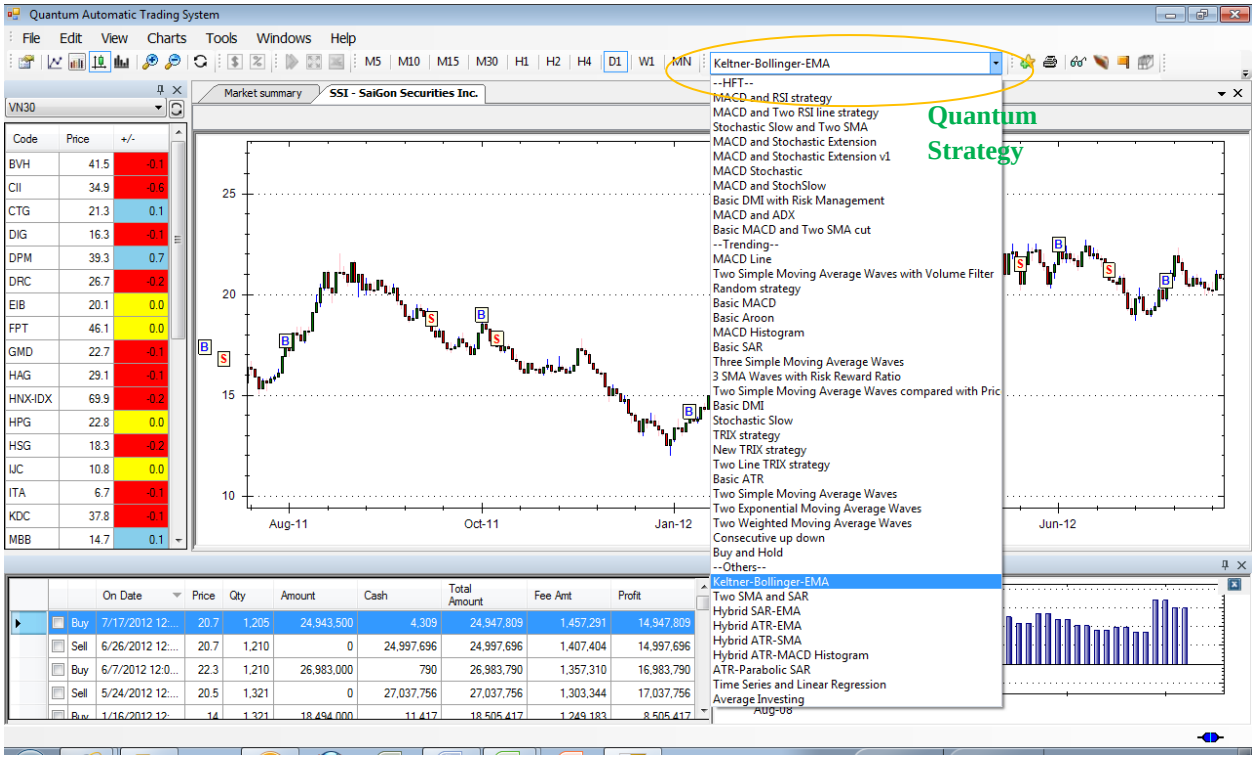

Figure 4: Selecting Quantum strategy

Step 4: You can make your decision based on the result of Quantum strategy.

- If there is a BUY signal for today, Quantum expects that stock will rise up in the near future, and you should buy it today;
- If there is a SELL signal for today, Quantum expects that stock will decrease in the near future, and you should sell it today;
- If there is a BUY signal some days before, Quantum expects that stock will rise up in the near future. You should wait as the stock can inverse the trend.
- If there is a SELL signal some days before, Quantum expects that stock will continue to drop up in the near future. You should wait until the stock inverse the trend.

2.2 You have no idea what to trade today

You use Stock Ranking to find Buy/Sell idea and add to your Watch list (see Section 9, Effective way to build a portfolio with Quantum Stock ranking).

Step 1: Go to Tools -> Stock Ranking. There is a list of screening strategy that you can choose. They are in five categories:

- finding stocks with Buy signals,
- finding stocks with Sell signals
- finding stocks in up trend
- finding stocks in down trend
- other category: finding stocks having specific criteria (about price, volume, strength, indicators..)

Step 2: Choose ranking strategy.

You can decide to do the ranking for all stocks or a list. Choose your preferred list in Code list.

For example, choose the following six stock ranking strategies and the list VN30.

- Buy signal category: MACD and Two SMA Buy Signal
- Sell signal category: MACD and Two SMA Sell Signal
- Up trend category: MACD and Two SMA Up Trend
- Down trend category: MACD and Two SMA Down Trend
- other category: Stocks near support and Stocks near resistance.

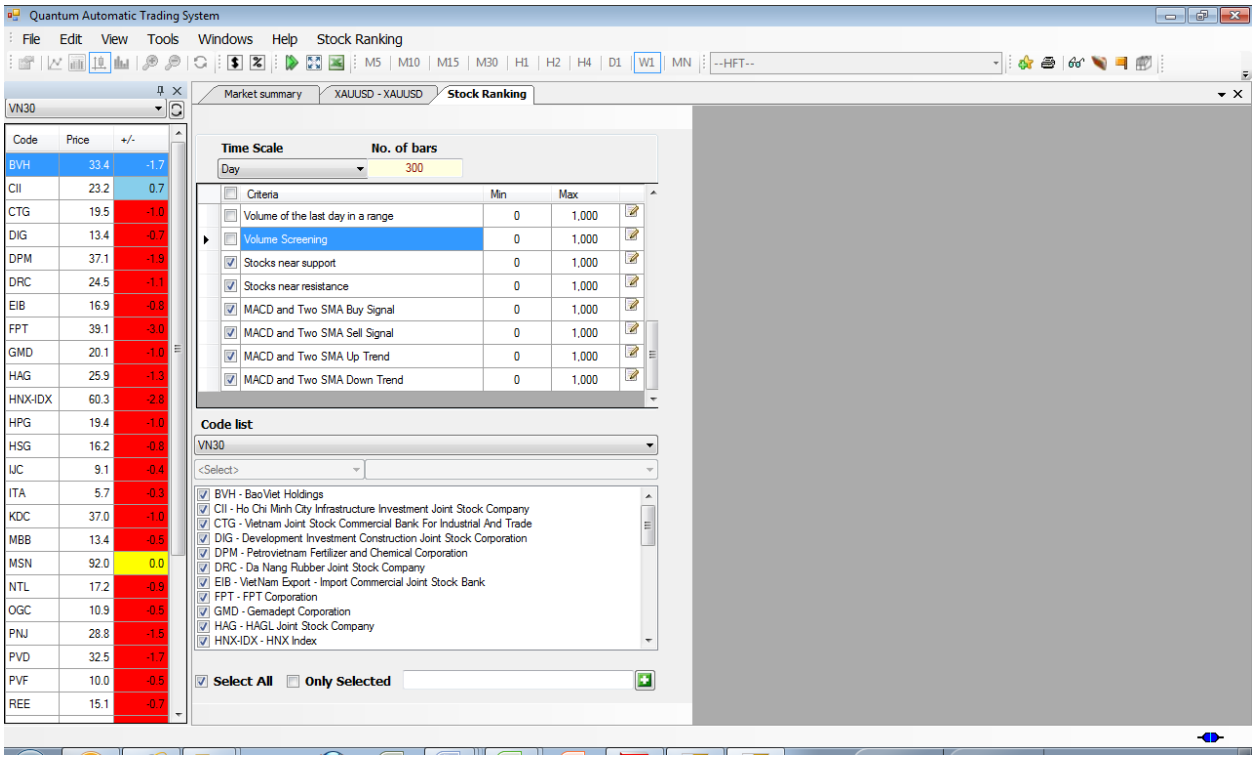

Figure 5: Stock ranking window

Step 3: Get the result. The stocks shown in the grid are potential ones to add on your own watch list.

In the following result, the content of the grid show the price of the stock. The one has value is the one satisfying the condition of the ranking.

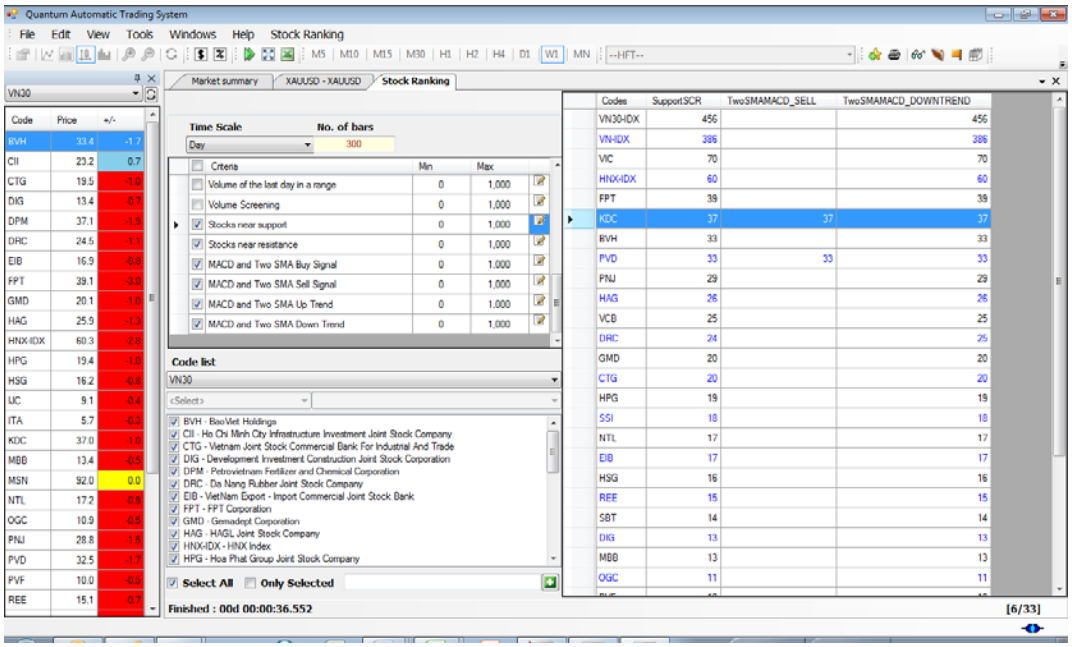

Figure 6: Stock ranking result

Step 4: Add to watch list

Right click on the grid to add a stock into a watch list. You can then see that stock on the watch list in the left hand side.

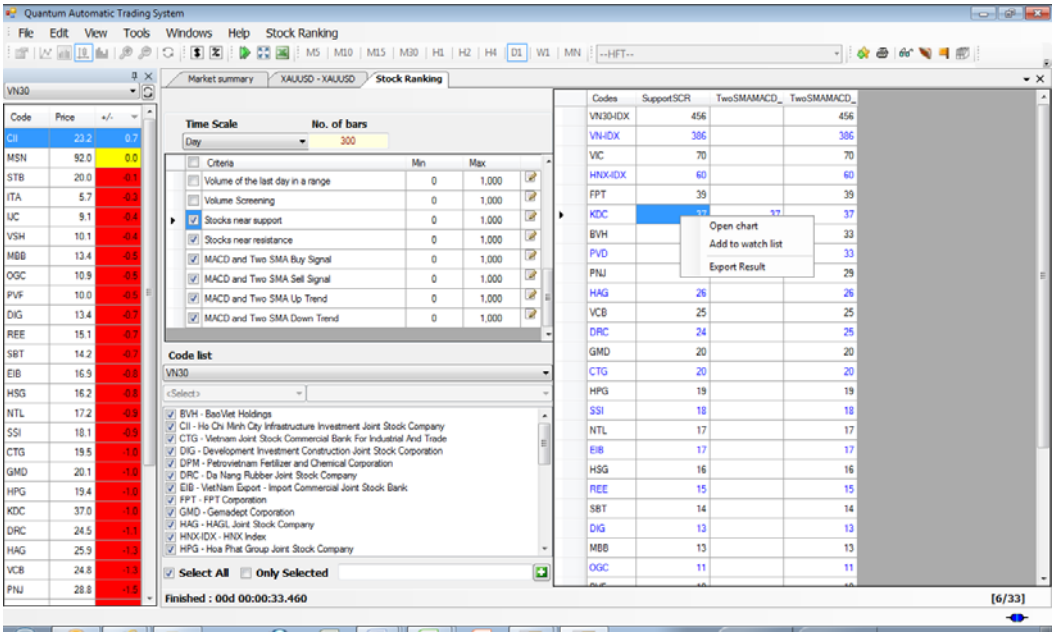

Figure 7: Add stock to Watchlist

3 Launch Quantum

Click on Quantum icon on Desktop, or go to Start menu. You will see the splash window before going to the login window.

3.1 Login window

Quantum system checks the account information before entering the system. Enter your account name and password, which have been provided before.

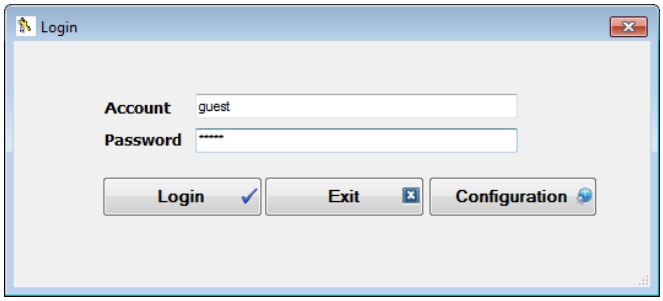

Figure 8: Login window

In some situation, when your computer is behind a proxy, you need to configure your computer. Click on Configuration button.

3.2 Configuration window

Configuration window is used when there are a proxy behind the computer. Normally, we can choose the Proxy by Default.

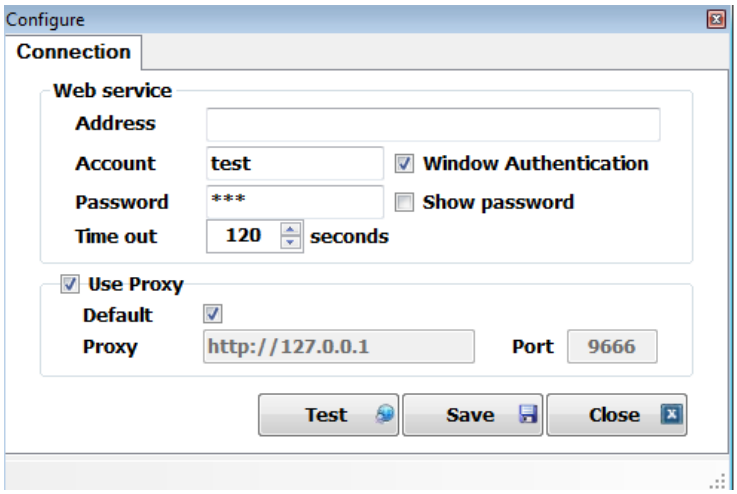

Figure 9: Configuration window

3.3 Main Window

The main window shows the workspace. In the left hand, there are watch lists, where interested stocks are followed. The main part shows the graphic chart of a stock.

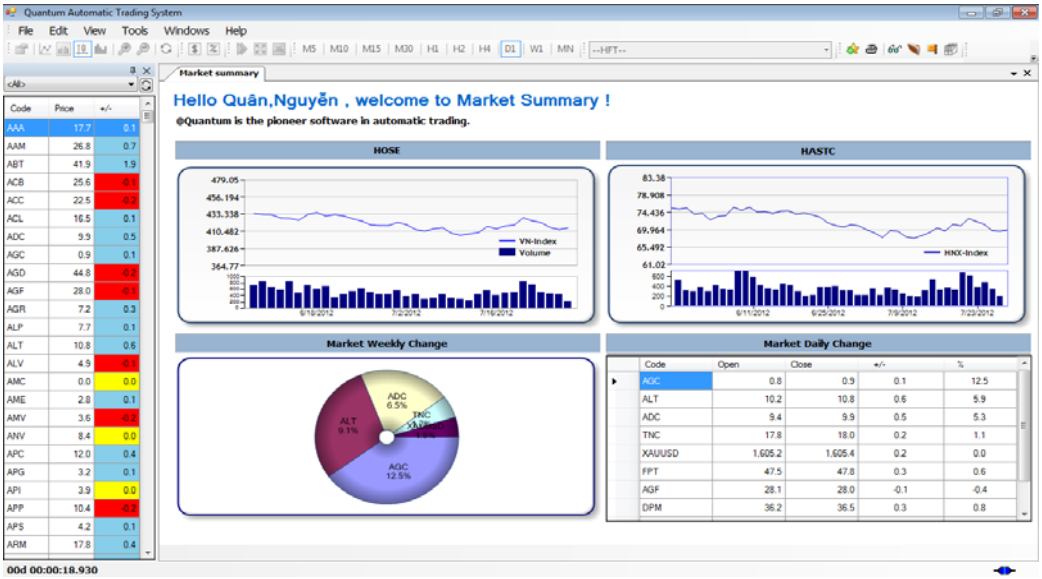

Figure 10: Main interface of Quantum

3.4 Opening Chart

Right click on the stock on Market Watch list of the left pane. You will see the chart of your stock opened in the right pane.

Here you can work with chart (zoom in, zoom out), working with indicators, or working with Quantum strategies.

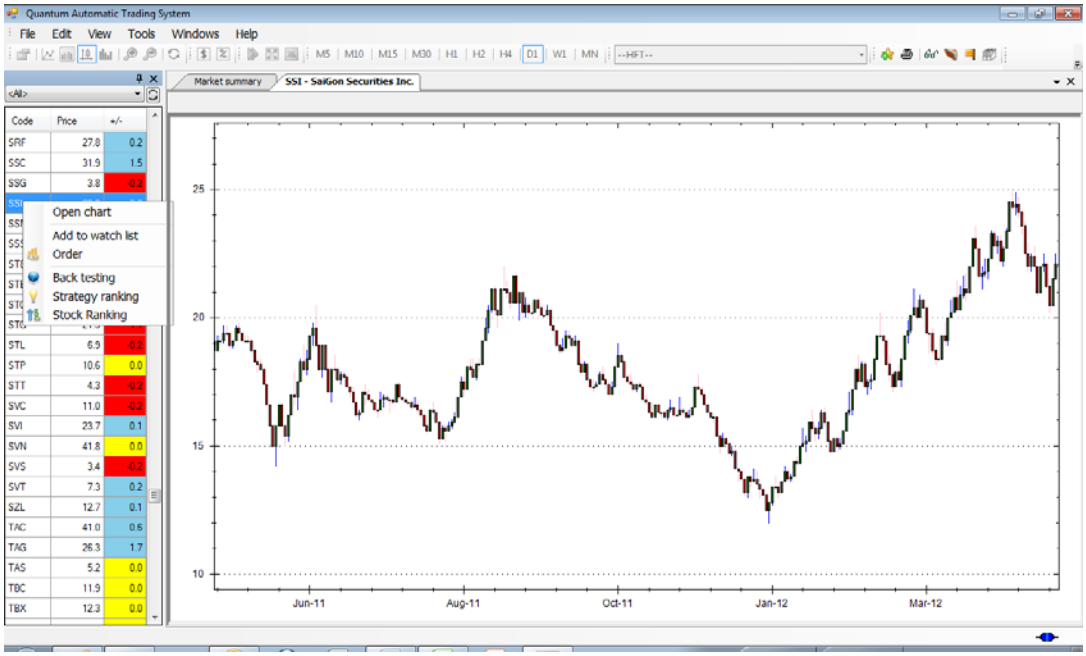

Figure 11: Opening chart

4 Account Setting

Go to menu File, then My Profile. You can set up your account information, included portfolio and watch list.

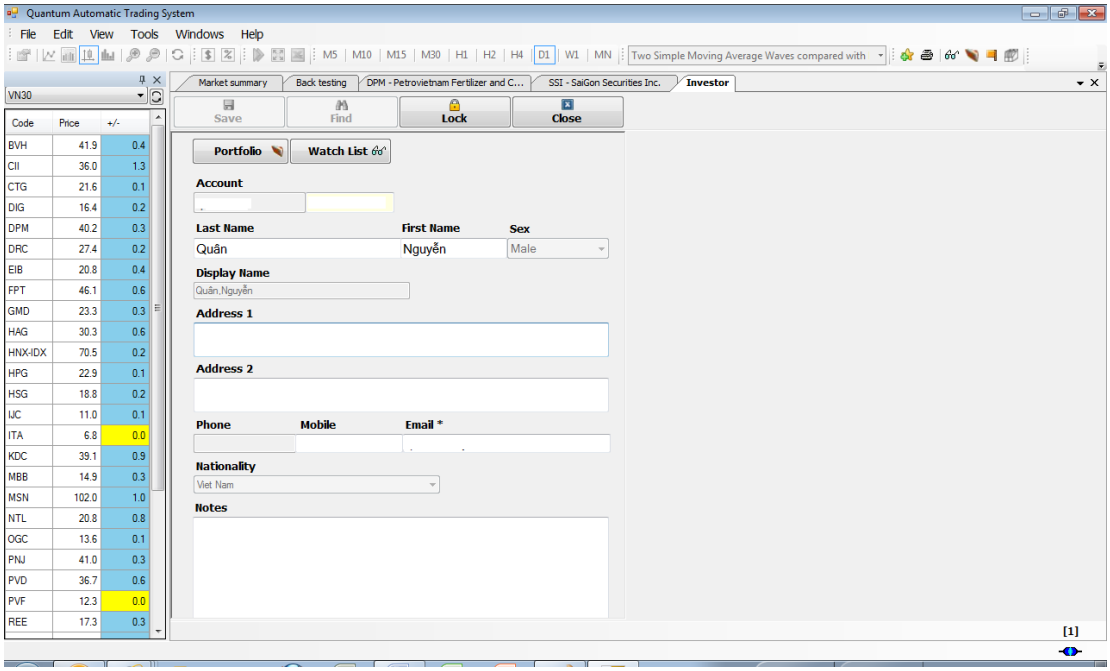

Figure 12: Account setting

4.1 Creating Portfolio

Click on Portfolio. Set the capital amount of the portfolio.

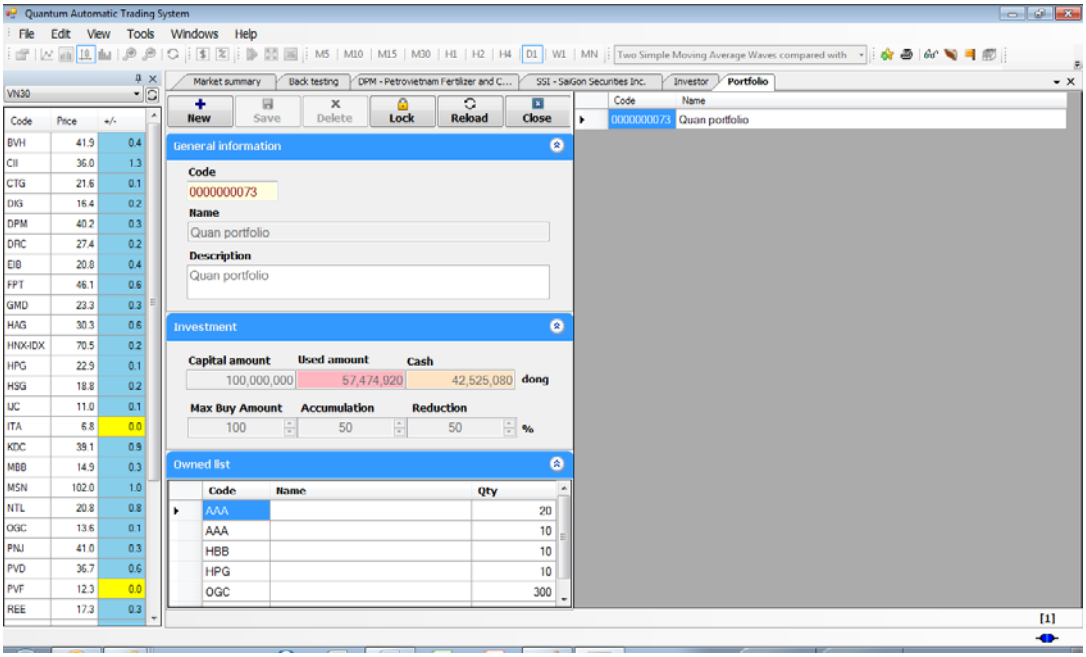

Figure 13: Portfolio creation

4.2 Creating Watch List

Click on Watch List button. The following window opens. On your right side, there are all of your watch lists. You can create new one by click on “New” button.

You can add new interested stock to your watch list by click on plus button. For every stock, you can add **interested strategies** in order to get alerts when the conditions of the selected strategy satisfy. For every strategy, you have differents time scale : Minutes, Hour, Daily, Monthly. Visit Section 6, Decision making with Quantum Strategies for more information about working with strategy.

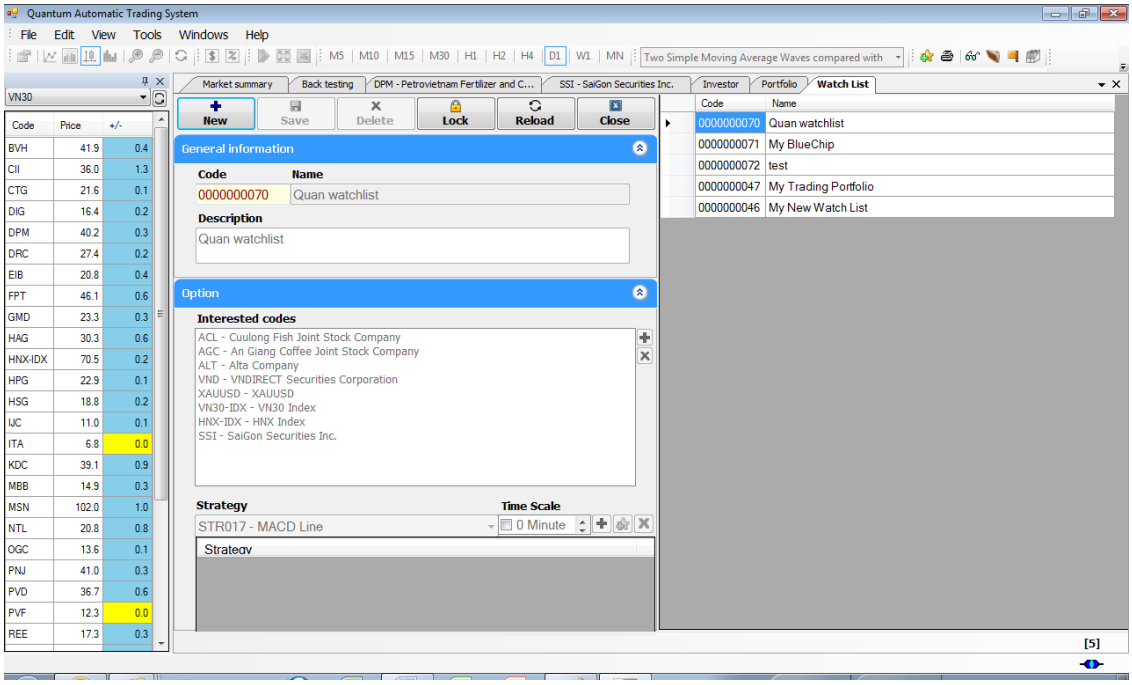

Figure 14: Watch list customization

5 Working with Quantum charts

Chart is the easiest way to know about the stock price. It shows also the historical movement of the stock. Moreover, Quantum Strategy and Quantum Indicators can be presented within a chart.

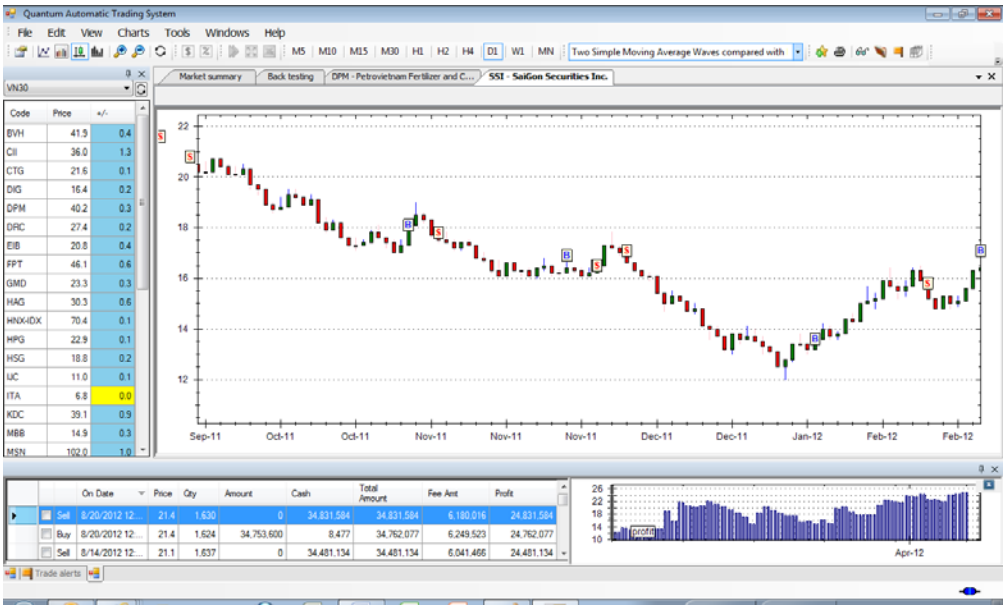

Figure 15: Stock chart

5.1 Zoom In

Zoom In is the function to zoom in the graphical representation of a stock.

5.2 Zoom Out

Zoom Out is the function to zoom out the graphical representation of a stock.

5.3 Periodicity

There are 9 modes:

- M5: : data will be displayed every 5 minutes
- M10: data will be displayed every 10 minutes
- M15: data will be displayed every 15 minutes
- M30: data will be displayed every 30 minutes
- H1: data will be displayed every hour
- H2: data will be displayed every two hours
- H2: data will be displayed every four hours
- D1: data will be displayed every day
- MN: data will be displayed every month

5.4 Chart Styles

Quantum supports three styles: Line, Bar, and Candlestick.

5.5 Chart Property

Change chart colors and properties by Chart-> Chart Property

5.6 Indicators

Right click -> Indicator -> choose a appropriate indicators.

Refer to Section 10,Analyze stocks from scratch with Quantum Technical Indicators for information.

6 Decision making with Quantum Strategies

Working with Quantum Strategies is very easy. On the application tool bar, select one from more than 50 automatic strategies. When selecting a strategy, Quantum will apply this strategy and detect the buy/sell points.

This section introduces how to work with Quantum Strategy to get the highest performance for trading.

6.1 Quantum Strategy Overview

6.1.1 What is a Quantum Strategy (QS)?

A strategy is a computer trading algorithm, which detects automatically when to BUY and when to SELL a securtity (a stock, forex pair, or commodities). It defines how to react when market condition changes.

6.1.2 How does a Quantum Strategy work ?

A Quantum Strategy analyzes many public information, included the market data, stock price volatility, supply and demand of trading transactions, the volume of the market and the stock. Every Quantum Strategy can be backtested in order to know about its probability of success.

Quantum Strategy Algorithm is defined by our experts and analyzed beforehand about its performance. We can compare differents strategy among with Buy&Hold strategy. In most of the case, the Quantum Strategies outperform the Buy&Hold strategy.

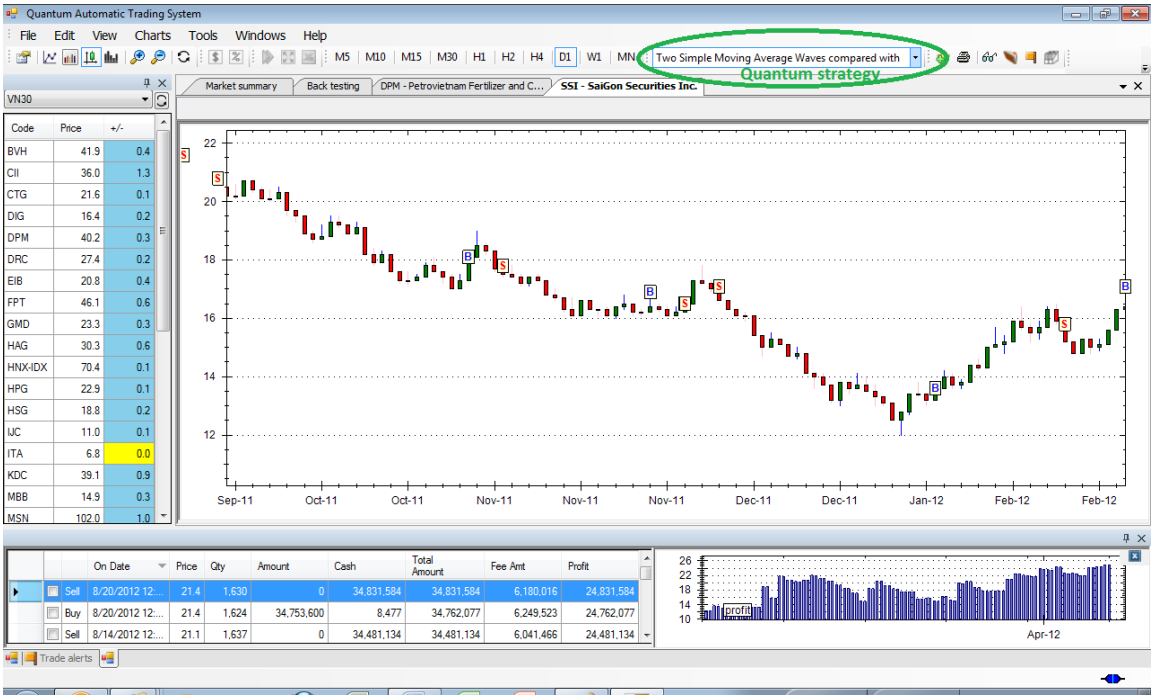

Figure 16: Quantum strategy

In the moment of this User Guide, there are more than 50 predefined Quantum Strategies. Many others high performance strategies will be added by our experts.

After opening a stock chart, you select a Quantum Strategy in the top right-hand combox box. You can get immediately the results of the Buy/Sell decisions applied to historical stock chart. There are two more windows:

- **Transaction window**: shows all historic buy, sell decision as well as the profit if we trade follow this strategy (the beginning capital is set by defeault VND10million and can be customized in Tools->Preferences->Investment).
- **Performance Evaluation window**: graphic representation of the profit.

6.1.3 Quantum Strategy parameters

Every Quantum Strategy has different parameters.

- Time Scale: A Quantum Strategy is diffrents following timing we chose for that Strategy. There are Hourly (H1), Daily (D1), Weekly (W1)
- Others specific parameters: go to Tools->Strategy

7 Avoiding investment risks with Quantum Back Testing

7.1 What is Quantum Back testing ?

Quantum Backtesting is the process of evaluating a Quantum strategy by applying it to historical data. Backtesting studies how a trading method would have performed in past stock markets. The backtest process replicates the conditions of the past time in order to calculate the performance.

7.2 Why should we back-test ?

Backtesting is a common and methodologically accepted approach to research. Backtesting helps us to test a strategy with a historical data to know if that strategy would work or not.

However a high or successful correlation between a backtested strategy and historical results can never prove a theory correct, since past results do not necessarily indicate future results. In other words, things are always changing, but in a world where yesterday bears some resemblance to today, backtesting can be a useful tool of analysis and prediction.

7.3 How to use BackTesting

Go to Tools->BackTesting. The following window is opened. There are four parts that users should select

- Strategy list: list of pre-defined Quantum strategies.
- Stock code list: list of stocks that will be back tested.
- Periodicity: the time period that we want to backtest
- Strategy time scale: Day/Week/ or Hour.

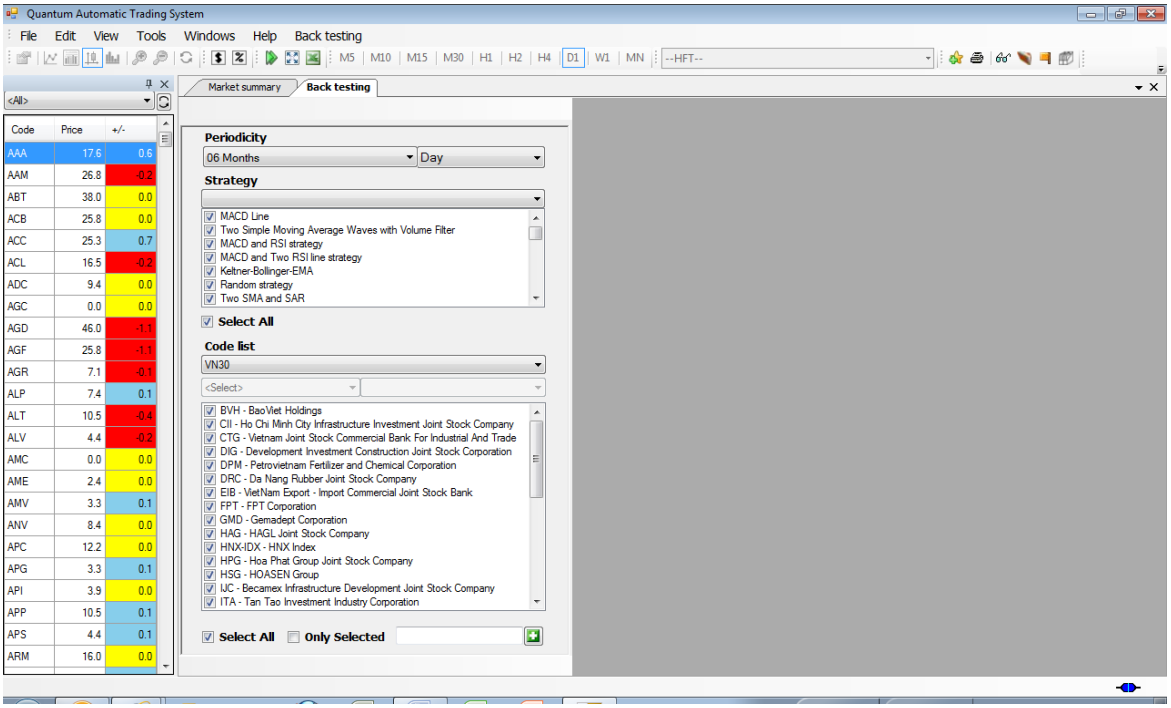

Figure 17: Back testing functionality

The following window shows Back Testing Result. The result is shown in the grid. The cell in the grid represents the profit/loss for investment during a time period. The beginning amount of capital is set at VND 10mil.

Users can compare the performance of different stocks following one or many strategies.

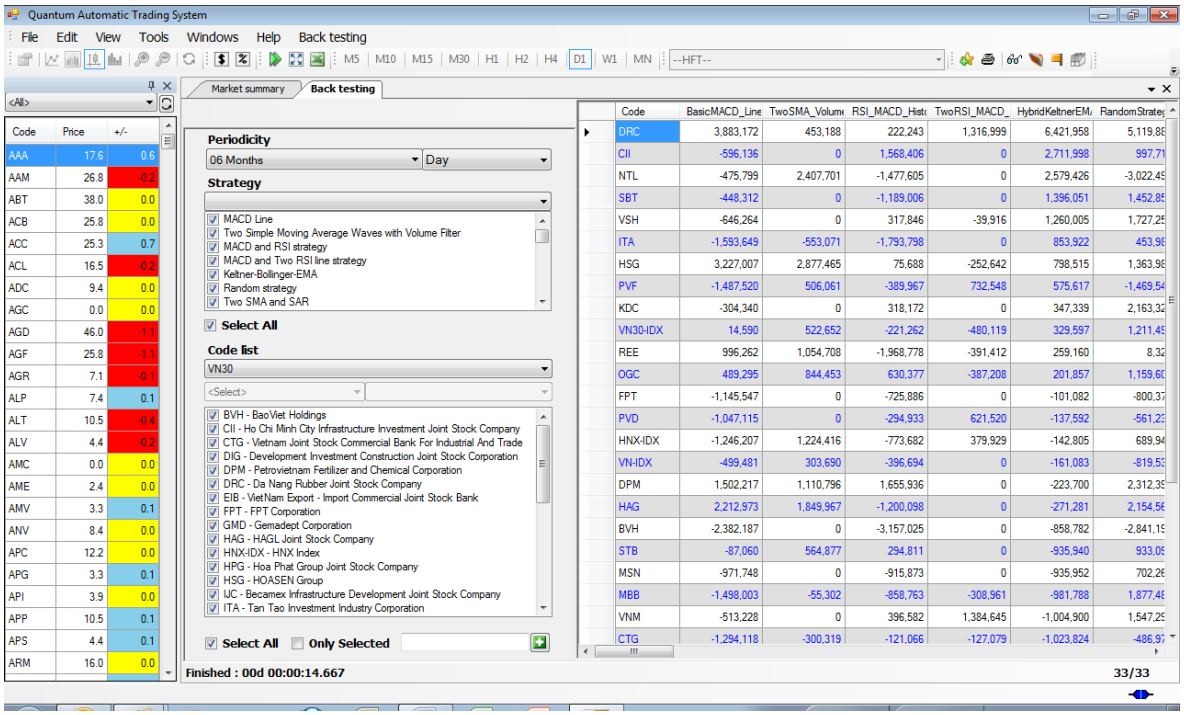

Figure 18: Back testing result

7.4 Estimation of strategies

In the menu Back Testing, choose Estimation. The Estimation function calculates the following statistics about every strategy:

- The winning percentage
- The lost percentage
- The maximum winning amount
- The maximum lost
- The average winning amount
- The average lost amount

With this estimation, we can find the best performer stock with the best strategy.

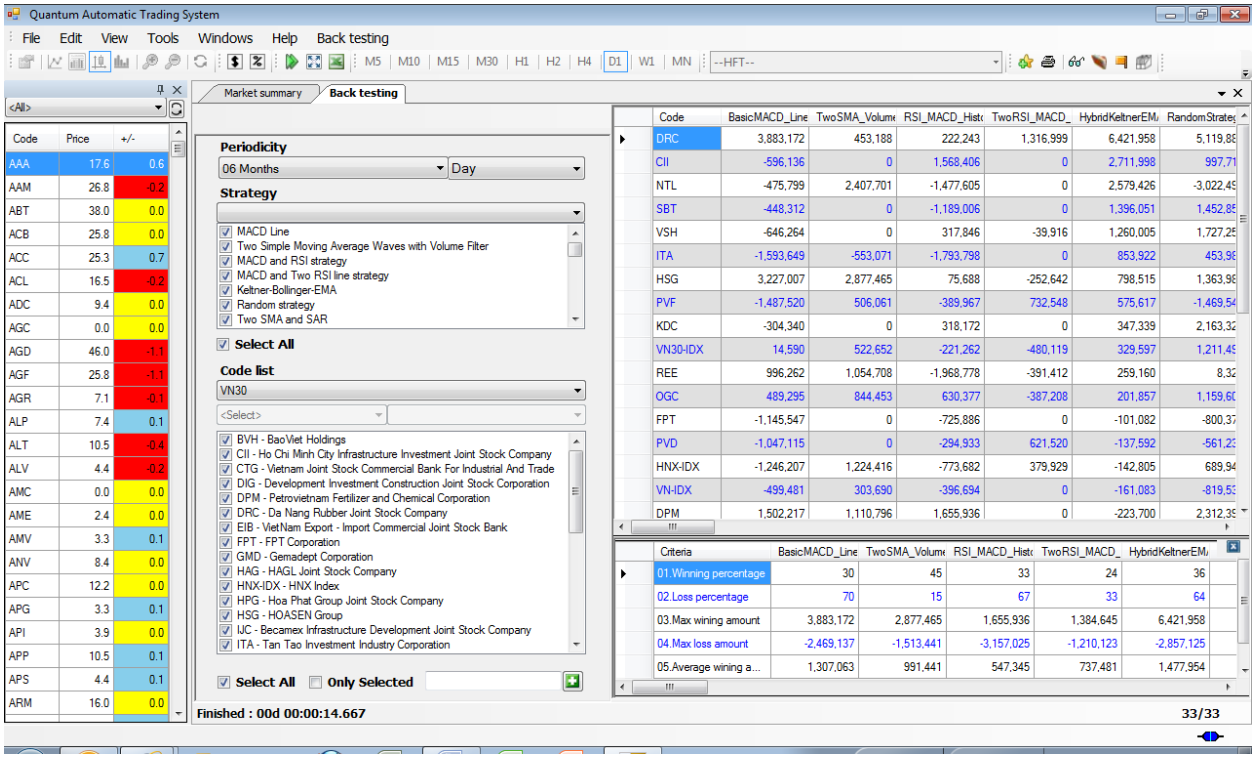

Figure 19: Back testing result

8 Finding the best automatic expert with Quantum Strategy ranking

8.1 What is Quantum Strategy Ranking

Quantum Strategy Ranking is a powerful tool to find the best-fit Strategy for a stock.

Every stock has different supply-demand force which influences the volatility. More over, the financial situation of the company affects the price change. So, finding appropriate strategy is the key to success.

Go to Tools-> Strategy Ranking. The following window is shown. There are four options when applying Strategy Ranking

- In the Periodicity box, we can choose the period for testing.

- Time Scale is by default Day. We can choose Week or Month also. That means the Strategy will apply to Daily data or Weekly data.
- Strategy: there are strategies listed by categories. When selecting strategies, they will be ranked for the performance.
- Code list: shows the stocks we want to rank.

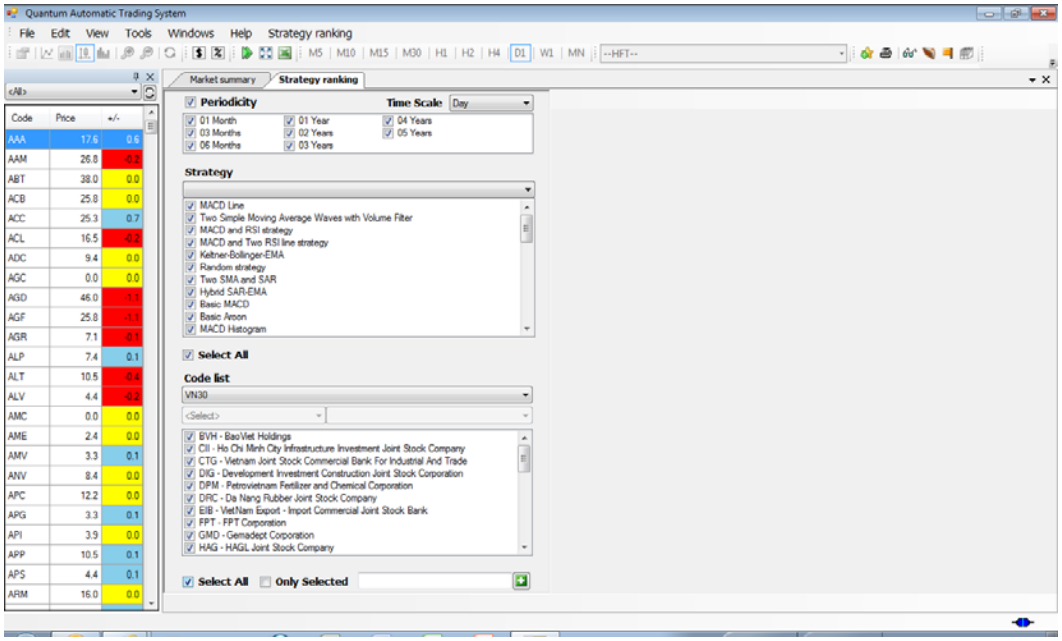

Figure 20: Quantum strategy ranking

8.2 Strategy Ranking result

In the following window, the result shown on the right window.

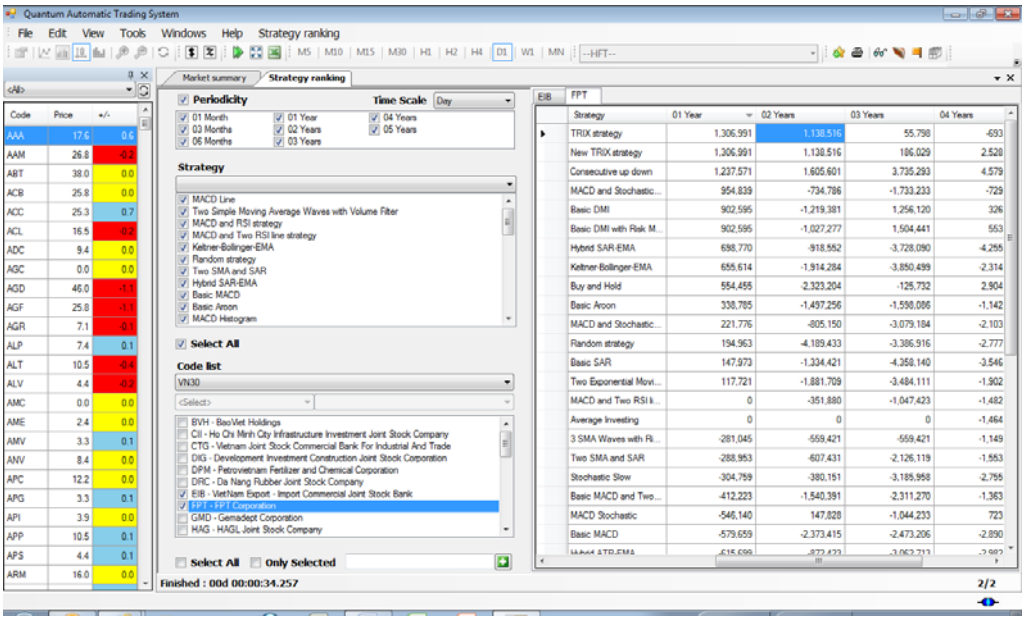

Figure 21: Quantum strategy ranking result

9 Effective way to build a portfolio with Quantum Stock ranking

9.1 What is stock ranking?

Stock Ranking is the process to find out the stocks satisfied some criteria. The Ranking process puts the stocks in order to find the good candidate for the portfolio.

The Stock Ranking has some purposes:

- Stock Ranking: sort the stocks following some weights, for selecting in the trading portfolio
- Screening: find out the stock satisfied pre-defined criteria for selecting in the portfolio, without ranking. They include find stocks with the BUY signal, Sell signal, up-trend stocks or down-trend stocks.

To activate the function, go to Tools -> Stock Ranking. There are actually over 40 predefined screening strategies.

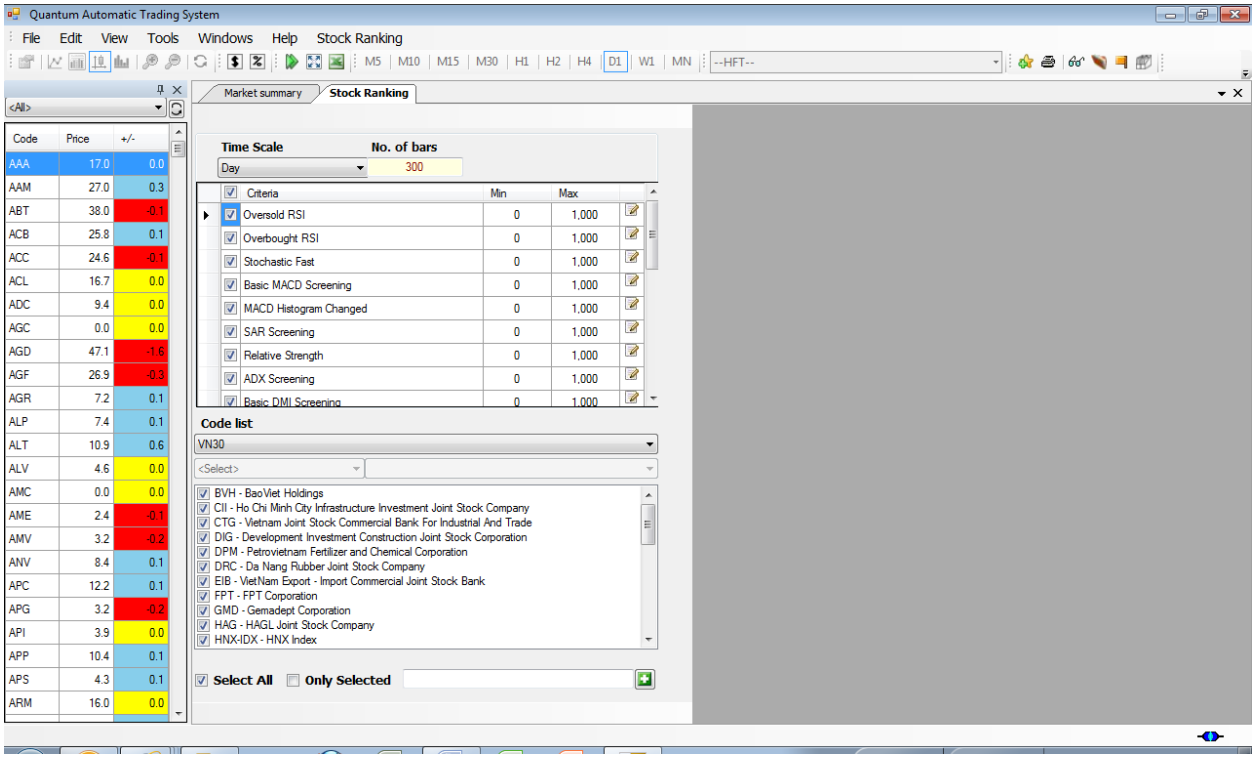

Figure 22: Stock ranking

9.2 Stock Ranking result

The result is shown in the right window that shows the stocks which satisfy the criteria for selection.

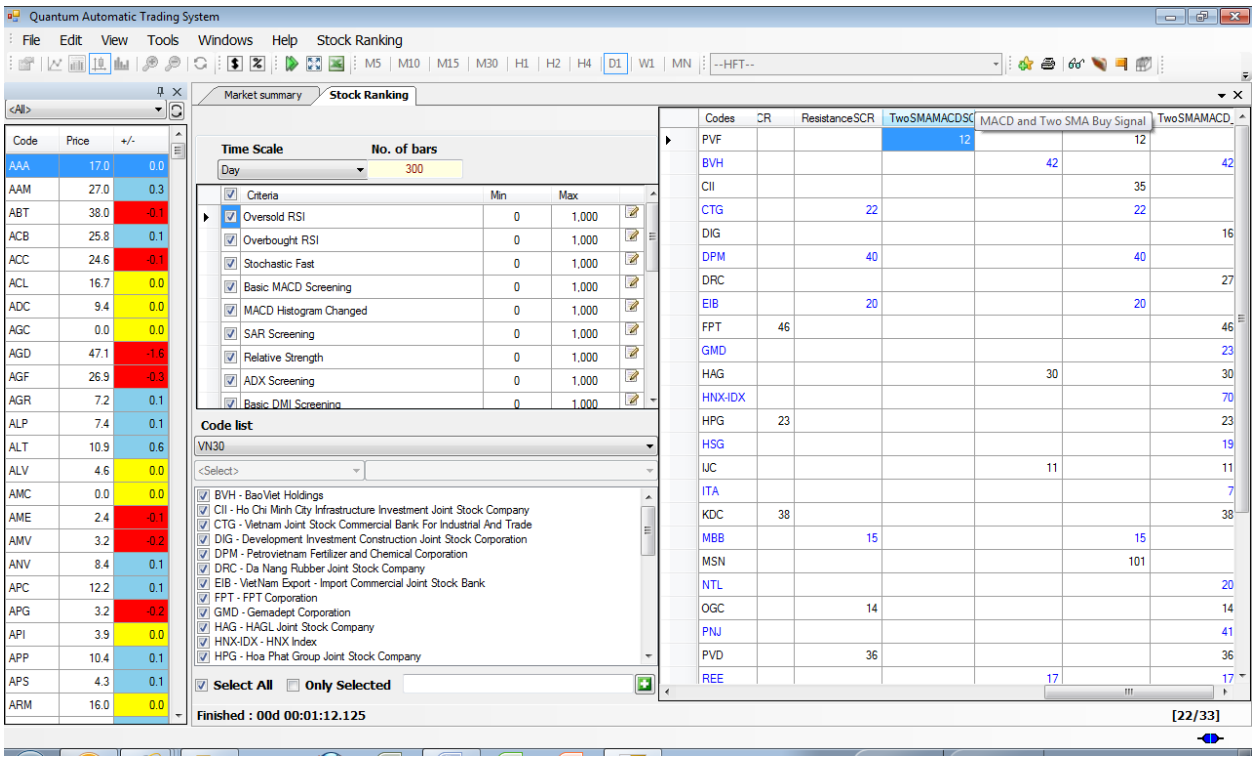

Figure 23: Stock ranking result

10 Analyze stocks from scratch with Quantum Technical Indicators

Quantum provides not only pre-defined algorithm for automatic trading. However, it provides also tools for users who would like to analyze stocks by himself.

Quantum provides more than 70 built-in technical indicators. With those indicators, technicians can analyze stock trends and find out the right moment to take action. With those technical indicators, investors have the same functionality as MetaStock or MetaTrader software.

There are five categories: Trending,Oscilators, Volume, Market, and Customized. Please refer to the Annex for more information about technical indicators.

Figure 24: Choosing indicators

10.1 Indicator parameters

When selecting one indicator, the Indicator parameters window will be shown.

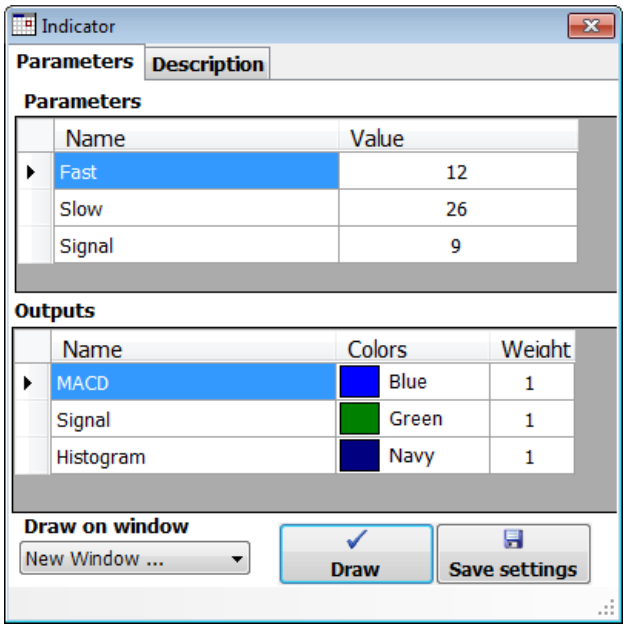

Figure 25: Indicator parameter window

10.2 Indicator chart

Figure 26: Chart with MACD indicator

11 Alerts for preference stocks

In order to get the alerts for the stocks in Watch List or in Portfolio, choose View -> Trade Alerts.s

Figure 27: Alert window

12 Portfolio Management

Choose View -> My Portfolio to see the Stocks in our Portfolio.

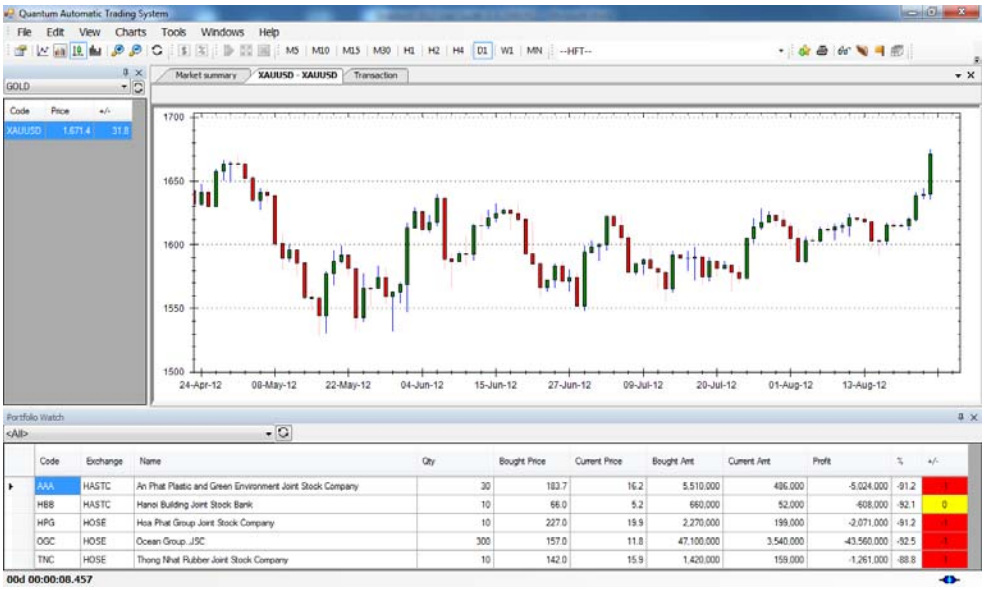

Figure 28: Portfolio window

In order to make a transaction, you make an order. Go to Tools -> Order.

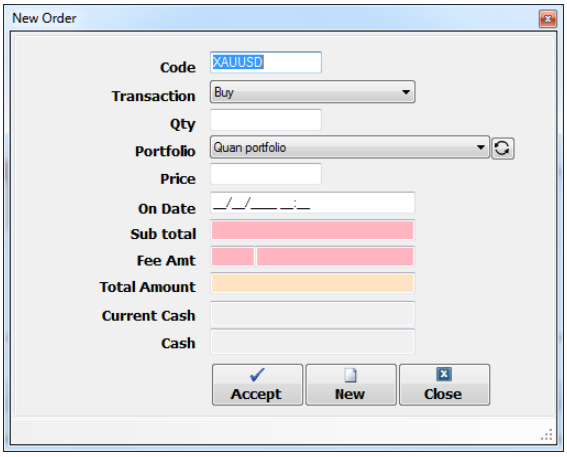

Figure 29: Order window

13 Conclusion

This user guide provides the guidelines for using Quantum Automatic Trading System. The document presents how to deal with charts, using Quantum Strategies, using different tools for evaluating a strategy (Backtesting, Strategy Ranking).

With Quantum, investor can benefit its quantitative model to maximize gains and minimize risks during trading activity.

14 Appendix 1: Frequent Asked Question

14.1 Connection problems

- Please check firstly your Internet connection or check the network. Sometimes you need to reboot your computer.
- Check your account name and password. If there is an error, please re-enter.
- Check if you are behind a proxy. If yes, choose “Configuration” button in the login window, and enter the correct proxy information.

If the problems persist, contact your computer administrator.

14.2 What is the performance of Quantum?

Quantum is the integrated solution for trading. It provides powerful algorithm to detect the good time to buy or to sell stock. That means it maximizes your probability to win and minimize your risk. Quantum Strategy beats the performance of VNIndex during last 5 years.

14.3 Can I chose a moment to buy or sell stock ?

Yes. Use Quantum strategy in Section 6: Decision making with Quantum Strategies

14.4 Can I find a good stock to trade ?

Yes. Use Quantum Stock Ranking (ref Section 9:Effective way to build a portfolio with Quantum Stock ranking)

14.5 How can I find a stock with Buy decision?

Yes. Use Quantum Stock Ranking (ref Section 9:Effective way to build a portfolio with Quantum Stock ranking). Chose the screening created from Strategy.

15 Appendix 2: Glossary

- Indicator: Technical analysis indicator has the purpose of helping to analyze trend of a stock.
- Strategy: Mathematic model to determine Buy or Sell entry point.
- Periodicity: defines timeframe of a specific chart.
- Duration: a period in within a chart is shown.
- Watch List: pre-defined list of stocks that investor wants to follow.
- Portfolio: stocks that an investor own.

16 Appendix 3: Quantum Strategy Explanation

16.1 Trending Category

Name	Parameters	Code	Description
Buy and Hold		BuyAndHold	This strategy defines the transaction with Buy in the beginning period and Sell at the end of the period. Usually, the Buy&Hold strategy is the benchmark for other strategies. Example: If period is 1 year, then the strategy applies the Buy one year before and the Sell order today
Basic DMI	Plus Period=14, Minus Period=14, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=200	BasicDMI	This strategy evaluates strength of the trend to find out the best time to enter or exit the market. The strategy includes money management strategy.
Basic MACD	MACD Fast=12,MACD Slow=26,MACD Signal=9	BasicMACD	This strategy evaluate the difference between two moving averages at any time to determine timing to enter the market. This strategy works well for trending market.
Stochastic Slow	Fast K=15, Slow K=5, Slow D=3, Ma Type=4		This strategy uses momentum oscillator Slow Stochastic to evaluate timing to enter the market.
MACD Histogram	MACD Fast=12, MACD Slow=26, MACD Signal=9, Stop Loss Level (%)=5, Trailing Stop (%)=10, Take Profit Level (%)=50		MACD strategy using histogram changes
MACD Line	MACD Fast=12, MACD Slow=26, MACD Signal=9	BasicMACD_LineCut	MACD using macd and signal line cut
Two EMA Volume	Short Period = 5, Long Period=10, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=50	TwoEMAVolume	Two EMA of Volume cut each others
Two Simple Moving Average Waves compared with Price	Short Period = 5, Long Period=10	PriceTwoSMA	Two Simple Moving Average Waves compared with Price
Three Simple Moving Average Waves	Short Period = 5, Medium Period=10, Long Period=20	Price_3SMA	Three Simple Moving Average Waves
3 SMA Waves with Risk Reward Ratio	Short Period=5, Medium Period=10, Long Period=20,	Price_3SMA_Risk_Reward	Three SMA Waves at Risk Reward Ratio

	Risk Reward Ratio=2, Period for Risk Reward Ratio=60		
Two Weighted Moving Average Waves	Short Period = 5, Long Period=10, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=50	TwoWMA	Two Weighted Moving Average Waves
Two Exponential Moving Average Waves	Short Period = 5, Long Period=10, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=50	TwoEMA	Two Exponential Moving Average Waves
Two Simple Moving Average Waves	Short Period = 5, Long Period=10, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=50	TwoSMA	Two Simple Moving Average Waves
Two Simple Moving Average Waves with Volume Filter	Short Period=5, Long Period=10, Volume Filter=100000, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=50	TwoSMA_VolumeFilter	Two Simple Moving Average Waves with Volume Filter
Basic SAR	AF=0.02,Step=0.2,Stop Loss Level (%)=5,Take Profit Level (%)=200	BasicSAR	Buy when price above SAR line
Basic ATR	ATR Period=14, Stop Loss Level (%)=5, Take Profit Level (%)=200	BasicATR	Basic ATR
Stochastic RSI	RSI=14,Fast K=14,Fast D = 9,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=50	BasicStochRSI	Buy when cut between line K and D in Stochastic RSI

16.2 High Frequency Trading category

Name	Parameters	Code	Description
SMA Stochastic	Short SMA=5, Long SMA=10, Fast K=15, Slow K=5, Slow D=3, Ma Type=4	SMA_Stochastic	Buy and sell condition following Stochastic Slow and Two SMA
MACD and ADX	MACD Fast=12, MACD Slow=26, MACD Signal=9, ADX Period=14,	MACD_ADX	Buy when there is cut between signal and macd line

	Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=100		
MACD Stochastic	Simple moving average=20, MACD Fast=12, MACD Slow=26, MACD Signal=9, Fast K Period=15, Slow K Period=5, Slow D Period=3, Ma Type=4	MACD_Stochastic	Buy when there are differences in MACD signal and MACD lines, with Stochastic line K above D, and in up trend (defined by SMA condition)
MACD and Stochastic Extension	Simple moving average=20,MACD Fast=12,MACD Slow=26,MACD Signal=9,Fast K Period=15,Slow K Period=5,Slow D Period=3,Ma Type=4	MACD_Stochastic_Bottom	
MACD and Stochastic Extension v1	Simple moving average=20,MACD Fast=12,MACD Slow=26,MACD Signal=9,Fast K Period=15,Slow K Period=5,Slow D Period=3,Ma Type=4	MACD_Stochastic_Bottom_v1	Buy when there are differences in MACD signal and MACD lines, with Stochastic line K above D, and in up trend (defined by SMA condition) and Stochastic Slow K below 70
MACD and RSI strategy	MACD Fast=12,MACD Slow=26,MACD Signal=9, RSI Period=14, RSI Over Sold=30, RSI Over Bought=70,Stop Loss Level (%)=5,Take Profit Level (%)=200	RSI_MACD_Histogram	MACD and RSI strategy
MACD and Two RSI line strategy	MACD Fast=12,MACD Slow=26,MACD Signal=9, RSI Period=14, RSI Over Sold=30, RSI Over Bought=70,Stop Loss Level (%)=5,Take Profit Level (%)=200	TwoRSI_MACD_Histogram	MACD and RSI strategy
Two SMA and SAR	AF=0.02,Step=0.2,Short Period=5,Long Period=10,Stop Loss Level (%)=5,Take Profit Level (%)=200	TwoSMA_SAR	Buy when price above SAR line
Time Series and Linear Regression	Time Series Period=25,Linear Regression Period=25,Stop Loss Level (%)=5,Take Profit Level (%)=200	TSFLIN	Time Series and Linear Regression
TRIX strategy	Period=25,Stop Loss Level (%)=5,Take Profit Level (%)=200	BasicTRIX	TRIX strategy
New TRIX strategy	Period=25,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=200	BasicTRIX_Trailing	New TRIX strategy
Two Line TRIX strategy	Short Period=10,Long Period=30,Stop Loss Level (%)=5, Take Profit Level (%)=200	TwoLineTRIX	Two Line TRIX strategy
Hybrid SAR-EMA	AF=0.02,Step=0.2,Short Period=5,Long Period=10,Stop Loss Level (%)=5,Take Profit Level (%)=200	EMASAR	Buy when price above SAR line and EMA short period cut EMA long period

Hybrid ATR-EMA	ATR Period=14,EMA Short Period=5,EMA Long Period=10,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=200	HybridEMAATR	Hybrid ATR-EMA
Hybrid ATR-SMA	ATR Period=14,SMA Short Period=5,SMA Long Period=10,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=200	HybridSMAATR	Hybrid ATR-SMA
Hybrid ATR-MACD Histogram	ATR Period=14,MACD Fast=12,MACD Slow=26,MACD Signal=9,ADX Period=14,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=200	HybridMACDHistATR	Hybrid ATR-MACD Histogram
Keltner-Bollinger-EMA	Bolliger Period=20, k Up = 2, k Down = 2, EMA Period=20, ATR Multiplier=2.0, ATR Period=10, EMA Short Period=5, EMA Long Period=10, Stop Loss Level (%)=5, Trailing Stop (%)=15, Take Profit Level (%)=200	HybridKeltnerEMA	Keltner-Bollinger-EMA
ATR-Parabolic SAR	ATR Period=14,AF=0.02,Step=0.2,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=200	HybridSARATR	ATR-Parabolic SAR
ATR-Parabolic SAR-ADX	ATR Period=14,AF=0.02,Step=0.2,ADX Period=14,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=200	HybridSarAtrAdx	ATR-Parabolic SAR-ADX
Basic MACD and Two SMA cut	MACD Fast=12,MACD Slow=26,MACD Signal=9,Short Period=5,Long Period=10,Stop Loss Level (%)=5,Trailing Stop (%)=15, Take Profit Level (%)=50	TwoSMABasicMACD	Screen sell signal for stock macd line below 0 and Short term SMA is below Long term SMA
MACD and StochSlow	Simple moving average=20,MACD Fast=12,MACD Slow=26,MACD Signal=9,Fast K Period=15,Slow K Period=5,Slow D Period=3,Ma Type=4	MACD_StochSlow	Buy when there are differences in MACD signal and MACD lines, with Stochastic line K above D, and in up trend (defined by SMA condition)

16.3 Others

Name	Parameters	Code	Description
Average Investing	Period = 30, Buy Level from Average(%) = 20,Sell Level from Average(%) = 15,Stop Loss Level (%)=4,Take Profit Level (%)=200	AverageStrategy	Buy when price down to Buy Level, Sell when price up to Sell Level

17 Appendix 4: Quantum ranking

17.1 Buy Signal Category

Here is the screening strategy for selecting the stocks which have BUY signal for today trading.

Name	Parameters	Code	Description
MACD and Two SMA Buy Signal	MACD Fast=12, MACD Slow=26, MACD Signal=9, Short Period=5, Long Period=10	TWOSMAMACDSCR	This stock ranking finds stocks that has BUY signal when conditions are satisfied by two strategy: BasicMACD and TwoSMA. Two technical indicators are used is MACD line, and crossover over of 5 days Moving Average and 10 days Moving Average.
Two SMA Buy Signal	Short Period=5,Long Period=10	TwoSMASCR	This stock ranking finds stocks that has BUY signal when two SMA lines cut each others
MACD Histogram Changed	MACD Fast=12, MACD Slow=26, MACD Signal=9	MACD_HistogramSCR	Finding Buy Signal from MACD Histogram Strategy
Stochastic Fast	Fast K=14, Fast D=3	StochFastSCR	Finding Stocks with BUY signal from StochFast Strategy
Basic MACD	MACD Fast=12, MACD Slow=26, MACD Signal=9	BasicMACDSCR	Screen stock with MACD above 0
Basic DMI	Plus Period=14, Minus Period=14	BasicDMISCR	Screen stock with DI+ above DI-
SAR Screening	AF=0.02, Step=0.2	BasicSARSCR	Finding stocks with Buy Signal from BasicSAR strategy

17.2 Sell Signal Category

Name	Parameters	Code	Description
MACD and Two SMA Sell Signal	MACD Fast=12, MACD Slow=26, MACD Signal=9, Short Period=5, Long Period=10	TwoSMAMACD_SELL	Screen sell signal for stock macd line below 0 and Short term SMA is below Long term SMA

17.3 Up Trend Category

Name	Parameters	Code	Description
Uptrend Price	SMA Period=20	PriceSCR	Screen stock with price above SMA lines with Period as parameter
MACD and Two SMA Up	MACD Fast=12, MACD Slow=26,	TwoSMAMACD_UPTREND	Screen Up Trend for stock macd line below 0 and Short term SMA is below Long term

Trend	MACD Signal=9, Short Period=5, Long Period=10		SMA

17.4 Down Trend Category

Name	Parameters	Code	Description
MACD and Two SMA Down Trend	MACD Fast=12, MACD Slow=26, MACD Signal=9, Short Period=5, Long Period=10	TwoSMAMACD_DOWNTREND	Screen Down Trend stocks having MACD line below 0 and Short term SMA is below Long term SMA

17.5 Other category

Those screenings are used for portolio selection.

Name	Parameters	Code	Description
ADX Screening	ADX Period=14	BasicADXSCR	Finding stocks that has trend (Up trend, or Downtrend). This screening is based on ADX technical indicator.
Volume of the last day in a range		BasicVolumeSCR	Volume of the last day in a range
Volume Screening		VolumeSCR	Volume of the last day above volume of the previous day
Price change (%)		PriceChangeSCR	Price change (%)
Relative Strength		RelativeStrengthSCR	Find the best perform stocks
Stocks near support	Period=30, Distance (%)=1	SupportSCR	Find stocks near support line
Stocks near resistance	Period=30, Distance (%)=1	ResistanceSCR	Finding Stocks near Resistance Line
Abnormalies Screening	Period=30, Multi=2		Finding stocks which have abnormaly behaviour
Basic Price Screening		BasicPriceSCR	Screen stock with target price

18 Appendix 5: Quantum technical indicators

18.1 Trending Indicators Category

We introduce here some frequent technical indicators. Other indicators are explained in our website.

18.1.1 Simple Moving Average

A simple moving average is a trending indicator that eliminates the volatility of daily price movement and smoothes it out into a line that is plotted on top of the price movement of a security. As with all other technical indicators, a simple moving average is based on past price data and thus lags current price movement, but the information it provides is incredibly beneficial.

You can add up to three simple moving averages on your chart, and you can customize the time frame for each one. For example, if you decided to plot three simple moving averages on your chart, you could select time frames of 30, 50, and 200. That means the first moving average would average out the price movement for the past 30 time periods, the second moving average would average out the price movement for the past 50 periods, and the last moving average would average out the price movement for the past 200 periods.

Using moving averages is the easiest way to determine the trend of a security. If the moving average is pointing up, the security is trending higher. If the moving average is pointing down, the security is trending lower. Of course, the time frame of the moving average determines how responsive, or volatile, the moving average is going to be.

A shorter-term moving average—such as the 30-period simple moving average—is going to be much more responsive than a longer-term moving average—such as the 200-period simple moving average. You can see this in the AAPL chart where the red, 30-period simple moving average moves more than the green, 200-period simple moving average. Looking at this chart, the shorter-term 30-period simple moving average is trending lower while the longer-term 200-period moving average is tending higher.

18.1.2 Exponential Moving Average

An exponential moving average is a trending indicator that, like a simple moving average, eliminates the volatility of daily price movement and smoothes it out into a line that is plotted on top of the price movement of a security. The difference between exponential moving averages and simple moving averages, though, is exponential moving averages place more weight on the most recent data while simple moving averages weight all data equally.

You can see the difference this weighting makes, especially on the 200-period moving average, as you look at the Apple Computers (AAPL) chart. Simply by changing from a simple moving average to an exponential moving average, the longer-term 200-period moving average is now trending lower, not higher as it was when using a simple moving average.

When deciding whether to use an exponential moving average or a simple moving average, you need to ask yourself how aggressive you want to be in your investing. Aggressive investors are better suited for an exponential moving

average because of its increased volatility while less aggressive investors are better suited for a simple moving average.

Whether you decide to use simple or exponential moving averages or long- or short-term time frames, you should always try to trade with the trend of the security you are analyzing

18.1.3 Weighted Moving Average

The Weighted Moving Average indicator calculates the average of a set of values over a specified period.

18.1.4 Average Directional Index

The Directional Movement Index consists of Average Directional Index, or ADX, which defines the strength of the trend; DI+ and DI, which demonstrate the strength of the decreasing and increasing prices correspondingly.

18.1.5 Bollinger Bands

Bollinger bands form an envelope that expands and contracts around a simple moving average. The expansion of the bands is based on the volatility of the equity. As the equity becomes more volatile, the bands expand. As the equity becomes less volatile, the bands contract.

The default setting for Bollinger bands is 20 and 2, which means the indicator takes the past 20 time periods into account and bases its calculations based on two standard deviations from the mean. You will most likely want to leave the default unchanged when you plot this indicator.

Also, when you plot Bollinger bands on your chart, you should also plot a 20-period simple moving average so you can visualize the simple moving average the Bollinger bands are interacting with.

Many investors will use Bollinger bands to judge the magnitude of a stock movement and identify moments when the trend of the simple moving average may be coming to an end. For example, if you see the two Bollinger bands dramatically spread apart and start moving in opposite directions, you know the stock has just made a dramatic move. For a clue as to when that move may end you can keep an eye on the Bollinger band that is moving in the same direction as the price. When this band starts to turn around and converge with the other band—as it did in mid-February on Apple Computers (AAPL)—you know the current price movement is losing momentum.

18.1.6 Parabolic SAR

Parabolic S-A-R is a trending indicator that can help you determine when to exit a trade. S-A-R stands for “stop and reverse,” and when you see the price hit the parabolic S-A-R indicator on the chart, you may want to consider exiting your trade. You can look at is as a type of technical stop loss for your trades.

Again, as with Bollinger bands, you will most likely want to leave the default settings alone when plotting this indicator. Here’s how it works. The parabolic S-A-R, after if reverses from either above or below the price on the chart will slowly start to tighten up and move in closer and closer to the price until the price ultimately hits the indicator. This causes the indicator to flip over to the other side of the price and begin the process all over again.

If you use the parabolic S-A-R as a stop loss indicator, you know you will never hold onto a trade that goes against you because it will tell you when to exit. However, it does have its limitations. It may take you out of trades that are only experiencing a momentary pull back before they continue on to higher and higher profits, as it did in November on the Apple Computers (AAPL) chart.

18.1.7 Average True Range

Developed by J. Welles Wilder, the Average True Range (ATR) is an indicator that measures volatility

18.1.8 Aroon

Developed by Tushar Chande in 1995, Aroon is an indicator system that determines whether a stock is trending or not and how strong the trend is. The indicators are designed to reveal the beginning of a new trend.

18.1.9 Commodity Channel Index

Developed by Donald Lambert and featured in Commodities magazine in 1980, the Commodity Channel Index (CCI) is a versatile indicator that can be used to identify a new trend or warn of extreme conditions. Lambert originally developed CCI to identify cyclical turns in commodities, but the indicator can successfully applied to indices, ETFs, stocks and other securities.

18.2 Oscilators Category

18.2.1 Relative Strength Index

RSI indicator compares the average of up and down closes for a specific period of time.

18.2.2 Moving Average Convergence/Divergence

MACD calculates and displays the difference between the two moving averages at any time.

18.2.3 Average Directional Index, Plus Directional Index, Minus Directional Index

The Directional Movement Index consists of Average Directional Index, or ADX, which defines the strength of the trend; DI+ and DI, which demonstrate the strength of the decreasing and increasing prices correspondingly.

18.2.4 Stochastic RSI

Combining RSI with Stochastic.

18.2.5 Fast Stochastic

Stochastic is a momentum oscillator, which consists of two lines: %K - fast line, and %D - slow line. Stochastic is plotted on the scale between 1 and 100.

18.2.6 Accumulation/Distribution Oscillator

Developed by Marc Chaikin, the Chaikin Oscillator measures the momentum of the Accumulation Distribution Line using the MACD formula. This makes it an indicator of an indicator. The Chaikin Oscillator is the difference between the 3-day EMA of the Accumulation Distribution Line and the 10-day EMA of the Accumulation Distribution Line.

18.2.7 Aroon Oscillator

Developed by Tushar Chande in 1995, Aroon is an indicator system that determines whether a stock is trending or not and how strong the trend is. The indicators are designed to reveal the beginning of a new trend.

18.2.8 Chande Momentum

The Chande Momentum Oscillator (CMO) was developed by Tushar Chande who is a scientist, and respected trading system developer. Mr. Chande developed the Chande Momentum Oscillator to capture what he calls “pure momentum”.

18.3 Volume

18.3.1 Accumulation/Distribution

The Accumulation/Distribution Line was developed by Marc Chaikin to measure the cumulative flow of money into and out of an index or security.

18.4 Market

18.5 Customized

18.5.1 Balance of Power

Balance of Power has been added to Investor/RT, both for charting and for use in scans, custom indicators, and signals (token BOP). The Investor/RT implementation of the BOP is based on an article by Igor Livshin that can be found on p. 18 of the August 2001 issue of Stocks and Commodities Magazine.

18.5.2 Linear Regression

In statistics, linear regression is an approach to modeling the relationship between a scalar variable y and one or more variables denoted X. In linear regression, data are modeled using linear functions, and unknown model parameters are estimated from the data. Such models are called linear models.