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Have you ever considered using non-time based charts in your technical analysis? Dr. John Clayburg talks about the advantages and disadvantages of doing it



Using Non-Time Based Charts for Short-Term Forex Trading

Daily bar charts have been part of technical analysis since trading of commodities and equities commenced on centralized exchanges. Many books written by the early ‘masters’ of trading are heavily laden with hand-drawn graphs recording the daily activity of various stocks and other traded items.

When short-term trading and daytrading became popular a several years ago, the natural progression of this activity was to also use charts to analyze short-term market movements.

Initially short-term charting was accomplished using hourly charts, as this timeframe was a natural progression from the widely accepted daily charts. When more detailed analysis was desired, intraday charts quickly evolved down to 30-minute and eventually 5-minute charts. With the introduction of modern computers into the trading environment, it became possible to analyze market data in even shorter timeframes.

While various minute or time-based charts are useful for shorter-term analysis and trade generation, they have the disadvantage of the introduction of a relatively unimportant and ambiguous parameter into the trade generation equation. Quite

simply, that parameter is ‘time.’

By definition, a five-minute chart creates a bar every 5 minutes. This bar is created regardless of the amount of price action occurring during this 5-minute period. There could be absolutely no activity or a great deal of important market activity represented by this single price bar. Since many trade generation routines are based on various patterns created by a group of price bars, the number of bars created by associated market activity has a drastic bearing upon the eventual profitability of the strategy. The bottom line is that the introduction of time into the calculation of buy and sell points can result in significantly disparate results than if one were able to concentrate exclusively on market activity.

Using ‘Tick’ Charts

At first glance, tick charts appear to be identical to time-based charts. However, there is a significant dissimilarity involving the manner in which the individual price bars are created. Tick charts create a new price bar following the passage of a pre-determined number of actual market price changes while time-based charts create a bar after a given amount of time has passed. For example, a 5-minute chart

completes a new price bar each 5 minutes. A 233-tick chart places a new bar on the chart after the computer has received 233 independent price changes.

Time is not a consideration in the formation of a tick chart. It might take 15 minutes for a 233-tick bar to form during a slow market or it is possible to get five 233-tick bars in a single minute during fast market conditions.

The important point here is that each tick chart contains the identical amount of pure market information in each bar while a bar on a time-based chart is made up of the amount of market information generated during a given time period.

This consideration is significant when analyzing a market composed of widely disparate activity periods. Today’s foreign exchange market (Forex) provides a prime example of such a market and is the one that will be used here to illustrate the usefulness of non-time based or tick charts.

The following charts demonstrate the basic differences between time-based and non-time based charts. The white box in the top chart identifies all of the 1-minute bars for the EUR/USD currency pair covering the first 7 hours of trading on



Chart 1 : EUR/USD Source : TradeStation



Chart 3 : EUR/US

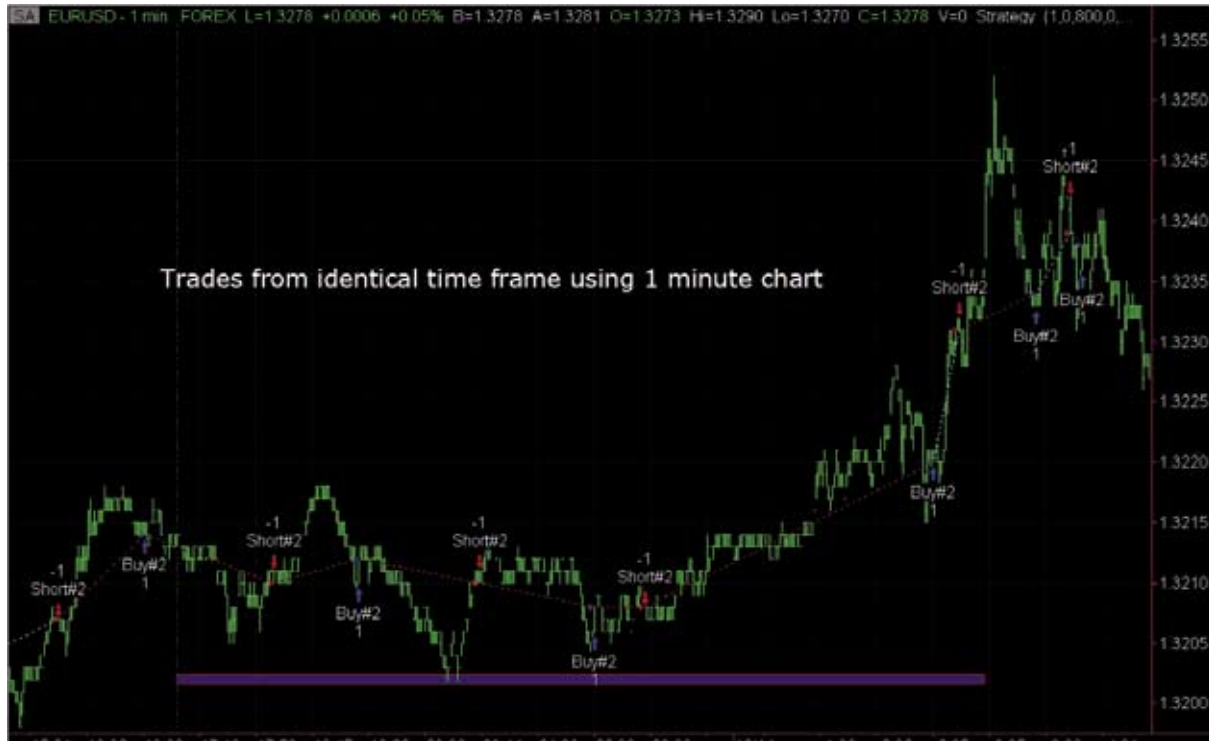


Chart 3 : EUR/US Source : TradeStation

December 14, 2006. The white box in the bottom non-time based chart identifies the same price activity in a 233-tick chart.

The purpose of using non-time based charts is not to ignore price activity during quiet periods – but to simply put this data into its proper perspective devoid of the time parameter.

Automated trading systems frequently determine entry or exit signals based on relative chart patterns that compare recent price activity and calculate trades based on previous similar market action. For these systems to have validity, it is assumed that each price bar is as significant as any other bar on the chart. Since charts that are non-time based contain equivalent price information, these bars are more likely to create a consistent trading strategy.

The following charts and system reports are created from the application of a single trading system to both a one-minute chart and a 233-tick chart.

This chart depicts the trades generated by the system on a 233-tick chart. The red bar inside the white ellipse marks the 7 hours of data discussed in the previous chart illustration. Note that the data is ig-

nored by the trade generation routine and is simply a portion of the overall downward trend being traded by the system.

In contrast, note that there are 5 unprofitable trades generated by the same data when it is graphed as a time-based chart. Injecting time into the signal generation equation has caused the strategy to generate multiple false signals.

The TradeStation Strategy Performance Report above shows a hypothetical return of \$16,580 for the Universal System during the time period from October 31, 2006 through January 3, 2007 when applied to our 233 tick chart.

The same system applied over the identical time period shows radically different results when a 1-minute chart is used to graph the data.

While it is possible to remove some of the ‘system noise’ added by the time parameter with relatively longer timeframes, such as 60-minute to 120-minute charts, similar research has shown that non-time based charts remain the preferred methodology when attempting to analyze pure market data for the purpose of systematic trading.

Although this discussion has concentrated on Forex data to describe the use of non time-based charts, the same effects are demonstrable when other tradable markets such as stock indices, futures markets and equities are modeled for systematic trading.

One disadvantage of tick charts is the relative unavailability of tick data from many data providers and charting applications due to the significantly larger amount of storage space required to retain all price changes for a given item. While this detail may limit the spectrum of historical testing that is possible on an automated strategy, the advantages of examining price data without unnecessary ‘noise’ far outweighs this insignificant obstacle.

While time-based charts are certainly useful for intraday trading, serious traders are encouraged to also consider non-time based data representation as a basis for short-term strategy development.

Dr. John Clayburg is a trading system developer and trader based in Western Iowa in the U.S. More information on the Universal System and other self-adaptive automated systems and indicators may be found at www.clayburg.com.

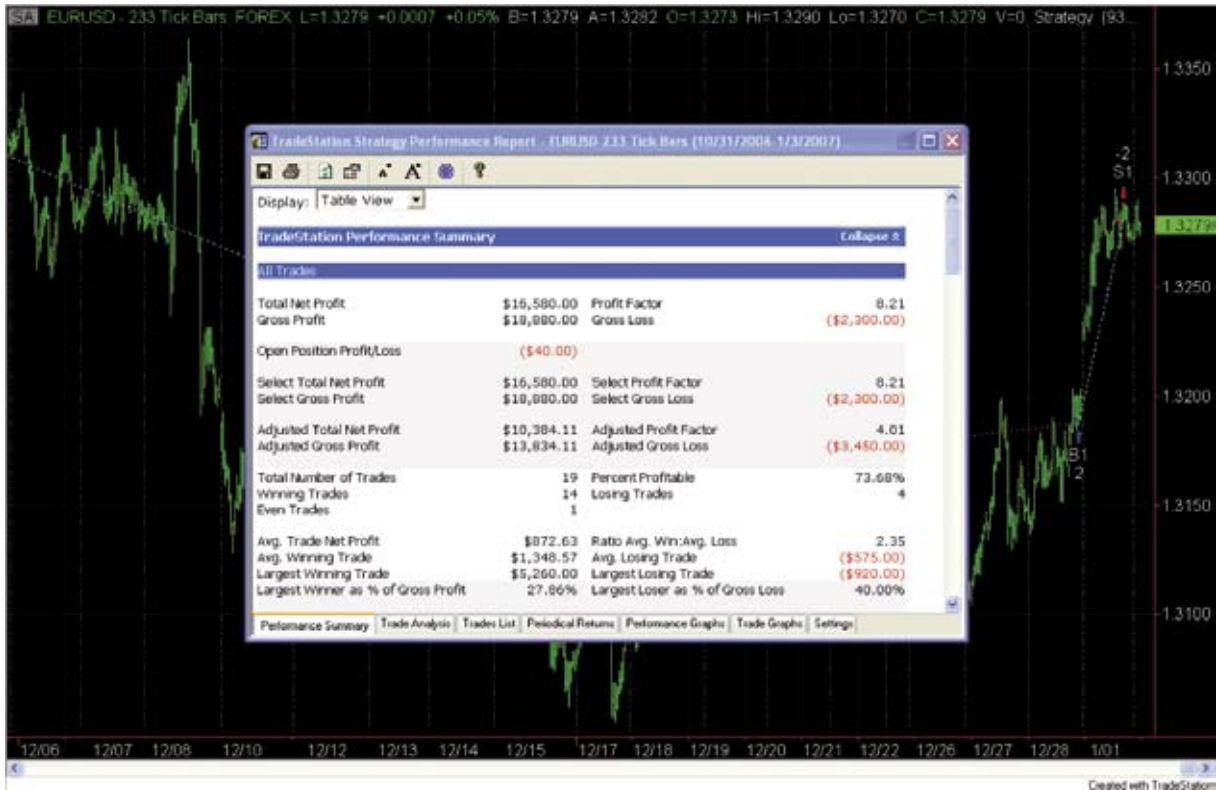


Chart 4 : EUR/US

Source :TradeStation

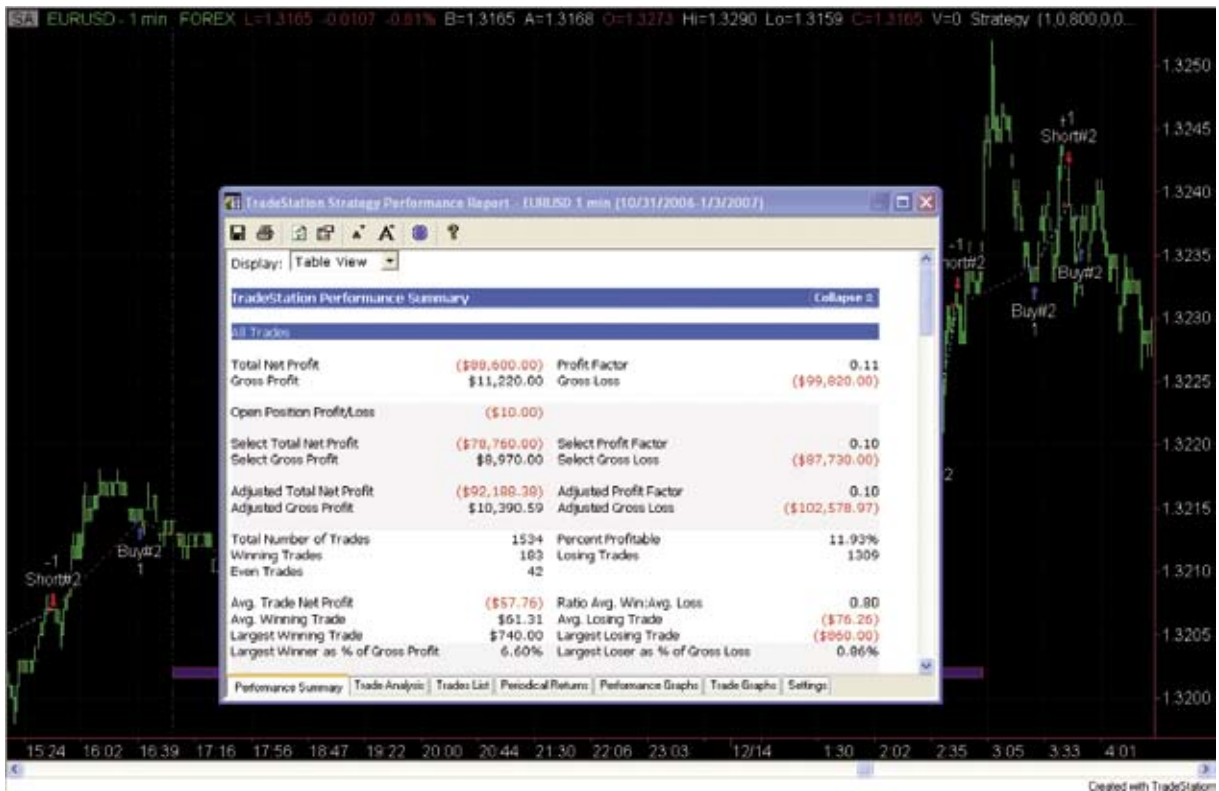


Chart 5 : EUR/US Source :TradeStation