



Trade While You Golf

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Chapter 4

Picking the time frame

In this chapter we'll discuss the different time frames of operations available to the trader and their relative returns, considering both ideal and real-world situations.

4.1 Benchmark a posteriori

It is often taken for granted that the most profitable time frame is the intraday one, since this way you can limit the capital exposure, take advantage of the quick price movements in both directions and, at the end of the day, exit "flat" without worrying about the unfavorable gaps at the next market open, dreaded like the plague by the multi-day traders.

Such an assumption is confirmed by analyzing a posteriori the price action with the following method.

Let's consider the historical quotes of a trading instrument over a given time frame, for instance a month, and let's pick different granularities for the Japanese candlesticks (one minute, five minutes, one hour, four hours, one day, one week, one month and so on).

Imagine that you can forecast the future by knowing in advance the direction of every single candle, and let's define it as **OCR(0)**, where OCR is the Open-Close Range previously introduced. The zero in round brackets means that the OCR is relative to the current candle.

For every possible granularity, the time span of the historical quotes being equal, let's open a position on every candle using as signal or qty (the position's direction) the $OCR(0)$ sign, i.e. opening a long position if the $OCR(0)$ is positive and a short position if it's negative. For each granularity g taken into account, we can compute a net cumulative profit/loss, which we'll call $NETPL(g)$, where $g=5m, 10m, 15m, 1h, 4h, 1d$, and so on. It's important to compute the net profit/loss *after* the broker commissions, the spread and every other position-related fee.

If now we summarize the results in a table and we order them by decreasing $NETPL(g)$, or if we plot them on a chart, we'll see that we get the maximum value for the smallest granularities. The exact value varies with the broker commissions and the average spread on the instrument.

The following chart reports the net profit/loss in a 20-days period on the EUR/USD currency pair for different granularities and average spreads, assuming zero broker commissions; the signal (qty) is given as explained above:

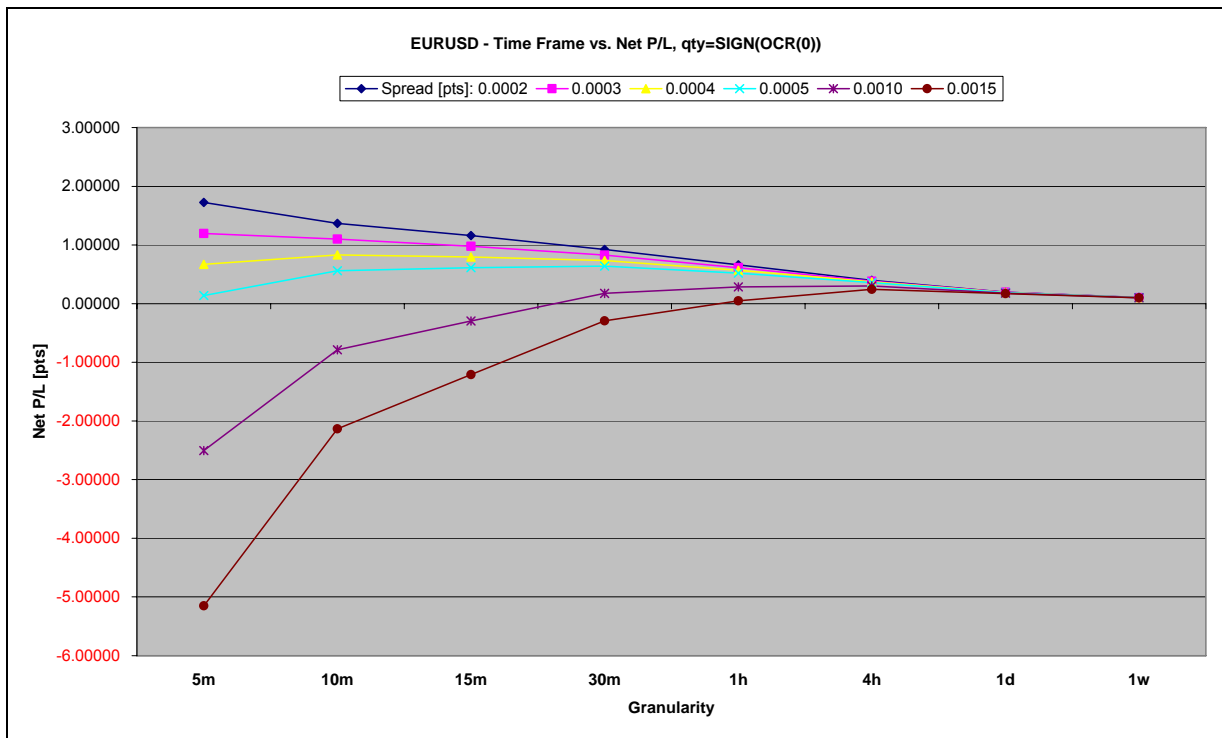


Figure 5 - Net P/L on EUR/USD with $qty = \text{SIGN}(\text{OCR}(0))$

We can see that, when the spread is low, the maximum net P/L is obtained for g gravitating around the 5-10 minutes time frames, while as the spread increases, the optimal g shifts towards the 4 hours window, as shown in the detail below:

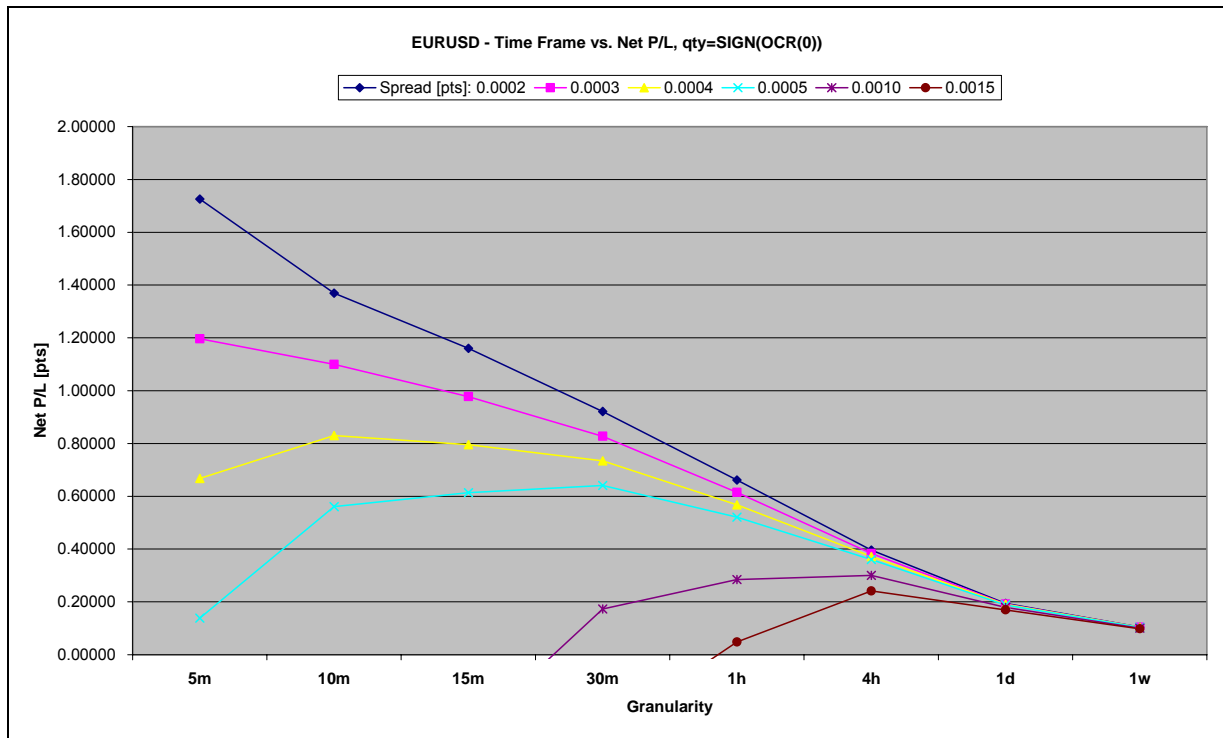


Figure 6 – Detail of the net P/L on EUR/USD with $qty = \text{SIGN}(\text{OCR}(0))$

The reason for this behavior is that the profits on the smaller time frames become gradually insufficient to offset the increasing spread, so a larger time frame with positions lasting longer is needed to end in the black.

We can consider these returns, function of the granularity, as the “benchmarks a posteriori” of the instrument in the period taken into account, because they are the maximum profits that we could reach if we were able to exactly forecast the overall direction of every single candlestick.

4.2 Forecasting ability

So it seems that the maximum *theoretical* returns on a given instrument can be obtained by opening positions lasting from a minimum of ten minutes to a maximum of four hour.

This was somehow evident, because for instance in the case of a Doji day with very long shadows, the closing price is nearly unchanged with respect to the opening, so if I opened a single position in the day, entering at the open and exiting at the close, my profit would be nil, or worse I would even lose out the spread and commissions. On the other hand, assuming that the high was reached before the low, if I had:

- bought at the open;
- inverted the position at the high (sold the long position and opened a short position of equal size);

- inverted the position again at the low (covered the short position and opened a long position of equal size);
- sold at the close;

I would have had, for the same day, three intraday positions for a total (gross) profit roughly amounting to twice the HLR (High-Low Range) multiplied by the size of the position, with a definitely positive ROI.



Figure 7 – Intraday trading a Doji day on the E-MINI DOW future

The same would hold true if the low was reached before the high and I had shorted at the open, inverted at the low, inverted again at the high and short covered at the close.

But now let's repeat the same analysis of the previous section *without* using the OCR(0), undoubtedly a very convenient indicator but, alas, unattainable in practice because if we were able to see even a mere couple of hours in the future, we could win the lottery and none of us would need to trade for the rest of our lives.

This time, using “real-world” signal generators, like moving average crossings, we notice a fascinating phenomenon: in many cases, the NETPL(g) peaks for $g=1$ day.

As an example, the following chart reports the net profit/loss in a 20-days period on the EUR/USD currency pair for different granularities and average spreads, assuming zero broker commissions. The signal (qty) is given by the formula:

$$\text{sign}(C(1) - MA(C,5))$$

that is the sign of the difference between last period's close and the simple moving average of the last 5 periods closes, i.e. it is assumed that when the former is higher than the latter, the trend is up, and vice versa, which makes it a simple trend-following trading system:

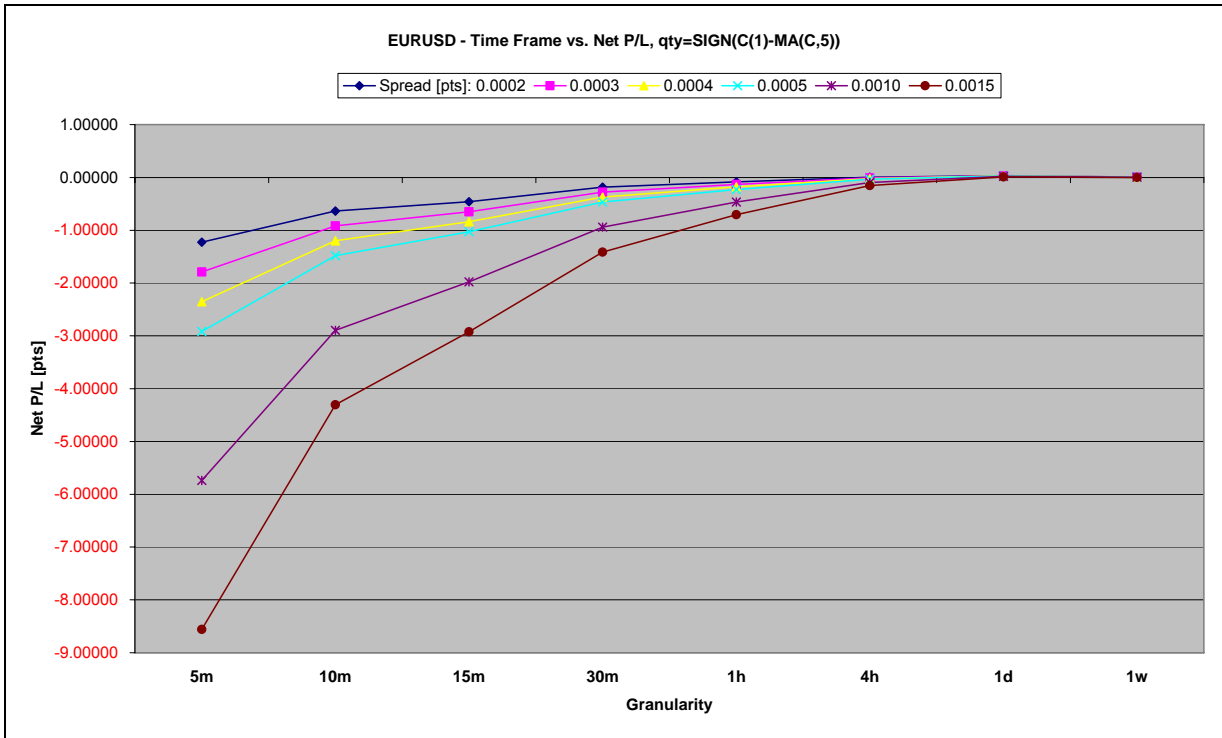


Figure 8 –Net P/L on EUR/USD with qty = sign(C(1)-MA(C,5))

We notice that, for every spread value, the maximum NETPL is obtained when g equals the one-day time frame, as shown in the detail below:

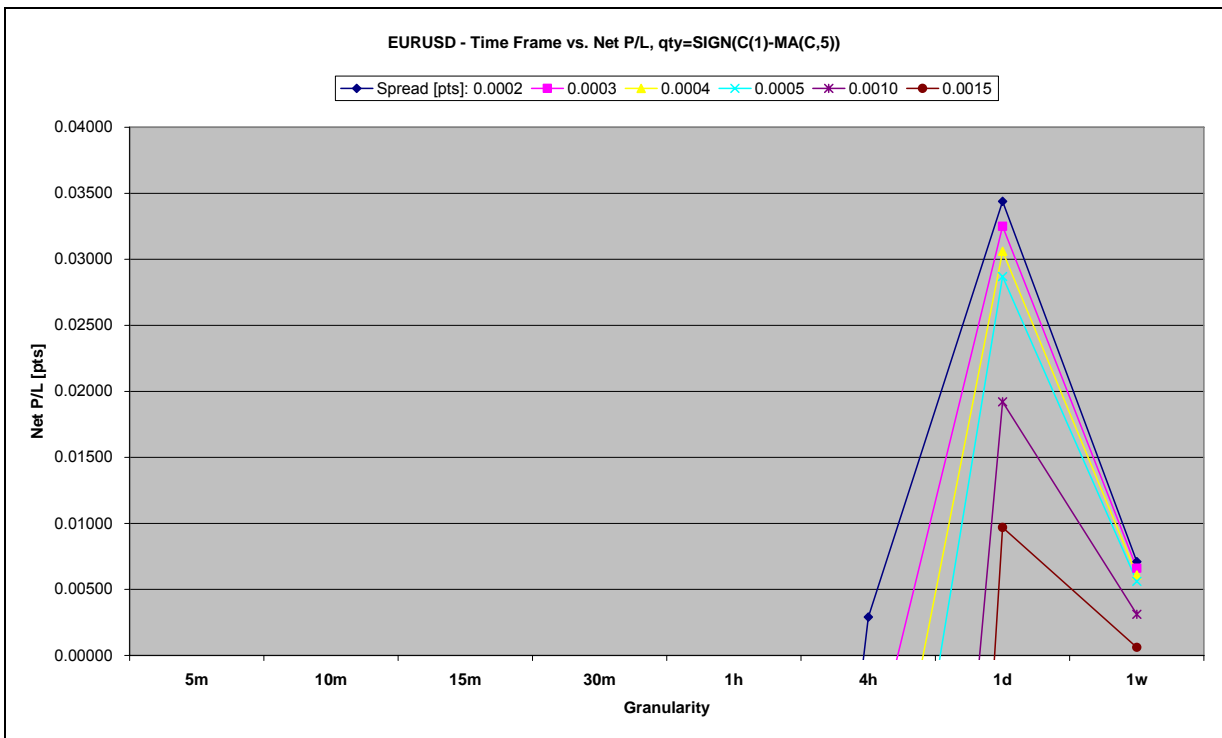


Figure 9 - Detail of the net P/L on EUR/USD with qty=SIGN(C(1)-MA(C,5))

This is of course just an example picked at random, the existence of trading systems whose returns peak for different time frames can't be ruled out completely. Nevertheless, the results illustrated above recur for a vast category of signal generators and should be taken into account when selecting a time horizon for trading.

4.3 Choice of the optimal time frame

Our ability to forecast the price movements of a trading instrument seems thus optimal if the position lasts one day on average. This stems, in my opinion, from the following factors:

- 1) it's hard to predict the price micro-movements occurring during the day, since they appear all the more random as the time frame shrinks; it's easier to predict the general direction (OCR) of a daily market session;
- 2) by opening too many positions per day (aka *overtrading*), the bulk of my profits will be eroded by spread and commissions; by opening just one position per day, the expenses will be cut dramatically;
- 3) in case of directional days, if I guessed the market's direction right my profits will be high, if instead I'm mistaken, I'll only lose my predefined stop loss amount; in case of non-directional (Doji) days, I won't earn much but neither lose much because the price will have narrow swings around the open all day and, if my stop loss is adequately sized, it will seldom be hit;
- 4) the profits needs time to build up: a shorter time frame means that, all the profits being equal, I have to add more lots to my position, so I will need a greater balance in my account;
- 5) the daily trading contemplates wide stop losses with respect to the intraday trading, so they will seldom be hit for a calibration misjudgment of one or two ticks/pips, as opposed to what all too frequently happens in a smaller time frame.

It seems therefore reasonable to focus all of our trading efforts on the one-day time frame, placing our entry order, plus the stop loss and take profit if possible, at the market open, and exiting at the close, if the stop loss and the take profit are not hit before, in which case the position will be closed automatically by our broker.

Bearing this in mind, the ideal strategy it's thus the **one-day trading on marginable instruments**:

- a. the day trading allows us to open our positions at the market open without worrying about closing them, since our broker will automatically do it for us shortly before the market close⁶, protecting us from holding positions overnight in case we were unable to close them manually; it's this "fire-and-forget" approach that delivers us from the burden of monitoring the position minute by minute, adding freedom to our life;

⁶ Not all brokers provide this service. Some require a manual exit from the position.

- b. trading on margin allows us to leverage our account and get faster results.

For further info and solutions please visit:

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