Analysis of Returns versus Trading Period

SUMMARY

This analysis illustrates how return rates increase as trading timeframes decrease, in the limiting case where each trading decision is always perfect. In this example, the average annual return rate climbed from 1.2x to 73x per year, as the trading timeframe dropped from annually to hourly (including the extended sessions).

PROCEDURE

A single stock (IBM) was selected for analysis, since it is a reasonable proxy for all high liquidity U.S. stocks. The prior 14 years was selected for the analysis period, since it contains two economic cycles. The methodology was to make a decision to buy or not at the start of every trading period analyzed (year, month, week, trading day, regular-trading-session hour, and extended-session hour); and then go back to cash (yielding 0% return) at the end of that period. A buy decision is made if the (100% accurately projected) price is going to rise during the trading period. The model shows the limiting case for returns on this trading scenario, since predictions are 100% accurate, and commissions, bid-ask spread, and slippage are all considered to be zero.

DISCUSSION / CONCLUSIONS

The results are shown in Figure 1. As expected, there is a steep rise in the return rate as the prediction / trading period gets shorter. Returns go from 2.1x to 22x per year, averaged over this 14 year analysis period, as one goes from weekly trades to regular-trading-session hourly trades. Returns triple again, on average, if pre-market and after-hours trades are included.

On the down side, there are 50x more trading decisions needed to trade hourly on regular + extended market hours than for trading weekly, but the interval over which one has to predict the price change direction shrinks from 1 week to 1 hour.

IBM Predictive Trading: Compounded Annual Growth Rate (CAGR) versus Trading Period

**Assuming 100% accurate prediction of price change direction for next Trading Period,
buying stock at the opening of each Trading Period if the price is going to rise during that Trading Period,
and then selling it at the closing of each Trading Period, with all proceeds reinvested
(assumes zero commissions, bid-ask spread, and slippage)**

	Year														Average annual rate 1998 through 2011		Trading decisions per year to achieve this return
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
Trading Period*																	
Yearly	1.8x	1.2x	1.0x	1.4x	1.0x	1.2x	1.1x	1.0x	1.2x	1.1x	1.0x	1.6x	1.1x	1.3x	1.2x	(+19%)	1
Monthly	2.4x	1.8x	1.5x	2.2x	1.7x	1.3x	1.3x	1.2x	1.3x	1.4x	1.4x	1.6x	1.3x	1.4x	1.5x	(+52%)	12
Weekly	2.9x	2.7x	2.8x	2.9x	2.7x	2.0x	1.6x	1.5x	1.6x	1.8x	2.4x	2.6x	1.5x	2.0x	2.1x	(+114%)	52
Daily	4.7x	4.3x	10.3x	7.0x	5.4x	3.8x	2.4x	2.5x	2.6x	3.4x	6.9x	5.4x	3.0x	2.9x	4.2x		251
Hourly	30x	42x	127x	63x	60x	14x	7x	7x	8x	13x	63x	28x	9x	10x	22x		1,506
Hourly, 24x7	65x	109x	486x	254x	207x	39x	13x	14x	17x	48x	890x	135x	24x	47x	73x		2,546

Figure 1