Notes on Trading Strategy for Iowa Stock Market – version 2.0

We execute trades on the following dates:
7/20
7/30 *
8/10 **
8/28
9/11*
9/20 **
10/3
10/14 *
10/23 **
10/28 ***
11/4

If the date does not have an asterisk, it means we trade only in the Winner Take All Market. If it has one asterisk it means that we trade only in the Vote Share Market. If it has two asterisks, it means that we trade in both markets. If it has three asterisks, we sell all of our current holdings.

On each date (except for the triple-asterisk date) we randomly select whether to buy Bush or Gore. Specifically, we look at the closing price of the Dow on the day before the trade. If the hundredths digit is even, we buy Bush; if it's odd we buy Gore. Let's agree to use the closing price, as reported on the Washington Post's web site.

Say that on a day of trading our random device says to buy Bush. Then we do the following:

a) We buy $160 worth of Bush. For each order (it will take several orders to buy $160 worth of shares) we first we note the Bid and Ask price of the Reform shares. Let x be the average of these two prices. Next, let y equal $1 – x – [the Bid Price of Gore]. Let z be the Ask price of Bush. If z is less than y, then we buy as many shares of Bush that we can at that price, as long as we haven't exceeded our $160 limit. If y is less than z we keep on selling Gore until the Bid price changes, or until we've spent $160 on Bush. (If we use the latter method, to compute the additional amount that we spent on Bush multiply z times the number of shares of Gore that we sell.) If we do not have the requisite number of Gore shares in our account, then we'll need first to buy a Combined Share of all three. (We won't worry about accumulating Reform shares. We sell them at the trader's convenience.) If however, we raise Bush's Ask price by at least .15 or more *and* we've lowered Gore's Bid price by at least .15, then we stop before we've spent $160 on Bush. (However, if the Ask price for Bush is above 70 cents, then we use a "half-the-distance-to-the-goal-line rule." We keep on buying until we've spent $160 or the ask price has increased to (1.00+currentAskPrice)/2.)

b) Next we put in an order to buy $80 worth of Bush at .006 below what the Ask price settles at. (This becomes the new Bid price.) Then we put in an order to sell $80 worth of Gore at .006 above what the Bid price settles at. (This becomes the new Ask price.)

Next, if it's an asterisk day, we do a similar strategy in the Vote Share Market, except we spend half the dollar amounts that we spend in the Winner Take All market. Also, we stop once we've changed prices by .10 (instead of .15.) Specifically,

a) For each order we first we note the Bid and Ask price of the Reform shares. Let x be the average of these two prices. Next, let y equal $1 – x – [the Bid Price of Gore]. Let z be the Ask price of Bush. If z is less than y, then we buy as many shares of Bush that we can at that price, as long as we haven't exceeded our $80 limit. If y is less than z we keep on selling Gore until the Bid price changes, or until we've spent $80 on Bush. (If we use the latter method, to compute the additional amount that we spent on Bush multiply z times the number of shares of Gore that we sell.) If we do not have the requisite number of Gore

shares in our account, then we'll need first to buy a Combined Share of all three. (We won't worry about accumulating Reform shares.) If however, we raise Bush's Ask price by at least .10 or more *and* we've lowered Gore's Bid price by at least .10, then we stop before we've spent $80 on Bush. (However, if the Ask price for Bush is above 70 cents, then we use a "half-the-distance-to-the-goal-line rule." We keep on buying until we've spent $80 or the ask price has increased to (1.00+currentAskPrice)/2.)

b) Next we put in an order to buy $40 worth of Bush at .006 below what the Ask price settles at. (This becomes the new Bid price.) Then we put in an order to sell $40 worth of Gore at .006 above what the Bid price settles at. (This becomes the new Ask price.)

Next, if it's a double asterisk day, we do the same strategy in the WinnerTake All Market as a no-asterisk day, but in the Vote Share Market we do the following:

a) We start buying Bush. We keep on buying until we've spent $80 or both the Bid price of Gore and the Ask price of Bush increase by w . w is calculated so that it's price is in line with the Winner Take All price. I did some back-of-the-envelope calculations with data from the Dole-Clinton race. It seems that the market treated the current vote share price as Dole's expected vote share. His actual vote share on election day is the expected share plus a normally distributed error term, with mean zero and standard deviation .05 + .007 sqrt(d), where d is the number of days left before the election. Given the standard deviation and expected vote share, Dole's probability of winning is Phi([ExpVoteShare - .5]/StandardDev.), where Phi() is the standard normal cdf. Now, if we know the probability of winning (or the price to which we've moved the Winner Take all Market), we can compute w.

Let p be the new price of Bush in the Winner Take All market. (Let's use the Ask price. That is, the new Ask, after we've changed the prices.) Define z(p) as the corresponding z-score of p. In excel you can use "=normsinv(p)" to calculate this number. Then

$$w=z(p)[.05+.007*SQRT(DaysUntilElection)] + .5$$

Actually, we will need to adjust y to reflect the ReformParty Share. Take the current price of the Reform share (take the ave. of Bid and Ask), divide it by two. Subtract this number from the y above to get the adjusted w. We keep buying Bush and selling Gore until we've spent $80 or we've moved Bush's Ask Price to the adjusted w and we've moved Gore's Bid price by the same amount.

b) Next we put in an order to buy $40 worth of Bush at .006 below what the Ask price settles at. (This becomes the new Bid price.) Then we put in an order to sell $40 worth of Gore at .006 above what the Bid price settles at. (This becomes the new Ask price.)

If it's a triple asterisk day, first we bundle as many shares as we can and sell them back to the Iowa market as a Combined Share. For instance, suppose we own 90 Bush Shares, 130 Gore shares, and 180 Reform shares. Then (I think we can do this) we sell 90 Combined shares back to the Iowa market for $90. This leaves us with 0 Bush shares, 40 Gore shares, and 90 Reform shares. To sell the remaining shares, let's unload half of them through a market order (that is, selling at the current Bid price). Then we enter an order to sell the remainder at an Ask price .006 above what the Bid price settles at.

Other Notes:

Every other trading day, beginning July 30, let's begin at 9:15pm Pacific time. This gives us 45 minutes to execute our trades before the Iowa folks record the Last Price for the day. On the other trading days, let's stick to our original plan: we start our trading at 9:00pm Eastern (6:00 Pacific), which gives us two hours to make the time when Iowa records the day's closing price.

On Sept. 20, let's not choose whom to buy by a strictly random process. Instead let's do the opposite of what we do on Aug. 10.

There's a possibility that we'll run out of money before we execute all our trades. That is, we won't have any money left in the cash account to execute trades on a certain date. If this happens, we'll spend all we have available.

If we have no cash available on a trading date, but all of our shares are not invested in one candidate, then we'll choose to buy the other candidate (and sell the candidate of whom we own shares).