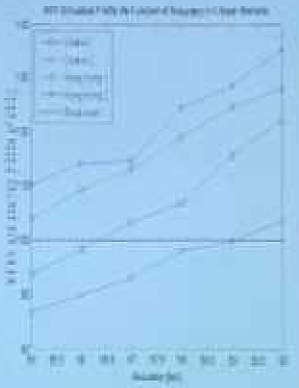
Asian Index Futures

- The chart at right uses actual data for one month of intraday price fluctuations for two time slots in each of two Asian futures markets.
- Trading was simulated with 5000 random predictions sets at each of the indicated accuracy levels (55% to 60%), including full accounting for transaction fees and biases in contract fulfillment.



1
00:00:04,400 --> 00:00:02,060
simple cash for a ticket generated by

2
00:00:08,179 --> 00:00:04,410
assuming some error level like assume

3
00:00:11,089 --> 00:00:08,189
three you you have your list of 130

4
00:00:15,230 --> 00:00:11,099
tickets and you send some poor victim

5
00:00:17,060 --> 00:00:15,240
out to the nearest drugstore with a long

6
00:00:19,279 --> 00:00:17,070
sheet of paper and okay I want to buy

7
00:00:22,070 --> 00:00:19,289
one of these and one of this number and

8
00:00:24,470 --> 00:00:22,080
one of this number but it's conceptually

9
00:00:26,570 --> 00:00:24,480
at least it's a simple procedure and it

10
00:00:29,480 --> 00:00:26,580
shouldn't take that many minutes at the

11
00:00:32,170 --> 00:00:29,490
counter what are the chances of winning

12
00:00:35,389 --> 00:00:32,180
it is there at potential for profit

13
00:00:39,049 --> 00:00:35,399

well cash for pays off at five thousand

14
00:00:41,030 --> 00:00:39,059
to one so if you expect to win you can

15
00:00:44,690 --> 00:00:41,040
afford to invest in a considerable

16
00:00:46,610 --> 00:00:44,700
number of tickets upfront and I realize

17
00:00:50,330 --> 00:00:46,620
I put part of the explanation after this

18
00:00:54,049 --> 00:00:50,340
table which was not right the expected

19
00:00:57,020 --> 00:00:54,059
profit for any given project design is

20
00:00:57,590 --> 00:00:57,030
the chance of winning times the $5,000

21
00:01:00,290 --> 00:00:57,600
reward

22
00:01:01,670 --> 00:01:00,300
minus the upfront investment because you

23
00:01:04,700 --> 00:01:01,680
have to buy the tickets whether or not

24
00:01:07,039 --> 00:01:04,710
you win and if you look at the expected

25
00:01:10,850 --> 00:01:07,049
profit it turns out that your optimal

26
00:01:14,870 --> 00:01:10,860
strategy is the same whether you assume

27
00:01:17,899 --> 00:01:14,880
the the 60% pessimistic accuracy that I

28
00:01:20,270 --> 00:01:17,909
started off with or use the actual

29
00:01:22,100 --> 00:01:20,280
accuracy that came out in the experiment

30
00:01:22,550 --> 00:01:22,110
which of course we wouldn't know in

31
00:01:27,969 --> 00:01:22,560
advance

32
00:01:29,929 --> 00:01:27,979
in any case either way this Green row

33
00:01:33,230 --> 00:01:29,939
assuming there could be up to four

34
00:01:35,330 --> 00:01:33,240
errors gives you the largest expected

35
00:01:40,010 --> 00:01:35,340
payoff under either assumption about the

36
00:01:43,399 --> 00:01:40,020
accuracy with the pessimistic a priori

37
00:01:44,600 --> 00:01:43,409
assumption you'd have a 50% chance 57

38
00:01:48,440 --> 00:01:44,610

percent chance of winning the lottery

39
00:01:49,940 --> 00:01:48,450
and this expected profit discounted for

40
00:01:54,530 --> 00:01:49,950
the chance of losing is still over

41
00:01:56,959 --> 00:01:54,540
$2,000 with the theoretic with the

42
00:02:03,560 --> 00:01:56,969
observed accuracy your theoretical

43
00:02:06,749 --> 00:02:03,570
chance of winning was about 83% in okay

44
00:02:11,620 --> 00:02:09,249
the best flight strategy for this

45
00:02:13,390 --> 00:02:11,630
experiment would have been to spend 626

46
00:02:17,880 --> 00:02:13,400
dollars buying one ticket for each

47
00:02:22,210 --> 00:02:20,199
with the pessimistic assumption about

48
00:02:24,330 --> 00:02:22,220
the per trial accuracy this still

49
00:02:28,120 --> 00:02:24,340
creates a bet definitely in your favor

50
00:02:31,330 --> 00:02:28,130
in reality in fact there only turned out

51
00:02:34,740 --> 00:02:31,340
to be three errors this policy this this

52
00:02:37,089 --> 00:02:34,750
procedure would have won and netted a

53
00:02:40,780 --> 00:02:37,099
four thousand three hundred seventy four

54
00:02:43,030 --> 00:02:40,790
dollars per investment unit and when I

55
00:02:45,220 --> 00:02:43,040
say per investment unit there is is no

56
00:02:47,440 --> 00:02:45,230
law saying that you can only buy one

57
00:02:49,570 --> 00:02:47,450
ticket for any given number you may have

58
00:02:51,460 --> 00:02:49,580
to visit multiple stores if you're

59
00:02:53,229 --> 00:02:51,470
walking in with your list of 600 numbers

60
00:02:54,520 --> 00:02:53,239
on a page they'll probably get tired of

61
00:02:56,470 --> 00:02:54,530
your face after a while

62
00:02:57,970 --> 00:02:56,480
but if you're confident enough in the

63
00:03:05,920 --> 00:02:57,980

procedure you can do the investment

64
00:03:11,650 --> 00:03:05,930
multiple times and that concludes the

65
00:03:14,800 --> 00:03:11,660
discussion of how you can get a

66
00:03:16,569 --> 00:03:14,810
practical ARV application even if you

67
00:03:19,630 --> 00:03:16,579
don't expect all of your data to be

68
00:03:23,229 --> 00:03:19,640
perfect on a complex target such as this

69
00:03:25,720 --> 00:03:23,239
long string of lottery numbers shifting

70
00:03:29,110 --> 00:03:25,730
gears slightly people have been trying

71
00:03:32,319 --> 00:03:29,120
to apply ARV to various sorts of markets

72
00:03:38,289 --> 00:03:32,329
ever since Russell Targ in 1980 or maybe

73
00:03:40,569 --> 00:03:38,299
it was the late 70s now again we

74
00:03:42,879 --> 00:03:40,579
frequent frequently these things show a

75
00:03:46,180 --> 00:03:42,889
decline effect and end up in in less

76
00:03:48,039 --> 00:03:46,190
than 50% accuracy and there is basically

77
00:03:53,530 --> 00:03:48,049
nothing you can do about that in terms

78
00:03:55,780 --> 00:03:53,540
of trying to adapt to it you either need

79
00:03:59,379 --> 00:03:55,790
to work out some way of avoiding a

80
00:04:02,860 --> 00:03:59,389
decline or some other scheme to maintain

81
00:04:05,199 --> 00:04:02,870
some level of predictive accuracy what I

82
00:04:07,660 --> 00:04:05,209
want to address here is how well can you

83
00:04:10,360 --> 00:04:07,670
do with the kind of very small

84
00:04:13,440 --> 00:04:10,370
predictive accuracy that is better than

85
00:04:19,620 --> 00:04:13,450
chance but still has a high error rate

86
00:04:23,460 --> 00:04:19,630
and I keep anticipating my bullet

87
00:04:25,950 --> 00:04:23,470
so this is it this chart is taken from

88
00:04:27,930 --> 00:04:25,960

actual data on intraday price

89
00:04:29,760 --> 00:04:27,940
fluctuations for two different time

90
00:04:33,900 --> 00:04:29,770
slots in two different Asian futures

91
00:04:37,470 --> 00:04:33,910
markets and the reason I'm using Asian

92
00:04:43,670 --> 00:04:37,480
markets is that for complicated reasons

93
00:04:51,620 --> 00:04:47,610
the trading was simulated by noting the

94
00:04:54,900 --> 00:04:51,630
price fluctuations accounting for

95
00:04:58,050 --> 00:04:54,910
transaction fees and what I'm calling

96
00:05:00,270 --> 00:04:58,060
here as biases in contract fulfilment if

97
00:05:04,430 --> 00:05:00,280
you've ever actually worked with an

98
00:05:07,890 --> 00:05:04,440
electronic trading site you will

99
00:05:10,350 --> 00:05:07,900
discover that if you buy something

100
00:05:12,870 --> 00:05:10,360
you're likely to end up paying more than

101
00:05:14,820 --> 00:05:12,880
the theoretical market price at the time

102
00:05:16,530 --> 00:05:14,830
and if you sell something you're liable

103
00:05:18,330 --> 00:05:16,540
to pull in a little bit less than what's

104
00:05:19,770 --> 00:05:18,340
officially supposed to be the market

105
00:05:25,490 --> 00:05:19,780
price at the moment you submitted the

106
00:05:29,820 --> 00:05:25,500
order so applying that applying

107
00:05:34,770 --> 00:05:29,830
transaction fees you end up with these

108
00:05:36,600 --> 00:05:34,780
curves and in the Japanese markets at

109
00:05:39,540 --> 00:05:36,610
fifty five percent accuracy you're

110
00:05:41,550 --> 00:05:39,550
losing money but you're earning an

111
00:05:45,600 --> 00:05:41,560
expected average profit in the

112
00:05:48,420 --> 00:05:45,610
simulation at if you're up to sixty

113
00:05:51,000 --> 00:05:48,430

percent accuracy so there's a break-even

114
00:05:53,520 --> 00:05:51,010
point somewhere between 55 and 60 with

115
00:05:58,230 --> 00:05:53,530
the slightly different structure in the

116
00:06:02,060 --> 00:05:58,240
Hong Kong markets all of those accuracy

117
00:06:04,560 --> 00:06:02,070
levels generate at least a small profit

118
00:06:07,500 --> 00:06:04,570
this graph however shows something

119
00:06:10,350 --> 00:06:07,510
slightly different it shows your

120
00:06:14,730 --> 00:06:10,360
probability of showing any profit at all

121
00:06:17,820 --> 00:06:14,740
after one month of of trading you will

122
00:06:20,790 --> 00:06:17,830
notice the 50% of is here and most of

123
00:06:23,310 --> 00:06:20,800
the curves are well below even these two

124
00:06:26,700 --> 00:06:23,320
curves in terms of expected

125
00:06:29,490 --> 00:06:26,710
profitability showed a positive result

126
00:06:34,620 --> 00:06:29,500
but here they're showing less than a 50%

127
00:06:38,940 --> 00:06:34,630
chance of showing any profit now how how

128
00:06:45,230 --> 00:06:38,950
is that possible what that means is that

129
00:06:49,200 --> 00:06:45,240
in a low accuracy ARV application most

130
00:06:52,470 --> 00:06:49,210
timeslots months are convenient will

131
00:06:55,830 --> 00:06:52,480
show a modest net loss you will make up

132
00:06:59,250 --> 00:06:55,840
a consistent long-term average profit

133
00:07:05,820 --> 00:06:59,260
from a minority of slots in which you

134
00:07:07,800 --> 00:07:05,830
earn a lot of money and you know okay

135
00:07:10,290 --> 00:07:07,810
right this is what I get for not

136
00:07:15,180 --> 00:07:10,300
clicking it often enough now there's

137
00:07:17,400 --> 00:07:15,190
also a what I call a wipeout probability

138
00:07:19,500 --> 00:07:17,410

this shows the chance of ending up at

139
00:07:23,760 --> 00:07:19,510
the end of the month with half or less

140
00:07:26,400 --> 00:07:23,770
of your initial investment pool now this

141
00:07:28,530 --> 00:07:26,410
risk ranges from 31 percent to 11

142
00:07:30,380 --> 00:07:28,540
percent depending on the market but it

143
00:07:35,040 --> 00:07:30,390
is clearly not negligible

144
00:07:36,960 --> 00:07:35,050
ergo low accuracy ARV investing even

145
00:07:40,020 --> 00:07:36,970
though it expects to show a profit in

146
00:07:42,240 --> 00:07:40,030
the long term you really need to pursue

147
00:07:44,520 --> 00:07:42,250
it only with a pool of risk capital in

148
00:07:49,290 --> 00:07:44,530
which you can afford temporary setbacks

149
00:07:50,610 --> 00:07:49,300
from which you later recover now finally

150
00:07:53,940 --> 00:07:50,620
there's the question it is better

151
00:07:58,530 --> 00:07:53,950
accuracy the holy grail of ARV research

152
00:08:01,740 --> 00:07:58,540
actually worth it in most attempts to

153
00:08:05,520 --> 00:08:01,750
reduce displacement have that best had

154
00:08:07,380 --> 00:08:05,530
limited success every approach ok I'm

155
00:08:09,390 --> 00:08:07,390
saying here all approaches for reducing

156
00:08:11,400 --> 00:08:09,400
displacement I should apply a caveat all

157
00:08:14,130 --> 00:08:11,410
approaches that I know of or have been

158
00:08:16,170 --> 00:08:14,140
able to think of will have the effect of

159
00:08:18,330 --> 00:08:16,180
reducing the rate at which predictions

160
00:08:20,190 --> 00:08:18,340
are made my previous set of graphs

161
00:08:22,170 --> 00:08:20,200
assumed for example that on that one

162
00:08:24,000 --> 00:08:22,180
month of trading data somebody was

163
00:08:28,620 --> 00:08:24,010

submitting a trade every single day the

164
00:08:33,280 --> 00:08:28,630
market was open this graph is a

165
00:08:36,040 --> 00:08:33,290
break-even curve it shows the

166
00:08:38,170 --> 00:08:36,050
the trade-off between improving your

167
00:08:43,930 --> 00:08:38,180
accuracy and reducing the rate at which

168
00:08:48,190 --> 00:08:43,940
you make predictions so for instance if

169
00:08:50,820 --> 00:08:48,200
you want to go from 55 to 60% you can

170
00:08:54,220 --> 00:08:50,830
afford to lose half your predictions and

171
00:08:58,360 --> 00:08:54,230
you'll still be gaining at the same

172
00:09:00,010 --> 00:08:58,370
average rate if you're in this area

173
00:09:02,650 --> 00:09:00,020
you're better off with whatever you're

174
00:09:07,090 --> 00:09:02,660
doing to improve accuracy but if you're

175
00:09:09,010 --> 00:09:07,100
down here for instance the your accuracy

176
00:09:12,430 --> 00:09:09,020
improvement actually impedes your

177
00:09:15,250 --> 00:09:12,440
performance so for instance if if you've

178
00:09:22,030 --> 00:09:15,260
got some magical recipe for filtering

179
00:09:24,190 --> 00:09:22,040
out ARV trials that lets you make 80%

180
00:09:26,790 --> 00:09:24,200
accurate predictions but you have to

181
00:09:32,680 --> 00:09:26,800
throw away nine-tenths of your data

182
00:09:35,980 --> 00:09:32,690
you're better off not using it so to sum

183
00:09:38,200 --> 00:09:35,990
up ARV applications may not be

184
00:09:41,230 --> 00:09:38,210
immediately obvious in particular

185
00:09:44,340 --> 00:09:41,240
applying error correcting procedures to

186
00:09:48,930 --> 00:09:44,350
complex targets may reveal unexpected

187
00:09:55,000 --> 00:09:52,000
until breakthroughs to higher accuracy

188
00:09:57,850 --> 00:09:55,010

occur applications must plan to