Akademie věd České republiky
Ústav teorie informace a automatizace, v.v.i.

Academy of Sciences of the Czech Republic
Institute of Information Theory and Automation

RESEARCH REPORT

Ondřej Křivánek, Jan Zeman

Experiment: Setting the length of the regressor

No. 2269 January 2009

GAČR 102/08/0567, MŠMT 2C06001

ÚTIA AV ČR, P.O.Box 18, 182 08 Prague, Czech Republic
Tel: (+420)266052422, Fax: (+420)286890378, Url: http://www.utia.cas.cz, E-mail: utia@utia.cas.cz

This report presents a draft of a manuscript, which is intended to be submitted for publication. Any opinions and conclusions expressed in this report are those of the authors and do not necessarily represent the views of the involved institutions.

Abstract
This research report is closely connected to the long time running research of the usage of the theory of Bayesian learning, stochastic dynamic programming and its approximations in futures dealing problem. This report describes tuning of one selectable parameter, which occurs in the new-designed algorithm called iterations-spread-in-time strategy. Experiment is done on real economic data on 35 selected futures markets. The main criterion of success is the so-called net profit and also comparison with the previous experiments.

Keywords: Bayesian learning, Dynamic decision making, Futures contracts, Bellman function

Experiment: `Setting the length of the regressor`

Author	:	Ing. Jan Zeman, Ondřej Křivánek
Contact	:	`email@utia.cas.cz`
Address	:	UTIA AV
Matlab processing date	:	9.9.2009
LaTeX compilation date	:	December 18, 2009
Basic references	:	`reference`
Source texts	:	
Project	:	BAYES

1 Aims of the study

This work continues in the longtime running research of the usage of the theory of Bayesian learning, stochastic dynamic programming and its approximations on futures dealing. The aim of the study is proposing a new approach to solve the approximation of the stationary Bellman function, which is used for optimization task of the futures dealing.

2 Description of the study

The new parametric form of the stationary Bellman function is constructed by extending our information state by the knowledge of the optimal actions and the parameters of the system. This parametric form is estimated via estimating parameters of the regression model. In the new algorithm called extended-iterations-spread-in-time strategy (presented in [1]) there are some parameters, which setting is selectable. Theoretical searching for the ideal setting of these parameters is task for further research. This report decribes the possibilities of experimental searching for ideal setting of the length of the regressor Φ (see in [1]).

3 Data

The experiment is done on real economic data on 35 selected futures markets. The database which is used consitsts of veritable economic information dates back between the years 1987 and 2005. See in [2] for further information about data manipulation, database structure and its description, etc.

4 Processing

Although, the searching of one unique ideal size (universal size, which is succesful for all markets) of vector Φ wasn't succesful, there still exists a possibility that on-line combinating and changing the size of vector Φ during trading according to the the actual progression (for example according to the current value of the cumulative gain) could bring better results. This possibility is tested in this experiment. 20 different lengths (from 1 to 20) are used in this experiment.

5 Results

Following sections presents the aposterior quality coefficients (see for their definition [3]).

5.1 Main statistics

	AD_
Net profit	8150
Gross profit	28040
Gross loss	-19890
Trades	12
Winnig trades	7
Losing trades	5
Days short	1794
Days long	2104
Days flat	31
Average bars held	324.8333
Average contract bars	324.8333
Maximal drawdown	21510
Start of drawdown	2045
End of drawdown	2840
Length of drawdown	795

5.2 Additional statistics

	AD_
Transaction cost	-240
Slippages	-1920
Percent profit	0.58333
Profit factor	1.4098
Profit per trade	679.1667
Return on capital	15.8504

5.3 Special statistics

	AD_
Colosseum factor	0.11178
Colosseum factor - median	0.029654
God precentage	0.63996

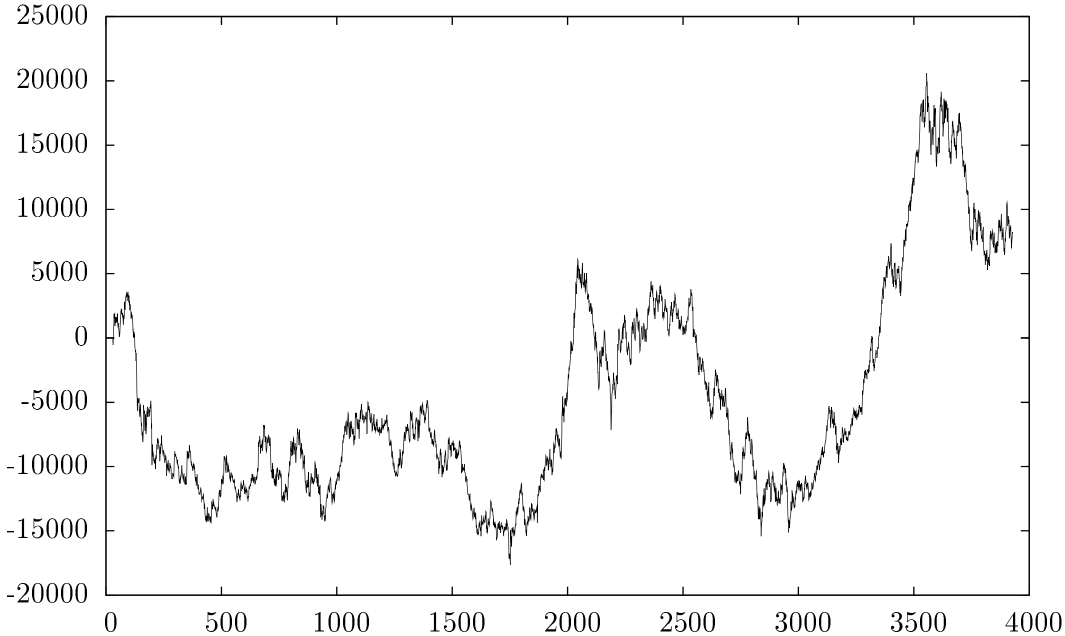

Figure 1: AD_- time evolution of cummulative gain in USD

5.4 Main statistics

	BO_
Net profit	-18102
Gross profit	7556
Gross loss	-25658
Trades	57
Winnig trades	8
Losing trades	49
Days short	3346
Days long	555
Days flat	31
Average bars held	68.4386
Average contract bars	68.4386
Maximal drawdown	25254
Start of drawdown	69
End of drawdown	2112
Length of drawdown	2043

5.5 Additional statistics

	BO_
Transaction cost	-1140
Slippages	-5472
Percent profit	0.14035
Profit factor	0.29449
Profit per trade	-317.578
Return on capital	-29.986

5.6 Special statistics

	BO_
Colosseum factor	-0.25498
Colosseum factor - median	-0.11185
God precentage	0.67543

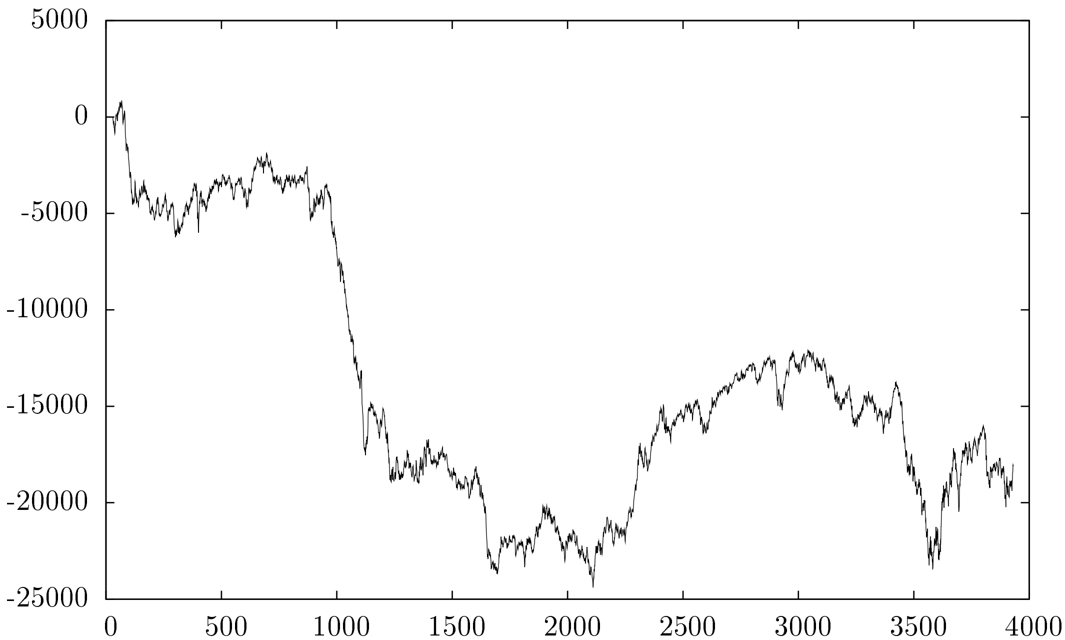

Figure 2: BO_- time evolution of cummulative gain in USD

5.7 Main statistics

	BP_
Net profit	-29907.5
Gross profit	125609
Gross loss	-155516.5
Trades	230
Winnig trades	89
Losing trades	141
Days short	2037
Days long	1861
Days flat	31
Average bars held	16.9478
Average contract bars	16.9478
Maximal drawdown	60225
Start of drawdown	279
End of drawdown	2544
Length of drawdown	2265

5.8 Additional statistics

	BP_
Transaction cost	-4600
Slippages	-5520
Percent profit	0.38696
Profit factor	0.80769
Profit per trade	-130.0326
Return on capital	-20.7743

5.9 Special statistics

	BP_
Colosseum factor	-0.17712
Colosseum factor - median	-0.29567
God precentage	0.51652

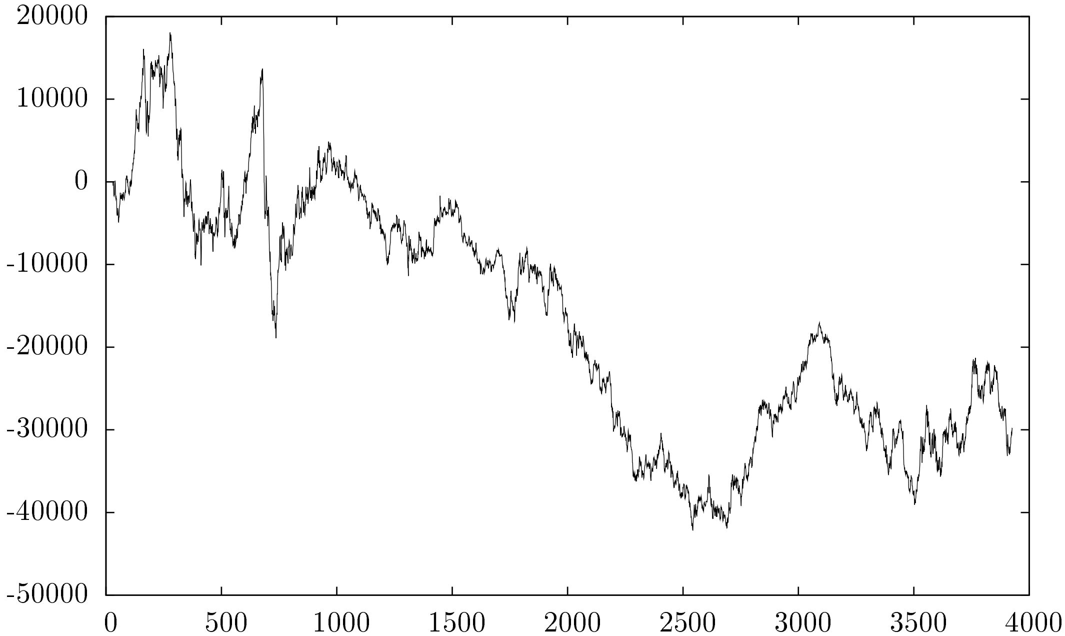

Figure 3: BP_- time evolution of cummulative gain in USD

5.10 Main statistics

	C__
Net profit	11887.5
Gross profit	26562.5
Gross loss	-14675
Trades	55
Winnig trades	20
Losing trades	35
Days short	3653
Days long	248
Days flat	31
Average bars held	70.9273
Average contract bars	70.9273
Maximal drawdown	6960
Start of drawdown	1237
End of drawdown	1573
Length of drawdown	336

5.11 Additional statistics

	C__
Transaction cost	-1100
Slippages	-2750
Percent profit	0.36364
Profit factor	1.8101
Profit per trade	216.1364
Return on capital	71.4503

5.12 Special statistics

	C__
Colosseum factor	0.29433
Colosseum factor - median	0.45596
God precentage	0.64974

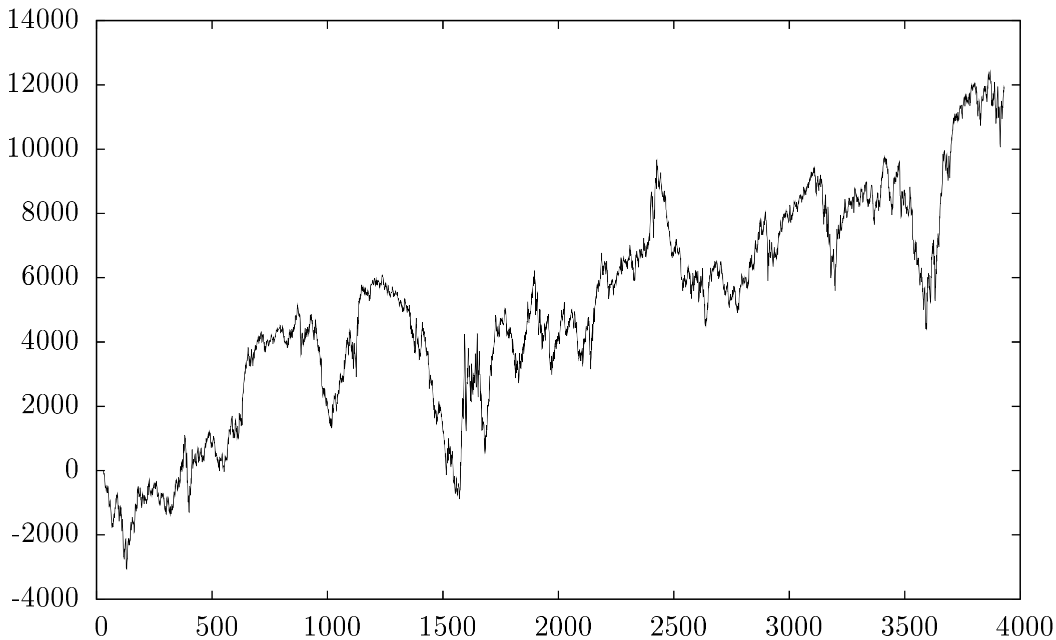

Figure 4: C__- time evolution of cummulative gain in USD

5.13 Main statistics

	CC_
Net profit	9040
Gross profit	22290
Gross loss	-13250
Trades	31
Winnig trades	13
Losing trades	18
Days short	3826
Days long	42
Days flat	31
Average bars held	124.7742
Average contract bars	124.7742
Maximal drawdown	20320
Start of drawdown	2732
End of drawdown	3269
Length of drawdown	537

5.14 Additional statistics

	CC_
Transaction cost	-620
Slippages	-3100
Percent profit	0.41935
Profit factor	1.6823
Profit per trade	291.6129
Return on capital	18.6109

5.15 Special statistics

	CC_
Colosseum factor	0.16273
Colosseum factor - median	0.23284
God precentage	0.66887

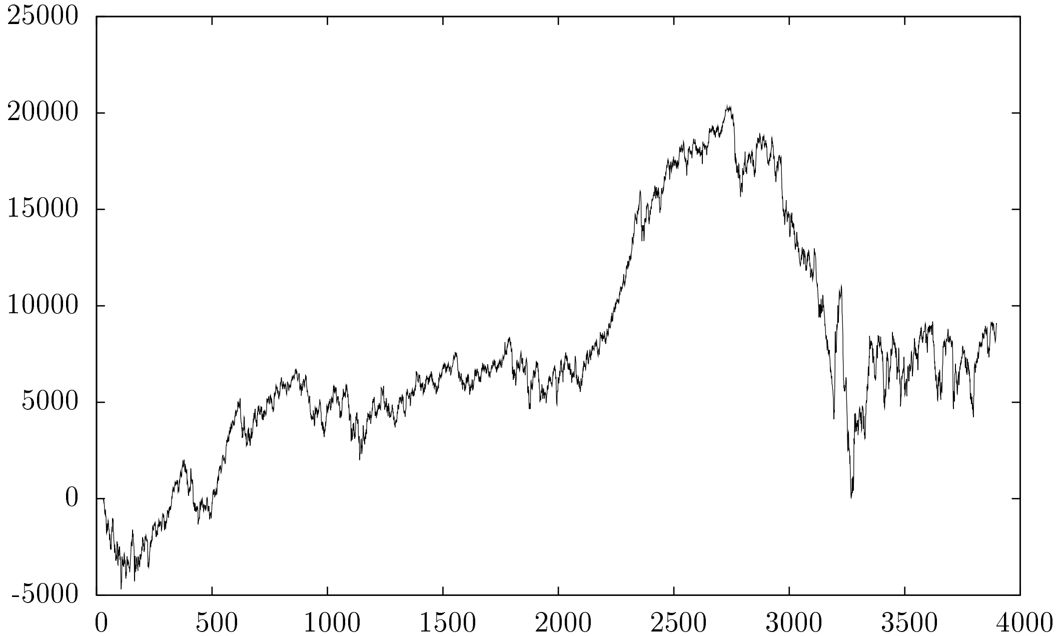

Figure 5: CC_- time evolution of cummulative gain in USD

5.16 Main statistics

	CD_
Net profit	-48960
Gross profit	6150
Gross loss	-55110
Trades	90
Winnig trades	8
Losing trades	82
Days short	2663
Days long	1235
Days flat	31
Average bars held	43.3111
Average contract bars	43.3111
Maximal drawdown	55800
Start of drawdown	32
End of drawdown	3680
Length of drawdown	3648

5.17 Additional statistics

	CD_
Transaction cost	-1800
Slippages	-14400
Percent profit	0.088889
Profit factor	0.11159
Profit per trade	-544
Return on capital	-36.7054

5.18 Special statistics

	CD_
Colosseum factor	-0.4329
Colosseum factor - median	-0.32929
God precentage	0.67262

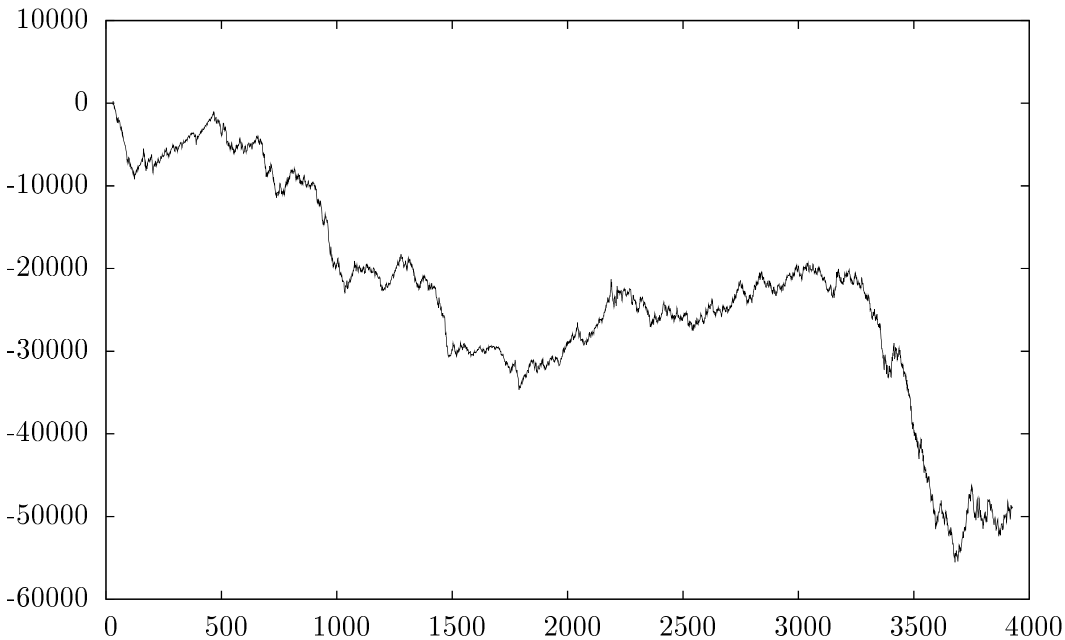

Figure 6: CD_- time evolution of cummulative gain in USD

5.19 Main statistics

	CL_
Net profit	44200
Gross profit	81600
Gross loss	-37400
Trades	92
Winnig trades	33
Losing trades	59
Days short	621
Days long	3257
Days flat	31
Average bars held	42.1522
Average contract bars	42.1522
Maximal drawdown	33730
Start of drawdown	197
End of drawdown	2291
Length of drawdown	2094

5.20 Additional statistics

	CL_
Transaction cost	-1840
Slippages	-7360
Percent profit	0.3587
Profit factor	2.1818
Profit per trade	480.4348
Return on capital	54.8187

5.21 Special statistics

	CL_
Colosseum factor	0.28171
Colosseum factor - median	0.098303
God precentage	0.5755

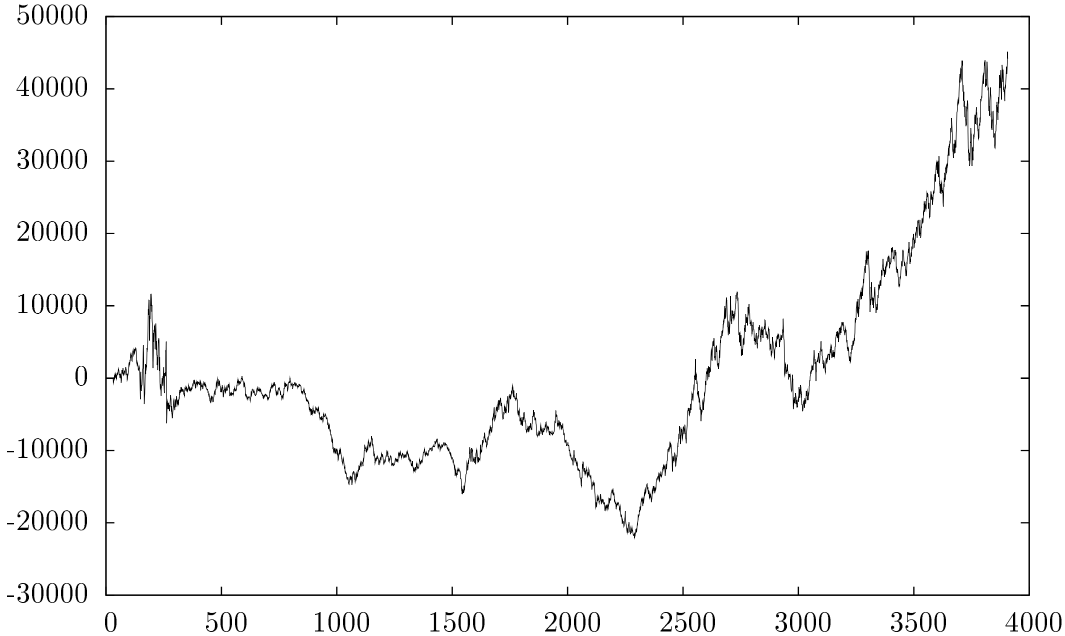

Figure 7: CL_- time evolution of cummulative gain in USD

5.22 Main statistics

	CT_
Net profit	-12685
Gross profit	53790
Gross loss	-66475
Trades	87
Winnig trades	22
Losing trades	65
Days short	1100
Days long	2771
Days flat	31
Average bars held	44.4943
Average contract bars	44.4943
Maximal drawdown	36055
Start of drawdown	1438
End of drawdown	3828
Length of drawdown	2390

5.23 Additional statistics

	CT_
Transaction cost	-1740
Slippages	-13050
Percent profit	0.25287
Profit factor	0.80918
Profit per trade	-145.8046
Return on capital	-14.718

5.24 Special statistics

	CT_
Colosseum factor	-0.047522
Colosseum factor - median	-0.27552
God precentage	0.62354

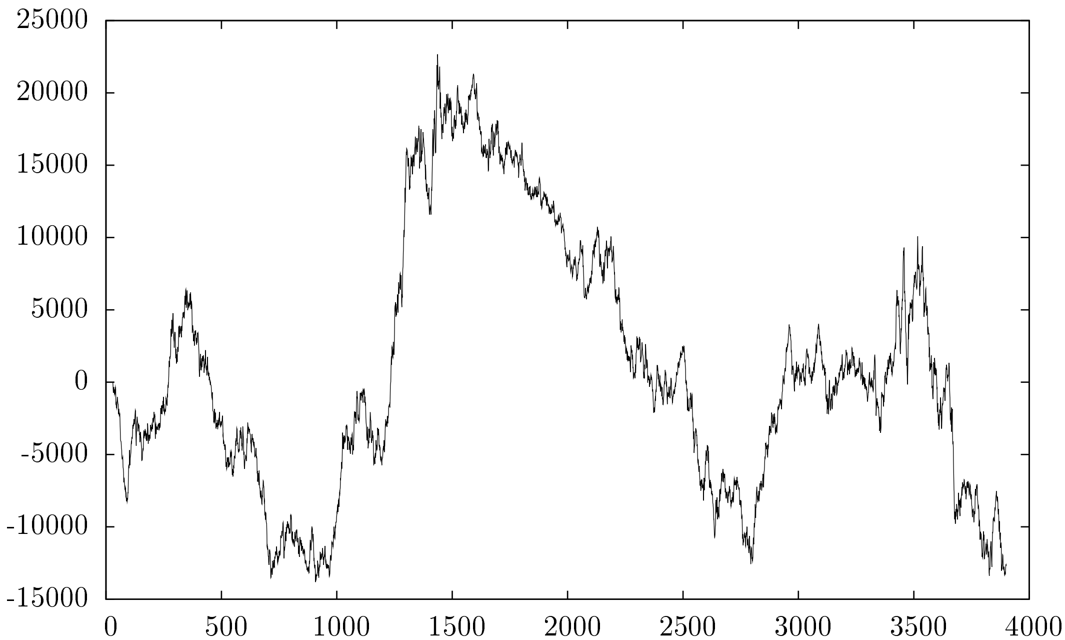

Figure 8: CT_- time evolution of cummulative gain in USD

5.25 Main statistics

	CU_
Net profit	-26442.5
Gross profit	16402.5
Gross loss	-42845
Trades	9
Winnig trades	3
Losing trades	6
Days short	1577
Days long	41
Days flat	31
Average bars held	179.7778
Average contract bars	179.7778
Maximal drawdown	70262.5
Start of drawdown	452
End of drawdown	1495
Length of drawdown	1043

5.26 Additional statistics

	CU_
Transaction cost	-180
Slippages	-2250
Percent profit	0.33333
Profit factor	0.38283
Profit per trade	-2938.0556
Return on capital	-15.7435

5.27 Special statistics

	CU_
Colosseum factor	-0.3412
Colosseum factor - median	-0.3632
God precentage	0.59159

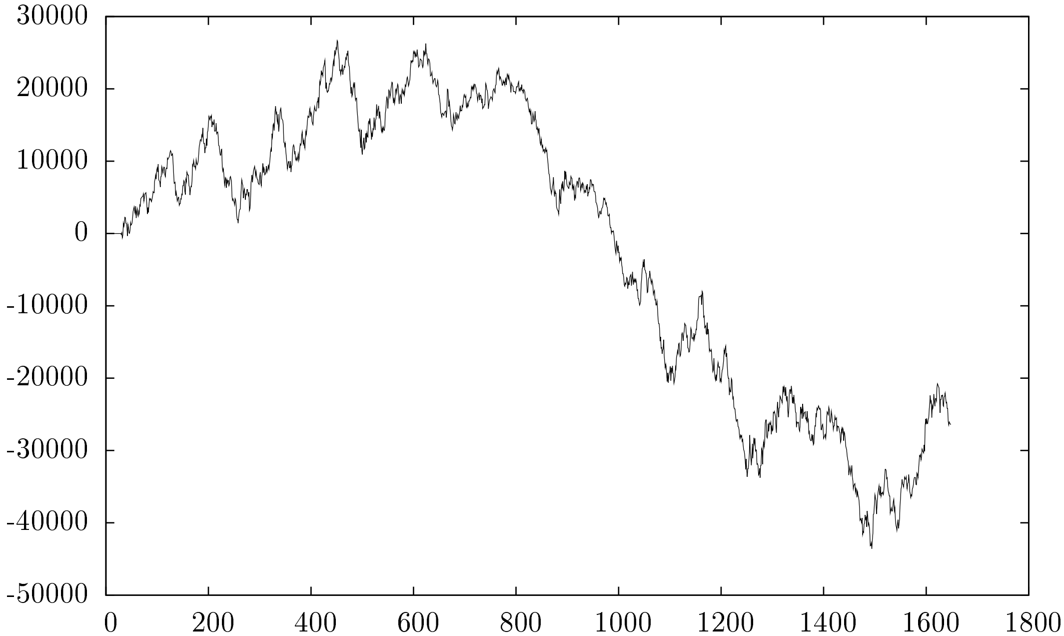

Figure 9: CU_- time evolution of cummulative gain in USD

5.28 Main statistics

	ED_
Net profit	29360
Gross profit	30880
Gross loss	-1520
Trades	2
Winnig trades	1
Losing trades	1
Days short	58
Days long	3823
Days flat	49
Average bars held	1940.5
Average contract bars	1940.5
Maximal drawdown	4750
Start of drawdown	1033
End of drawdown	1254
Length of drawdown	221

5.29 Additional statistics

	ED_
Transaction cost	-40
Slippages	-150
Percent profit	0.5
Profit factor	20.3158
Profit per trade	14680
Return on capital	258.574

5.30 Special statistics

	ED_
Colosseum factor	1.1032
Colosseum factor - median	0.61981
God precentage	0.76999

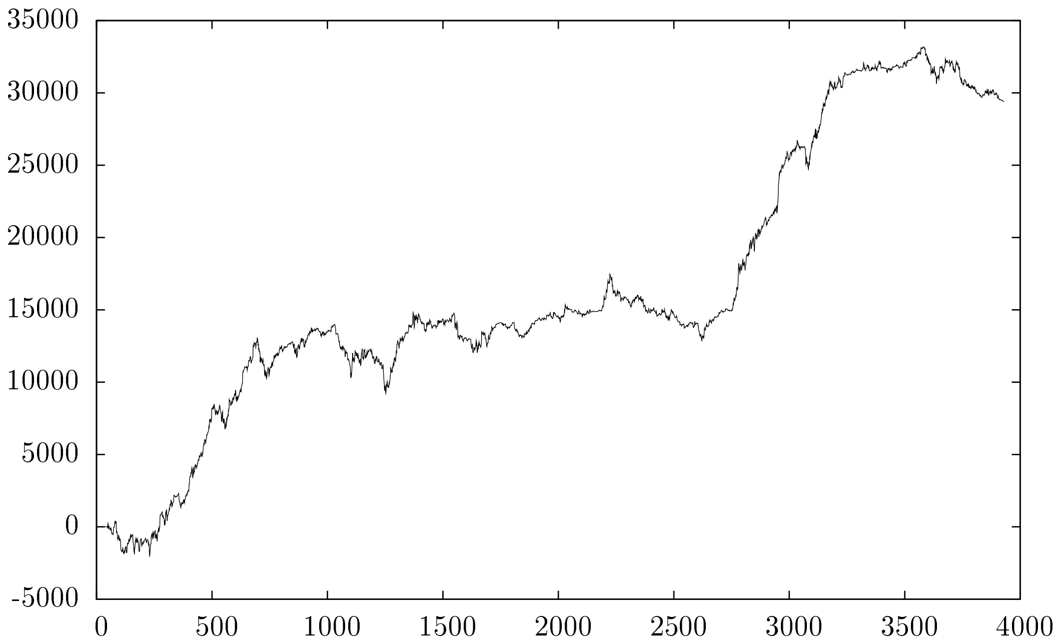

Figure 10: ED_- time evolution of cummulative gain in USD

5.31 Main statistics

	FC2
Net profit	22012.5
Gross profit	31295
Gross loss	-9282.5
Trades	15
Winnig trades	4
Losing trades	11
Days short	50
Days long	3856
Days flat	31
Average bars held	260.4
Average contract bars	260.4
Maximal drawdown	15322.5
Start of drawdown	3513
End of drawdown	3560
Length of drawdown	47

5.32 Additional statistics

	FC2
Transaction cost	-300
Slippages	-3750
Percent profit	0.26667
Profit factor	3.3714
Profit per trade	1467.5
Return on capital	60.0983

5.33 Special statistics

	FC2
Colosseum factor	0.26264
Colosseum factor - median	0.19755
God precentage	0.7524

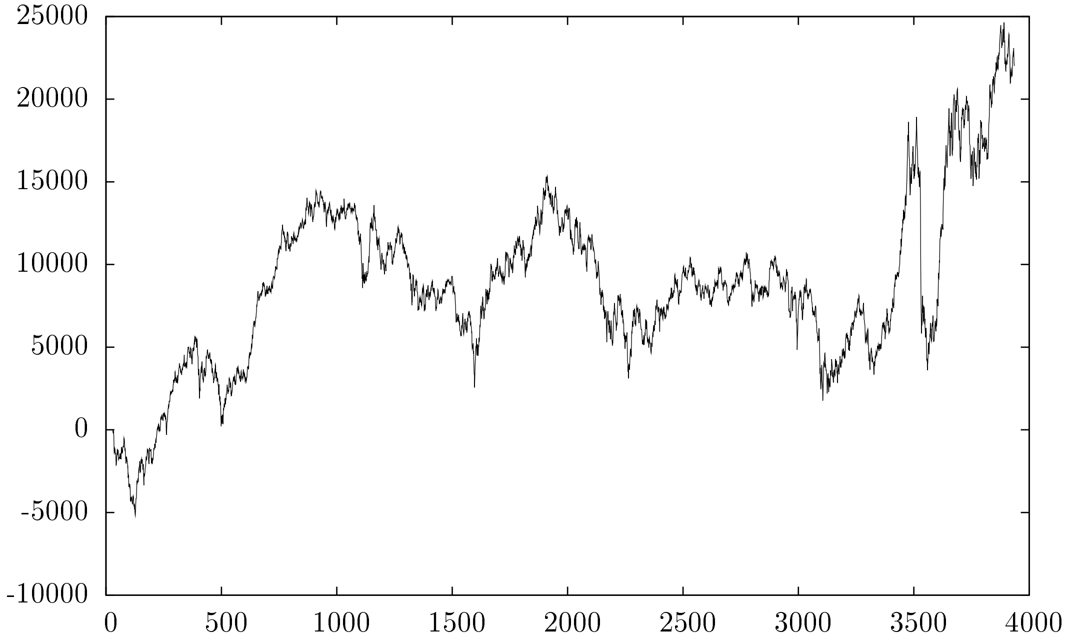

Figure 11: FC2 - time evolution of cummulative gain in USD

5.34 Main statistics

	FV2
Net profit	38840
Gross profit	44752.5
Gross loss	-5912.5
Trades	8
Winnig trades	3
Losing trades	5
Days short	347
Days long	3542
Days flat	32
Average bars held	486.125
Average contract bars	486.125
Maximal drawdown	10000
Start of drawdown	2208
End of drawdown	2546
Length of drawdown	338

5.35 Additional statistics

	FV2
Transaction cost	-160
Slippages	-1500
Percent profit	0.375
Profit factor	7.5691
Profit per trade	4855
Return on capital	162.4807

5.36 Special statistics

	FV2
Colosseum factor	0.63853
Colosseum factor - median	0.7772
God precentage	0.73861

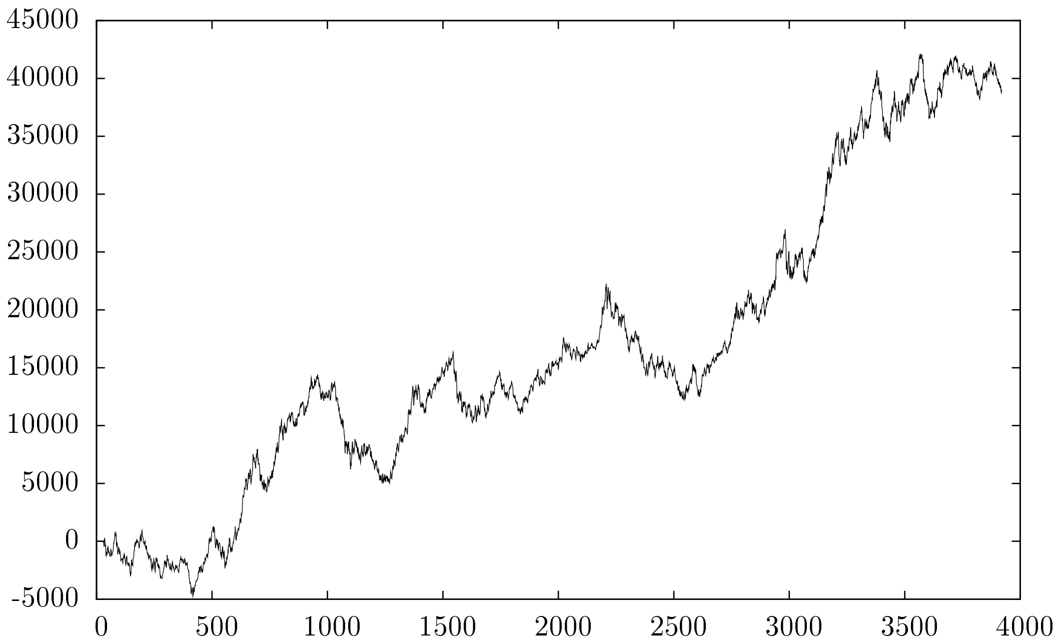

Figure 12: FV2 - time evolution of cummulative gain in USD

5.37 Main statistics

	GC_
Net profit	3050
Gross profit	49290
Gross loss	-46240
Trades	75
Winnig trades	34
Losing trades	41
Days short	2452
Days long	1426
Days flat	33
Average bars held	51.7067
Average contract bars	51.7067
Maximal drawdown	22050
Start of drawdown	2459
End of drawdown	3862
Length of drawdown	1403

5.38 Additional statistics

	GC_
Transaction cost	-1500
Slippages	-12000
Percent profit	0.45333
Profit factor	1.066
Profit per trade	40.6667
Return on capital	5.7865

5.39 Special statistics

	GC_
Colosseum factor	0.038986
Colosseum factor - median	0.14921
God precentage	0.70809

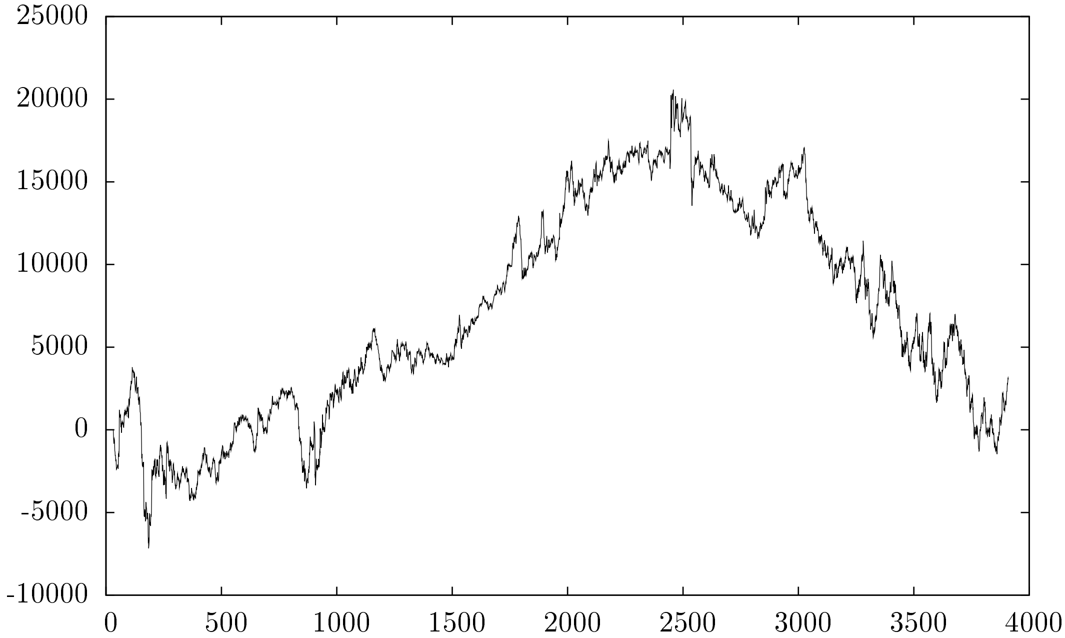

Figure 13: GC_- time evolution of cummulative gain in USD

5.40 Main statistics

	HG_
Net profit	-53020
Gross profit	51107.5
Gross loss	-104127.5
Trades	126
Winnig trades	34
Losing trades	92
Days short	2081
Days long	1799
Days flat	31
Average bars held	30.7937
Average contract bars	30.7937
Maximal drawdown	63820
Start of drawdown	30
End of drawdown	3631
Length of drawdown	3601

5.41 Additional statistics

	HG_
Transaction cost	-2520
Slippages	-15750
Percent profit	0.26984
Profit factor	0.49082
Profit per trade	-420.7937
Return on capital	-34.754

5.42 Special statistics

	HG_
Colosseum factor	-0.38148
Colosseum factor - median	-0.37554
God precentage	0.61628

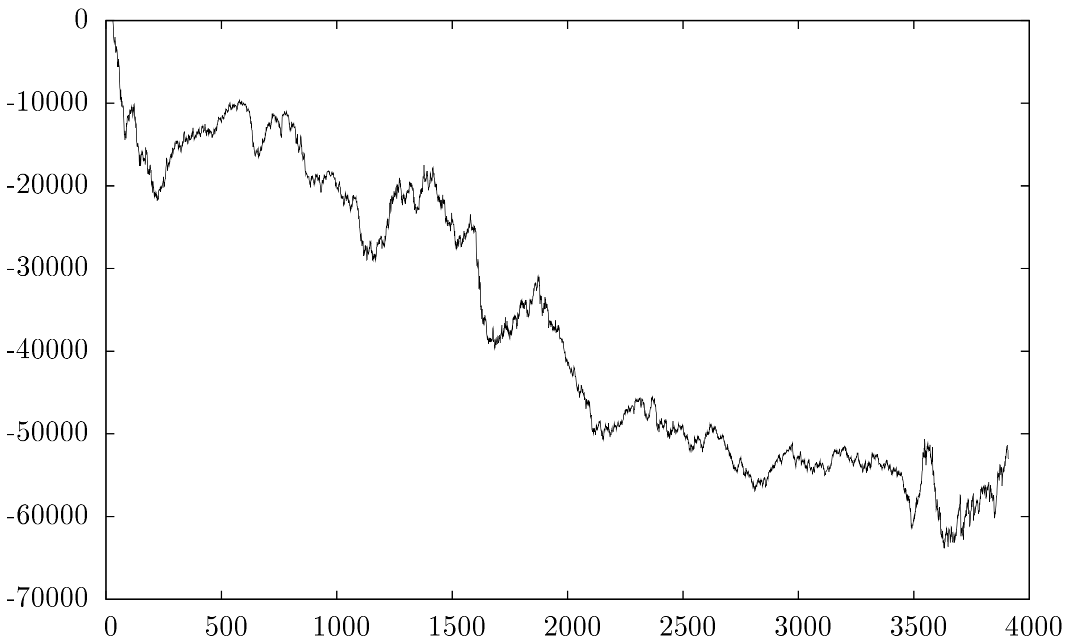

Figure 14: HG_- time evolution of cummulative gain in USD

5.43 Main statistics

	HO_
Net profit	-9391
Gross profit	105833.8
Gross loss	-115224.8
Trades	80
Winnig trades	19
Losing trades	61
Days short	1967
Days long	1911
Days flat	31
Average bars held	48.475
Average contract bars	48.475
Maximal drawdown	61976.4
Start of drawdown	30
End of drawdown	1543
Length of drawdown	1513

5.44 Additional statistics

	HO_
Transaction cost	-1600
Slippages	-26880
Percent profit	0.2375
Profit factor	0.9185
Profit per trade	-117.3875
Return on capital	-6.3388

5.45 Special statistics

	HO_
Colosseum factor	-0.049146
Colosseum factor - median	-0.12739
God precentage	0.66916

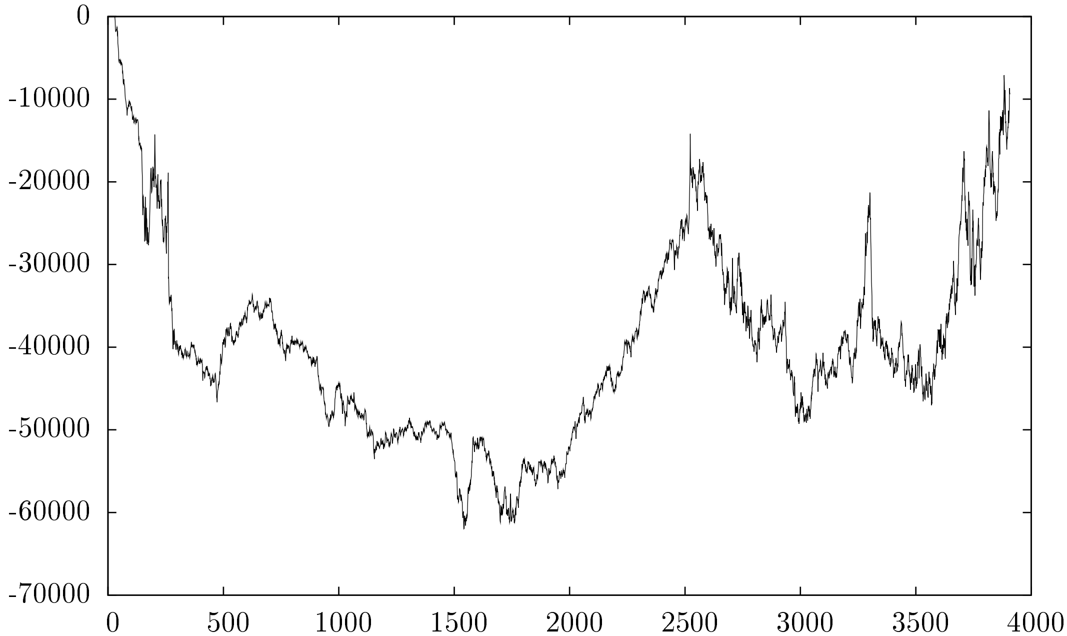

Figure 15: HO_- time evolution of cummulative gain in USD

5.46 Main statistics

	HU_
Net profit	50449.2
Gross profit	107618
Gross loss	-57168.8
Trades	45
Winnig trades	14
Losing trades	31
Days short	2307
Days long	1571
Days flat	31
Average bars held	86.1778
Average contract bars	86.1778
Maximal drawdown	32860
Start of drawdown	1239
End of drawdown	2583
Length of drawdown	1344

5.47 Additional statistics

	HU_
Transaction cost	-900
Slippages	-15120
Percent profit	0.31111
Profit factor	1.8825
Profit per trade	1121.0933
Return on capital	64.2258

5.48 Special statistics

	HU_
Colosseum factor	0.24558
Colosseum factor - median	0.23805
God precentage	0.67248

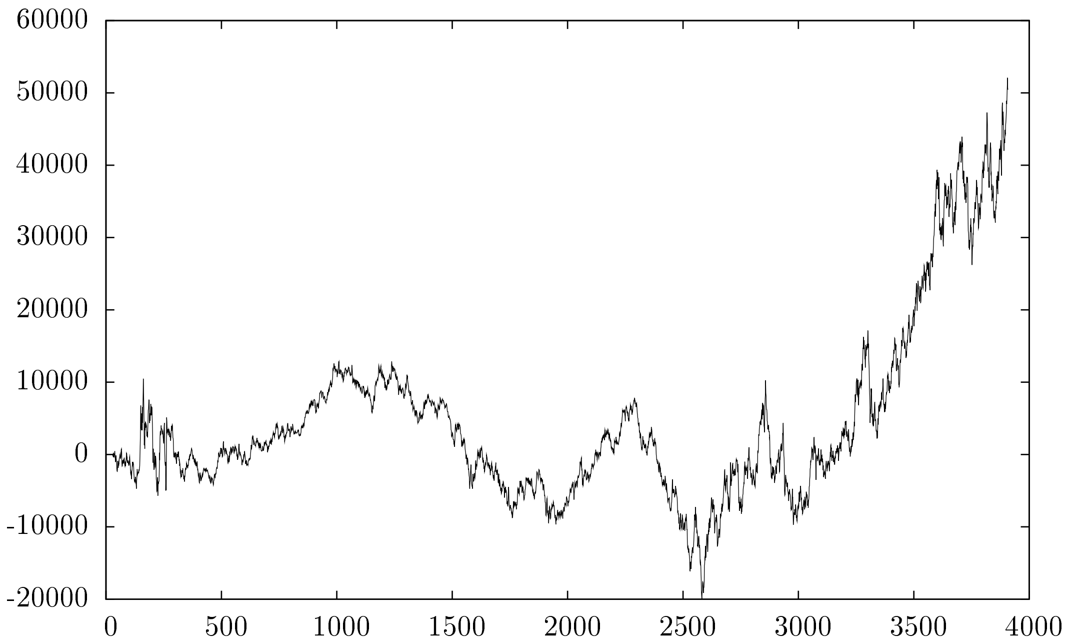

Figure 16: HU_- time evolution of cummulative gain in USD

5.49 Main statistics

	JY_
Net profit	2457.5
Gross profit	68802.5
Gross loss	-66345
Trades	24
Winnig trades	8
Losing trades	16
Days short	767
Days long	3131
Days flat	31
Average bars held	162.4167
Average contract bars	162.4167
Maximal drawdown	58527.5
Start of drawdown	1340
End of drawdown	3064
Length of drawdown	1724

5.50 Additional statistics

	JY_
Transaction cost	-480
Slippages	-6000
Percent profit	0.33333
Profit factor	1.037
Profit per trade	102.3958
Return on capital	1.7565

5.51 Special statistics

	JY_
Colosseum factor	0.061378
Colosseum factor - median	0.30754
God precentage	0.61801

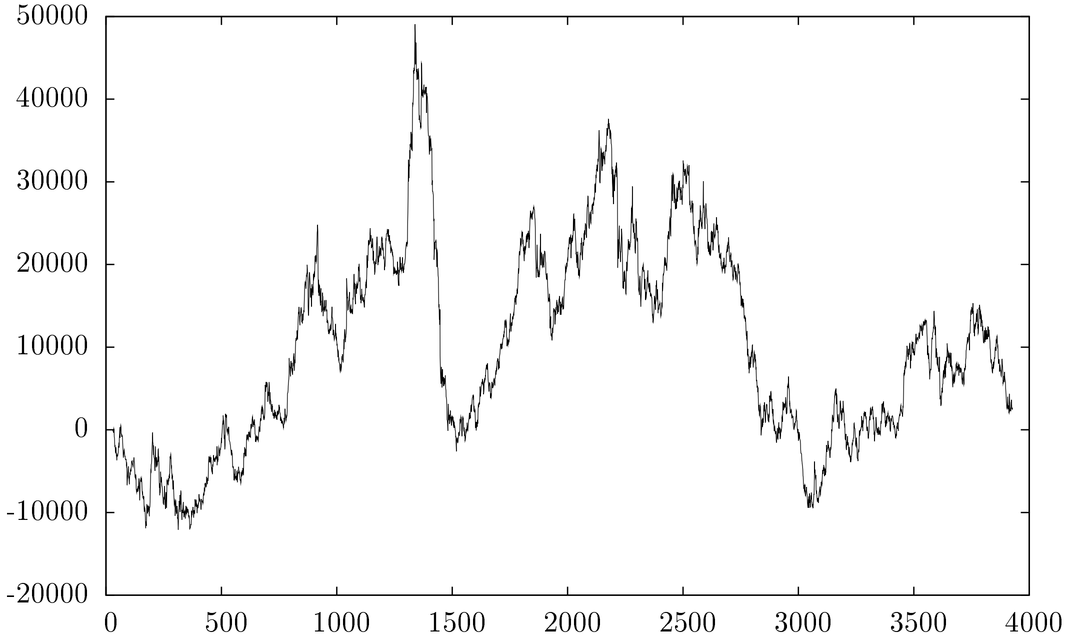

Figure 17: JY_- time evolution of cummulative gain in USD

5.52 Main statistics

	KC_
Net profit	-76813.75
Gross profit	109253.75
Gross loss	-186067.5
Trades	116
Winnig trades	32
Losing trades	84
Days short	1653
Days long	2214
Days flat	31
Average bars held	33.3362
Average contract bars	33.3362
Maximal drawdown	132270
Start of drawdown	1137
End of drawdown	3233
Length of drawdown	2096

5.53 Additional statistics

	KC_
Transaction cost	-2320
Slippages	-34800
Percent profit	0.27586
Profit factor	0.58717
Profit per trade	-662.1875
Return on capital	-24.2941

5.54 Special statistics

	KC_
Colosseum factor	-0.1791
Colosseum factor - median	-0.39584
God precentage	0.59843

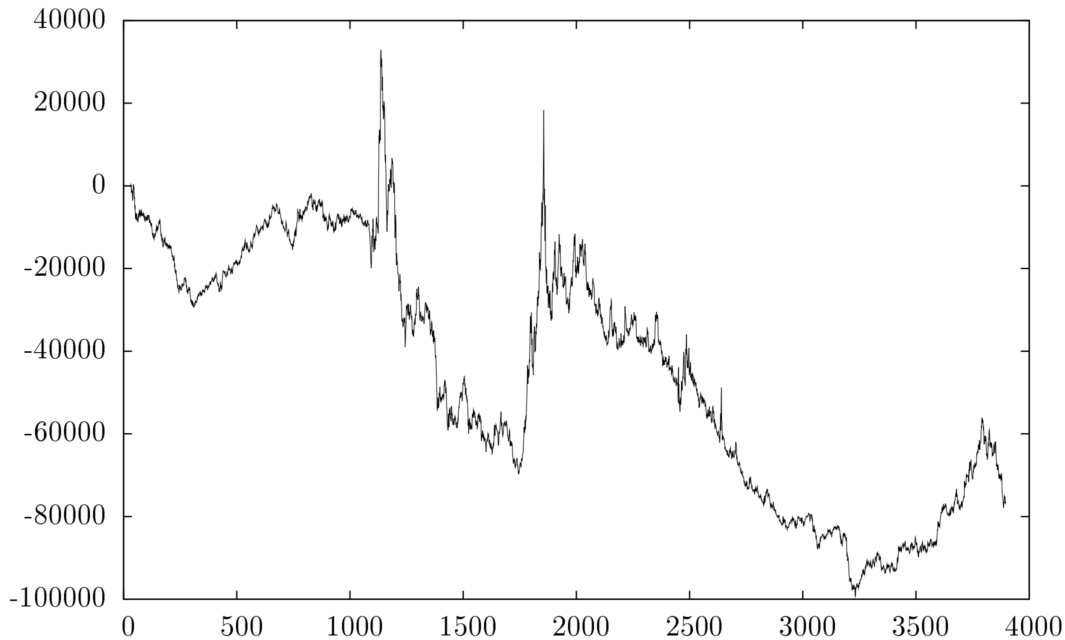

Figure 18: KC_- time evolution of cummulative gain in USD

5.55 Main statistics

	KW_
Net profit	-2017.5
Gross profit	64107.5
Gross loss	-66125
Trades	139
Winnig trades	44
Losing trades	95
Days short	1897
Days long	2006
Days flat	31
Average bars held	28.0791
Average contract bars	28.0791
Maximal drawdown	15465
Start of drawdown	1661
End of drawdown	3156
Length of drawdown	1495

5.56 Additional statistics

	KW_
Transaction cost	-2780
Slippages	-20850
Percent profit	0.31655
Profit factor	0.96949
Profit per trade	-14.5144
Return on capital	-5.4574

5.57 Special statistics

	KW_
Colosseum factor	-0.015934
Colosseum factor - median	-0.2113
God precentage	0.70338

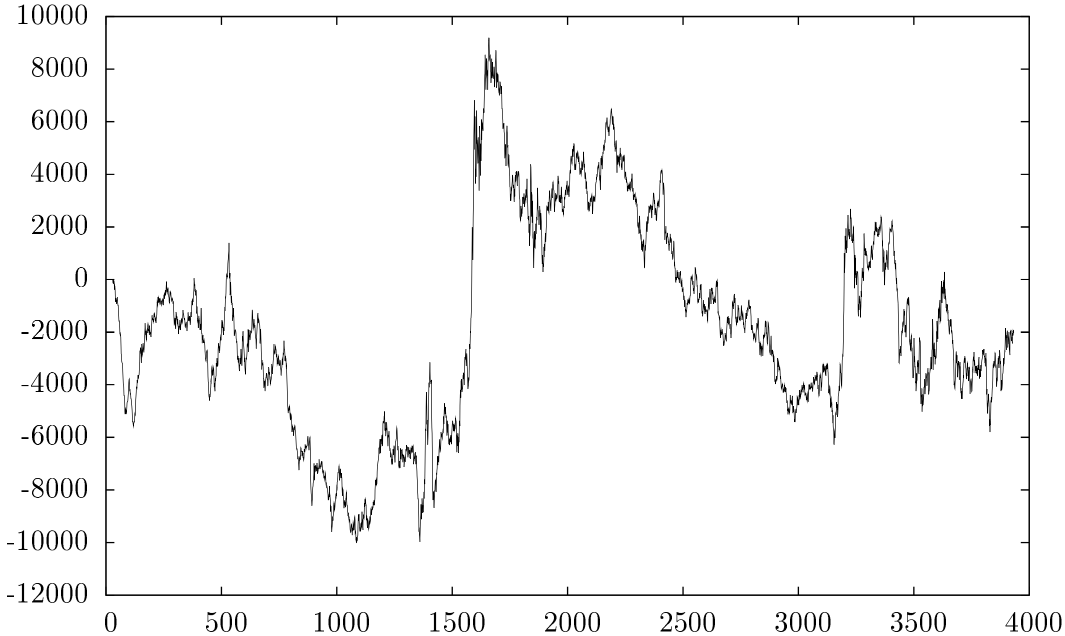

Figure 19: KW_- time evolution of cummulative gain in USD

5.58 Main statistics

	LC2
Net profit	-6190
Gross profit	17310
Gross loss	-23500
Trades	50
Winnig trades	12
Losing trades	38
Days short	107
Days long	3799
Days flat	31
Average bars held	78.12
Average contract bars	78.12
Maximal drawdown	18690
Start of drawdown	911
End of drawdown	3915
Length of drawdown	3004

5.59 Additional statistics

	LC2
Transaction cost	-1000
Slippages	-8000
Percent profit	0.24
Profit factor	0.7366
Profit per trade	-123.8
Return on capital	-13.8549

5.60 Special statistics

	LC2
Colosseum factor	-0.076434
Colosseum factor - median	-0.02378
God precentage	0.71017

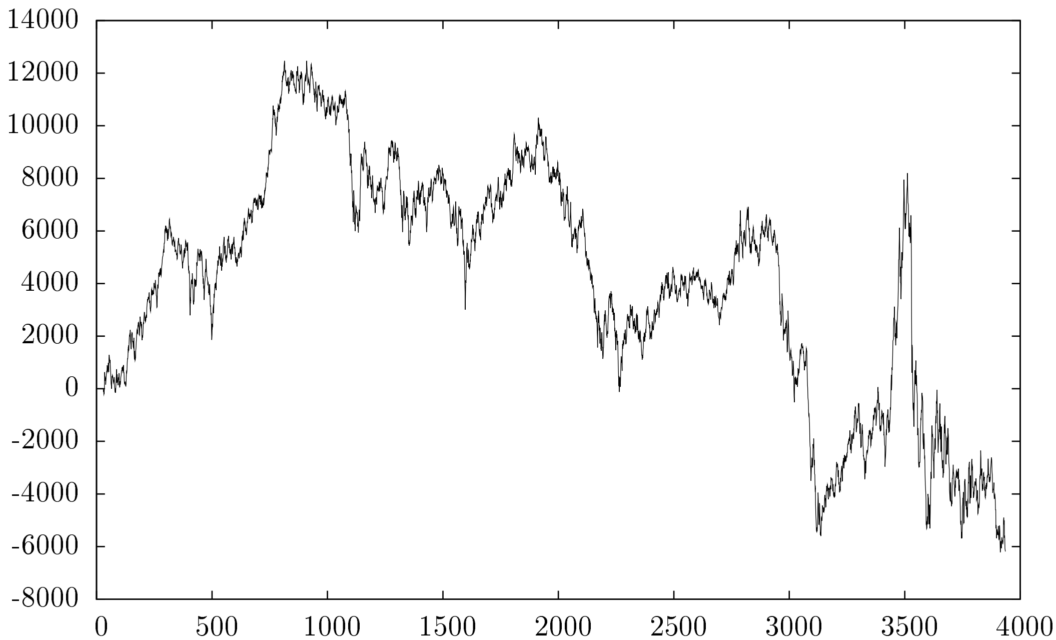

Figure 20: LC2 - time evolution of cummulative gain in USD

5.61 Main statistics

	LH2
Net profit	-54380
Gross profit	21820
Gross loss	-76200
Trades	127
Winnig trades	24
Losing trades	103
Days short	2178
Days long	1723
Days flat	36
Average bars held	30.7165
Average contract bars	30.7165
Maximal drawdown	65110
Start of drawdown	103
End of drawdown	3069
Length of drawdown	2966

5.62 Additional statistics

	LH2
Transaction cost	-2540
Slippages	-22860
Percent profit	0.18898
Profit factor	0.28635
Profit per trade	-428.189
Return on capital	-34.9393

5.63 Special statistics

	LH2
Colosseum factor	-0.44617
Colosseum factor - median	-0.41667
God precentage	0.6547

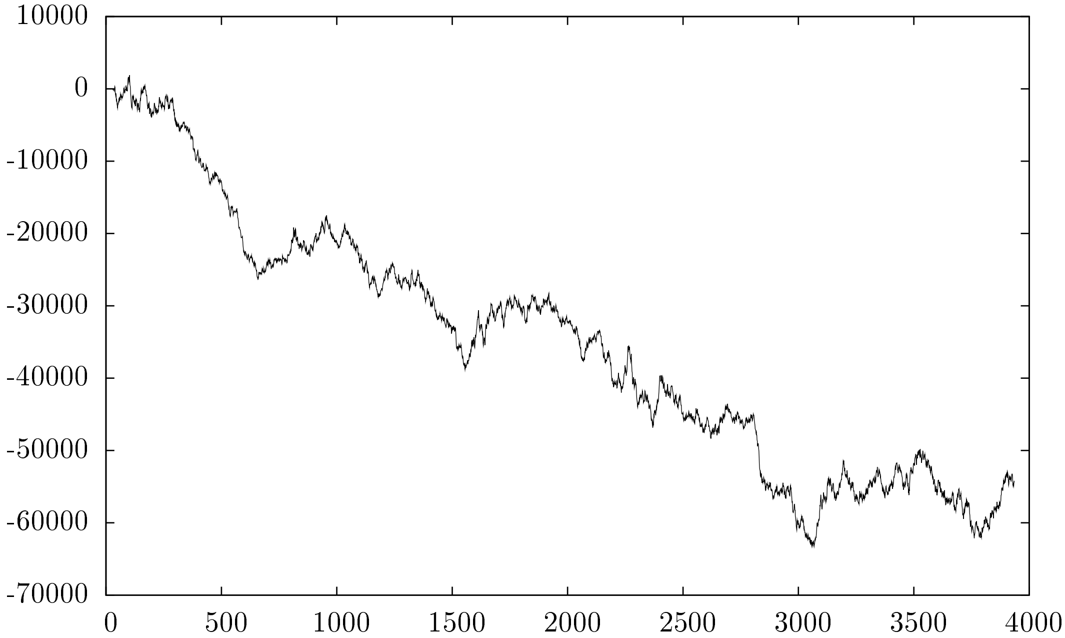

Figure 21: LH2 - time evolution of cummulative gain in USD

5.64 Main statistics

	MW_
Net profit	115900
Gross profit	49390
Gross loss	-37800
Trades	118
Winnig trades	43
Losing trades	75
Days short	1996
Days long	1907
Days flat	31
Average bars held	33.0763
Average contract bars	33.0763
Maximal drawdown	18467.5
Start of drawdown	1597
End of drawdown	2554
Length of drawdown	957

5.65 Additional statistics

	MW_
Transaction cost	-2360
Slippages	-11800
Percent profit	0.36441
Profit factor	1.3066
Profit per trade	98.2203
Return on capital	26.2541

5.66 Special statistics

	MW_
Colosseum factor	0.12495
Colosseum factor - median	-0.084884
God precentage	0.66253

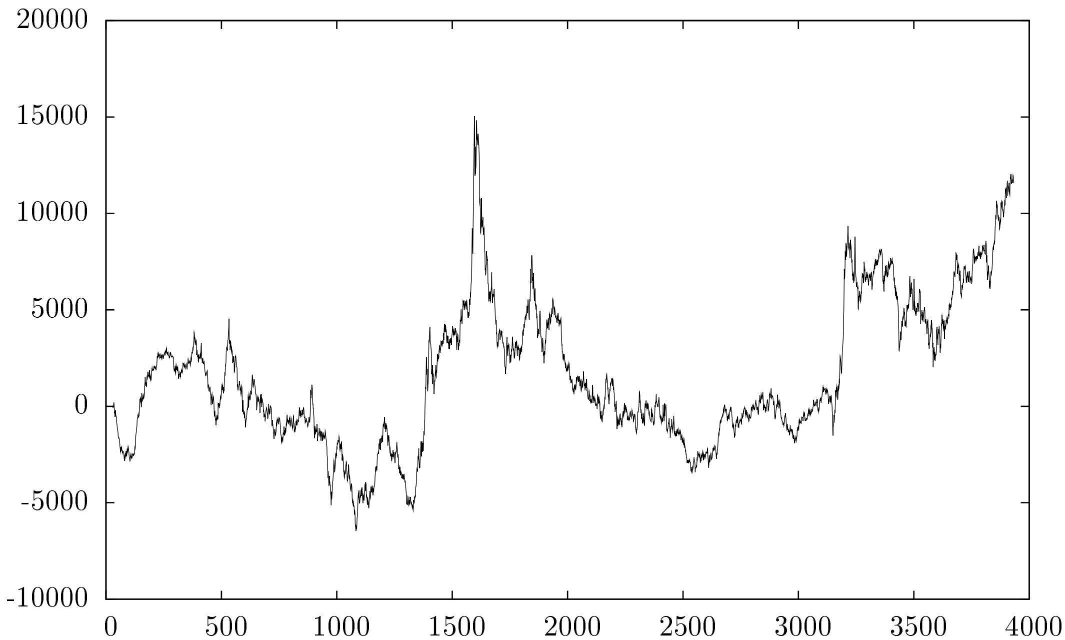

Figure 22: MW_- time evolution of cummulative gain in USD

5.67 Main statistics

	NG_
Net profit	-229210
Gross profit	125600
Gross loss	-354810
Trades	129
Winnig trades	26
Losing trades	103
Days short	2668
Days long	1090
Days flat	66
Average bars held	29.1318
Average contract bars	29.1318
Maximal drawdown	236740
Start of drawdown	451
End of drawdown	3672
Length of drawdown	3221

5.68 Additional statistics

	NG_
Transaction cost	-2580
Slippages	-77400
Percent profit	0.20155
Profit factor	0.35399
Profit per trade	-1776.8217
Return on capital	-40.5027

5.69 Special statistics

	NG_
Colosseum factor	-0.53125
Colosseum factor - median	-0.47261
God precentage	0.64795

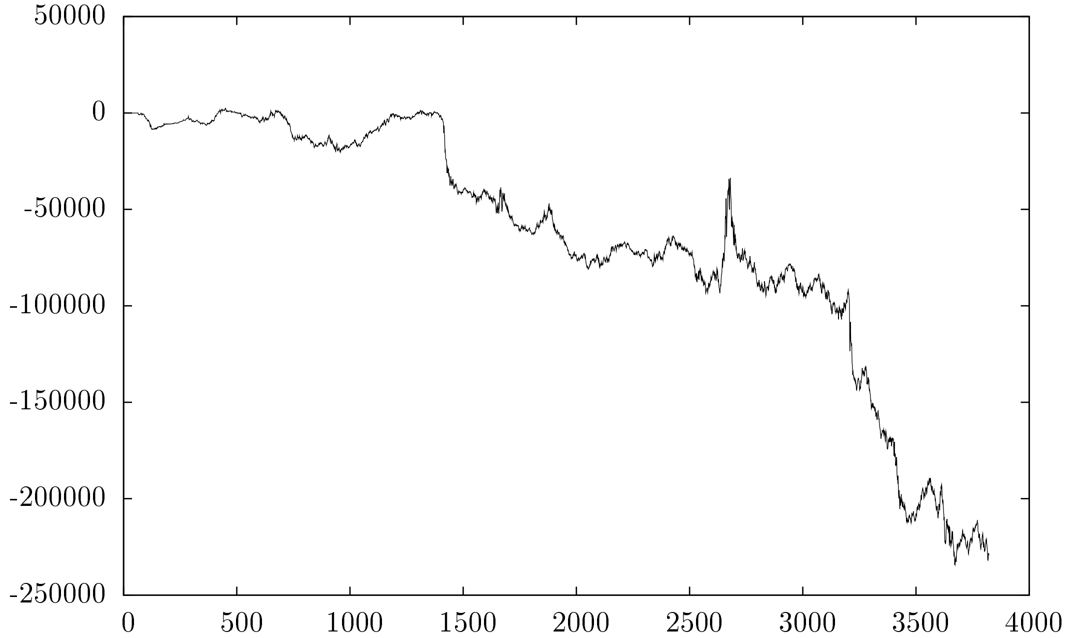

Figure 23: NG_- time evolution of cummulative gain in USD

5.70 Main statistics

	OJ_
Net profit	17567.5
Gross profit	41362.5
Gross loss	-23795
Trades	43
Winnig trades	21
Losing trades	22
Days short	3745
Days long	124
Days flat	31
Average bars held	89.9767
Average contract bars	89.9767
Maximal drawdown	8875
Start of drawdown	165
End of drawdown	507
Length of drawdown	342

5.71 Additional statistics

	OJ_
Transaction cost	-860
Slippages	-5805
Percent profit	0.48837
Profit factor	1.7383
Profit per trade	408.5465
Return on capital	82.8064

5.72 Special statistics

	OJ_
Colosseum factor	0.31181
Colosseum factor - median	0.2509
God precentage	0.68962

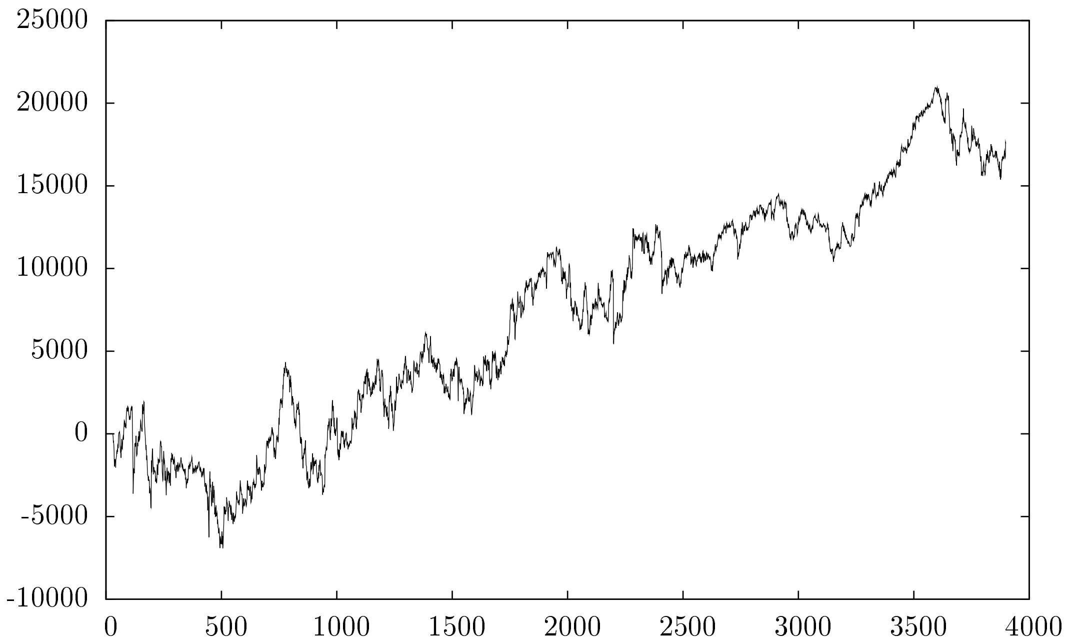

Figure 24: OJ_- time evolution of cummulative gain in USD

5.73 Main statistics

	PA_
Net profit	89735
Gross profit	156135
Gross loss	-66400
Trades	56
Winnig trades	16
Losing trades	40
Days short	1987
Days long	1885
Days flat	37
Average bars held	69.1429
Average contract bars	69.1429
Maximal drawdown	34300
Start of drawdown	2784
End of drawdown	2828
Length of drawdown	44

5.74 Additional statistics

	PA_
Transaction cost	-1120
Slippages	-22400
Percent profit	0.28571
Profit factor	2.3514
Profit per trade	1602.4107
Return on capital	109.4436

5.75 Special statistics

	PA_
Colosseum factor	0.63541
Colosseum factor - median	0.4269
God precentage	0.75036

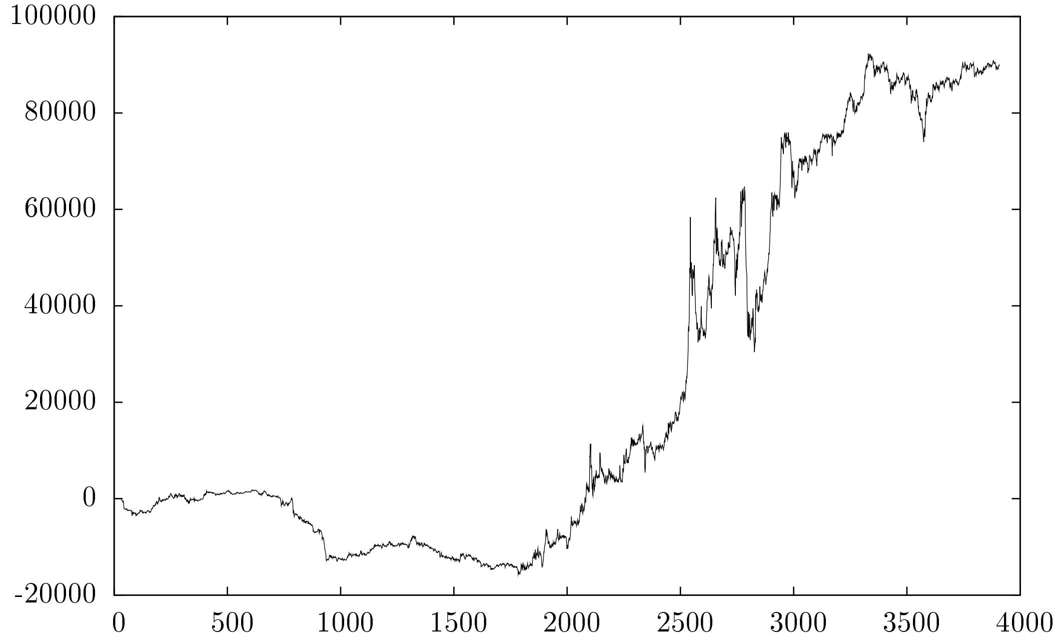

Figure 25: PA_- time evolution of cummulative gain in USD

5.76 Main statistics

	PL_
Net profit	9630
Gross profit	24890
Gross loss	-15260
Trades	16
Winnig trades	3
Losing trades	13
Days short	2722
Days long	1156
Days flat	31
Average bars held	242.375
Average contract bars	242.375
Maximal drawdown	17335
Start of drawdown	2000
End of drawdown	3049
Length of drawdown	1049

5.77 Additional statistics

	PL_
Transaction cost	-320
Slippages	-3200
Percent profit	0.1875
Profit factor	1.6311
Profit per trade	601.875
Return on capital	23.2394

5.78 Special statistics

	PL_
Colosseum factor	0.15079
Colosseum factor - median	0.045455
God precentage	0.72398

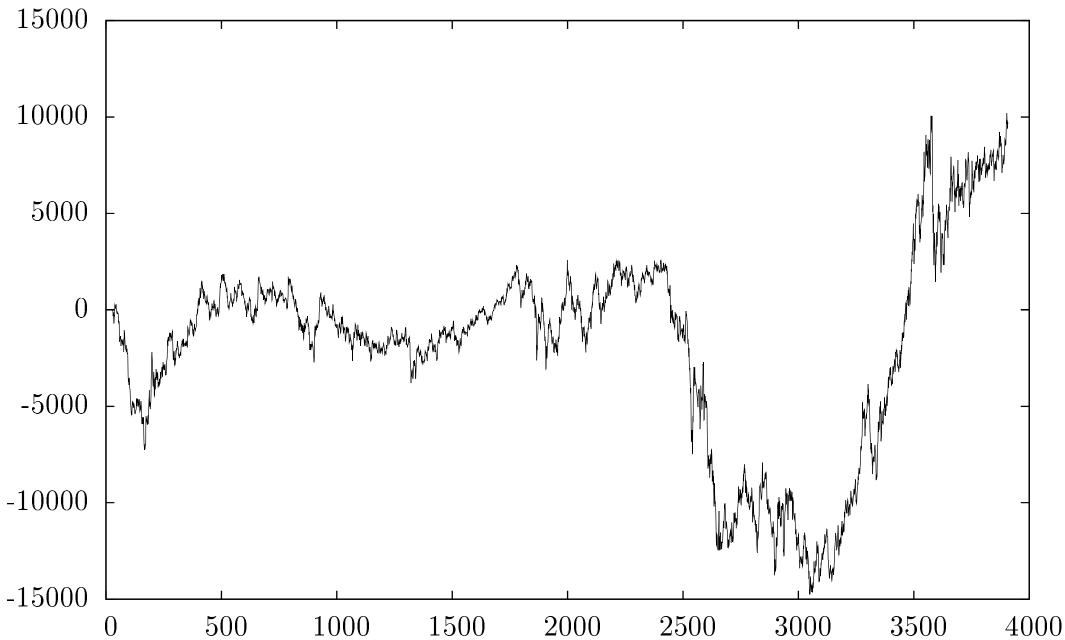

Figure 26: PL_- time evolution of cummulative gain in USD

5.79 Main statistics

	S_ _
Net profit	-3180
Gross profit	85420
Gross loss	-88600
Trades	129
Winnig trades	59
Losing trades	70
Days short	2303
Days long	1596
Days flat	33
Average bars held	30.2248
Average contract bars	30.2248
Maximal drawdown	18627.5
Start of drawdown	3583
End of drawdown	3871
Length of drawdown	288

5.80 Additional statistics

	S_ _
Transaction cost	-2580
Slippages	-19350
Percent profit	0.45736
Profit factor	0.96411
Profit per trade	-24.6512
Return on capital	-7.1416

5.81 Special statistics

	S_ _
Colosseum factor	0.038176
Colosseum factor - median	0.089835
God precentage	0.64172

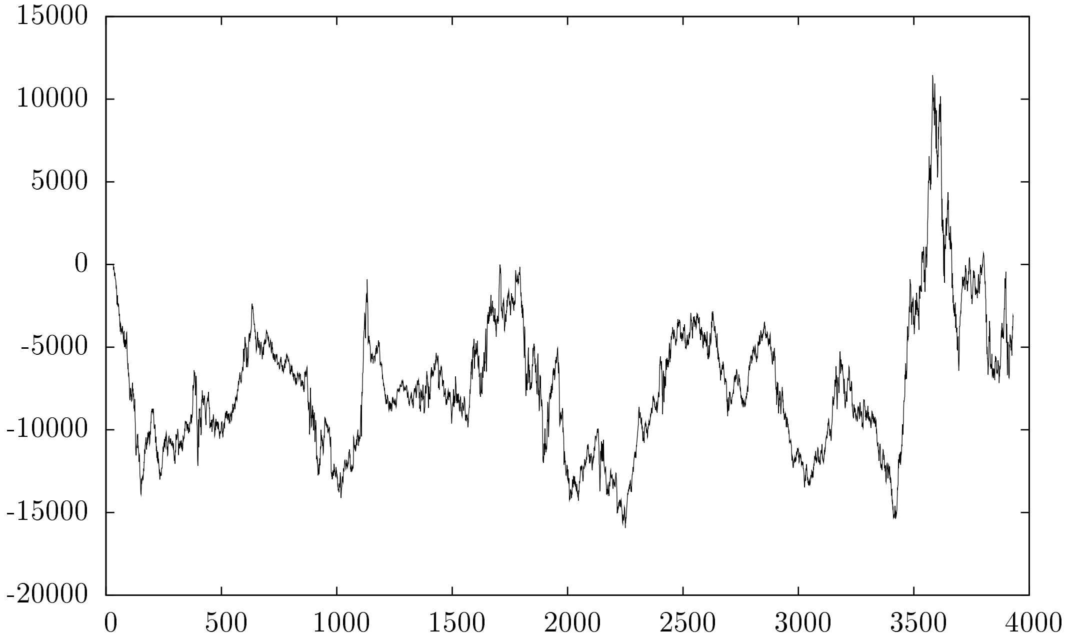

Figure 27: S_ _- time evolution of cummulative gain in USD

5.82 Main statistics

	SB_
Net profit	-11290.4
Gross profit	2603.2
Gross loss	-13893.6
Trades	23
Winnig trades	2
Losing trades	21
Days short	3763
Days long	102
Days flat	34
Average bars held	168.0435
Average contract bars	168.0435
Maximal drawdown	15545.6
Start of drawdown	341
End of drawdown	2009
Length of drawdown	1668

5.83 Additional statistics

	SB_
Transaction cost	-460
Slippages	-3606.4
Percent profit	0.086957
Profit factor	0.18737
Profit per trade	-490.887
Return on capital	-30.3826

5.84 Special statistics

	SB_
Colosseum factor	-0.18895
Colosseum factor - median	-0.25089
God precentage	0.75727

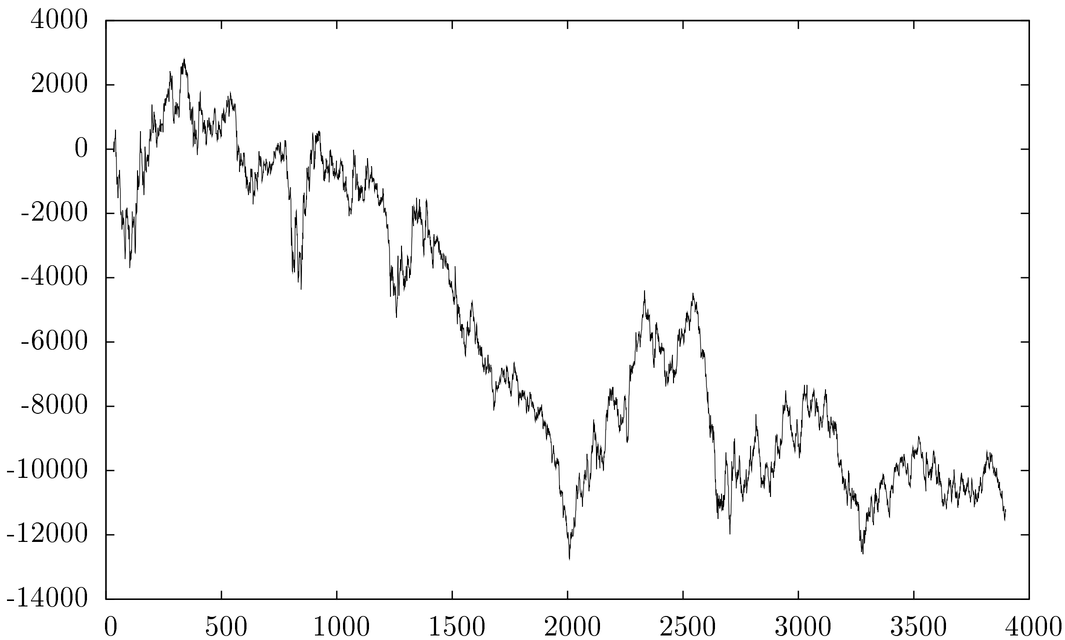

Figure 28: SB_- time evolution of cummulative gain in USD

5.85 Main statistics

	SF_
Net profit	-9122.5
Gross profit	1185
Gross loss	-10307.5
Trades	8
Winnig trades	2
Losing trades	6
Days short	22
Days long	3875
Days flat	32
Average bars held	487.125
Average contract bars	487.125
Maximal drawdown	64237.5
Start of drawdown	1340
End of drawdown	2905
Length of drawdown	1565

5.86 Additional statistics

	SF_
Transaction cost	-160
Slippages	-2000
Percent profit	0.25
Profit factor	0.11496
Profit per trade	-1140.3125
Return on capital	-5.9408

5.87 Special statistics

	SF_
Colosseum factor	-0.03374
Colosseum factor - median	-0.0066445
God precentage	0.63218

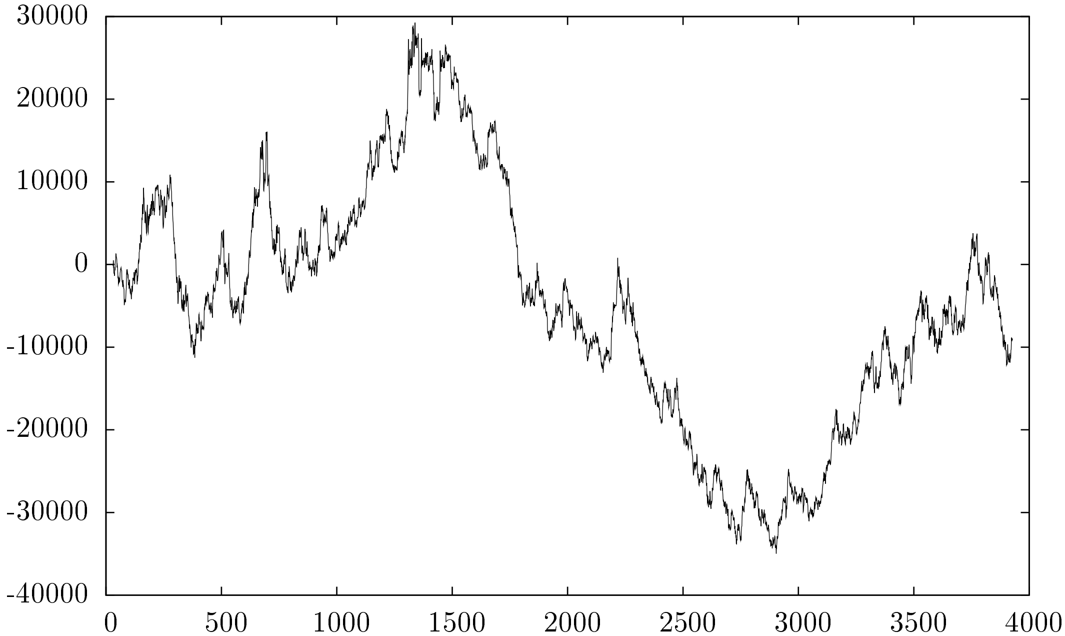

Figure 29: SF_- time evolution of cummulative gain in USD

5.88 Main statistics

	SI_	Sum
Net profit	-12555	-12555
Gross profit	32490	32490
Gross loss	-45045	-45045
Trades	51	51
Winnig trades	14	14
Losing trades	37	37
Days short	3824	0
Days long	56	0
Days flat	31	0
Average bars held	76.0784	0
Average contract bars	76.0784	0
Maximal drawdown	26455	0
Start of drawdown	2986	0
End of drawdown	3738	0
Length of drawdown	752	0

5.89 Additional statistics

	SI_
Transaction cost	-1020
Slippages	-10200
Percent profit	0.27451
Profit factor	0.72128
Profit per trade	-246.1765
Return on capital	-19.8532

5.90 Special statistics

	SI_
Colosseum factor	-0.10656
Colosseum factor - median	0.16806
God precentage	0.692

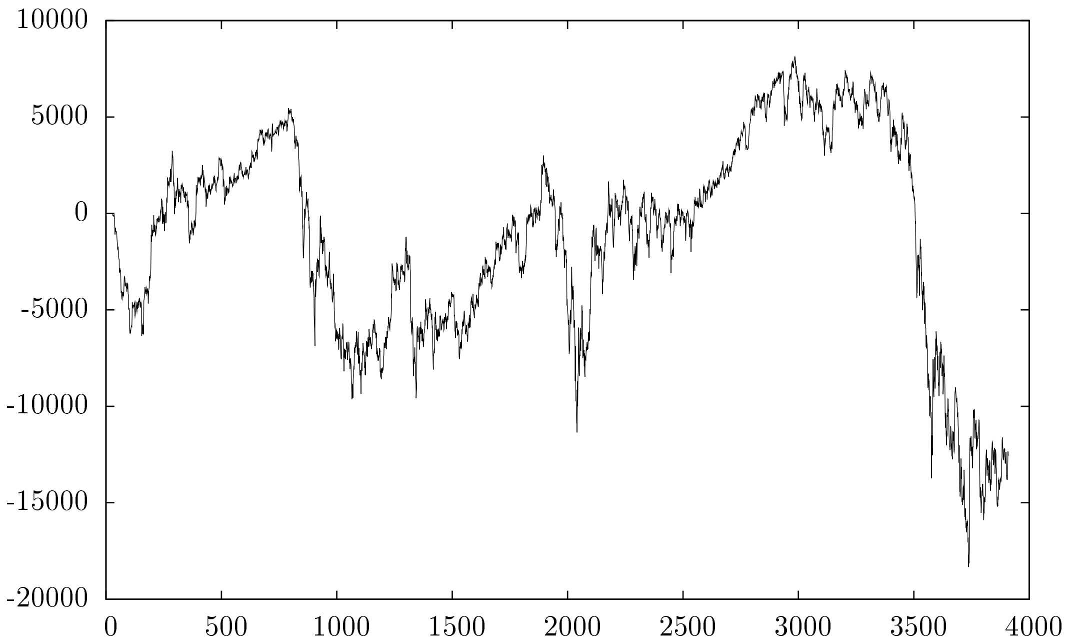

Figure 30: SI_- time evolution of cummulative gain in USD

5.91 Main statistics

	SM_
Net profit	10930
Gross profit	54980
Gross loss	-44050
Trades	76
Winnig trades	42
Losing trades	34
Days short	1658
Days long	2242
Days flat	32
Average bars held	51.3158
Average contract bars	51.3158
Maximal drawdown	17400
Start of drawdown	2132
End of drawdown	3413
Length of drawdown	1281

5.92 Additional statistics

	SM_
Transaction cost	-1520
Slippages	-12160
Percent profit	0.55263
Profit factor	1.2481
Profit per trade	143.8158
Return on capital	26.2781

5.93 Special statistics

	SM_
Colosseum factor	0.17454
Colosseum factor - median	0.18121
God precentage	0.71001

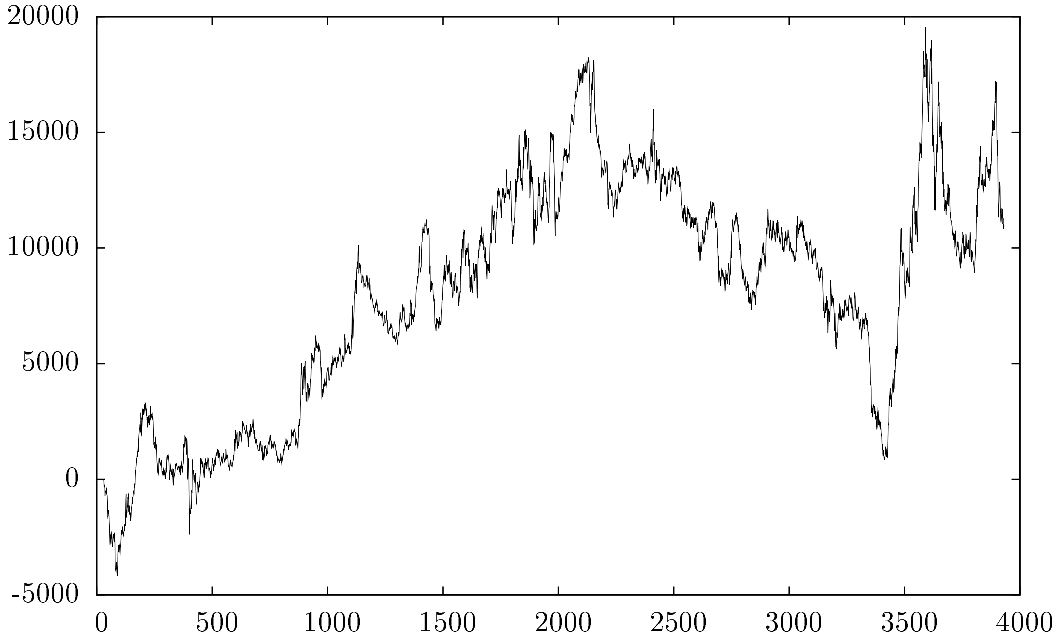

Figure 31: SM_- time evolution of cummulative gain in USD

5.94 Main statistics

	TU3
Net profit	16244.375
Gross profit	19315
Gross loss	-3070.625
Trades	12
Winnig trades	3
Losing trades	9
Days short	52
Days long	3702
Days flat	41
Average bars held	312.8333
Average contract bars	312.8333
Maximal drawdown	3625
Start of drawdown	2090
End of drawdown	24880
Length of drawdown	398

5.95 Additional statistics

	TU3
Transaction cost	-240
Slippages	-2250
Percent profit	0.25
Profit factor	6.2903
Profit per trade	1353.6979
Return on capital	187.4638

5.96 Special statistics

	TU3
Colosseum factor	0.87186
Colosseum factor - median	0.95506
God precentage	0.91222

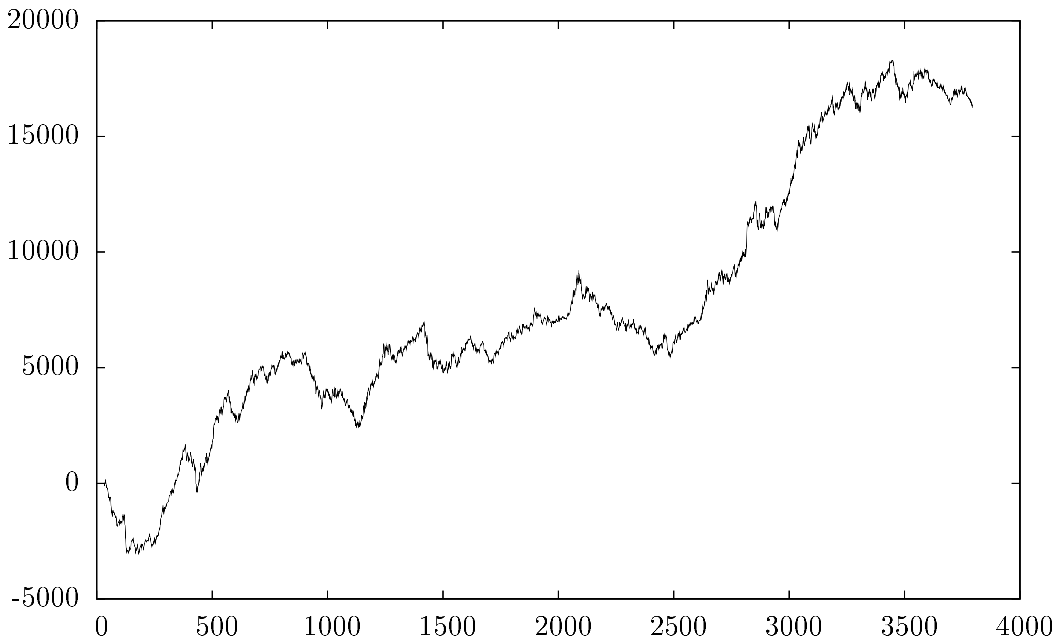

Figure 32: TU3 - time evolution of cummulative gain in USD

5.97 Main statistics

	TY2
Net profit	56519.125
Gross profit	68710
Gross loss	-12190.875
Trades	42
Winnig trades	20
Losing trades	22
Days short	302
Days long	3588
Days flat	31
Average bars held	92.619
Average contract bars	92.619
Maximal drawdown	14890.625
Start of drawdown	2208
End of drawdown	2532
Length of drawdown	324

5.98 Additional statistics

	TY2
Transaction cost	-840
Slippages	-1344
Percent profit	0.47619
Profit factor	5.6362
Profit per trade	1345.6935
Return on capital	158.7834

5.99 Special statistics

	TY2
Colosseum factor	0.62373
Colosseum factor - median	0.79077
God precentage	0.56772

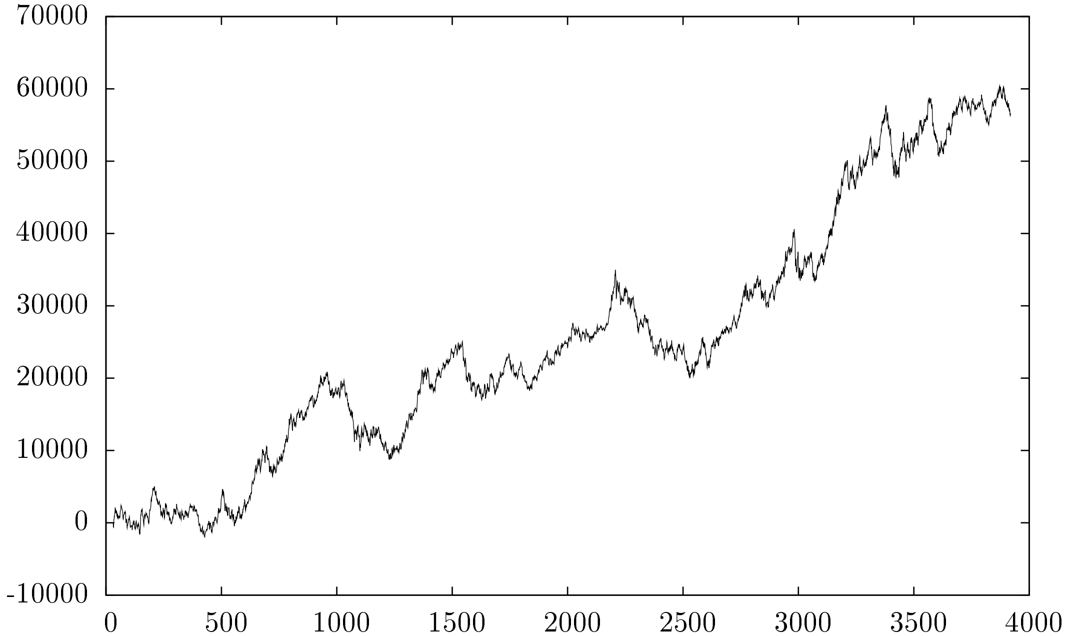

Figure 33: TY2 - time evolution of cummulative gain in USD

5.100 Main statistics

	US2
Net profit	47085
Gross profit	76857.5
Gross loss	-29772.5
Trades	27
Winnig trades	4
Losing trades	23
Days short	143
Days long	3745
Days flat	33
Average bars held	144
Average contract bars	144
Maximal drawdown	29263.75
Start of drawdown	35
End of drawdown	223
Length of drawdown	188

5.101 Additional statistics

	US2
Transaction cost	-540
Slippages	-10125
Percent profit	0.14815
Profit factor	2.5815
Profit per trade	1743.8889
Return on capital	67.3093

5.102 Special statistics

	US2
Colosseum factor	0.42495
Colosseum factor - median	0.76349
God precentage	0.71693

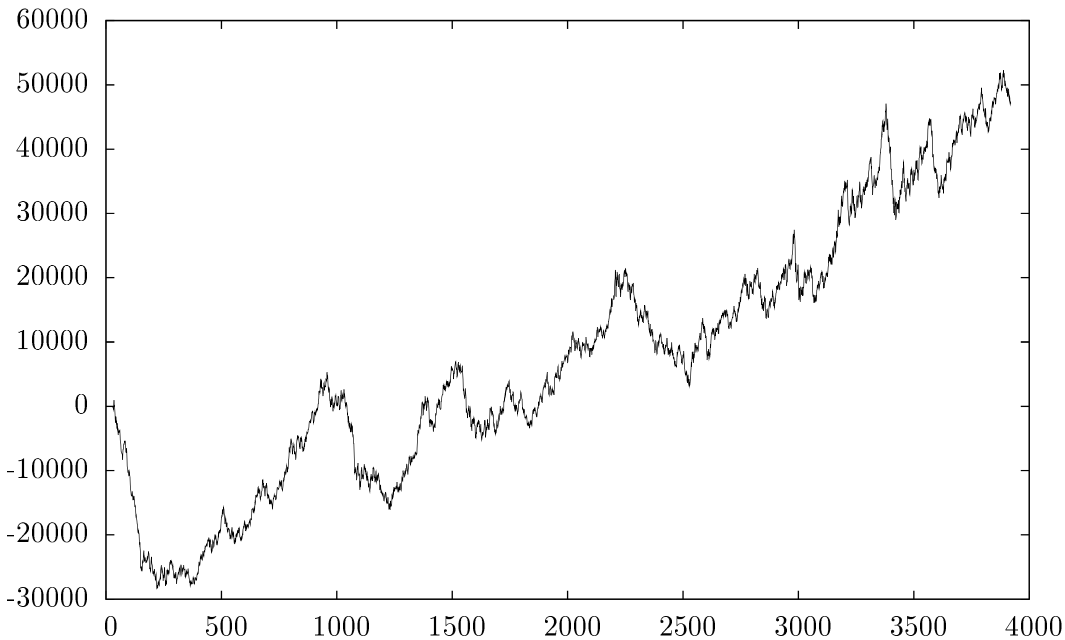

Figure 34: US2 - time evolution of cummulative gain in USD

5.103 Main statistics

	W__
Net profit	4182.5
Gross profit	49865
Gross loss	-45682.5
Trades	89
Winnig trades	33
Losing trades	56
Days short	2781
Days long	1120
Days flat	31
Average bars held	43.8315
Average contract bars	43.8315
Maximal drawdown	26295
Start of drawdown	1595
End of drawdown	1864
Length of drawdown	269

5.104 Additional statistics

	W__
Transaction cost	-1780
Slippages	-13350
Percent profit	0.37079
Profit factor	1.0916
Profit per trade	46.9944
Return on capital	6.654

5.105 Special statistics

	W__
Colosseum factor	0.072382
Colosseum factor - median	0.32277
God precentage	0.70247

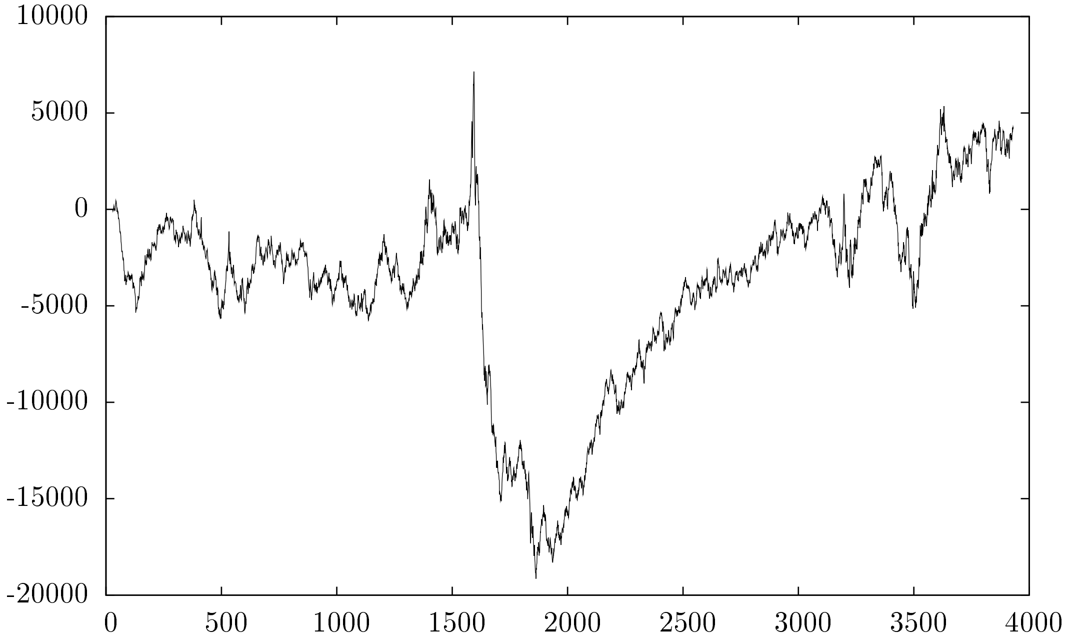

Figure 35: W_ _- time evolution of cummulative gain in USD

5.106 Summary

The final summary for all markets is presented in the following table.

	Net profit	Net profit increased by slippages
AD_	8150	10700
BO_	-18102	-12630
BP_	-29907	-24387
C__	11887,5	14637,5
CC_	9040	12140
CD_	-48960	-47160
CL_	44200	51560
CT_	-12685	365
CU_	-26442,5	-24193,5
ED_	29360	29510
FC2_	22012,5	25762,5
FV2_	38840	40340
GC_	3050	15050
HG_	-53020	-37270
HO_	-9391	17489
HU_	50449,2	65569,2
JY_	2457,5	8457,5
KC_	-76813,75	-42013,75
KW_	-2017,5	18832,5
LC2_	-6190	1810
LH2	-59380	-36520
MW_	115900	127700
NG_	-229210	-151810
OJ_	17567,5	23372,5
PA_	89735	112135
PL_	9630	12830
S__	-3180	16170
SB_	-11290,4	7684
SF_	-9122,5	-7122,5
SI_	-12555	-2355
SM_	10930	23030
TU3	16244,375	18494,375
TY2	56519,25	57863,25
US2	47085	57210
W__	4182,5	17532,5
Total	-20756,2	400783,2

6 Discussion and Conclusions

On-line changing of the size of regressor Φ (combinanting sizes from 1 to 20) influences the final results positively almost in all cases. That means this method faciliate us to avoid the worst results from the set of possible results for lenghts 1-20 for each market. The main advantage of this method is that usage of it is universal for all tested markets, while fixing one size of Φ for all markets doesn't bring accetable results. The final results seems to be much more better if the slippages, which represents precautionary economical acqusition [3], are not counted into the net profit.

References

[1] M. Kárný, J. Zeman, J. Šindelář, Adaptively Optimized Trading with Futures, Internal report of the project MŠMT ČR 2C06001, ÚTIA AV ČR, 2009

[2] M. Maciak Turning point strategy, report No. 2 Internal report of the project MŠMT ČR 2C06001, Colosseum a.s., Londýnská 59, Praha

[3] J. Zeman, Hodnocení kvality strategie (in Czech), Tech. Rep. BA-2008-07-01, 2008.