

den	CP1	CP2	CP3	CP4	CP5	M (TP)	CP1	CP2
1	570	98.4	669.1	53.9	103.5	333.4		
2	569	98.2	715	53.8	103	338.9	-0.001755927	-0.00203
3	563.8	96.6	725	53.2	101.9	346.8	-0.009180855	-0.01643
4	575.3	96.5	716	53.9	100	347.8	0.020192065	-0.00104
5	595.1	97	725	55.6	101.6	350.9	0.033837815	0.005168
6	602.8	98.4	727.5	57	101.2	348.1	0.012856008	0.01433
7	601.8	99	716.6	54.7	102	349.4	-0.001660303	0.006079
8	601.3	105.4	721.5	55.6	101.6	354.2	-0.000831186	0.062643
9	614.8	116.9	718.6	55.9	101.7	361.1	0.022203034	0.103556
10	628.1	119.6	717.8	56.5	100.5	372.7	0.021402378	0.022834
11	629	113.2	729.5	56.4	103.4	371.6	0.001431867	-0.055
12	618.6	109.5	702.6	54.9	102.3	395.9	-0.016672396	-0.03323
13	638	105	750.8	55	102.8	397.6	0.030879423	-0.04196
14	656	104.9	789.7	56.6	99.8	406.1	0.027822506	-0.00095
15	662	105.3	799.1	56.9	101.4	400.7	0.009104767	0.003806
16	669.4	105.7	805	56	100.9	396.6	0.011116233	0.003791
17	700.7	108.5	870	56.7	95.3	398.2	0.045698047	0.026145
18	709	110.3	937.6	57	65.7	400.9	0.011775691	0.016454
19	713	112.6	948.8	56.8	99.4	399.1	0.005625894	0.020638
20	708	113.9	951.5	56.5	99.2	401.1	-0.007037327	0.011479

E (r) 0.011410933 0.007699
covar_i,m -7.66363E-05 -2E-05
beta_i -0.246231127 -0.06446

rf 0.03 p.a.
počet obch 252
rf 0.000119 p.d.

CovM
0.000267119 0.000122
0.000122378 0.001223
0.000257158 -0.00011
0.000190277 0.000168
-0.000253024 -1.4E-05

Tangencialni portfolio InvM
7518.836014 -396.182
-396.1822772 939.4912
-1270.206012 285.9287
-3395.350697 -416.959
-50.43558186 13.18743

Minimum variance portfolio

0.000534238	0.000245
0.000244757	0.002447
0.000514316	-0.00021
0.000380554	0.000337
-0.000506048	-2.7E-05
1	1

InvM

3135.688208	-308.358
-308.3583546	450.2518
-723.9039686	127.2655
-2041.711841	-269.301
-61.71404383	0.141659
0.518336137	0.091635

CP3	CP4	CP5	M (TP)
-----	-----	-----	--------

0.066349	-0.00186	-0.00484	0.016362
0.013889	-0.01122	-0.01074	0.023043
-0.01249	0.013072	-0.01882	0.002879
0.012491	0.031053	0.015873	0.008874
0.003442	0.024868	-0.00394	-0.00801
-0.0151	-0.04119	0.007874	0.003728
0.006815	0.016319	-0.00393	0.013644
-0.00403	0.005381	0.000984	0.019293
-0.00111	0.010676	-0.01187	0.031619
0.016168	-0.00177	0.028447	-0.00296
-0.03757	-0.02696	-0.0107	0.063344
0.066352	0.00182	0.004876	0.004285
0.050514	0.028676	-0.02962	0.021153
0.011833	0.005286	0.015905	-0.01339
0.007356	-0.01594	-0.00494	-0.01028
0.077651	0.012423	-0.0571	0.004026
0.07483	0.005277	-0.37193	0.006758
0.011875	-0.00351	0.414053	-0.0045
0.002842	-0.0053	-0.00201	0.004999
0.018532	0.002479	-0.00223	0.00973
-0.00014	-5.8E-05	-0.00035	0.000311
-0.46036	-0.18606	-1.12845	1

odhad alfa,

19

0.184868

invM

0.06953

-1.73677

OLS

beta

-0.24623

0.216607

0.070644

1.292229

0.00034

E (ri)

0.000257	0.00019	-0.00025	0.011411
-0.00011	0.000168	-1.4E-05	0.007699
0.001071	0.000203	-0.0015	0.018532
0.000203	0.00033	-0.00026	0.002479
-0.0015	-0.00026	0.017557	-0.00223

vps

-1270.21	-3395.35	-50.4356	0.011292
285.9287	-416.959	13.18743	0.00758
1452.558	-227.887	102.2446	0.018413
-227.887	5356.944	10.71687	0.00236
102.2446	10.71687	65.10743	-0.00235

E (Rp)

0.020282

Zi

wi

1	50.61484	1.281005
2	6.897144	0.174559
3	13.7916	0.34905
4	-33.077	-0.83714
5	1.285201	0.032527

sum_Zi 39.51182 1

wi

				vps	
0.000514	0.000381	-0.00051	1		0
-0.00021	0.000337	-2.7E-05	1		0
0.002143	0.000407	-0.00299	1		0
0.000407	0.000659	-0.00052	1		0
-0.00299	-0.00052	0.035114	1		0
1	1	1	0		1

E (Rp)
0.008629

				wi	
-723.904	-2041.71	-61.714	0.518336	1	0.518336
127.2655	-269.301	0.141659	0.091635	2	0.091635
713.6363	-162.924	45.92632	0.073796	3	0.073796
-162.924	2488.709	-14.7721	0.285904	4	0.285904
45.92632	-14.7721	30.41821	0.030329	5	0.030329
0.073796	0.285904	0.030329	-0.00043	lambda1	-0.00043
					1

beta pomoci matix

	vps
0.184867802	0.216808
0.007401015	0.00073

-1.73677445 alfa	0.013807
178.4989822 beta	-0.24623

alfa

0.013806734
0.004275058
0.016212697
17
0.004468476

0.000438335

wi	1.281004945	0.174559	0.34905	-0.83714	0.032527
	0.000438335	2.74E-05	0.000115	-0.0002	-1.1E-05
	2.73652E-05	3.73E-05	-6.5E-06	-2.5E-05	-7.7E-08
	0.000114984	-6.5E-06	0.000131	-5.9E-05	-1.7E-05
	-0.00020405	-2.5E-05	-5.9E-05	0.000231	7.08E-06
	-1.0543E-05	-7.7E-08	-1.7E-05	7.08E-06	1.86E-05

VarP	SigmaP	ratio	Sharpe ratio
0.000510292	0.02258965	0.897828	0.892558

beta_p -0.36831598

VarPSys 4.22214E-05
VarPUnsys 0.000468071

0.518336137 0.091635004 0.073796 0.285904 0.030329

7.17675E-05	5.8127E-06	9.84E-06	2.82E-05	-4E-06
5.8127E-06	1.02718E-05	-7.2E-07	4.41E-06	-3.8E-08
9.83657E-06	-7.1969E-07	5.83E-06	4.29E-06	-3.3E-06
2.81979E-05	4.40873E-06	4.29E-06	2.69E-05	-2.3E-06
-3.9777E-06	-3.7629E-08	-3.3E-06	-2.3E-06	1.62E-05

VarP	SigmaP	ratio	Sharpe ratio
0.000215376	0.01467568	0.587975	0.579863

Cpi	ri	ri-rf	beta_i	var_epsilon	(ri-rf)/beta	(ri-rf)*beta_i/var_epsilon
1	15	10	1	50	10	0.2
2	17	12	1.5	40	8	0.45
3	12	7	1	20	7	0.35
4	17	12	2	10	6	2.4
5	11	6	1	40	6	0.15
6	11	6	1.5	30	4	0.3
7	11	6	2	40	3	0.3
8	7	2	0.8	16	2.5	0.1
9	7	2	1	20	2	0.1
10	5.6	0.6	0.6	6	1	0.06

var_M

10

Only long

Long/short

cum_sum	beta_i^2/var_eps_i	cum_sum	Ci	long/short
0.2	0.02	0.02	1.666667	long
0.65	0.05625	0.07625	3.687943	long
1	0.05	0.12625	4.41989	long
3.4	0.4	0.52625	5.429142	long
3.55	0.025	0.55125	5.451056	long
3.85	0.075	0.62625	5.301205	short
4.15	0.1	0.72625	5.022693	short
4.25	0.04	0.76625	4.906205	short
4.35	0.05	0.81625	4.747613	short
4.41	0.06	0.87625	4.517286	short

C*

C**

Zi		wi	E (Rp)	beta_p	VarPSys	VarPUnsys
1	0.090978887	0.23477	15.31872	1.406637	19.78628	6.841037
2	0.095585413	0.246657				
3	0.077447217	0.199851				
4	0.109788868	0.283309				
5	0.013723608	0.035414				
sum	0.387523992	1				

Zi		wi	E (Rp)	beta_p	VarPSys	VarPUnsys
1	0.109654289	6.15451	343.935	25.35393	6428.22	12595.01
2	0.130601793	7.330219				
3	0.124135723	6.967301				
4	0.296542894	16.64391				
5	0.037067862	2.080489				
6	-0.025864277	-1.45167				
7	-0.075864277	-4.25799				
8	-0.100864277	-5.66116				
9	-0.125864277	-7.06432				
10	-0.351728553	-19.7413				
sum	0.017816901	1				

VarP	SigmaP	ratio	SR
26.62731	5.160166	2.968649	1.999688

VarP	SigmaP	ratio	SR
19023.23	137.9247	2.493643	2.457391

Cpi	ri	beta_i	var_epsi	(ri-rf)/beta_i	(ri-rf)*beta_i/var_epsi	cum_sum
1	19	1	20	16	0.8	0.8
3	11	0.5	10	16	0.4	1.2
2	23	1.5	30	13.333333	1	2.2
6	9	0.5	50	12	0.06	2.26
4	25	2	40	11	1.1	3.36
5	13	1	20	10	0.5	3.86
7	14	1.5	30	7.333333	0.55	4.41
8	10	1	50	7	0.14	4.55
9	9.5	1	50	6.5	0.13	4.68
11	11	1.5	30	5.333333	0.4	5.08
10	13	2	20	5	1	6.08
12	8	1	20	5	0.25	6.33
14	7	1	20	4	0.2	6.53
13	10	2	40	3.5	0.35	6.88

rf 3
varM 10

Long only

Zi
1
2
3
4
5
6
sum

Long/short portfolio

Zi
1
2
3
4
5
6
7
8
9
10
11
12
13
14
sum

beta_i^2/var_epsilon	cum_sum	Ci	long/short
0.05	0.05	5.333333	long
0.025	0.075	6.857143	long
0.075	0.15	8.8	long
0.005	0.155	8.862745	long
0.1	0.255	9.464789	long
0.05	0.305	9.530864	long
0.075	0.38	9.1875	short
0.02	0.4	9.1	short
0.02	0.42	9	short
0.075	0.495	8.537815	short
0.2	0.695	7.647799	short
0.05	0.745	7.491124	short
0.05	0.795	7.296089	short
0.1	0.895	6.914573	short

C*

C**

wi	E (Rp)	beta_p	VarPSys	
0.32345679	0.337411	17.14939	0.994205	9.884431
0.32345679	0.337411			
0.190123457	0.198326			
0.024691358	0.025757			
0.07345679	0.076626			
0.02345679	0.024469			
0.958641975	1			

wi	E (Rp)	beta_p	VarPSys	
0.454271357	0.468066	22.62617	0.712455	5.075922
0.454271357	0.468066			
0.320938023	0.330684			
0.050854271	0.052399			
0.204271357	0.210475			
0.154271357	0.158956			
0.020938023	0.021574			
0.001708543	0.00176			
-0.008291457	-0.00854			
-0.079061977	-0.08146			
-0.191457286	-0.19727			
-0.095728643	-0.09864			
-0.145728643	-0.15015			
-0.170728643	-0.17591			
0.970527638				

VarPUnsys	VarP	SigmaP	ratio	SR
4.875394	14.75983	3.841852	4.463834	3.68296

VarPUnsys	VarP	SigmaP	ratio	SR
15.14624	20.22216	4.496906	5.031497	4.364372

CP	α_1	α_2	λ	α_3
C_1	0.4	1.85	0.25	3%
C_2	-0.5	0.75	0.4	2%
C_3	0.67	-0.25	0.35	0.50%
	$\beta_1 = 1.20$	$\beta_2 = 0.80$	$\alpha_1 = 0.2$	$\alpha_2 = 0.14$

beta_F1 1.2
 beta_F2 0.8
 sigma_F1 0.24
 sigma_F2 0.14

beta_l		var_i		sigma_i
1	1.96		1	0.077197 0.277843
2	0		2	0.025825 0.160702
3	0.604		3	0.027107 0.164641

bp1	bp2		
0.1345	0.675		
		VarP	0.010096
		SigmaP	0.100477

$F_1=4\%$, $F_2=6.5\%$, $F_3=9\%$, $r_f=3\%$
 $\lambda_1=65\%$, $\lambda_2=35\%$
 $b_{x1}=0,08$, $b_{y1}=0,75$, $b_{x2}=0,40$, $b_{y2}=0,65$, $b_{x3}=1,48$, $b_{y3}=0,59$
 $\sigma_x=6\%$
 $\sigma_y=9\%$
 $\sigma_{F1}=10\%$, $\sigma_{F2}=9.5\%$, $\sigma_{F3}=12\%$, $\sigma_x=14\%$, $\sigma_y=25\%$
 $e_x=25\%$
 $e_y=18.5\%$
 $\beta_1=20,$
 $\beta_2=56,$
 $\beta_3=58$

		F1	F2	F3
E (ri)		0.04	0.065	0.09
b_x		0.08	0.4	1.48
b_y		0.75	0.65	0.59
Sigma_Fi		0.1	0.095	0.12
beta_Fi		1.2	0.56	1.58
Rm	0.11			
rf		0.03		
beta_i				
x		2.6584		
y		2.1962		
CAPM				
rie				
x		0.242672		
y		0.205696		
		bp1	bp2	bp3
		0.3145	0.4875	1.1685
VarP		0.038733		
SigmaP		0.196807		
E (Rp)		0.22973		

	X	Y
wi	0.65	0.35
alfa	0.06	0.09
e	0.025	0.0185
sigma_e	0.14	0.25

ri z regrese

x	0.2474
y	0.23385

Rp 0.242658

Var_i	Sigma_i	
x	0.05265	0.203964
y	0.076951	0.250354

E (Rp) 0.242658

$\sigma_M = 24, \text{cov}(F_1, M) = 256, \text{cov}(F_2, M) = 850, b_{A1} = 0,75$
 $b_{A2} = 1,50, b_{B1} = 0,85, b_{B2} = 1,70, X_A = 48\%, X_B = 52\%$

Var_M	624	b_A	0.75
cov_F1,M	256	b_B	0.85
cov_F2,M	850	beta_Fi	0.410256
rf	6		
rm	12		
		beta_i	
		A	2.350962
		B	2.664423
		CAPM rie	
		A	20.10577
		B	21.98654
		E (Rp)	21.08377
		bp1	
			0.802

F2	wi
1.5	0.48
1.7	0.52
1.362179	

bp2
1.604

CP	b_1	b_2	r_i
A	0.5	0.8	16.2
B	1.5	1.4	21.6
r_f	0	0	10

budget	1000
--------	------

w_i

A	1.5
---	-----

B	-0.5
---	------

Rp

13.5

bp1

0

bp2

0.5

CETV	ČEZ	ERSTE	KB	NWR	ORCO	PEGAS	PM
96.40	605.70	627.00	4 135.00	76.00	60.20	525.00	11 500.00
98.00	619.00	640.00	4 157.00	75.50	59.90	530.00	11 470.00
97.50	621.00	648.80	4 130.00	75.50	60.80	531.50	11 500.00
97.00	618.20	638.00	4 125.00	76.30	60.00	529.00	11 500.00
99.90	612.00	647.00	4 080.00	75.50	61.60	525.00	11 650.00
100.50	608.00	657.10	3 960.00	76.00	61.45	530.00	11 599.00
99.00	603.00	637.40	3 908.00	76.50	60.05	532.00	11 515.00
102.00	596.60	635.00	3 969.00	77.80	61.00	530.00	11 600.00
102.40	592.00	635.00	3 999.00	78.50	62.90	530.00	11 785.00
95.00	597.00	598.50	3 929.00	78.00	65.00	526.00	11 565.00
104.05	607.00	590.00	3 916.00	79.50	65.60	517.00	11 650.00
109.10	613.50	611.00	4 050.00	81.10	66.70	520.00	11 650.00
113.20	605.00	592.00	4 026.00	81.30	65.50	524.00	11 630.00
111.45	599.00	586.50	4 050.00	87.15	66.45	517.00	11 579.00
113.10	605.40	602.00	4 085.00	88.60	68.45	520.00	11 555.00
112.50	616.20	585.00	4 084.00	86.00	68.00	515.00	11 600.00
113.20	618.90	590.80	4 020.00	85.30	68.80	524.00	11 700.00
113.10	625.00	592.20	3 940.00	87.40	69.80	530.00	11 595.00
110.00	633.90	608.50	3 908.00	87.00	69.80	530.10	11 340.00
106.70	638.00	605.50	3 850.00	85.00	70.20	528.00	11 200.00
106.50	635.00	585.00	3 851.00	83.80	70.15	530.00	11 554.00
103.30	628.00	587.40	3 788.00	80.60	71.50	533.00	11 450.00
101.00	626.70	578.00	3 800.00	81.00	69.00	528.60	11 565.00
105.20	615.00	597.80	3 780.00	83.45	70.10	529.00	11 500.00
108.00	612.00	610.00	3 780.00	83.00	70.40	529.00	11 570.00
110.70	613.80	632.30	3 790.00	83.00	70.75	522.50	11 490.00
110.05	612.10	643.00	3 818.00	88.50	69.90	526.00	11 420.00
114.50	615.00	631.10	3 808.00	87.40	70.00	526.00	11 250.00
115.20	615.00	632.50	3 838.00	88.00	72.50	512.00	11 220.00
109.50	613.00	627.60	3 745.00	90.50	73.70	503.70	11 175.00
110.05	617.00	633.30	3 899.00	90.00	70.00	501.00	11 050.00
109.00	622.00	614.30	3 887.00	87.90	72.00	505.00	10 860.00
108.00	643.00	615.60	3 937.00	88.30	71.50	505.00	10 900.00
109.00	647.10	624.50	3 926.00	89.80	68.10	505.10	10 800.00
111.90	652.90	645.50	3 980.00	92.65	68.05	507.30	10 725.00
110.80	651.70	648.90	3 970.00	90.55	68.00	504.00	10 753.00
116.30	648.50	651.90	3 935.00	89.00	65.25	504.50	10 715.00
109.00	644.00	664.80	3 959.00	94.60	65.20	505.00	10 800.00
112.25	644.90	671.00	3 961.00	100.00	67.50	502.00	10 840.00
108.30	655.10	667.00	3 999.00	100.50	68.60	498.00	10 800.00
110.00	661.50	664.70	3 983.00	100.00	63.15	489.00	10 550.00
118.70	673.50	674.10	4 030.00	98.90	61.40	493.00	11 030.00
118.85	663.50	658.10	4 010.00	100.90	61.50	493.80	10 800.00
119.35	658.50	640.70	3 990.00	101.55	62.00	490.00	10 724.00
120.90	680.00	632.20	4 050.00	101.00	63.50	492.00	10 801.00
121.45	675.00	634.00	4 104.00	101.00	62.45	490.00	10 738.00
119.85	680.20	632.00	4 130.00	97.60	63.70	491.00	10 727.00

109.95	680.00	607.00	4 010.00	98.70	61.30	493.00	10 700.00
110.00	670.10	609.00	4 031.00	96.00	62.00	492.00	10 700.00
110.90	675.50	590.60	4 105.00	95.85	59.00	492.00	10 550.00
109.80	668.00	604.00	4 027.00	95.50	63.60	487.00	10 635.00
109.45	660.50	617.30	4 075.00	90.50	64.95	480.00	10 700.00
109.50	658.00	611.00	4 019.00	87.20	63.70	475.00	10 630.00
106.90	645.00	584.90	3 946.00	86.05	65.40	472.60	10 765.00
104.90	646.00	582.90	3 920.00	85.30	65.00	474.00	10 840.00
102.00	646.00	578.30	3 929.00	85.00	64.90	475.20	10 780.00
100.90	646.00	574.50	3 980.00	84.00	67.80	470.00	10 700.00
102.50	635.50	563.90	4 009.00	86.30	65.65	472.00	10 510.00
96.00	622.50	557.80	3 945.00	84.90	66.95	470.00	10 550.00
90.00	625.00	564.50	4 005.00	83.90	68.00	470.00	10 550.00
90.95	632.50	564.60	4 064.00	83.00	70.00	469.80	10 600.00
89.80	644.50	560.00	3 941.00	82.60	70.10	471.90	10 700.00
91.85	652.00	557.00	3 880.00	82.55	72.00	470.00	10 600.00
90.30	652.00	568.40	3 809.00	83.00	71.80	464.00	10 670.00
90.00	645.00	570.00	3 871.00	83.90	68.80	465.00	10 700.00
93.00	657.00	557.50	3 877.00	82.00	66.00	459.00	10 685.00
91.40	662.00	533.40	3 845.00	82.00	65.95	459.00	10 700.00
95.30	677.90	552.10	3 920.00	76.80	68.26	460.00	10 900.00
94.99	677.00	538.00	3 850.00	73.00	68.90	463.00	10 788.00
93.00	643.10	524.00	3 840.00	74.20	67.86	464.30	10 426.00

TELEFONICA	UNI	VIG	PX	BRENT(USD)	XR(CZC/USD)	CETV	ČEZ
321.90	172.00	1 019.00	1 034.45	108.64	19.5985		
321.00	173.10	1 015.00	1 038.89	108.91	19.5490	0.016461	0.02172
328.90	171.50	996.70	1 028.21	110.42	19.3960	-0.00512	0.003226
324.50	170.00	998.70	1 029.17	110.27	19.6815	-0.00514	-0.00452
325.50	170.00	970.00	1 017.01	110.42	19.5845	0.029459	-0.01008
316.80	170.00	971.00	1 005.88	109.9	19.7185	0.005988	-0.00656
316.00	171.45	988.60	1 013.10	110.14	19.7125	-0.01504	-0.00826
324.50	170.00	991.50	1 014.57	112.2	19.6540	0.029853	-0.01067
325.00	168.50	984.50	995.93	112.24	19.5100	0.003914	-0.00774
320.00	168.50	974.50	992.74	112.96	19.5800	-0.07501	0.00841
316.00	167.00	995.60	1 013.75	114.55	19.5125	0.090995	0.016612
316.00	168.00	977.90	1 000.07	113.74	19.3590	0.047393	0.010651
314.00	168.00	964.70	993.06	114.19	19.3155	0.036891	-0.01395
309.80	168.00	964.00	1 003.72	116.23	19.1000	-0.01558	-0.00997
307.60	169.00	963.50	1 000.90	117.04	18.9420	0.014696	0.010628
308.40	169.95	975.90	1 003.69	117.4	19.0240	-0.00532	0.017682
308.00	170.00	955.00	999.06	118.48	18.9560	0.006203	0.004372
308.50	172.00	968.50	1 009.84	118.43	18.8520	-0.00088	0.009808
313.00	170.20	944.90	1 002.37	117.89	18.8245	-0.02779	0.01414
313.50	171.00	940.00	998.96	118.29	18.8370	-0.03046	0.006447
328.70	169.00	940.40	994.13	118.9	18.8785	-0.00188	-0.00471
328.80	168.50	963.00	986.17	117.17	18.8435	-0.03051	-0.01108
328.20	170.85	972.10	998.74	117.03	18.8635	-0.02252	-0.00207
329.00	169.00	999.20	1 007.53	116.06	18.9900	0.040743	-0.01885
326.00	169.85	1 003.00	1 016.81	115.55	18.8310	0.026268	-0.00489
325.90	169.00	1 002.00	1 021.44	115.55	18.9010	0.024693	0.002937
326.80	170.40	995.00	1 017.86	115.42	18.8800	-0.00589	-0.00277
325.50	169.95	995.00	1 019.97	115.22	19.0205	0.03964	0.004727
326.50	170.50	1 003.00	1 012.57	113.92	19.1020	0.006095	0
322.50	170.00	1 000.00	1 024.29	113.88	18.9830	-0.05075	-0.00326
327.00	171.95	1 018.00	1 021.86	114.59	19.1180	0.00501	0.006504
327.00	171.80	995.90	1 026.82	113.68	19.2230	-0.00959	0.008071
329.00	172.00	985.00	1 025.26	112.72	19.2515	-0.00922	0.033205
329.30	170.00	994.90	1 042.52	111.71	19.2350	0.009217	0.006356
330.00	170.00	988.90	1 042.26	111.01	19.0975	0.026258	0.008923
329.50	170.30	984.90	1 039.31	110.97	19.2240	-0.00988	-0.00184
327.80	172.65	986.90	1 042.34	111.72	19.2410	0.048446	-0.00492
326.50	174.40	990.00	1 047.43	111.32	19.1100	-0.06483	-0.00696
325.00	173.80	1 004.00	1 053.70	110.3	19.2150	0.029381	0.001397
323.50	171.00	985.00	1 048.08	112.97	19.3080	-0.03582	0.015693
321.00	169.50	1 007.00	1 066.14	113.07	19.6095	0.015575	0.009722
328.10	171.10	1 030.00	1 061.20	113.03	19.5175	0.076119	0.017978
328.30	176.40	1 039.00	1 054.60	112.49	19.4825	0.001263	-0.01496
328.00	175.00	1 033.00	1 062.47	112.58	19.4085	0.004198	-0.00756
332.00	177.00	1 029.00	1 063.04	113.03	19.3600	0.012903	0.032128
333.50	175.00	1 035.00	1 066.01	112.98	19.1155	0.004539	-0.00738
333.00	174.80	1 000.00	1 038.70	110.05	19.0010	-0.01326	0.007674

323.60	175.00	998.00	1 035.95
320.00	175.00	1 016.00	1 036.38
319.60	175.00	994.00	1 033.79
317.50	172.90	988.10	1 041.29
323.00	171.00	977.00	1 031.01
322.00	172.00	977.00	1 011.36
321.00	172.75	963.00	1 008.02
326.00	171.00	954.00	1 002.18
322.00	169.00	955.00	1 001.59
318.00	169.00	953.10	992.62
315.90	166.00	948.00	985.84
321.90	169.00	958.00	993.52
323.50	167.00	949.70	999.56
330.00	169.60	943.00	997.73
341.50	168.95	932.00	994.30
343.50	166.80	926.50	994.33
339.60	169.00	923.50	997.31
346.00	170.00	912.00	992.14
346.00	170.10	885.10	975.62
348.00	170.25	895.00	995.11
349.00	170.00	892.60	983.25
348.50	171.00	889.80	976.90
347.00	168.00	867.00	962.64

110.04	18.9565	-0.08622	-0.00029
109.13	19.0670	0.000455	-0.01467
110.57	19.0190	0.008149	0.008026
109.95	19.0310	-0.00997	-0.01116
109.96	19.0320	-0.00319	-0.01129
109.35	19.1775	0.000457	-0.00379
109.28	19.1630	-0.02403	-0.01995
110.18	19.3150	-0.01889	0.001549
110.17	19.3185	-0.02803	0
107.6	19.4125	-0.01084	0
108.25	19.5265	0.015733	-0.01639
107.16	19.4965	-0.06551	-0.02067
108.01	19.4405	-0.06454	0.004008
108.96	19.2930	0.0105	0.011929
109.99	19.2755	-0.01272	0.018795
111.27	19.3205	0.022572	0.01157
110.84	19.4450	-0.01702	0
110.47	19.4210	-0.00333	-0.01079
108.26	19.5050	0.03279	0.018434
109.33	19.5830	-0.01735	0.007582
110.18	19.4940	0.041784	0.023734
110.14	19.5295	-0.00326	-0.00133
110.81	19.8535	-0.02117	-0.05137

ERSTE	KB	NWR	ORCO	PEGAS	PM	TELEFONIC	UNI	VIG
0.020522	0.005306	-0.0066	-0.005	0.009479	-0.00261	-0.0028	0.006375	-0.00393
0.013656	-0.00652	0	0.014913	0.002826	0.002612	0.024313	-0.00929	-0.01819
-0.01679	-0.00121	0.01054	-0.01325	-0.00471	0	-0.01347	-0.00878	0.002005
0.014008	-0.01097	-0.01054	0.026317	-0.00759	0.012959	0.003077	0	-0.02916
0.01549	-0.02985	0.006601	-0.00244	0.009479	-0.00439	-0.02709	0	0.00103
-0.03044	-0.01322	0.006557	-0.02305	0.003766	-0.00727	-0.00253	0.008493	0.017963
-0.00377	0.015488	0.016851	0.015696	-0.00377	0.007355	0.026543	-0.00849	0.002929
0	0.00753	0.008957	0.030672	0	0.015822	0.00154	-0.00886	-0.00709
-0.0592	-0.01766	-0.00639	0.032841	-0.00758	-0.01884	-0.0155	0	-0.01021
-0.0143	-0.00331	0.019048	0.009188	-0.01726	0.007323	-0.01258	-0.00894	0.021421
0.034974	0.033646	0.019926	0.016629	0.005786	0	0	0.00597	-0.01794
-0.03159	-0.00594	0.002463	-0.01815	0.007663	-0.00172	-0.00635	0	-0.01359
-0.00933	0.005944	0.069485	0.0144	-0.01345	-0.00439	-0.01347	0	-0.00073
0.026085	0.008605	0.016501	0.029654	0.005786	-0.00207	-0.00713	0.005935	-0.00052
-0.02865	-0.00024	-0.02978	-0.0066	-0.00966	0.003887	0.002597	0.005606	0.012788
0.009866	-0.01579	-0.00817	0.011696	0.017325	0.008584	-0.0013	0.000294	-0.02165
0.002367	-0.0201	0.024321	0.01443	0.011385	-0.00901	0.001622	0.011696	0.014037
0.027152	-0.00815	-0.00459	0	0.000189	-0.02224	0.014481	-0.01052	-0.02467
-0.00494	-0.01495	-0.02326	0.005714	-0.00397	-0.01242	0.001596	0.004689	-0.0052
-0.03444	0.00026	-0.01422	-0.00071	0.003781	0.031118	0.047346	-0.01176	0.000425
0.004094	-0.01649	-0.03893	0.019062	0.005644	-0.00904	0.000304	-0.00296	0.023748
-0.01613	0.003163	0.004951	-0.03559	-0.00829	0.009994	-0.00183	0.01385	0.009405
0.033682	-0.00528	0.029798	0.015816	0.000756	-0.00564	0.002435	-0.01089	0.027496
0.020203	0	-0.00541	0.00427	0	0.006069	-0.00916	0.005017	0.003796
0.035905	0.002642	0	0.004959	-0.01236	-0.00694	-0.00031	-0.00502	-0.001
0.016781	0.007361	0.064162	-0.01209	0.006676	-0.00611	0.002758	0.00825	-0.00701
-0.01868	-0.00262	-0.01251	0.00143	0	-0.015	-0.00399	-0.00264	0
0.002216	0.007847	0.006842	0.035091	-0.02698	-0.00267	0.003067	0.003231	0.008008
-0.00778	-0.02453	0.028013	0.016416	-0.01634	-0.00402	-0.01233	-0.00294	-0.003
0.009041	0.040298	-0.00554	-0.05151	-0.00537	-0.01125	0.013857	0.011405	0.01784
-0.03046	-0.00308	-0.02361	0.028171	0.007952	-0.01734	0	-0.00087	-0.02195
0.002114	0.012781	0.00454	-0.00697	0	0.003676	0.006098	0.001163	-0.01101
0.014354	-0.0028	0.016845	-0.04872	0.000198	-0.00922	0.000911	-0.0117	0.010001
0.033074	0.013661	0.031244	-0.00073	0.004346	-0.00697	0.002123	0	-0.00605
0.005253	-0.00252	-0.02293	-0.00074	-0.00653	0.002607	-0.00152	0.001763	-0.00405
0.004613	-0.00886	-0.01727	-0.04128	0.000992	-0.00354	-0.00517	0.013705	0.002029
0.019595	0.006081	0.061021	-0.00077	0.000991	0.007902	-0.00397	0.010085	0.003136
0.009283	0.000505	0.055513	0.034668	-0.00596	0.003697	-0.0046	-0.00345	0.014042
-0.00598	0.009548	0.004988	0.016165	-0.008	-0.0037	-0.00463	-0.01624	-0.01911
-0.00345	-0.00401	-0.00499	-0.08278	-0.01824	-0.02342	-0.00776	-0.00881	0.022089
0.014043	0.011731	-0.01106	-0.0281	0.008147	0.044493	0.021877	0.009395	0.022583
-0.02402	-0.00498	0.020021	0.001627	0.001621	-0.02107	0.000609	0.030506	0.0087
-0.0268	-0.005	0.006421	0.008097	-0.00773	-0.00706	-0.00091	-0.00797	-0.00579
-0.01336	0.014926	-0.00543	0.023906	0.004073	0.007155	0.012121	0.011364	-0.00388
0.002843	0.013245	0	-0.01667	-0.00407	-0.00585	0.004508	-0.01136	0.005814
-0.00316	0.006315	-0.03424	0.019818	0.002039	-0.00102	-0.0015	-0.00114	-0.0344

-0.04036	-0.02949	0.011207	-0.0384	0.004065	-0.00252	-0.02863	0.001144	-0.002
0.003289	0.005223	-0.02774	0.011355	-0.00203	0	-0.01119	0	0.017875
-0.03068	0.018191	-0.00156	-0.0496	0	-0.01412	-0.00125	0	-0.02189
0.022435	-0.01918	-0.00366	0.075076	-0.01021	0.008025	-0.00659	-0.01207	-0.00595
0.021781	0.011849	-0.05378	0.021004	-0.01448	0.006093	0.017175	-0.01105	-0.0113
-0.01026	-0.01384	-0.03715	-0.01943	-0.01047	-0.00656	-0.0031	0.005831	0
-0.04366	-0.01833	-0.01328	0.026338	-0.00507	0.01262	-0.00311	0.004351	-0.01443
-0.00343	-0.00661	-0.00875	-0.00613	0.002958	0.006943	0.015456	-0.01018	-0.00939
-0.00792	0.002293	-0.00352	-0.00154	0.002528	-0.00555	-0.01235	-0.01176	0.001048
-0.00659	0.012897	-0.01183	0.043715	-0.011	-0.00745	-0.0125	0	-0.00199
-0.01862	0.00726	0.027013	-0.03222	0.004246	-0.01792	-0.00663	-0.01791	-0.00537
-0.01088	-0.01609	-0.01636	0.019608	-0.00425	0.003799	0.018815	0.017911	0.010493
0.01194	0.015095	-0.01185	0.015562	0	0	0.004958	-0.0119	-0.0087
0.000177	0.014624	-0.01079	0.028988	-0.00043	0.004728	0.019894	0.015449	-0.00708
-0.00818	-0.03073	-0.00483	0.001428	0.00446	0.00939	0.034255	-0.00384	-0.01173
-0.00537	-0.0156	-0.00061	0.026743	-0.00403	-0.00939	0.005839	-0.01281	-0.00592
0.02026	-0.01847	0.005436	-0.00278	-0.01285	0.006582	-0.01142	0.013103	-0.00324
0.002811	0.016146	0.010785	-0.04268	0.002153	0.002808	0.01867	0.0059	-0.01253
-0.02217	0.001549	-0.02291	-0.04155	-0.01299	-0.0014	0	0.000588	-0.02994
-0.04419	-0.00829	0	-0.00076	0	0.001403	0.005764	0.000881	0.011123
0.034458	0.019318	-0.06551	0.034427	0.002176	0.018519	0.002869	-0.00147	-0.00269
-0.02587	-0.01802	-0.05075	0.009332	0.006501	-0.01033	-0.00143	0.005865	-0.00314
-0.02637	-0.0026	0.016305	-0.01521	0.002804	-0.03413	-0.00431	-0.0177	-0.02596

PX BRENT(USE XR(CZC/USD))

0.004283 0.002482 -0.00253
 -0.01033 0.013769 -0.00786
 0.000933 -0.00136 0.014612
 -0.01189 0.001359 -0.00494
 -0.011 -0.00472 0.006819
 0.007152 0.002181 -0.0003
 0.00145 0.018531 -0.00297
 -0.01854 0.000356 -0.00735
 -0.00321 0.006394 0.003581
 0.020943 0.013978 -0.00345
 -0.01359 -0.0071 -0.0079
 -0.00703 0.003949 -0.00225
 0.010677 0.017707 -0.01122
 -0.00281 0.006945 -0.00831
 0.002784 0.003071 0.00432
 -0.00462 0.009157 -0.00358
 0.010732 -0.00042 -0.0055
 -0.00742 -0.00457 -0.00146
 -0.00341 0.003387 0.000664
 -0.00485 0.005144 0.002201
 -0.00804 -0.01466 -0.00186
 0.012666 -0.0012 0.001061
 0.008763 -0.00832 0.006684
 0.009168 -0.0044 -0.00841
 0.004543 0 0.00371
 -0.00351 -0.00113 -0.00111
 0.002071 -0.00173 0.007414
 -0.00728 -0.01135 0.004276
 0.011508 -0.00035 -0.00625
 -0.00238 0.006215 0.007086
 0.004842 -0.00797 0.005477
 -0.00152 -0.00848 0.001482
 0.016695 -0.009 -0.00086
 -0.00025 -0.00629 -0.00717
 -0.00283 -0.00036 0.006602
 0.002911 0.006736 0.000884
 0.004871 -0.00359 -0.00683
 0.005968 -0.00921 0.005479
 -0.00535 0.023918 0.004828
 0.017085 0.000885 0.015495
 -0.00464 -0.00035 -0.0047
 -0.00624 -0.00479 -0.00179
 0.007435 0.0008 -0.00381
 0.000536 0.003989 -0.0025
 0.00279 -0.00044 -0.01271
 -0.02595 -0.02628 -0.00601

beta3	beta2	beta1	alfa
-0.97769	-0.437793874	-0.03267	-0.00233
0.425155	0.288471312	0.282295	0.002541
0.098566	0.020917177	#N/A	#N/A
2.369116	65	#N/A	#N/A
0.00311	0.02843934	#N/A	#N/A

Pmoci matic

69	-0.071945653	0.019777	0.012927
-0.07195	0.00586809	0.001279	-4.2E-05
0.019777	0.001279415	0.005622	-0.00041
0.012927	-4.23613E-05	-0.00041	0.002454

InvM

0.014752	0.203035459	-0.10473	-0.09158
0.203035	182.1384378	-42.5258	-4.97631
-0.10473	-42.52577596	190.195	31.35319
-0.09158	-4.976314367	31.35319	413.1318

-0.00265	-9.1E-05	-0.00234
0.000415	-0.0083	0.005812
-0.0025	0.013109	-0.00252
0.007229	-0.00562	0.000631
-0.00992	9.09E-05	5.25E-05
-0.01924	-0.00556	0.007616
-0.00331	-0.00064	-0.00076
-0.00581	0.008202	0.007901
-0.00059	-9.1E-05	0.000181
-0.009	-0.0236	0.004854
-0.00685	0.006023	0.005855
0.00776	-0.01012	-0.00154
0.006061	0.007901	-0.00288
-0.00183	0.008757	-0.00762
-0.00344	0.009409	-0.00091
3.02E-05	0.01157	0.002332
0.002993	-0.00387	0.006423
-0.0052	-0.00334	-0.00124
-0.01679	-0.02021	0.004316
0.01978	0.009835	0.003991
-0.01199	0.007745	-0.00456
-0.00648	-0.00036	0.001819
-0.0147	0.006065	0.016454

vps
-0.17945
-0.00054
-0.00215
-0.00225

alfa	-0.00233
beta1	-0.03267
beta2	-0.43779
beta3	-0.97769