Project
Portfolio theory

International finance and globalization

Letter from your CEO

Dear financial analysts,

As you know we got 9 new clients this week and all of them are waiting for their portfolio proposal from our Investment fund by Monday (**15/10/2018**). Please note that our clients are very busy, so you will have no more than **12 minutes** for your presentation and 4 minutes for Q&A session. Also note that all clients want to hear all of the team members during presentation in order to get acquainted with their future investment consultants.

All our clients want a portfolio (that contains **at least 3 securities**) that is well-diversified in terms of different financial instruments, countries and industries and that perfectly satisfy their needs. Clients profiles with detailed information can be seen below. If you cannot satisfy the requirements perfectly, provide the closest estimate and explain why it was impossible to fulfill clients needs. If you can find better return under the risk profile of your client – show it!

Our research team prepared some current materials on bonds and stocks that will help you to construct a proper portfolio. However, you are free to use any other sources to find out more information on these financial instruments or even suggest investment in some other securities. Any current news about the companies that you have decided to include in your portfolio is welcomed.

Good luck!

CEO of IR-INVEST Corp

Ella Khromova

Hints from your CEO

1) Portfolio calculation

Expected return of a portfolio = Expected return of security A * weigh of security A in portfolio+ Expected return of security B * weigh of security B in portfolio…

Portfolio risk=Portfolio volatility=

$$= \sqrt{\begin{array}{c}\text{Volatility of security } A^2 * \text{weigh of security } A^2 + \text{Volatility of security } B^2 * \text{weigh of security } B^2 \\ +2\text{Covariance between returns of security A and B* weigh of A * weigh of B} + \cdots\end{array}}$$

You can assume *during your calculations* that Covariance between any securities is zero . However you need separately to comment whether your securities are correlated or not and whether it is good or bad in terms of your portfolio risk

2) Bond evaluation

Expected return of a bond can be approximated by YTM of Current Yield + You need separately discuss whether do you expect to have capital gains or losses if you sell bond before maturity

Bond risk can be approximated as Bond Duration (Mod DUR is calculated in %) + You need separately to discuss Volatility of bonds prices (in case you are going to sell a bond before maturity) and Risk of default of a bond(Rating)

3) Stock evaluation

First of all you need to compare Multipliers of a company with Industry Multipliers (Google them or calculate from similar companies median) and find out those stocks that are UNDERVALUED.

Expected return of a stock can be approximated by Dividend Yield + You need separately discuss whether do you expect to have capital gains or losses if you sell a company(depends on price volatility)

Stock risk can be approximated as Volatility of stock prices and Risk of default of a company(Rating)

4)Hedging (not obligatory)

You can separately advise your client how to hedge his currency or interest rate risk of the portfolio.

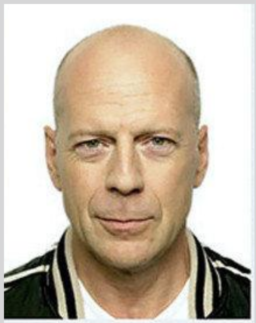
Client profile

Client №	Client photo	Overall info	Amount of investment and investment horizon	Expected annual return in USD	Attitude to risk (maximum loss for 60 days)
1		**Yuriy Vitalevich Kantemirov** •Russian •Manager at Sberbank •Married	25 mln RUB for 3 years	6%	2%
2		**Anzhela** •Russian •Source of funds is unknown •Single, but has a boyfriend	30 mln RUB for 2 years	She doesn't know what % is, so she wants to earn 5 mln RUB per year	No risk!
3		**Ahmed al Raptun** •Arab •Sheikh •3 wifes and 20 children	3 mln USD for 10 years	16%	12%

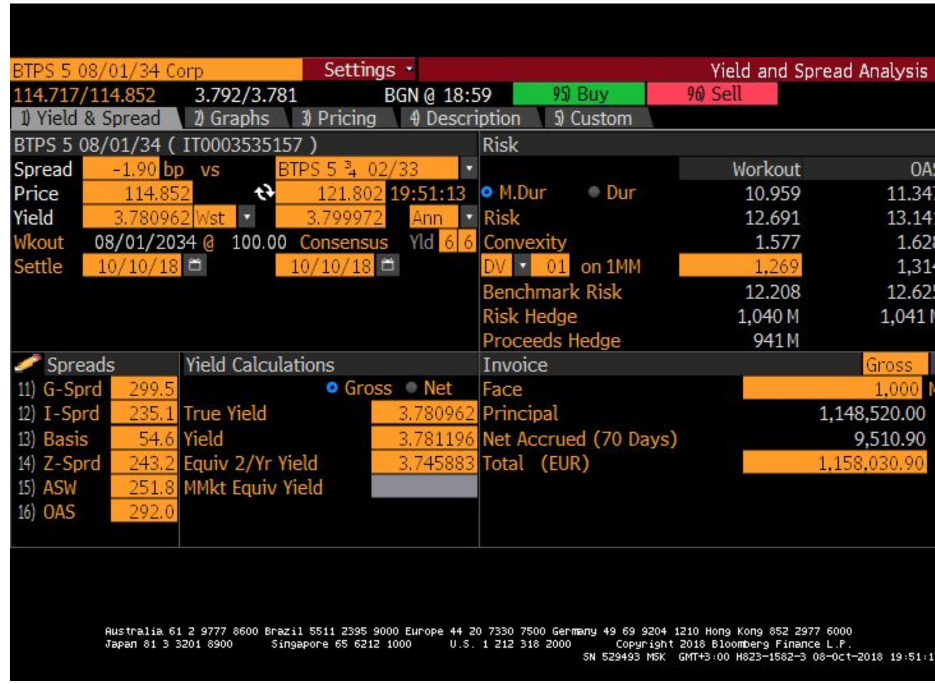
Client profile

Client №	Client photo	Overall info	Amount of investment and investment horizon	Expected annual return in USD	Attitude to risk (maximum loss for 60 days)
4		**Dzhevahal Kapura** •Hindu •Film studio director •Married	0.5 mln USD for 1 year	4%	1%
5		**Anna Zhdanova** •Russian •CEO of Russian cosmetics brand •Single	60 mln RUB for 5 years	10%	7%
6		**Walter Fischer** •German •IBD analyst at Goldman Sachs •Single	1 mln EUR for 4 years	7%	3%

Client profile

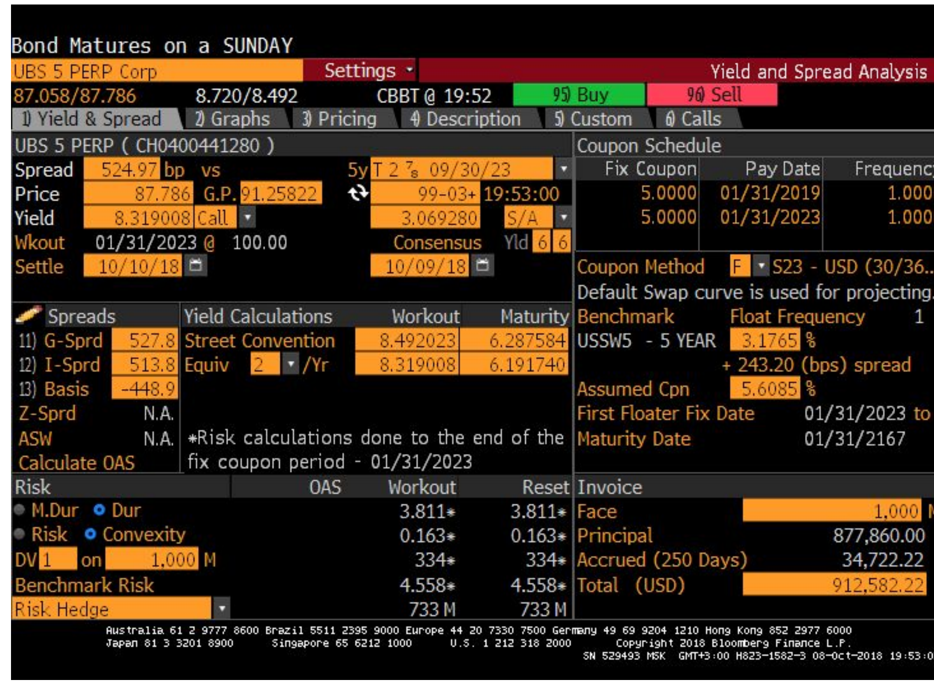
Client №	Client photo	Overall info	Amount of investment and investment horizon	Expected annual return in USD	Attitude to risk(max loss for 60 days)
7		**Bruce Willis** •USA •Actor •Married	100 mln USD for 4 years	100%	85%
8		**Akiko Tanaka** •Japanese •Product manager at Honda Motor Co •Single	100 mln JPY for 5 years	12%	10%
10		**Bahir Azar** •Arab •Oil rig owner •Single (yet)	10 mln USD for 10 years	11%	8%

Italy government bond



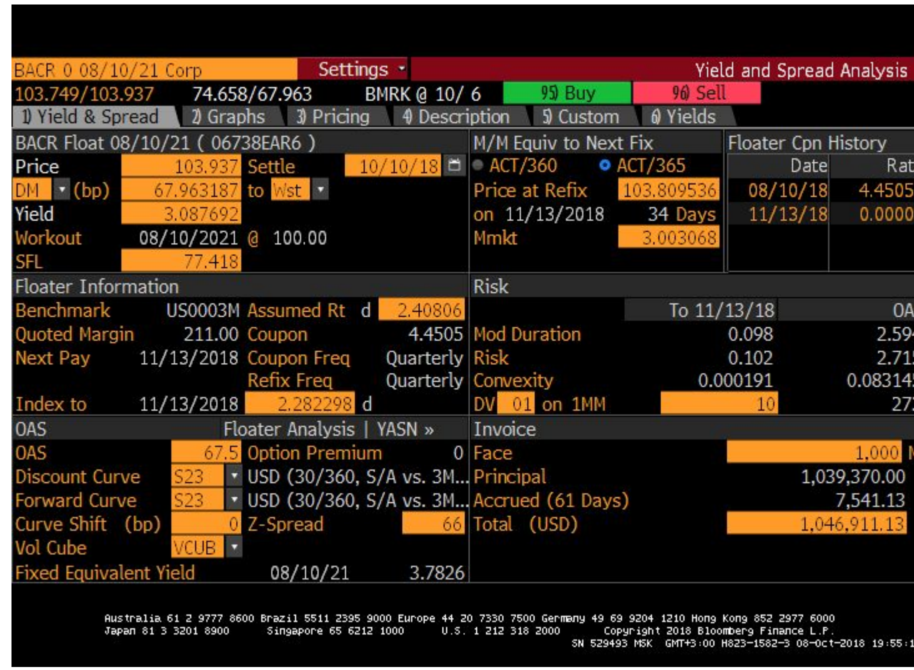
UBS bond


UBS 5 PERP $↑87.422 -.370 87.058 / 87.786 8.720 / 8.492
At 19:52 --x-- Source CBBT
UBS 5 PERP Corp
Settings
Page 1/12 Security Description: Bond
94) Notes
95) Buy
96) Sell
25) Bond Description
26) Issuer Description
Pages
11) Bond Info
12) Addtl Info
13) Reg/Tax
14) Covenants
15) Guarantors
16) Bond Ratings
17) Identifiers
18) Exchanges
19) Inv Parties
20) Fees, Restrict
21) Schedules
22) Coupons
Quick Links
32) ALLQ Pricing
33) QRD Qt Recap
34) TDH Trade Hist
35) CACS Corp Action
36) CF Prospectus
37) CN Sec News
38) HDS Holders
66) Send Bond
Issuer Information
Name UBS GROUP FUNDING SWITZE
Industry Financial Services
Security Information
Mkt Iss Euro-Dollar
Capital Type CoCo
Country CH
Currency USD
Rank Jr Subordinated
Series
Coupon 5.000000
Type Variable
Cpn Freq Annual
Day Cnt ISMA-30/360
Iss Price 100.00000
Maturity PERPETUAL
Reoffer 100
PERPETUAL CALL 01/31/23@100.00
Iss Sprd
Calc Type (1469)FIX-TO-VARIABLE BD
Pricing Date 01/24/2018
Interest Accrual Date 01/31/2018
1st Settle Date 01/31/2018
1st Coupon Date 01/31/2019
Identifiers
ID Number AQ9022791
ISIN CH0400441280
FIGI BBG00JVQF232
Bond Ratings
Moody's Ba1u
S&P BB
Fitch BBB-
Composite BB+
Issuance & Trading
Amt Issued/Outstanding
USD 2,000,000.00 (M) /
USD 2,000,000.00 (M)
Min Piece/Increment
200,000.00 / 1,000.00
Par Amount 1,000.00
Book Runner UBS-sole
Reporting TRACE
Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
SN 529493 MSK GMT+3:00 H823-1582-2 08-Oct-2018 19:52:49

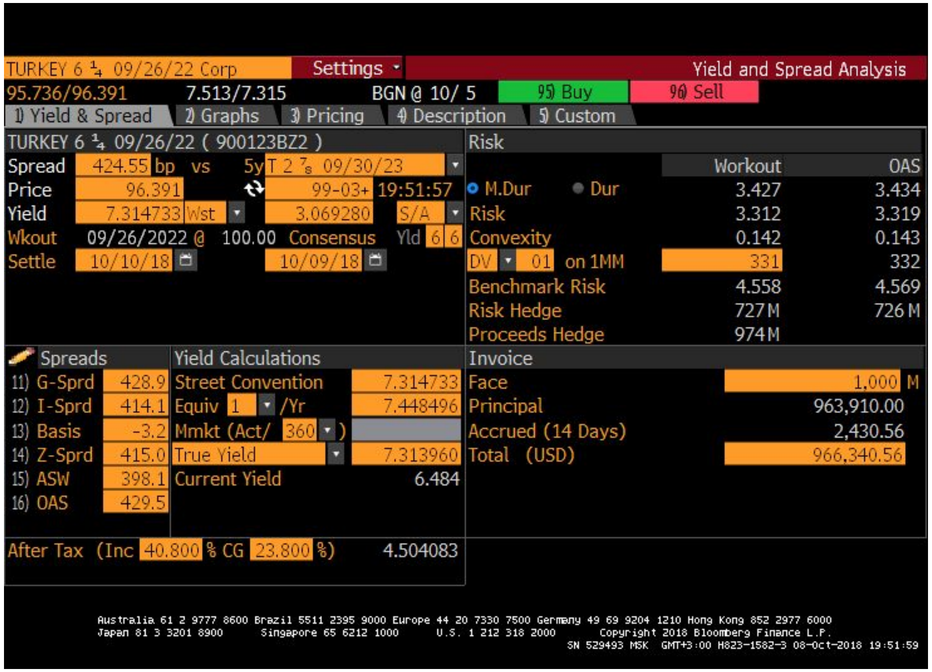

Bond Matures on a SUNDAY
UBS 5 PERP Corp
Settings
Yield and Spread Analysis
87.058/87.786 8.720/8.492 CBBT @ 19:52
95) Buy
96) Sell
1) Yield & Spread
2) Graphs
3) Pricing
4) Description
5) Custom
6) Calls
UBS 5 PERP (CH0400441280)
Spread 524.97 bp vs 5y T 2 7/8 09/30/23
Price 87.786 G.P. 91.25822 99-03+ 19:53:00
Yield 8.319008 Call 3.069280 S/A
Wkout 01/31/2023 @ 100.00 Consensus Yld 6 6
Settle 10/10/18 10/09/18
Coupon Schedule
Fix Coupon Pay Date Frequency
5.0000 01/31/2019 1.0000
5.0000 01/31/2023 1.0000
Coupon Method F S23 - USD (30/36...
Default Swap curve is used for projecting...
Spreads
11) G-Sprd 527.8
12) I-Sprd 513.8
13) Basis -448.9
Z-Sprd N.A.
ASW N.A.
Calculate OAS
Yield Calculations Workout Maturity
Street Convention 8.492023 6.287584
Equiv 2 /Yr 8.319008 6.191740
*Risk calculations done to the end of the fix coupon period - 01/31/2023
Benchmark Float Frequency 1
USSW5 - 5 YEAR 3.1765 %
+ 243.20 (bps) spread
Assumed Cpn 5.6085 %
First Floater Fix Date 01/31/2023 to
Maturity Date 01/31/2167
Risk OAS Workout Reset
M.Dur Dur 3.811* 3.811*
Risk Convexity 0.163* 0.163*
DV 1 on 1,000 M 334* 334*
Benchmark Risk 4.558* 4.558*
Risk Hedge 733 M 733 M
Invoice
Face 1,000 M
Principal 877,860.00
Accrued (250 Days) 34,722.22
Total (USD) 912,582.22
Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
SN 529493 MSK GMT+3:00 H823-1582-3 08-Oct-2018 19:53:03

USA Treasury bond

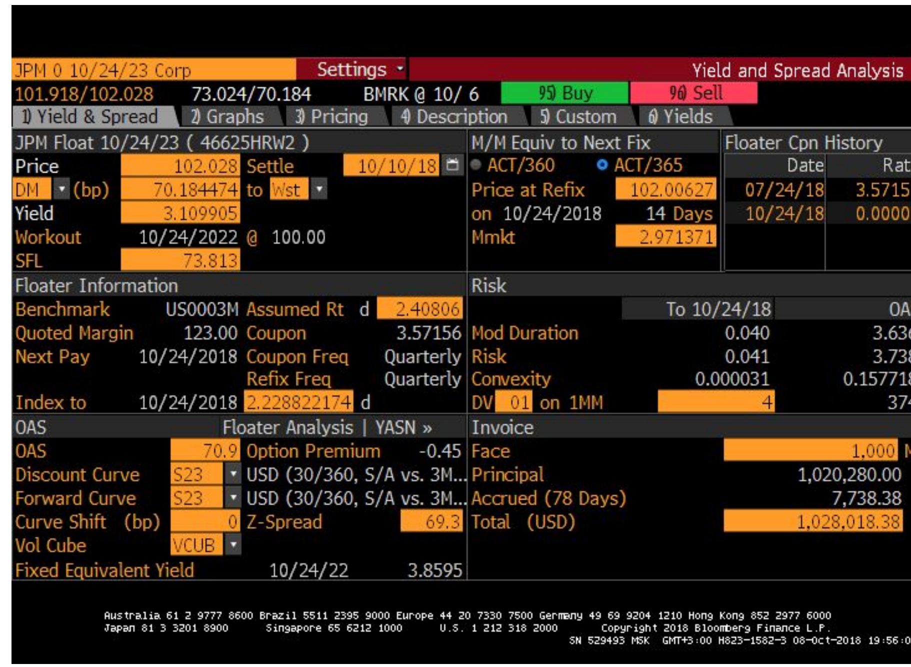
Barclays bond



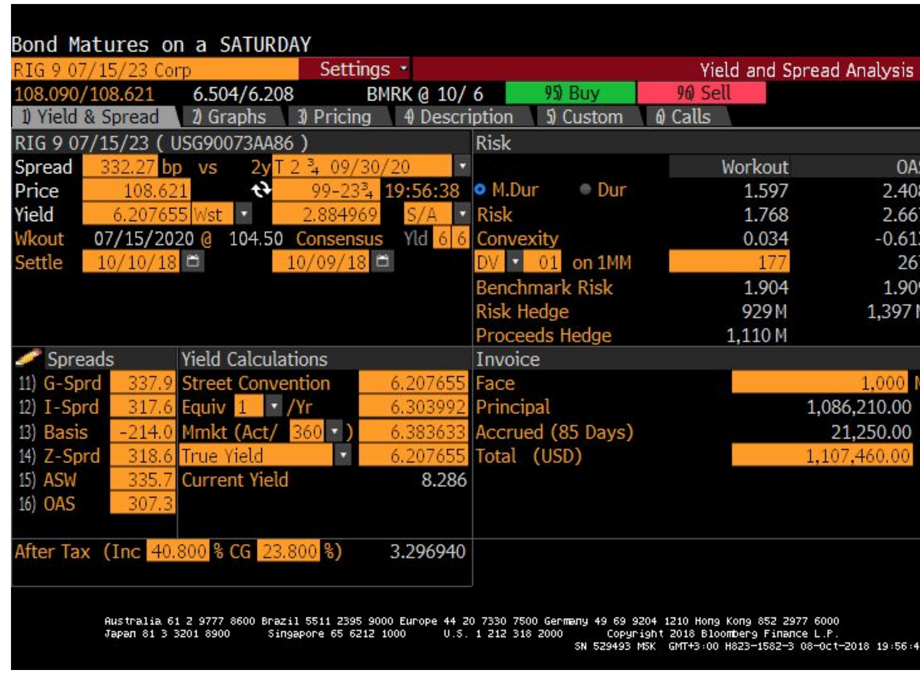
Turkey government bond



JPMorgan bond



Transocean bond



Bond volatility estimation

Ticker	Issuer	Volatility 10D	Volatility 30D	Volatility 60D	Volatility 90D
BTPS 5 08/01/34 Corp	Italy	16,534	15,065	12,147	12,343
TURKEY 6.25 09/26/22 Corp	Turkey	7,094	13,689	21,193	17,692
T 1.75 10/31/18 Govt	USA	0,025	0,045	0,047	0,050
UBS 5 PERP Corp	UBS	8,207	7,386	7,734	7,834
QZ132661 CORP	Barclays	1,165	0,949	0,998	1,027
JPM Float 10/24/23 Corp	JPM	1,120	1,022	1,157	1,157
RIG 9 07/15/2023 REGS COR	TransOcean	2,186	2,338	2,520	2,612

Equity estimation

Company	Country	Currency	MC $ M	EV $ M	EBITDA CAGR 17- '21	EBITDA margin	EV / EBITDA	EV / Sales	P / E
APPLE INC	USA	USD	1 077 653	948 510	7%	30,6%	11,7x	3,6x	18,2x
AMAZON.COM INC	USA	USD	900 521	919 260	41%	13,6%	28,8x	3,9x	68,1x
BERKSHIRE HATHAWAY INC-CL A	USA	USD	545 056	324 307	n/a	16,3%	8,1x	1,3x	23,4x
TESLA INC	USA	USD	42 585	53 243	570%	7,9%	32,8x	2,6x	-38,9x
TWITTER INC	USA	USD	21 364	18 399	40%	36,6%	17,3x	6,3x	40,2x
SNAP INC - A	USA	USD	9 433	7 863	n/a	-58,7%	-11,6x	6,8x	-13,2x
SBERBANK OF RUSSIA PJSC	Russia	RUB	62 052	42 367	n/a	n/a	n/a	1,4x	5,0x
GAZPROM PJSC	Russia	RUB	60 942	92 461	9%	27,7%	2,7x	0,7x	3,3x
NOVATEK PJSC-SPONS GDR REG S	Russia	USD	54 593	56 507	5%	35,4%	13,9x	4,9x	15,8x
MAGNIT PJSC-SPON GDR REGS	Russia	USD	6 785	8 453	9%	7,1%	5,9x	0,4x	10,5x
SISTEMA PJSC-REG S SPONS GDR	Russia	USD	1 184	13 313	1%	28,0%	4,4x	1,2x	n/a

Company	Dividend Yield, %	Closing Price	Share Price Performance					Volatility 60D
			YTD	-12 м	-6 м	-3 м	-1 м	
APPLE INC	1,22	223	31,8%	43,7%	32,5%	18,7%	0,8%	21,58
AMAZON.COM INC	0,00	1 846	57,9%	86,6%	31,4%	7,9%	-5,4%	22,20
BERKSHIRE HATHAWAY INC-CL A	0,00	331 460	11,4%	18,0%	12,7%	16,8%	3,0%	15,27
TESLA INC	0,00	250	-19,8%	-30,1%	-16,6%	-19,2%	-5,2%	78,07
TWITTER INC	0,00	28	17,4%	57,9%	0,3%	-39,6%	-7,5%	62,71
SNAP INC - A	0,00	7	-49,5%	-50,1%	-48,2%	-45,4%	-25,6%	36,84
SBERBANK OF RUSSIA PJSC	9,17	192	-14,8%	-1,2%	-25,3%	-15,4%	9,7%	36,34
GAZPROM PJSC	5,33	172	31,7%	39,2%	21,4%	18,5%	15,5%	26,27
NOVATEK PJSC-SPONS GDR REG S	1,53	180	49,6%	51,5%	26,9%	16,9%	4,2%	38,13
MAGNIT PJSC-SPON GDR REGS	3,53	13	-51,3%	-66,8%	-29,4%	-24,2%	-5,2%	39,39
SISTEMA PJSC-REG S SPONS GDR	0,00	2	-41,2%	-47,6%	-37,4%	-14,1%	8,1%	32,70

