

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=

$$= \sqrt{\text{Volatility of security A}^2 * \text{weigh of security A}^2 + \text{Volatility of security B}^2 * \text{weigh of security B}^2 + 2\text{Covariance between returns of security A and B} * \text{weigh of A} * \text{weigh of B} + \dots}$$

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.

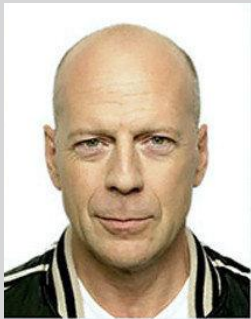


Client profile

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		<p>Yuriy Vitalevich Kantemirov</p> <ul style="list-style-type: none"> •Russian •Manager at Sberbank •Married 	25 mln RUB for 3 years	6%	2%
2		<p>Anzhela</p> <ul style="list-style-type: none"> •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		<p>Ahmed al Raptun</p> <ul style="list-style-type: none"> •Arab •Sheikh •3 wives 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 <ul style="list-style-type: none"> •Hindu •Film studio director •Married 	0.5 mln USD for 1 year	4%	1%
5		Anna Zhdanova <ul style="list-style-type: none"> •Russian •CEO of Russian cosmetics brand •Single 	60 mln RUB for 5 years	10%	7%
6		Walter Fischer <ul style="list-style-type: none"> •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 <ul style="list-style-type: none"> •USA •Actor •Married 	100 mln USD for 4 years	100%	85%
8		Akiko Tanaka <ul style="list-style-type: none"> •Japanese •Product manager at Honda Motor Co •Single 	100 mln JPY for 5 years	12%	10%
10		Bahir Azar <ul style="list-style-type: none"> •Arab •Oil rig owner •Single (yet) 	10 mln USD for 10 years	11%	8%

Italy government bond

BTPS 5 08/01/34 ↓114.783 -1.9/1 114.717 / 114.852 3.792 / 3.781

AL 18:59 -- X -- SOURCE

BTPS 5 08/01/34 Corp Settings Page 1/12 Security Description: Bond

94 Notes 95 Buy 96 Sell

25) Bond Description 26) Issuer Description

Pages	Issuer Information	Identifiers
1) Bond Info	Name BUONI POLIENNALI DEL TES	ID Number ED1544706
2) Adrtl Info	Industry Sovereigns	ISIN IT0003535157
3) Reg/Tax	Security Information	FIGI BBG00002VSW3
4) Covenants	Mkt Iss Euro-Zone	Bond Ratings
5) Guarantors	Country IT Currency EUR	Moody's Baa2u *-
6) Bond Ratings	Rank Unsecured Series	S&P NR
7) Identifiers	Coupon 5.000000 Type Fixed	Fitch BBB
8) Exchanges	Cpn Freq S/A	DBRS BBBHu
9) Inv Parties	Day Cnt ACT/ACT Iss Price 98.10600	Issuance & Trading
20) Fees, Restrict	Maturity 08/01/2034 Reoffer 98.106	Amt Issued/Outstanding
21) Schedules	BULLET	EUR 25,111.00 (MM) /
22) Coupons	Iss Sprd +3.00bp vs BTPS 5 ¾ 02/01/33	EUR 25,111.00 (MM)
Quick Links	Calc Type (523)ITALY:TRSY BONDS	Min Piece/Increment
32) ALLQ Pricing	Pricing Date 09/17/2003	1,000.00 / 1,000.00
33) QRD Qt Recap	Interest Accrual Date 08/01/2003	Par Amount 1,000.00
34) TDH Trade Hist	1st Settle Date 09/24/2003	Book Runner JOINT LEADS
35) CACS Corp Action	1st Coupon Date 02/01/2004	Exchange Multiple
36) CF Prospectus		
37) CN Sec News		
38) HDS Holders		
66) Send Bond		

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 19:49:12

BTPS 5 08/01/34 Corp Settings Yield and Spread Analysis

114.717/114.852 3.792/3.781 BGN @ 18:59 95 Buy 96 Sell

1) Yield & Spread 2) Graphs 3) Pricing 4) Description 5) Custom

BTPS 5 08/01/34 (IT0003535157) Risk

Spread	Price	Yield	Wkout	Settle	Risk	Workout	OAS
-1.90 bp vs BTPS 5 ¾ 02/33	114.852 ↕ 121.802 19:51:13	3.780962 wst 3.799972 Ann	08/01/2034 @ 100.00 Consensus Yld 6.6	10/10/18	M.Dur • Dur	10.959	11.347
					Risk Convexity	12.691	13.141
					DV 01 on 1MM	1.577	1.628
					Benchmark Risk	1,269	1,314
					Risk Hedge	12.208	12.625
					Proceeds Hedge	1,040 M	1,041 M

Spreads	Yield Calculations	Invoice
11) G-Sprd 299.5	True Yield Gross • Net 3.780962	Face 1,000 M
12) I-Sprd 235.1	Yield 3.781196	Principal 1,148,520.00
13) Basis 54.6	Equiv 2/Yr Yield 3.745883	Net Accrued (70 Days) 9,510.90
14) Z-Sprd 243.2	MMkt Equiv Yield	Total (EUR) 1,158,030.90
15) ASW 251.8		
16) OAS 292.0		

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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	Issuer Information	Identifiers
1) Bond Info	Name UBS GROUP FUNDING SWITZE	ID Number AQ9022791
2) Adrtl Info	Industry Financial Services	ISIN CH0400441280
3) Reg/Tax	Security Information	FIGI BBG00JVQF232
4) Covenants	Mkt Iss Euro-Dollar Capital Type CoCo	Bond Ratings
5) Guarantors	Country CH Currency USD	Moody's Ba1u
6) Bond Ratings	Rank Jr Subordinated Series	S&P BB
7) Identifiers	Coupon 5.000000 Type Variable	Fitch BBB-
8) Exchanges	Cpn Freq Annual	Composite BB+
9) Inv Parties	Day Cnt ISMA-30/360 Iss Price 100.00000	Issuance & Trading
10) Fees, Restrict	Maturity PERPETUAL Reoffer 100	Amt Issued/Outstanding
11) Schedules	PERPETUAL CALL 01/31/23@100.00	USD 2,000,000.00 (M) /
12) Coupons	Iss Sprd	USD 2,000,000.00 (M)
Quick Links	Calc Type (1469)FIX-TO-VARIABLE BD	Min Piece/Increment
32) ALLQ Pricing	Pricing Date 01/24/2018	200,000.00 / 1,000.00
33) QRD Qt Recap	Interest Accrual Date 01/31/2018	Par Amount 1,000.00
34) TDH Trade Hist	1st Settle Date 01/31/2018	Book Runner UBS-sole
35) CACS Corp Action	1st Coupon Date 01/31/2019	Reporting TRACE
36) CF Prospectus		
37) CN Sec News		
38) HDS Holders		
66) Send Bond		

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.
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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	Coupon Schedule
Price 87.786 G.P. 91.25822	99-03+ 19:53:00	Fix Coupon Pay Date Frequency
Yield 8.319008 Call	3.069280 S/A	5.0000 01/31/2019 1.0000
Wkout 01/31/2023 @ 100.00	Consensus Yld 6.6	5.0000 01/31/2023 1.0000
Settle 10/10/18	10/09/18	Coupon Method F S23 - USD (30/36...
Spreads	Yield Calculations	Default Swap curve is used for projecting...
11) G-Sprd 527.8	Street Convention 8.492023 6.287584	Benchmark Float Frequency 1
12) I-Sprd 513.8	Equiv 2 /Yr 8.319008 6.191740	USSW5 - 5 YEAR 3.1765 %
13) Basis -448.9		+ 243.20 (bps) spread
Z-Sprd N.A.		Assumed Cpn 5.6085 %
ASW N.A.	*Risk calculations done to the end of the	First Floater Fix Date 01/31/2023 to
Calculate OAS	fix coupon period - 01/31/2023	Maturity Date 01/31/2167
Risk	OAS Workout Reset	Invoice
M.Dur Dur 3.811* 3.811*		Face 1,000 M
Risk Convexity 0.163* 0.163*		Principal 877,860.00
DV 1 on 1,000 M 334* 334*		Accrued (250 Days) 34,722.22
Benchmark Risk 4.558* 4.558*		Total (USD) 912,582.22
Risk Hedge 733 M 733 M		

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USA Treasury bond

T 1 3/4 10/31/18 ↑99-31+ -- 99-30 7/8 /99-31+ 2.321 / 1.996
 At 19:01 Source BGN

T 1 3/4 10/31/18 Govt Settings Page 1/11 Security Description: Bond
 99 Buy 90 Sell

29 Bond Description 20 Issuer Description

Pages	Issuer Information	Identifiers
11) Bond Info	Name US TREASURY N/B	ID Number 912828RP7
12) Addtl Info	Industry US GOVT NATIONAL	CUSIP 912828RP7
13) Covenants	Security Information	ISIN US912828RP73
14) Guarantors	Issue Date 10/31/2011	SEDOL 1 B55HZR2
15) Bond Ratings	Interest Accrues 10/31/2011	FIGI BBG002620KJ9
16) Identifiers	1st Coupon Date 04/30/2012	Issuance & Trading
17) Exchanges	Maturity Date 10/31/2018	Issue Price 99.731389
18) Inv Parties	Floater Formula N.A.	Risk Factor .060
19) Fees, Restrict	Workout Date 10/31/2018	Amount Issued 30103 (MM)
20) Schedules	Coupon 1.750 Security Type USN	Amount Outstanding 30103 (MM)
21) Coupons	Cpn Frequency S/A Type FIXED	Minimum Piece 100
Quick Links	Mty/Refund Type NORMAL Series	Minimum Increment 100
32) ALLQ Pricing	Calc Type STREET CONVENTION	SOMA Holdings 59.17
33) QRD Quote Reca	Day Count ACT/ACT	
34) CACS Corp Action	Market Sector US GOVT	
35) CN Sec News	Country US Currency USD	
36) HDS Holders	TENDERS ACCEPTED: \$29000MM.	
66) Send Bond		

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 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 19:52:17

T 1 3/4 10/31/18 Govt Settings Yield and Spread Analysis
 99-30 7/8 /99-31+ 2.321/1.996 BGN @ 19:01 99 Buy 90 Sell

1 Yield & Spread 2 Graphs 3 Pricing 4 Description 5 Custom 6 Yields

T 1 3/4 10/31/18 (912828RP7) Risk

Spread	-15.10 bp vs 1m B 0 11/01/18	Workout	OAS
Price	99-31+ 2.115 19:52:30	M.Dur	Dur
Yield	1.996296 Wst 2.147277 Conv	Risk	0.060 0.060
Wkout	10/31/2018 @ 100.00 Duration Yld 6.6	Convexity	0.000 0.000
Settle	10/09/18 10/09/18	DV 01 on 1MM	6.02 6.01
		Benchmark Risk	0.063 0.062
		Risk Hedge	957 M 966 M
		Proceeds Hedge	1,009 M

Spreads	Yield Calculations	Invoice
11) G-Sprd -15.1	Street Convention 1.996296	Face 1,000 M
12) I-Sprd -41.2	Equip 1 /Yr 2.015141	Principal 999,843.75
13) Basis 63.6	Mmkt (Act/ 360) 1.952899	Accrued (162 Days) 7,703.80
14) Z-Sprd -46.6	True Yield 1.996296	Total (USD) 1,007,547.55
15) ASW -38.4	Current Yield 1.750	
16) OAS -19.5		

After Tax (Inc 40.800 % CG 23.800 %) 1.185506
 Issue Price = 99.731. OID Bond with Acquisition Pre...

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 19:52:33

Barclays bond

BACR Float 08/10/21 \$↑103.841 +.059 -226.7 bp vs T 2.750 09/15/2021
 As of 05 Oct DM .000 Source BMRK

BACR Float 08/10/21 Corp Settings Page 1/12 Security Description: Bond

94 Notes 95 Buy 96 Sell

25 Bond Description 26 Issuer Description

Pages	Issuer Information	Identifiers
1) Bond Info	Name BARCLAYS PLC	ID Number QZ1326615
2) Adm Info	Industry Diversified Banks	CUSIP 06738EAR6
3) Reg/Tax	Security Information	ISIN US06738EAR62
4) Covenants	Mkt Iss Global	Bond Ratings
5) Guarantors	Country GB Currency USD	Moody's Baa3
6) Bond Ratings	Rank Sr Unsecured Series	S&P BBB
7) Identifiers	Coupon 4.450500 Type Floating	Fitch A
8) Exchanges	Formula QUARTLY US LIBOR +211.0000	Composite BBB
9) Inv Parties	Day Cnt ACT/360 Iss Price 100.00000	Issuance & Trading
20) Fees, Restrict	Maturity 08/10/2021	Amt Issued/Outstanding
21) Schedules	BULLET	USD 1,000,000.00 (M) /
22) Coupons	Iss Sprd	USD 1,000,000.00 (M)
Quick Links	Calc Type (21)FLOAT RATE NOTE	Min Piece/Increment
32) ALLQ Pricing	Pricing Date 08/03/2016	200,000.00 / 1,000.00
33) QRD Qt Recap	Interest Accrual Date 08/10/2016	Par Amount 1,000.00
34) TDH Trade Hist	1st Settle Date 08/10/2016	Book Runner BCLY-sole
35) CACS Corp Action	1st Coupon Date 11/10/2016	Reporting TRACE
36) CF Prospectus		
37) CN Sec News		
38) HDS Holders		
66) Send Bond		

Australia 61 2 9777 6600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
 Japan 81 3 3201 6900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
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BACR 0 08/10/21 Corp Settings Yield and Spread Analysis

103.749/103.937 74.658/67.963 BMRK @ 10/ 6 95 Buy 96 Sell

1 Yield & Spread 2 Graphs 3 Pricing 4 Description 5 Custom 6 Yields

BACR Float 08/10/21 (06738EAR6)

Price 103.937	Settle 10/10/18	M/M Equiv to Next Fix	Floater Cpn History
DM (bp) 67.963187	to Wst	ACT/360 ACT/365	Date Rate
Yield 3.087692		Price at Refix 103.809536	08/10/18 4.45050
Workout 08/10/2021 @ 100.00		on 11/13/2018 34 Days	11/13/18 0.00000
SFL 77.418		Mmkt 3.003068	

Floater Information

Benchmark US0003M Assumed Rt d 2.40806	To 11/13/18	OAS
Quoted Margin 211.00 Coupon 4.4505	Mod Duration 0.098	2.594
Next Pay 11/13/2018 Coupon Freq Quarterly	Risk 0.102	2.715
Refix Freq Quarterly	Convexity 0.000191	0.083145
Index to 11/13/2018 2.282298 d	DV 01 on 1MM	10 272

Risk

OAS Floater Analysis | YASN »

OAS 67.5	Option Premium 0	Face 1,000 M
Discount Curve S23 USD (30/360, S/A vs. 3M...	Principal 1,039,370.00	
Forward Curve S23 USD (30/360, S/A vs. 3M...	Accrued (61 Days) 7,541.13	
Curve Shift (bp) 0 Z-Spread 66	Total (USD) 1,046,911.13	
Vol Cube VCUB		
Fixed Equivalent Yield 08/10/21 3.7826		

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Turkey government bond

TURKEY 6 1/4 09/26/22 \$↑96.064 - .132 95.736 / 96.391 7.513 / 7.315
 As of 05 Oct

TURKEY 6 1/4 09/26/22 Corp Settings Page 1/12 Security Description: Bond
 90 Notes 95 Buy 90 Sell

25 Bond Description 20 Issuer Description

Pages		Issuer Information		Identifiers	
1) Bond Info	12) Add'l Info	Name	REPUBLIC OF TURKEY	ID Number	EI9661808
13) Reg/Tax	14) Covenants	Industry	Sovereigns	CUSIP	900123BZ2
15) Guarantors	16) Bond Ratings	Security Information		ISIN	US900123BZ27
17) Identifiers	18) Exchanges	Mkt Iss	Global	Bond Ratings	
19) Inv Parties	20) Fees, Restrict	Country	TR	Moody's	Ba3
21) Schedules	22) Coupons	Rank	Sr Unsecured	S&P	NR
23) Send Bond		Coupon	6.250000	Fitch	BB
		Type	Fixed	DBRS	NR
		Cpn Freq	S/A	Issuance & Trading	
		Day Cnt	ISMA-30/360	Amt Issued/Outstanding	
		Maturity	09/26/2022	USD	2,500,000.00 (M) /
				USD	2,500,000.00 (M)
				Min Piece/Increment	200,000.00 / 1,000.00
				Par Amount	1,000.00
				Book Runner	BARCBK,CITI,JPM
				Exchange	Multiple

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

Australia 61 2 9777 0600 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.
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TURKEY 6 1/4 09/26/22 Corp Settings Yield and Spread Analysis
 95.736/96.391 7.513/7.315 BGN @ 10/ 5 95 Buy 90 Sell

1 Yield & Spread 2 Graphs 3 Pricing 4 Description 5 Custom

TURKEY 6 1/4 09/26/22 (900123BZ2)		Risk	
Spread	424.55 bp vs 5y T 2 7/8 09/30/23	M.Dur	3.427
Price	96.391	Dur	3.434
Yield	7.314733 Wst	Risk	3.312
Wkout	09/26/2022 @ 100.00 Consensus Yld 6.6	Convexity	0.142
Settle	10/10/18	DV 01 on 1MM	331
		Benchmark Risk	4.558
		Risk Hedge	727M
		Proceeds Hedge	974M

Spreads		Yield Calculations	
11) G-Sprd	428.9	Street Convention	7.314733
12) I-Sprd	414.1	Equiv 1 /Yr	7.448496
13) Basis	-3.2	Mmkt (Act/ 360)	
14) Z-Sprd	415.0	True Yield	7.313960
15) ASW	398.1	Current Yield	6.484
16) OAS	429.5		

After Tax (Inc 40.800 % CG 23.800 %) 4.504083

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 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
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JPMorgan bond

JPM Float 10/24/23 \$↑ 101.989 - .104 -235.7 bp vs T 2.875 09/30/2023
 As of 05 Oct DM .000 Source BMRK

JPM Float 10/24/23 Corp Settings Page 1/12 Security Description: Bond

94 Notes 95 Buy 96 Sell

Bond Description		Issuer Description	
Pages			
1) Bond Info			
Name JPMORGAN CHASE & CO			
Industry Diversified Banks			
Security Information			
Mkt Iss Global			
Country	US	Currency	USD
Rank	Sr Unsecured	Series	
Coupon	3.571560	Type	Floating
Formula	QUARTLY US LIBOR +123.0000		
Day Cnt	ACT/360	Iss Price	100.00000
Maturity	10/24/2023		
Quick Links			
CALL 10/24/22@100.00			
Iss Sprd			
Calc Type (21) FLOAT RATE NOTE			
Pricing Date	10/17/2016		
Interest Accrual Date	10/24/2016		
1st Settle Date	10/24/2016		
1st Coupon Date	01/24/2017		
ONE TIME CALL ON 10/24/22. PAR CALL BEGINNING 8/24/23.			
Identifiers			
ID Number	QZ9145314		
CUSIP	46625HRW2		
ISIN	US46625HRW24		
Bond Ratings			
Moody's	A3	*+	
S&P	A-		
Fitch	AA-		
Composite	A		
Issuance & Trading			
Amt Issued/Outstanding			
USD	2,000,000.00 (M) /		
USD	2,000,000.00 (M)		
Min Piece/Increment			
2,000.00 / 1,000.00			
Par Amount	1,000.00		
Book Runner	JPM-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 6900 Singapore 65 6212 1000 U.S. 1 212 310 2000 Copyright 2018 Bloomberg Finance L.P.
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JPM 0 10/24/23 Corp Settings Yield and Spread Analysis

101.918/102.028 73.024/70.184 BMRK @ 10/ 6 95 Buy 96 Sell

1) Yield & Spread 2) Graphs 3) Pricing 4) Description 5) Custom 6) Yields

JPM Float 10/24/23 (46625HRW2) M/M Equiv to Next Fix Floater Cpn History

Price	102.028	Settle	10/10/18	ACT/360	ACT/365	Date	Rate
DM (bp)	70.184474	to Wst				07/24/18	3.57156
Yield	3.109905					10/24/18	0.00000
Workout	10/24/2022	@	100.00				
SFL	73.813						
Floater Information				Risk			
Benchmark	US0003M Assumed Rt	d	2.40806	To 10/24/18	OAS		
Quoted Margin	123.00	Coupon	3.57156	Mod Duration	0.040	3.636	
Next Pay	10/24/2018	Coupon Freq	Quarterly	Risk	0.041	3.738	
		Refix Freq	Quarterly	Convexity	0.000031	0.157718	
Index to	10/24/2018	2.228822174	d	DV 01 on 1MM	4	374	
OAS	Floater Analysis YASN »			Invoice			
OAS	70.9	Option Premium	-0.45	Face	1,000	M	
Discount Curve	S23	USD (30/360, S/A vs. 3M...		Principal	1,020,280.00		
Forward Curve	S23	USD (30/360, S/A vs. 3M...		Accrued (78 Days)	7,738.38		
Curve Shift (bp)	0	Z-Spread	69.3	Total (USD)	1,028,018.38		
Vol Cube	VCUB						
Fixed Equivalent Yield	10/24/22	3.8595					

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 6900 Singapore 65 6212 1000 U.S. 1 212 310 2000 Copyright 2018 Bloomberg Finance L.P.
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Transocean bond

RIG 9 07/15/23 \$↑108.362 - .254 Yld 6.354
 As of 05 Oct Source BMRK

RIG 9 07/15/23 Corp Settings Page 1/12 Security Description: Bond
 94 Notes 95 Buy 96 Sell

25 Bond Description 26 Issuer Description

Pages	Issuer Information	Identifiers
1) Bond Info	Name TRANSOCEAN INC	ID Number LW8150358
2) Addtl Info	Industry Oil & Gas Services & Equipment	ISIN USG90073AA86
3) Reg/Tax	Security Information	FIGI BBG00D9THRK8
4) Covenants	Mkt Iss Euro-Dollar	Bond Ratings
5) Guarantors	Country KY Currency USD	Moody's B3
6) Bond Ratings	Rank Sr Unsecured Series REGS	S&P B
7) Identifiers	Coupon 9.000000 Type Fixed	Fitch WD
8) Exchanges	Cpn Freq S/A	Composite B-
9) Inv Parties	Day Cnt ISMA-30/360 Iss Price 97.50000	Issuance & Trading
10) Fees, Restrict	Maturity 07/15/2023	Aggregated Amount Issued/Out
11) Schedules	MAKE WHOLE @50.000000 until 07/15/20/ CALL...	USD 1,250,000.00 (M) /
12) Coupons	Iss Sprd +829.00bp vs T 1 3/8 06/30/23	USD 1,250,000.00 (M)
Quick Links	Calc Type (1)STREET CONVENTION	Min Piece/Increment
32) ALLQ Pricing	Pricing Date 07/07/2016	2,000.00 / 1,000.00
33) QRD Qt Recap	Interest Accrual Date 07/21/2016	Par Amount 1,000.00
34) TDH Trade Hist	1st Settle Date 07/21/2016	Book Runner GS,MS
35) CACS Corp Action	1st Coupon Date 01/15/2017	Reporting TRACE
36) CF Prospectus		
37) CN Sec News		
38) HDS Holders		
66) Send Bond		

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 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
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Bond Matures on a SATURDAY

RIG 9 07/15/23 Corp Settings Yield and Spread Analysis
 108.090/108.621 6.504/6.208 BMRK @ 10/ 6 95 Buy 96 Sell

1 Yield & Spread 2 Graphs 3 Pricing 4 Description 5 Custom 6 Calls

RIG 9 07/15/23 (USG90073AA86)

Spread	332.27 bp vs 2y T 2 3/4 09/30/20	Risk	Workout	OAS
Price	108.621	99-23 19:56:38	M.Dur	1.597
Yield	6.207655 Wst	2.884969 S/A	Dur	2.408
Wkout	07/15/2020 @ 104.50	Consensus Yld 6.6	Risk	1.768
Settle	10/10/18	10/09/18	Convexity	0.034
			DV 01 on 1MM	177
			Benchmark Risk	1.904
			Risk Hedge	929M
			Proceeds Hedge	1,110 M

Spreads	Yield Calculations	Invoice
11) G-Sprd 337.9	Street Convention 6.207655	Face 1,000 M
12) I-Sprd 317.6	Equip 1 /Yr 6.303992	Principal 1,086,210.00
13) Basis -214.0	Mmkt (Act/ 360) 6.383633	Accrued (85 Days) 21,250.00
14) Z-Sprd 318.6	True Yield 6.207655	Total (USD) 1,107,460.00
15) ASW 335.7	Current Yield 8.286	
16) OAS 307.3		

After Tax (Inc 40.800 % CG 23.800 %) 3.296940

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 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
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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 M	-6 M	-3 M		-1 M
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