

ASTORIA'S INVESTMENT COMMITTEE ETF RISK ANALYTICS

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EXECUTIVE SUMMARY



In this report, we analyze several of our ETF holdings across a suite of our portfolios using Bloomberg's risk model (PORT). We highlight each ETF's projected risks and factor exposures.



We compare our ETF holdings, which are mostly factor based, against their market cap weighted equivalent.



In pages 5-7, we provide heat maps for the top 3-6 factor exposures relative to the appropriate market cap weighted ETF. Please refer to the individual slides for a more in depth list of factor exposures.



Astoria's ETF holdings highlighted in this report do not constitute an aggregate portfolio. We maintain a variety of strategic and dynamic ETF portfolios where the holdings vary across solutions. For a complete list of all our holdings, please contact us.

We would like to thank Bryan Singh for his valuable insights in this report.





EXECUTIVE SUMMARY



Total Projected Risk

Relative to their market cap weighted peer (SPY), several of Astoria's US Equity ETF holdings (DGRW, USMF, JQUA) have lower projected total risks. Our Fixed Income ETF holdings (VMBS, VTEB, JPST) generally have lower projected total risks relative to their market cap weighted peer (AGG).



Style Factor Exposures

Astoria's US Equity ETF holdings are generally tilted <u>towards</u> **US Dividend Yields**, **US Profit**, **US Value**, **US Earnings**, **US Trade Activity**, & **US Leverage**, and <u>away from</u> **US Size** & **US Volatility**. Astoria's International Equity ETF holdings are tilted <u>towards</u> **AS Trade Activity**, **AS Momentum**, **EU Profit**, **EU Earnings**, & **EU Growth**, and <u>away from</u> **EU Size**, **EU Value**, & **EU Leverage**.



Industry Factor Exposures

Astoria's US Equity ETF holdings are generally tilted slightly <u>towards</u> **US Financial Services** & **US Consumer Finance**, and <u>away from</u> **US Media**, **US Banks**, **US Retail**, & **US Medical Equipment**. Astoria's International Equity ETF holdings are tilted <u>towards</u> **AS Telecommunications**, **EU Electric**, **EU Telecommunications**, **EM Oil Exploration**, & **JP Appliances**, and <u>away from</u> **AS Tech Hardware**, **AS Specialty Finance**, **EU Oil Exploration**, **EU Banks**, & **LA Banks**.



Yield Curve Factor Exposures

Astoria's Fixed Income ETF holdings are tilted <u>towards</u> **1Y KR Swaps** & **Volatility**, and <u>away from</u> **30Y KR Sovereigns**, **20Y KR Sovereigns**, & **20Y KR Swaps**.



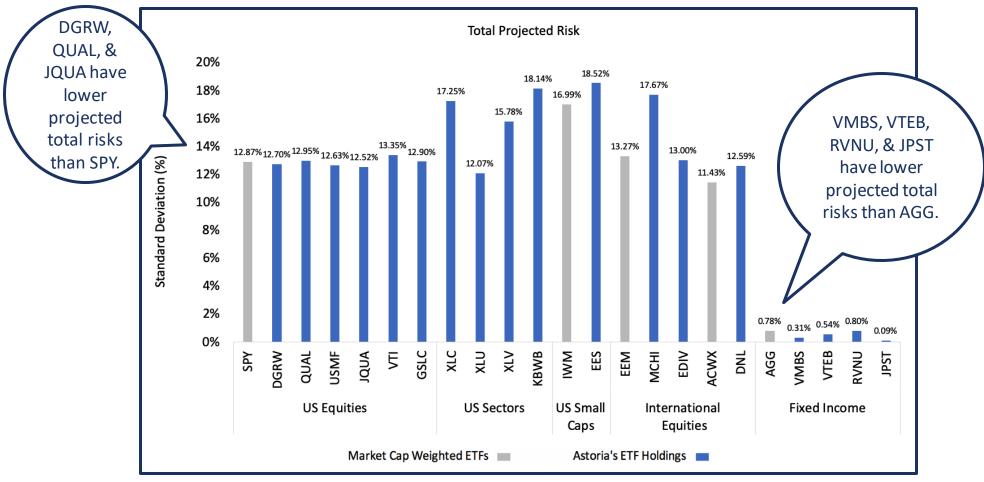
Spread Factor Exposures

Astoria's Fixed Income ETF holdings are tilted <u>towards</u> **Muni Spreads** & **Muni Slopes**, and <u>away from</u> **Long Duration**, **Sovereign Slopes**, & **Sovereign Spreads**.





TOTAL PROJECTED RISK

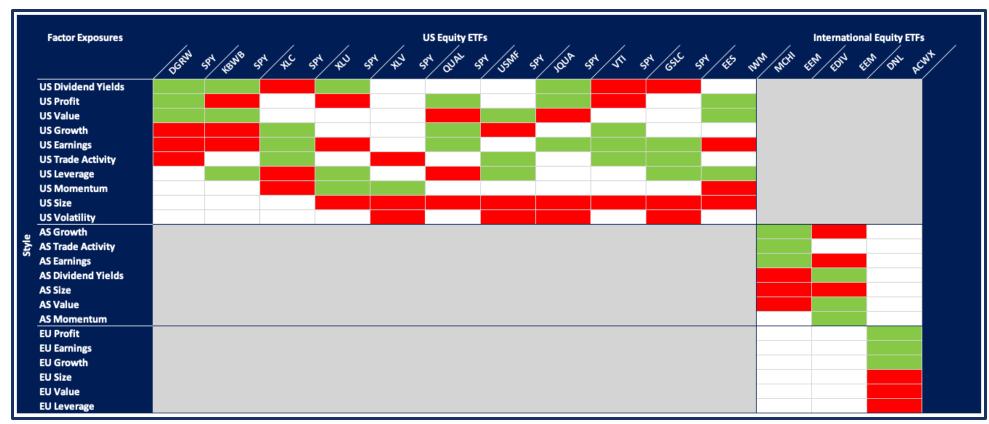


Source: Bloomberg. Astoria's ETF holdings as of July 25, 2019.





STYLE RISK FACTOR HEAT MAP: US EQUITY & INTERNATIONAL EQUITY



Source: Bloomberg. Astoria's ETF holdings as of July 25, 2019.

Green boxes indicate that Astoria's ETF holdings are tilted towards a particular factor exposure compared to their comparable market cap weighted ETFs. Red boxes indicate that Astoria's ETF holdings are tilted away from a particular factor exposure compared to their comparable market cap weighted ETFs.





INDUSTRY RISK FACTOR HEAT MAP: US EQUITY & INTERNATIONAL **EQUITY**



Source: Bloomberg. Astoria's ETF holdings as of July 25, 2019.



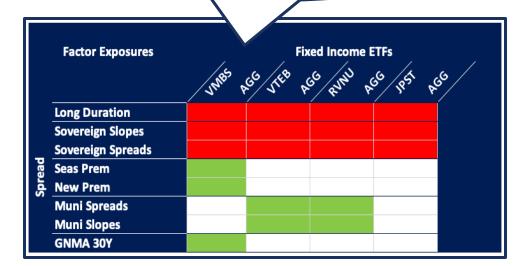
YIELD CURVE & SPREAD RISK FACTOR HEAT MAP: FIXED INCOME

VMBS is tilted more towards 1Y KR Swaps, 2Y KR Swaps, & 10Y KR Swaps while AGG is tilted more towards 30Y KR Sovereigns, 20Y KR Sovereigns, & 30Y KR Swaps.

Factor Exposures Fixed Income ETFs **30Y KR Sovereigns 20Y KR Sovereigns 6M KR Sovereigns 30Y KR Swaps** 20Y KR Swaps 10Y KR Swaps 2Y KR Swaps 1Y KR Swaps 6M KR Swaps Volatility

Source: Bloomberg. Astoria's ETF holdings as of July 25, 2019.

VMBS is tilted more towards Seas Prem. New Prem, & GNMA 30Y while AGG is tilted more towards Long Duration, Sovereign Slopes, & Sovereign Spreads.







ETF RISK ANALYTICS

US EQUITY





BLOOMBERG PROJECTS DGRW & SPY TO HAVE TOTAL RISKS OF 12.70% & 12.87% RESPECTIVELY

DGRW (Portfolio) vs. SPY (Benchmark): Total Risk

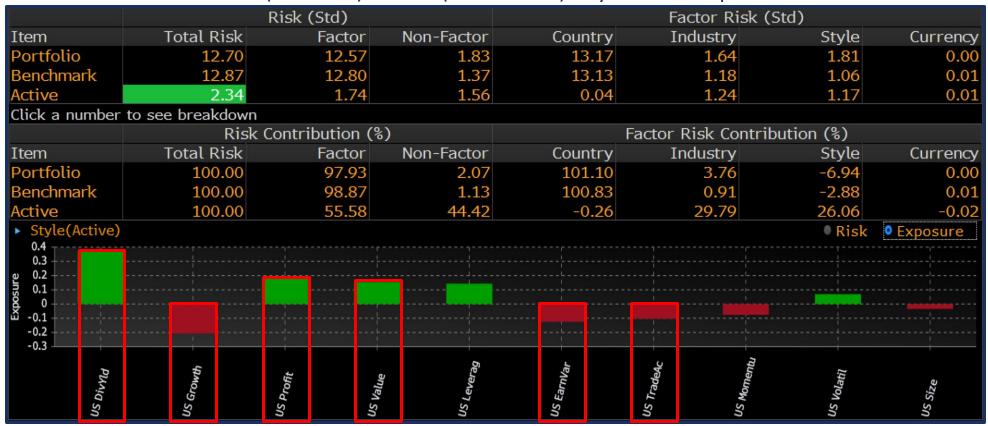




DGRW HAS GREATER EXPOSURE TO US DIVIDEND YIELDS, US PROFIT, & US VALUE

SPY HAS GREATER EXPOSURE TO US GROWTH, US EARNINGS, & US TRADE ACTIVITY

DGRW (Portfolio) vs. SPY (Benchmark): Style Factor Exposures



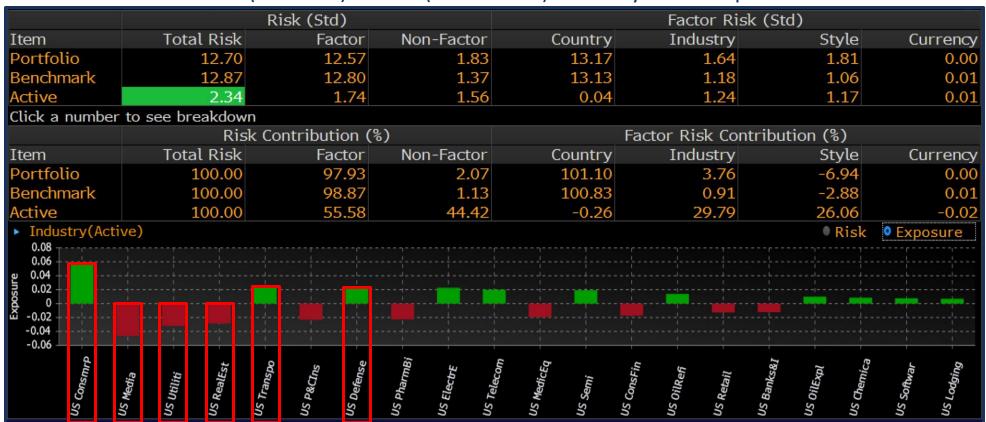




DGRW HAS GREATER EXPOSURE TO US CONSUMER PRODUCTS, US TRANSPORTATION, & US DEFENSE

SPY HAS GREATER EXPOSURE TO US MEDIA, US UTILITIES, & US REAL ESTATE

DGRW (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures







BLOOMBERG PROJECTS KBWB & SPY TO HAVE TOTAL RISKS OF 18.14% & 12.87% RESPECTIVELY

KBWB (Portfolio) vs. SPY (Benchmark): Total Risk



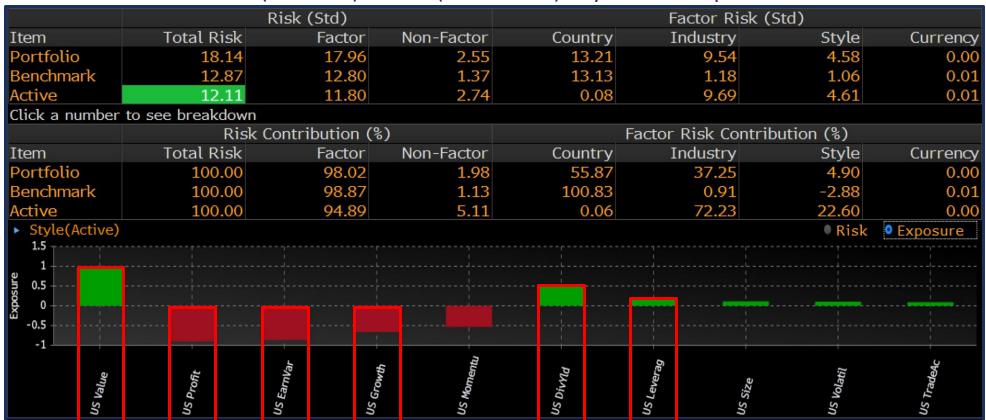




KBWB HAS GREATER EXPOSURE TO US VALUE, US DIVIDEND YIELDS, & US LEVERAGE

SPY HAS GREATER EXPOSURE TO US PROFIT, US EARNINGS, & US GROWTH

KBWB (Portfolio) vs. SPY (Benchmark): Style Factor Exposures



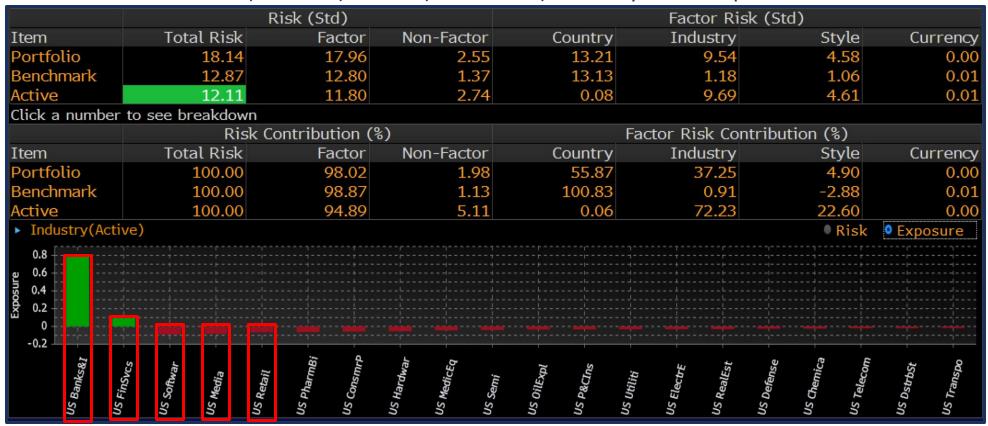




KBWB HAS GREATER EXPOSURE TO US BANKS & US FINANCIAL SERVICES

SPY HAS GREATER EXPOSURE TO US SOFTWARE, US MEDIA, & US RETAIL

KBWB (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures





BLOOMBERG PROJECTS XLC & SPY TO HAVE TOTAL RISKS OF 17.25% & 12.87% RESPECTIVELY

XLC (Portfolio) vs. SPY (Benchmark): Total Risk







XLC HAS GREATER EXPOSURE TO US GROWTH, US TRADE ACTIVITY, & US EARNINGS

SPY HAS GREATER EXPOSURE TO US DIVIDEND YIELDS, US LEVERAGE, & US MOMENTUM

XLC (Portfolio) vs. SPY (Benchmark): Style Factor Exposures







XLC HAS GREATER EXPOSURE TO US MEDIA & US TELECOMMUNICATIONS

SPY HAS GREATER EXPOSURE TO US RETAIL, US PHARMA, & US CONSUMER **PRODUCTS**

XLC (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures

	Risk (Std)						
Item	Total Risk	Factor	Non-Factor	Country	Industry	Style	Currency
Portfolio	17.25	16.21	5.90	13.20	7.05	2.66	0.00
Benchmark	12.87	12.80	1.37	13.13	1.18	1.06	0.01
Active	9.07	7.24	5.46	0.06	6.43	2.98	0.01
Click a number	to see breakdown	1					
	Risk	Contribution (%)		Factor Risk Cor	ntribution (%)	
Item	Total Risk	Factor	Non-Factor	Country	Industry	Style	Currency
Portfolio	100.00	88.31	11.69	63.73	15.73	8.85	0.00
Benchmark	100.00	98.87	1.13	100.83	0.91	-2.88	0.01
Active	100.00	63.77	36.23	0.13	51.45	12.19	0.00
Industry(Active	/e)					Risk	Exposure
0.8							
φ 0.6							
Jng 0.4							
S 0.2							
0							
-0.2							
.0	il mBi	mrp S&I	cEq.	rpi	ii trE Est	nse nica	bSt Spo
US Media US Telecci	Retail	^{US} Consm _r p US Banks& <u>I</u> US Hardwar	US MedicEq US ConsFin US Soc.	US OilExpl US P&CIns	<i>US Utiliti</i> US ElectrE US RealEst	US Defense US Chemica US Finsv _{CS}	US Dstrbst US Transpo
us,	US Retail US Pharmai	so so	150	, sn	1 SN	US De US Ch _i	'sn



BLOOMBERG PROJECTS XLU & SPY TO HAVE TOTAL RISKS OF 12.07% & 12.87% RESPECTIVELY

XLU (Portfolio) vs. SPY (Benchmark): Total Risk



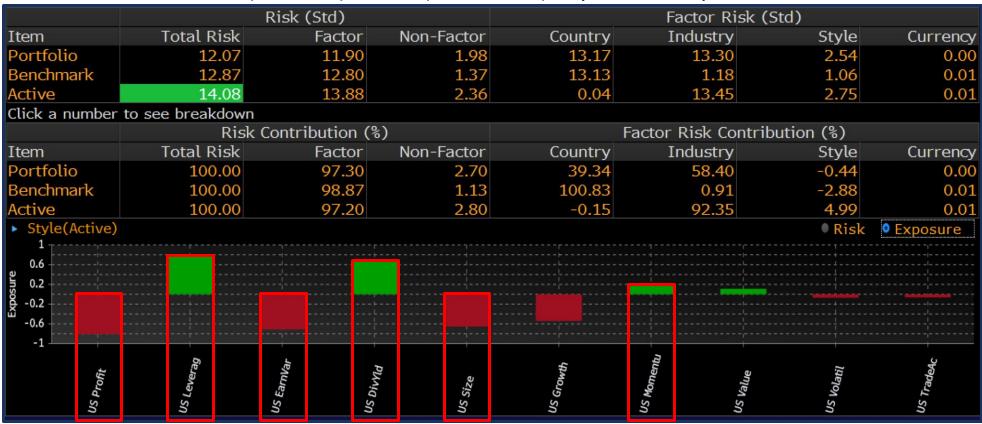




XLU HAS GREATER EXPOSURE TO US LEVERAGE, US DIVIDEND YIELDS, & US MOMENTUM

SPY HAS GREATER EXPOSURE TO US PROFIT, US EARNINGS, & US SIZE

XLU (Portfolio) vs. SPY (Benchmark): Style Factor Exposures







XLU HAS GREATER EXPOSURETO US UTILITIES

SPY HAS GREATER EXPOSURETO US SOFTWARE, US MEDIA, & US RETAIL

XLU (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures

		Risk (Std)		Factor Risk (Std)			
Item	Total Risk	Factor	Non-Factor	Country	Industry	Style	Currency
Portfolio	12.07	11.90	1.98	13.17	13.30	2.54	0.00
Benchmark	12.87	12.80	1.37	13.13	1.18	1.06	0.01
Active	14.08	13.88	2.36	0.04	13.45	2.75	0.01
Click a number	to see breakdown						
	Risk	Contribution (%	5)		Factor Risk Con	tribution (%)	
Item	Total Risk	Factor	Non-Factor	Country	Industry	Style	Currency
Portfolio	100.00	97.30	2.70	39.34	58.40	-0.44	0.00
Benchmark	100.00	98.87	1.13	100.83	0.91	-2.88	0.01
Active	100.00	97.20	2.80	-0.15	92.35	4.99	0.01
Industry(Activ	/e)					Risk	• Exposure
1.2					-3		
φ 0.8							
Ing 0.6							
& 0.4							
0							
-0.2							
<i>:</i>	ii a	mB)	war cEq	i i	ins tre Est	nse nica	sst.
Utiliti	Media Media Retail	ons Sank	^r aro Yedj	Sem	P&C Flec,	Defe Then Fins	^{Telecon} ^{DstrbSt}
US Utiliti	US Media US Retail US D.	^{VS Consm} rp US ^{Banks} &I	US Hardwar US MedicEq US ConsFin	US Semi US OilExpl	<i>US P&CIns</i> <i>US ElectrE</i> <i>US RealEst</i>	US Defense US Chemica US Finsvcs	Us Telecom Us Dstrbst





BLOOMBERG PROJECTS XLV & SPY TO HAVE TOTAL RISKS OF 15.78% & 12.87% RESPECTIVELY

XLV (Portfolio) vs. SPY (Benchmark): Total Risk

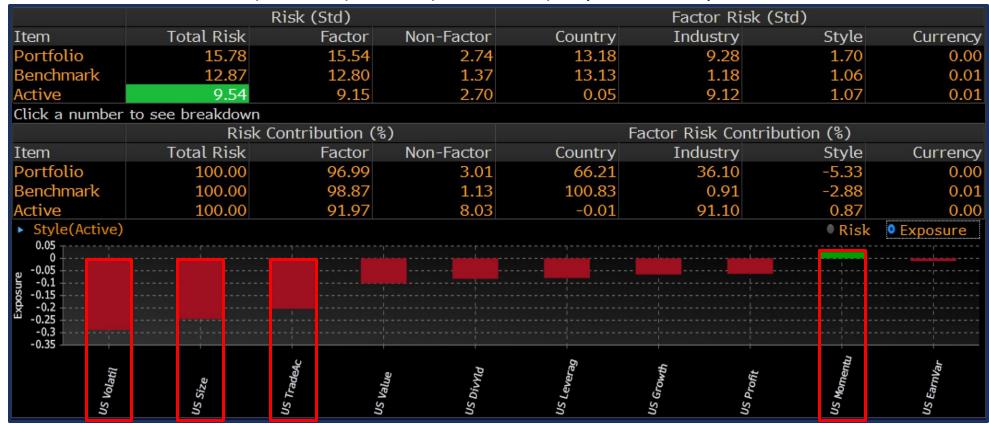




XLV HAS GREATER EXPOSURE TO US MOMENTUM

SPY HAS GREATER EXPOSURE TO US VOLATILITY, US SIZE, & US TRADE ACTIVITY

XLV (Portfolio) vs. SPY (Benchmark): Style Factor Exposures







XLV HAS GREATER EXPOSURE TO US PHARMA, US MEDICAL EQUIPMENT, & US MANAGED CARE

SPY HAS GREATER EXPOSURE TO US MEDIA, US SOFTWARE, & US RETAIL

XLV (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures





BLOOMBERG PROJECTS QUAL & SPY TO HAVE TOTAL RISKS OF 12.95% & 12.87% RESPECTIVELY

QUAL (Portfolio) vs. SPY (Benchmark): Total Risk







QUAL HAS GREATER EXPOSURE TO US PROFIT, US EARNINGS, & US GROWTH

SPY HAS GREATER EXPOSURE TO US SIZE, US LEVERAGE, & US VALUE

QUAL (Portfolio) vs. SPY (Benchmark): Style Factor Exposures



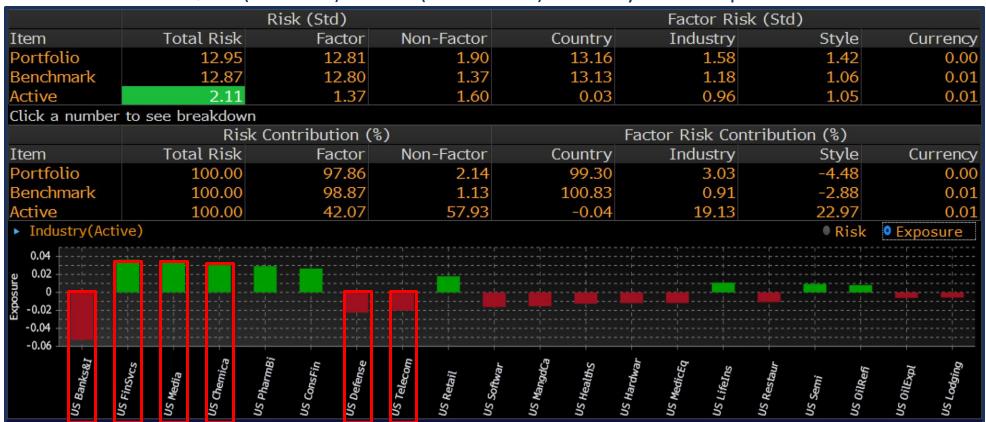




QUAL HAS GREATER EXPOSURE TO US FINANCIAL SERVICES, US MEDIA, & US CHEMICALS

SPY HAS GREATER EXPOSURE TO US BANKS, US DEFENSE, & US TELECOMMUNICATIONS

QUAL (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures







BLOOMBERG PROJECTS USMF & SPY TO HAVE TOTAL RISKS OF 12.63% & 12.87% RESPECTIVELY

USMF (Portfolio) vs. SPY (Benchmark): Total Risk

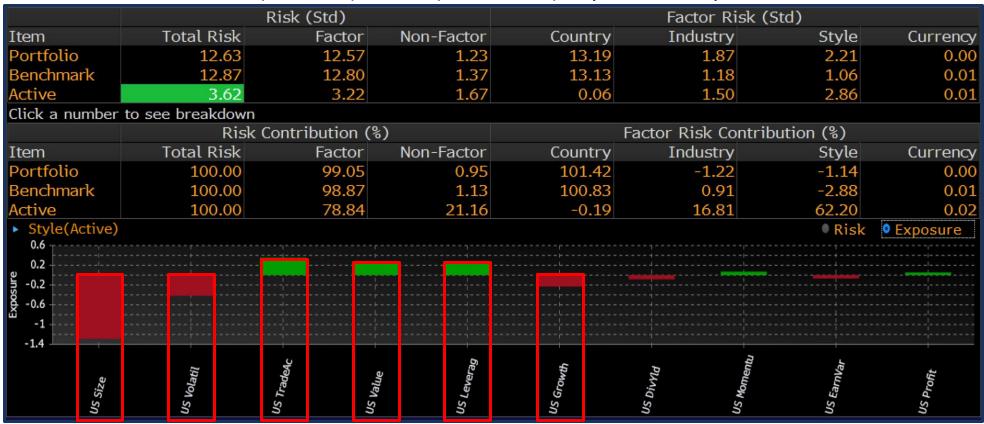




USMF HAS GREATER EXPOSURE TO US TRADE ACTIVITY, US VALUE, & US LEVERAGE

SPY HAS GREATER EXPOSURE TO US SIZE, US VOLATILITY, & US GROWTH

USMF (Portfolio) vs. SPY (Benchmark): Style Factor Exposures





USMF HAS GREATER EXPOSURE TO US SOFTWARE, US CONSUMER FINANCE, & US HEALTH SERVICES

SPY HAS GREATER EXPOSURE TO US HARDWARE, US SEMICONDUCTORS, & US MEDICAL EQUIPMENT

USMF (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures





BLOOMBERG PROJECTS JQUA & SPY TO HAVE TOTAL RISKS OF 12.52% & 12.87% RESPECTIVELY

JQUA (Portfolio) vs. SPY (Benchmark): Total Risk







JQUA HAS GREATER EXPOSURETO US PROFIT, US EARNINGS, & US DIVIDEND YIELDS

SPY HAS GREATER EXPOSURETO US SIZE, US VALUE, & US VOLATILITY

JQUA (Portfolio) vs. SPY (Benchmark): Style Factor Exposures







JQUA HAS GREATER EXPOSURE TO US PHARMA, US SOFTWARE, & US CONSUMER FINANCE

SPY HAS GREATER EXPOSURE TO US BANKS, US MEDICAL EQUIPMENT, & US MEDIA

JQUA (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures





BLOOMBERG PROJECTS VTI & SPY TO HAVE TOTAL RISKS OF 13.35% & 12.87% RESPECTIVELY

VTI (Portfolio) vs. SPY (Benchmark): Total Risk







VTI HAS GREATER EXPOSURE TO US TRADE ACTIVITY, US EARNINGS, & US **GROWTH**

SPY HAS GREATER EXPOSURE TO US SIZE, US PROFIT, & US DIVIDEND YIELDS

VTI (Portfolio) vs. SPY (Benchmark): Style Factor Exposures





VTI HAS GREATER EXPOSURE TO US REAL ESTATE, US SOFTWARE, & US CONSUMER SERVICES

SPY HAS GREATER EXPOSURE TO US HARDWARE, US CONSUMER PRODUCTS, & **US MEDIA**

VTI (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures

	Risk (Std)				Factor Risk (Std)					
Item	Total Risk	Factor	Non-Factor	Country	Greeks	Industry	Style	Currency		
Portfolio	13.35	13.30	1.15	13.25	0.00	1.09	0.09	0.01		
Benchmark	12.87	12.80	1.37	13.13	0.00	1.18	1.06	0.01		
Active	1.15	1.12	0.27	0.12	0.00	0.20	1.06	0.00		
Click a numbe	r to see breakdov	vn								
	Risk Co	ontribution	(%)		Factor Risk Contribution (%)					
Item	Total Risk	Factor	Non-Factor	Country	Greeks	Industry	Style	Currency		
Portfolio	100.00	99.26	0.74	98.58	0.00	1.05	-0.39	0.01		
Benchmark	100.00	98.87	1.13	100.83	0.00	0.91	-2.88	0.01		
Active	100.00	94.61	5.39	5.03	0.00	2.38	87.19	0.02		
Industry(Act	tive)						Risk	• Exposure		
0.008 0.004 0 0.004 -0.004										
US RealEst	US Hardwar US Softwar US Consmrp	US Redia US Conssvc	US Retail US Indsvcs	US Electre US MrapFin US Oile	US Homeprd US Defense	US Mangalca US ConsFin US Aur.	US Lodging US Recreat	US Telecom US Metals		



BLOOMBERG PROJECTS GSLC & SPY TO HAVETOTAL RISKS OF 12.90% & 12.87% RESPECTIVELY

GSLC (Portfolio) vs. SPY (Benchmark): Total Risk

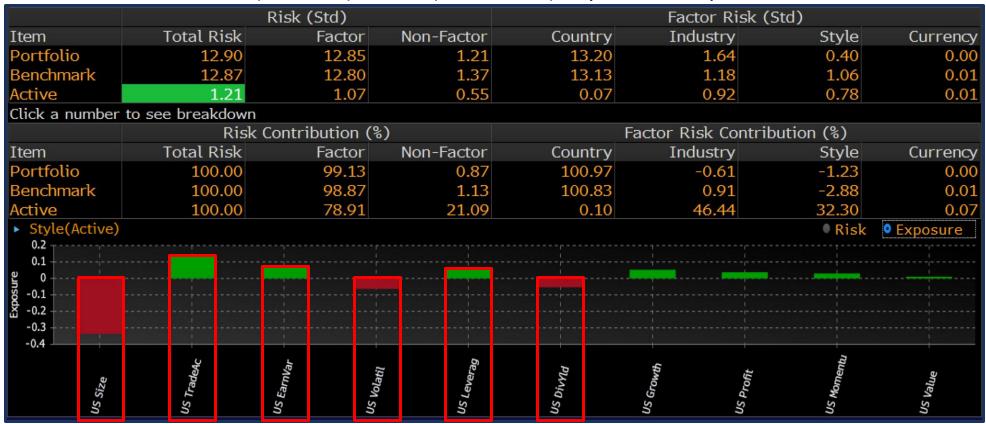




GSLC HAS GREATER EXPOSURE TO US TRADE ACTIVITY, US EARNINGS, & US LEVERAGE

SPY HAS GREATER EXPOSURE TO US SIZE, US VOLATILITY, & US DIVIDEND YIELDS

GSLC (Portfolio) vs. SPY (Benchmark): Style Factor Exposures







GSLC HAS GREATER EXPOSURETO US SOFTWARE & US RETAIL

SPY HAS GREATER EXPOSURETO US OIL EXPLORATION, US BANKS, & **US CHEMICALS**

GSLC (Portfolio) vs. SPY (Benchmark): Industry Factor Exposures

		Risk (Std)		Factor Risk (Std)									
Item	Total Risk	Facto	r Non-Factor	Country	Industry	Style	Currency						
Portfolio	12.90	12.8	1.21	13.20	1.64	0.40	0.00						
Benchmark	12.87	12.80	1.37	13.13	1.18	1.06	0.01						
Active	1.21	1.0	7 0.55	0.07	0.92	0.78	0.01						
Click a number	Click a number to see breakdown												
	Ris	k Contribution	(%)		Factor Risk Co	ntribution (%)							
Item	Total Risk	Facto	r Non-Factor	Country	Industry	Style	Currency						
Portfolio	100.00	99.13	0.87	100.97	-0.61	-1.23	0.00						
Benchmark	100.00	98.8	7 1.13	100.83	0.91	-2.88	0.01						
Active	100.00	78.9	1 21.09	0.10	46.44	32.30	0.07						
Industry(Active	ve)					Risk	• Exposure						
0.025													
0.015 يو													
S 0.005	hl												
盘 -0.005													
-0.015													
-0.025													
var	Retail OilExpl Banks&I	DstrbSt Chemica	ti a Ins	'mrF	ths spo	VCS THE	tre CEq						
Softw	Reta Oil <u>E</u> , Bani	Ostr, Chen	US Media US P&CIns	^{US} Informs US Consmrt US FinSvcs	US HealthS US Transpo US Defense	US IndSvcs US OilSvcs US Pharma	ElectrE MedicEq						
ŝsn	US OilExpl US Bankse	US Dstrbst US Chemica	'Sn	rs,	US Healths US Transpo US Defense	US IndSvcs US OilSvcs US Pharme:	rsn						



BLOOMBERG PROJECTS EES & IWM TO HAVE TOTAL RISKS OF 18.52% & 16.99% RESPECTIVELY

EES (Portfolio) vs. IWM (Benchmark): Total Risk





EES HAS GREATER EXPOSURE TO US VALUE, US PROFIT, & US LEVERAGE

IWM HAS GREATER EXPOSURE TO US MOMENTUM, US EARNINGS, & US SIZE

EES (Portfolio) vs. IWM (Benchmark): Style Factor Exposures

	`	,	`	, ,									
		Risk (Std)			Factor Ris	sk (Std)							
Item	Total Risk	Factor	Non-Factor	Country	Industry	Style	Currency						
Portfolio	18.52	18.48	1.34	13.19	2.78	8.56	0.00						
Benchmark	16.99	16.98	0.80	13.17	1.09	6.87	0.01						
Active	5.17	5.00	1.32	0.02	2.60	3.31	0.01						
Click a number	Click a number to see breakdown												
	Ris	c Contribution (%)		Factor Risk Cor	ntribution (%)							
Item	Total Risk	Factor	Non-Factor	Country	Industry	Style	Currency						
Portfolio	100.00	99.48	0.52	60.84	6.64	32.00	0.00						
Benchmark	100.00	99.78	0.22	71.09	1.79	26.89	0.01						
Active	100.00	93.51	6.49	0.02	38.93	54.58	-0.02						
Style(Active)						Risk	• Exposure						
0.8			L			,							
0.6													
0.6 -0.2 -0.2 -0.2			L										
∯ 0													
-0.4						ļ							
-0.6			+			' 							
	entu,		^r ag	P,	lar.	\$	%						
alue.	ют _е	Profit	^{L'EVEr} ag Volatil	ivm	arnı	Size	TradeAc						
US Value	US Momentu	us p	US Volatil	US DivMd	US EarnVar	US Grow	US 7						



EES HAS GREATER EXPOSURE TO US HOME PRODUCTS, US RETAIL, & US BANKS

IWM HAS GREATER EXPOSURE TO US PHARMA, US SOFTWARE, & US MEDICAL **EQUIPMENT**

EES (Portfolio) vs. IWM (Benchmark): Industry Factor Exposures

		`			`		,									
	Risk (Std)									Factor	Risk	(Std))			
Item	Total Ri	sk	Fac	ctor	Non-F	actor	C	Country		Indus	try		Sty	le	Cu	rrency
Portfolio	18.	52	18	3.48		1.34		13.19		2.	.78		8.	56		0.00
Benchmark	16.9	99	16	5.98		0.80		13.17		1.	.09		6.8	87		0.01
Active	5.:	17	5	5.00		1.32		0.02		2.	.60		3.3	31		0.01
Click a number	Click a number to see breakdown															
	ı	Risk (Contributi	on (%)				Facto	r Risk	Contr	ributio	on (%))		
Item	Total Ri	sk	Fac	ctor	Non-F	actor	C	Country		Indus	try		Sty	le	Cu	rrency
Portfolio	100.0	00	99	.48		0.52		60.84		6.	.64		32.0	00		0.00
Benchmark	100.0	00	99	.78		0.22		71.09		1.	79		26.8	89		0.01
Active	100.0	00	93	3.51		6.49		0.02		38.	.93		54.	58		-0.02
Industry(Activ	ve)												• R	isk	Expo	sure
0.08																
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Exposure 0 0.04														-		
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US Homep _{rd}	US Retail	US Madi:	Re	US Banks&I	US Automtv US 1111	us transpo	US OilExpl	US Healths	US Metals	US Hardwar	us Conssve	US ElectrE	US OilSvcs	US Lodging	US Media	Š
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ETF RISK ANALYTICS

INTERNATIONAL EQUITY





BLOOMBERG PROJECTS MCHI & EEMTO HAVETOTAL RISKS OF 17.67% & 13.27% RESPECTIVELY

MCHI (Portfolio) vs. EEM (Benchmark): Total Risk



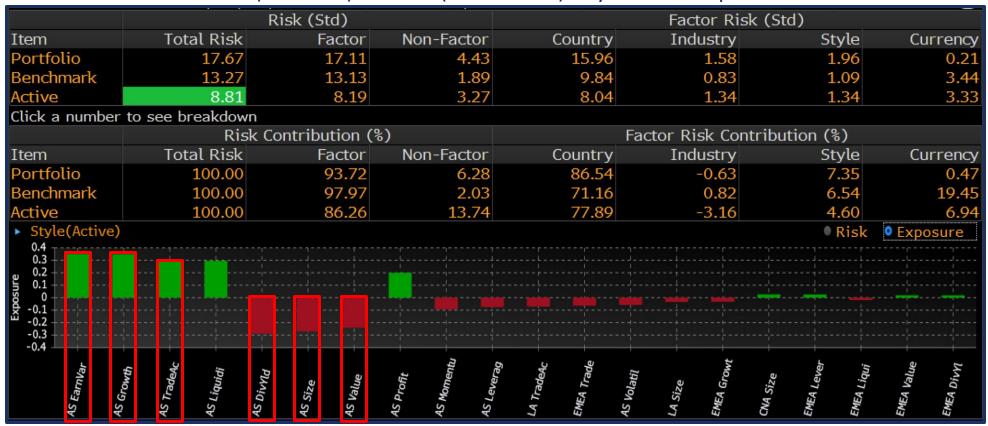




MCHI HAS GREATER EXPOSURE TO AS EARNINGS, AS GROWTH, & AS TRADE ACTIVITY

EEM HAS GREATER EXPOSURE TO AS DIVIDEND YIELDS, AS SIZE, & AS VALUE

MCHI (Portfolio) vs. EEM (Benchmark): Style Factor Exposures







MCHI HAS GREATER EXPOSURE TO AS MEDIA, AS RETAIL, & AS BANKS

EEM HAS GREATER EXPOSURE TO AS TECH HARDWARE, EM ASSET MANAGEMENT, & LA BANKS

MCHI (Portfolio) vs. EEM (Benchmark): Industry Factor Exposures

		`	,			`												
	Risk (Std)										Fact	or Ris	sk (Sto	d)				
Item	Tota	l Risk		Fa	ctor	Non	-Facto	or	(Country	7	Indu	ustry		St	yle	Cu	rrency
Portfolio		17.67		1	7.11		4.4	3		15.96	5		1.58		1.	.96		0.21
Benchmark		13.27		1	3.13		1.8	39		9.84	+		0.83		1.	.09		3.44
Active		8.81			8.19		3.2	27		8.04	+		1.34		1.	.34		3.33
Click a number	to see bre	eakdow	/n															
		Ris	sk Con	tribut	ion ([%])					Fact	tor Ris	sk Cor	ntribut	ion (%	()		
Item	Tota	l Risk		Fa	ctor	Non	-Facto	or	(Country	1	Indu	ustry		St	yle	Cu	irrency
Portfolio	1	00.00		9	3.72		6.2	28		86.54	H		-0.63		7.	.35		0.47
Benchmark	1	00.00		9	7.97		2.0)3		71.16	5		0.82		6.	.54		19.45
Active	1	00.00		8	6.26		13.7	74		77.89)		-3.16		4.	.60		6.94
Industry(Activ	ve)														•	Risk	Expo	sure
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0.1 2 0.05																		
Insc 0.03																		
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-0.1																		
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AS Media	AS 7	AS Banking	^{AS Spec} Fi	EM Asstmam	LA Banking	AS RealEst	EM OilExpl	EM Media	TW Financı	AS OilExpl	AS Leisure	LA S	AS OilRefn	AS Chemica	LA Matriso	AS Staples	KR ,	LA E



BLOOMBERG PROJECTS EDIV & EEMTO HAVETOTAL RISKS OF 13.00% & 13.27% RESPECTIVELY

EDIV (Portfolio) vs. EEM (Benchmark): Total Risk

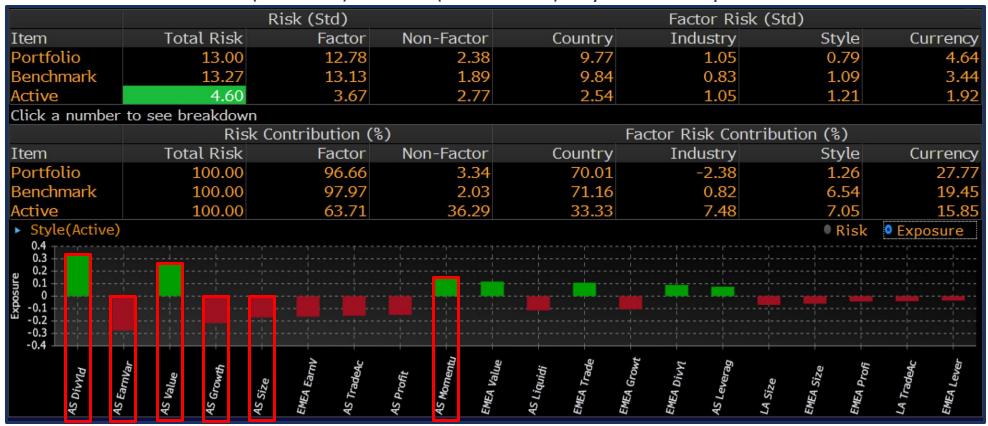




EIDV HAS GREATER EXPOSURE TO AS DIVIDEND YIELDS, AS VALUE, & AS MOMENTUM

EEM HAS GREATER EXPOSURE TO AS EARNINGS, AS GROWTH, & AS SIZE

EDIV (Portfolio) vs. EEM (Benchmark): Style Factor Exposures



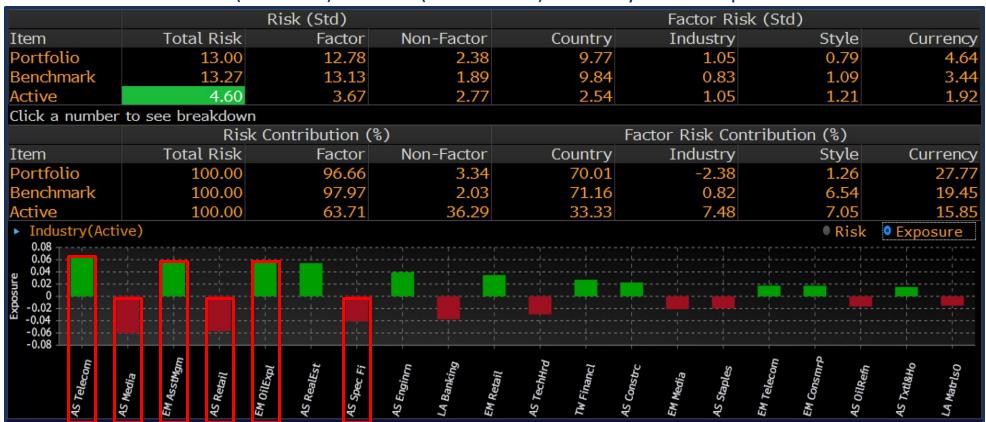




EDIV HAS GREATER EXPOSURE TO AS TELECOMMUNICATIONS, EM ASSET MANAGEMENT, & EM OIL EXPLORATION

EEM HAS GREATER EXPOSURE TO AS MEDIA, AS RETAIL, & AS SPECIALTY FINANCE

EDIV (Portfolio) vs. EEM (Benchmark): Industry Factor Exposures





BLOOMBERG PROJECTS DNL & ACWX TO HAVE TOTAL RISKS OF 12.59% & 11.43% RESPECTIVELY

DNL (Portfolio) vs. ACWX (Benchmark): Total Risk

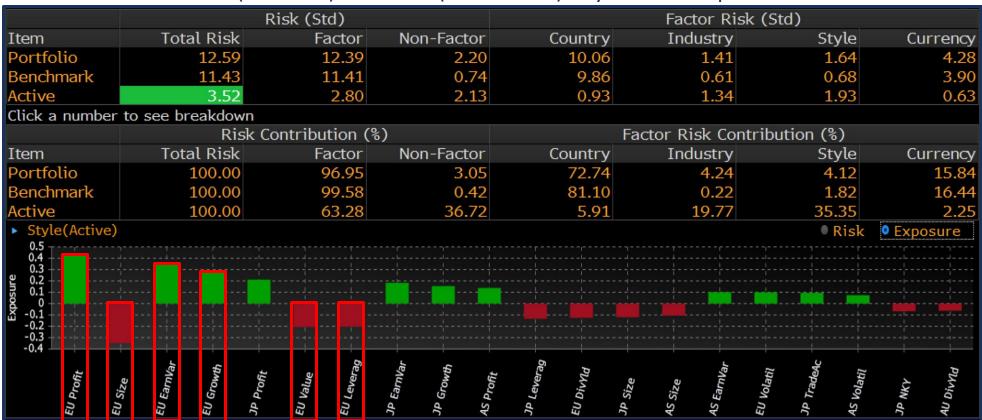




DNL HAS GREATER EXPOSURE TO EU PROFIT, EU EARNINGS, & EU GROWTH

ACWX HAS GREATER EXPOSURE TO EU SIZE, EU VALUE, & EU LEVERAGE

DNL (Portfolio) vs. ACWX (Benchmark): Style Factor Exposures



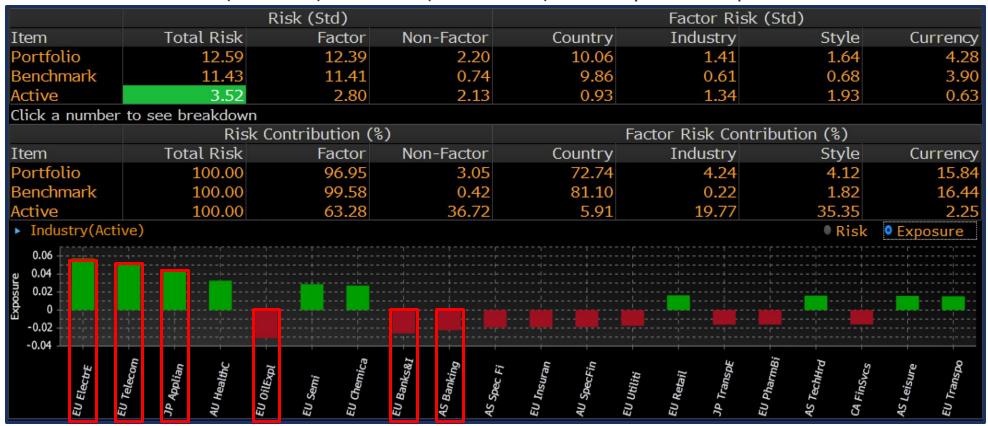




DNL HAS GREATER EXPOSURE TO EU ELECTRIC, EU TELECOMMUNICATIONS, & JP APPLIANCES

ACWX HAS GREATER EXPOSURE TO EU OIL EXPLORATION, EU BANKS, & AS BANKS

DNL (Portfolio) vs. ACWX (Benchmark): Industry Factor Exposures







ETF RISK ANALYTICS

FIXED INCOME





BLOOMBERG PROJECTS VMBS & AGGTO HAVE TOTAL RISKS OF 0.31% & 0.78% RESPECTIVELY

VMBS (Portfolio) vs. AGG (Benchmark): Total Risk





VMBS HAS GREATER EXPOSURETO 1Y KR SWAPS, 2Y KR SWAPS, & 10Y KR SWAPS

AGG HAS GREATER EXPOSURE TO 30Y KR SOVEREIGNS, 20Y KR SOVEREIGNS, & **30Y KR SWAPS**

VMBS (Portfolio) vs. AGG (Benchmark): Yield Curve Factor Exposures

	· · · · · · · · · · · · · · · · · · ·								
		Risk (Std)		Factor Risk (Std)					
Item	Total Risk	Factor	Non-Factor	Yield Curve	Spread				
Portfolio	0.31	0.31	0.00	0.31	0.20				
Benchmark	0.78	0.78	0.01	0.88	0.30				
Active	0.54	0.54	0.01	0.59	0.22				
Click a number to se	ee breakdown								
		Risk Contribution (%)		Factor Risk Co	ntribution (%)				
Item	Total Risk	Factor	Non-Factor	Yield Curve	Spread				
Portfolio	100.00	99.98	0.02	80.38	19.60				
Benchmark	100.00	99.98	0.02	105.20	-5.22				
Active	100.00	99.95	0.05	102.80	-2.84				
USD YC(Active)					Risk • Exposure				
0.2									
0									
-0.2 -0.4									
& -0.4									
-0.6									
-0.8	+								
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MK	Y KR Y KR	107 KR SOV 207 KR SOV 307 KR SOV	VOI GM KR SWD 1V KR SWD	2V KR SWp 3V KR SWp SY KR SWp 7V KR SWp	JOY KR SWD 20Y KR SWD 30Y KR SWD				
9	N W 70 V	2 8	7 0	N N N	7 8				



VMBS HAS GREATER EXPOSURE TO SEAS PREM, NEW PREM, & GNMA 30Y

AGG HAS GREATER EXPOSURE TO LONG DURATION, SOVEREIGN SLOPES, & **SOVEREIGN SPREADS**

VMBS (Portfolio) vs. AGG (Benchmark): Spread Factor Exposures







BLOOMBERG PROJECTS VTEB & AGG TO HAVE TOTAL RISKS OF 0.54% & 0.78% RESPECTIVELY

VTEB (Portfolio) vs. AGG (Benchmark): Total Risk





VTEB HAS GREATER EXPOSURE TO VOLATILITY

AGG HAS GREATER EXPOSURETO 30Y KR SOVEREIGNS, 20Y KR SOVEREIGNS, & 10Y KR SWAPS

VTEB (Portfolio) vs. AGG (Benchmark): Yield Curve Factor Exposures





VTEB HAS GREATER EXPOSURE TO MUNI SPREADS & MUNI SLOPES

AGG HAS GREATER EXPOSURETO LONG DURATION, SOVEREIGN SLOPES, & SOVEREIGN SPREADS

VTEB (Portfolio) vs. AGG (Benchmark): Spread Factor Exposures





BLOOMBERG PROJECTS RVNU & AGGTO HAVETOTAL RISKS OF 0.80% & 0.78% RESPECTIVELY

RVNU (Portfolio) vs. AGG (Benchmark): Total Risk

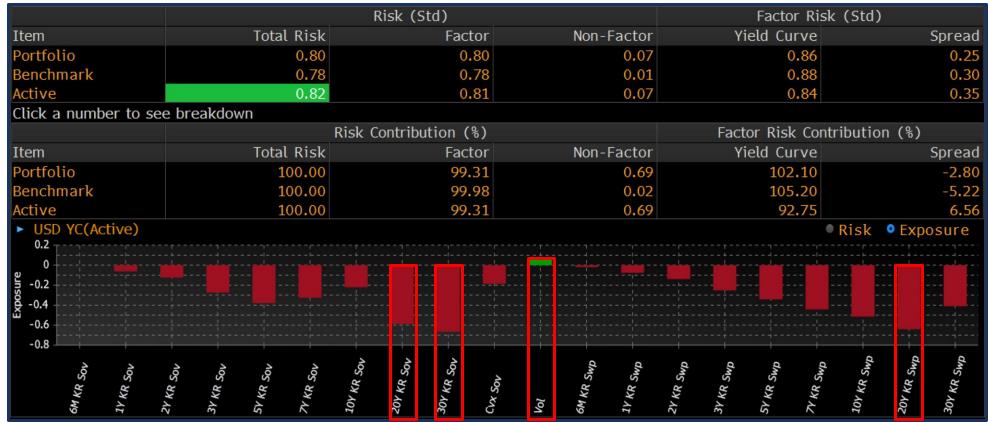




RVNU HAS GREATER EXPOSURE TO VOLATILITY

AGG HAS GREATER EXPOSURETO 30Y KR SOVEREIGNS, 20Y KR SWAPS, & 20Y KR SOVEREIGNS

RVNU (Portfolio) vs. AGG (Benchmark): Yield Curve Factor Exposures





RVNU HAS GREATER EXPOSURE TO MUNI SLOPES & MUNI SPREADS

AGG HAS GREATER EXPOSURE TO LONG DURATION, SOVEREIGN SLOPES, & SOVEREIGN SPREADS

RVNU (Portfolio) vs. AGG (Benchmark): Spread Factor Exposures







BLOOMBERG PROJECTS JPST & AGG TO HAVE TOTAL RISKS OF 0.09% & 0.78% RESPECTIVELY

JPST (Portfolio) vs. AGG (Benchmark): Total Risk

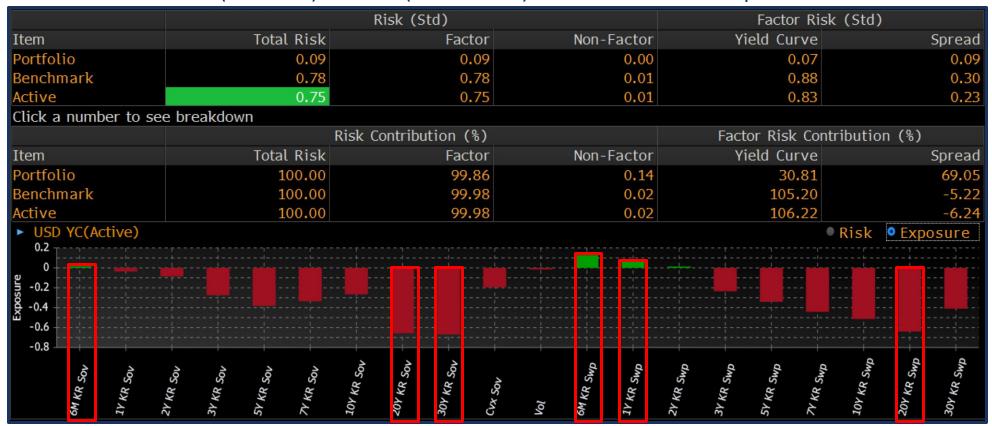




JPST HAS GREATER EXPOSURE TO 6M KR SWAPS, IY KR SWAPS, & 6M KR SOVEREIGNS

AGG HAS GREATER EXPOSURE TO 30Y KR SOVEREIGNS, 20Y KR SOVEREIGNS, & 20Y KR SWAPS

JPST (Portfolio) vs. AGG (Benchmark): Yield Curve Factor Exposures







AGG HAS GREATER EXPOSURETO LONG DURATION, SOVEREIGN SLOPES, & SOVEREIGN SPREADS

JPST (Portfolio) vs. AGG (Benchmark): Spread Factor Exposures







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