

RORO REGIMES, SMART BETAS & SMARTER ALPHAS – Q1 2021

HOW? ENHANCED SMART BETAS ← FACTOR LIBRARY



- Over 600 factors including their sector neutralized versions
- ML-Enhanced Smart Betas: 18 Composites + 18 SN Composites



- Factors :=
 - [Long top 5% Short bottom 5%] market-neutral performance spreads on ~125 x 125 stocks
 - Clear rationale grounded in trader intuition, fundamentals or technicals with some expectation of persistence
 - NOT data-mined; robust to minor tweaks & usually gross of TCost (like indices)
- Enhanced Smart Betas via:
 - Max Sharpe
 - Risk Parity
 - Equal Weighted or restricted subsets
 - Random Forests
 - XGBoost, Ensemble methods etc

ENHANCED SMART BETA COHORTS



ENHANCED SMART BETAS

- 1. DEEP VALUE (DV)
- 2. RELATIVE VALUE (RV)
- 3. DIVIDENDS (DIVS)
- 4. REVERSALS (REVS)
- 5. PRICE MOMENTUM (PMOM)
- 6. ENHANCED MOMENTUM (ENMOM)
- 7. ANALYST REVISIONS (ARS)
- 8. ANALYST RATINGS & TARGETS (ART)
- 9. GROWTH HISTORICAL (GROH)
- 10. QUALITY EARNINGS QUALITY (EQ)
- 11. QUALITY LEVERAGE (LEV)
- 12. QUALITY PROFITABILITY (PROF)
- 13. QUALITY CAPITAL USAGE (CSU)
- 14. QUALITY STABILITY (STAB)
- 15. QUALITY EFFICIENCY (EFF)
- 16. SIZE
- 17. SHORT INTEREST (SIRF)
- 18. RISK (LOW VOL)

COMPOSITE SIGNALS

- 1. FAMOUS FIVE
- 2. SIZZLING SEVEN
- 3. FABULOUS FOURTEEN
- 4. ENTERPRISE EIGHTEEN
- 5. VALUE COMPOSITE
- 6. GROWTH MOMENTUM COMPOSITE
- 7. QUALITY COMPOSITE
- 8. VALUE MOMENTUM COMPOSITE
- 9. QUALITY MOMENTUM COMPOSITE
- 10. QUALITY VALUE COMPOSITE



ESB – PORTFOLIO CONSTRUCTION MATTERS (BETA-NEUTRAL 03-31-21)



Quality - Profitability	Spread Ann%	Vol	Sharpe	Sortino	MaxDD %	Hit Rate	Long Ann%	Long Sharpe
Benchmark: ROE	8.21	23.54	0.35	0.58	46.73	53.52	10.44	0.55
1. Equal Weight	20.77	16.81	1.24	3.50	18.42	67.58	11.44	0.63
2. Top 3 Cum Return Eq Wt	15.63	16.98	0.92	2.33	29.28	59.77	8.84	0.46
3. Top 3 Sharpe Eq Wt	15.80	16.55	0.95	2.44	21.10	62.89	10.69	0.54
4. Hybrid Risk Parity Exp Window	18.99	17.19	1.10	2.91	20.65	62.11	11.79	0.65
5. Hybrid Sharpe Exp Window	15.01	16.16	0.93	2.34	20.47	64.84	11.38	0.60

Quality – Capital Usage	Spread Ann%	Vol	Sharpe	Sortino	MaxDD %	Hit Rate	Long Ann%	Long Sharpe
Benchmark: Cash/MC	-3.32	20.93	-0.16	-0.21	76.78	50.00	9.28	0.50
1. Equal Weight	9.88	17.75	0.56	0.98	45.09	57.81	13.21	0.69
2. Top 3 Cum Return Eq Wt	14.51	16.61	0.87	1.65	28.25	64.06	13.95	0.75
3. Top 3 Sharpe Eq Wt	12.03	15.73	0.76	1.52	28.25	59.38	14.21	0.76
4. Hybrid Risk Parity Exp Window	9.35	16.13	0.58	1.11	37.68	57.42	14.35	0.69
5. Hybrid Sharpe Exp Window	10.39	15.58	0.67	1.28	28.27	58.98	14.65	0.72



ESB – PORTFOLIO CONSTRUCTION MATTERS (BETA-NEUTRAL 03-31-21)



Quality – Relative Value	Spread Ann%	Vol	Sharpe	Sortino	MaxDD %	Hit Rate	Long Ann%	Long Sharpe
Benchmark: P/E	10.82	23.40	0.46	0.80	41.29	56.25	12.44	0.48
1. Equal Weight	15.49	19.96	0.78	1.42	58.29	62.50	18.86	0.77
2. Top 3 Cum Return Eq Wt	15.28	20.10	0.76	1.43	40.73	59.77	17.03	0.69
3. Top 3 Sharpe Eq Wt	16.61	18.04	0.92	1.80	29.57	62.50	17.26	0.72
4. Hybrid Risk Parity Exp Window	15.53	19.79	0.78	1.46	58.47	62.50	18.56	0.76
5. Hybrid Sharpe Exp Window	16.86	17.73	0.95	1.88	29.57	64.84	18.78	0.77

Quality – Deep Value	Spread Ann%	Vol	Sharpe	Sortino	MaxDD %	Hit Rate	Long Ann%	Long Sharpe
Benchmark: P/B	1.50	21.46	0.07	0.11	67.34	46.48	7.77	0.24
1. Equal Weight	7.67	22.35	0.34	0.57	70.78	52.73	16.55	0.58
2. Top 3 Cum Return Eq Wt	14.59	20.19	0.72	1.25	49.43	60.16	17.11	0.67
3. Top 3 Sharpe Eq Wt	14.33	20.20	0.71	1.23	49.43	59.77	16.84	0.66
4. Hybrid Risk Parity Exp Window	6.26	22.16	0.28	0.46	72.51	55.08	15.91	0.56
5. Hybrid Sharpe Exp Window	14.21	20.34	0.70	1.21	49.45	59.77	17.31	0.67



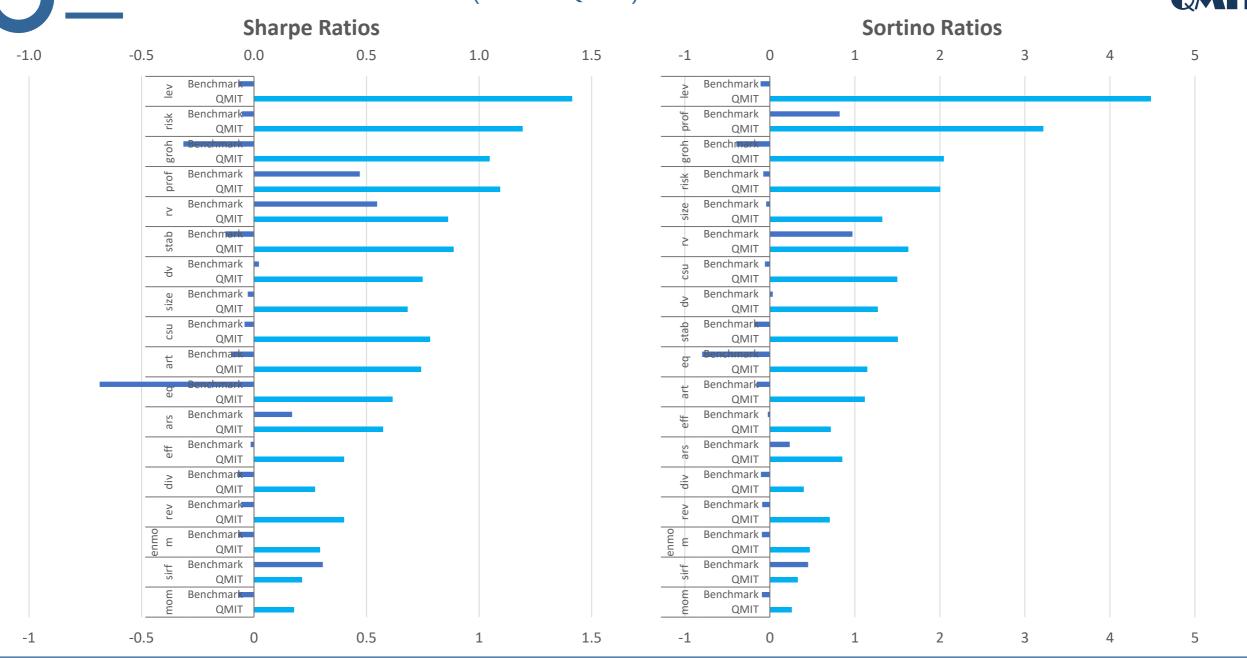
ESBS – BEST FLAVOR (HIGHEST CUM % LTD – BETA-NEUTRAL AS OF 3-31-21)



	Spread Ann%	Vol	Sharpe	Sortino	MaxDD %	Hit Rate	Long Ann%	Long Sharpe
Quality - Profitability	20.77	16.81	1.24	3.50	18.42	67.58	11.77	0.65
Quality - Leverage	17.30	13.80	1.25	3.49	21.61	68.75	11.22	0.54
Relative Value	16.86	17.73	0.95	1.88	29.57	64.84	19.01	0.86
Deep Value	14.59	20.19	0.72	1.25	49.43	60.16	14.11	0.67
Quality – Capital Structure/ Usage	14.51	16.61	0.87	1.65	28.25	64.06	14.16	0.77
Safety/ Risk	11.85	9.63	1.23	2.12	28.43	69.92	12.34	1.18
Reversals	10.54	20.71	0.51	0.93	34.13	55.86	10.07	0.46
Growth	10.46	11.17	0.94	1.63	34.25	62.50	14.33	0.68
Quality - Stability	10.00	11.40	0.88	1.49	20.26	64.06	13.51	0.85
Size	9.68	12.08	0.80	1.61	45.29	55.86	13.85	0.69
Quality - Efficiency	8.87	19.29	0.46	0.84	51.05	56.25	10.01	0.48
Analyst Revisions	7.90	12.20	0.65	0.96	38.21	63.67	13.35	0.70
Analyst Ratings and Targets	7.82	12.18	0.64	0.96	29.37	63.67	14.01	0.75
Quality - Efficiency	5.68	9.96	0.57	1.05	23.20	53.13	7.38	0.34
Enhanced Momentum	5.61	18.88	0.30	0.48	44.27	56.25	9.29	0.46
Dividends	3.71	10.33	0.36	0.54	31.76	56.64	10.95	0.59
Short Interest	3.23	9.28	0.35	0.56	23.88	55.08	11.93	0.74
Price Momentum	3.03	23.40	0.13	0.19	63.01	54.30	4.38	0.18



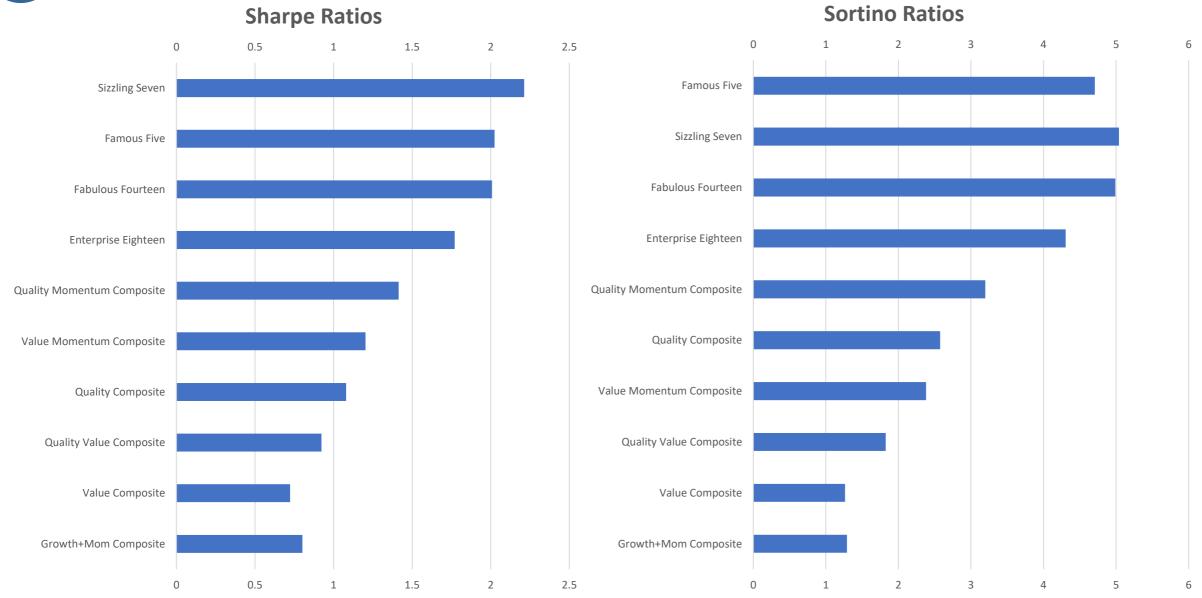






COMPOSITE SIGNALS – 21Y BETA NEUTRAL (2000 - Q1'21)

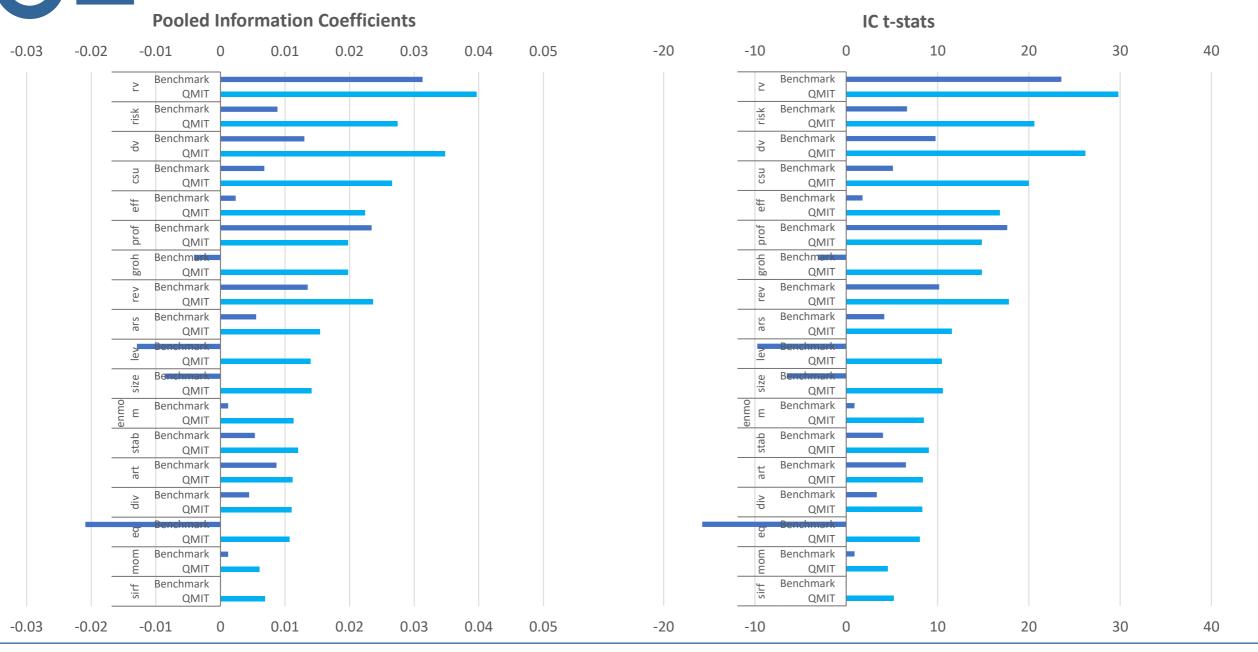




^{*} Monthly re-optimization of factor weights within ESB BFOMs which constitute the combos but with DAILY chain-linked returns & ESB factor re-rankings



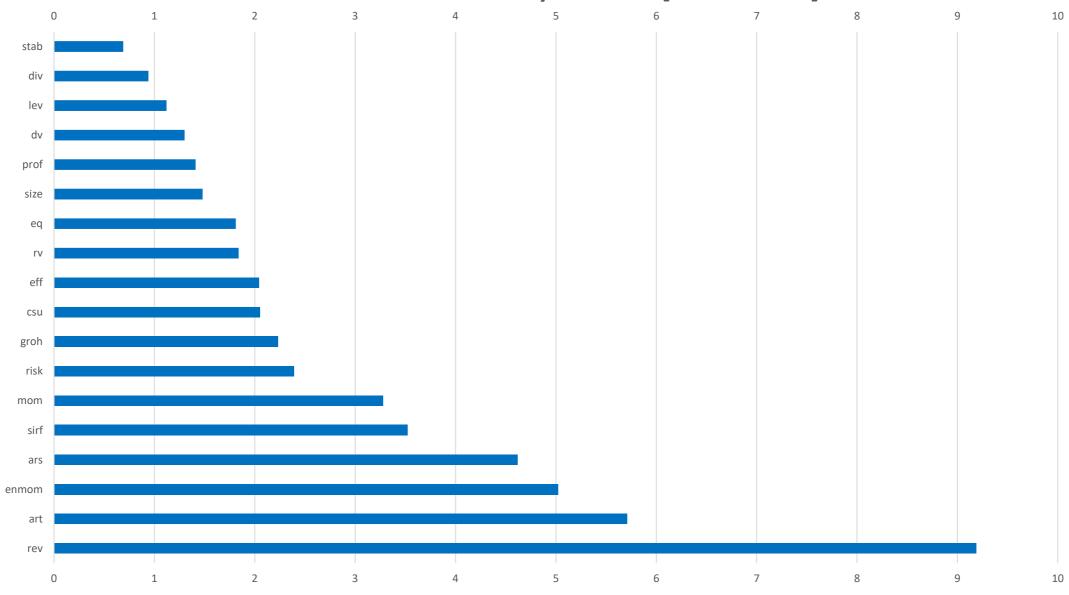






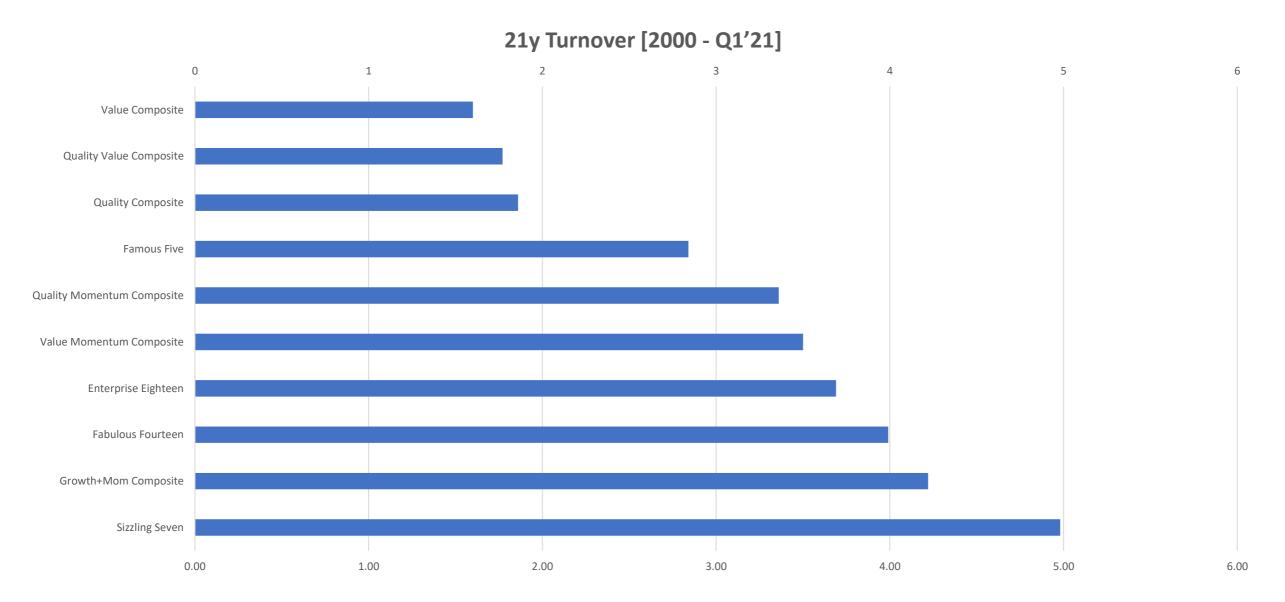


ESBs - 21y Turnover [2000 - Q1'21]











ESB HEATMAPS – YTD (12-31-20, DAILY* RE-RANKED, BETA-NEUTRAL)



	DTD Long I	DTD Short I	DTD Spread I	MTD Long I	MTD Short I	MTD Spread I	YTD Long I	YTD Short I	YTD Spread
DV	0.18%	-2.3%	2.48%	6.07%	15.04%	-8.62%	22.05%	72.15%	-32.84%
Size	-0.5%	0.86%	-1.36%	11.64%	2.84%	8.54%	21.53%	41.09%	-15.17%
RV	0.72%	-0.75%	1.47%	7.96%	8.42%	-0.5%	30.34%	66.72%	-23.27%
Profit	0.37%	-0.39%	0.76%	7.62%	5.6%	1.87%	27.89%	-1.09%	24.37%
CSU	0.5%	-0.06%	0.56%	8.59%	10.05%	-1.47%	24.1%	21.87%	-1.22%
Leverage	0.53%	-0.26%	0.79%	7.83%	5.68%	1.98%	27.42%	41.79%	-11.03%
Reversals	-0.83%	0.45%	-1.28%	6.86%	5.2%	1.42%	104.86%	-4.36%	108.56%
Efficiency	-0.11%	-1.29%	1.18%	5.23%	9.22%	-3.99%	7.34%	62.26%	-35.93%
EQ	-0.18%	-0.41%	0.22%	7.39%	11.61%	-3.89%	17.62%	41.53%	-18.55%
Growth	-0.47%	-0.06%	-0.41%	6.55%	8.75%	-2.21%	24.07%	52.12%	-20.64%
ART	-0.05%	-0.12%	0.07%	9.66%	7.0%	2.4%	8.07%	12.24%	-5.94%
EnMOM	-0.09%	-0.09%	-0.0%	5.76%	8.84%	-3.08%	57.31%	7.8%	39.55%
ARS	-0.04%	-0.3%	0.26%	7.22%	8.66%	-1.44%	27.9%	12.64%	10.31%
SIRF	0.74%	-0.82%	1.55%	6.23%	6.69%	-0.56%	9.31%	19.16%	-7.58%
Stability	0.41%	-0.61%	1.02%	3.58%	6.96%	-3.27%	15.71%	-7.42%	21.62%
Risk	0.71%	-0.16%	0.87%	3.75%	1.18%	2.52%	6.32%	5.01%	1.86%
PMOM	-0.51%	0.13%	-0.64%	7.45%	10.28%	-2.97%	32.04%	7.83%	13.07%
Dividends	0.63%	0.28%	0.36%	7.02%	7.73%	-0.65%	-6.51%	26.71%	-24.26%



ESB HEATMAPS – YTD (03-31-21, DAILY* RE-RANKED, \$-NEUTRAL)



	DTD Long	DTD Short	DTD Spread	MTD Long	MTD Short	MTD Spread	YTD Long	YTD Short	YTD Spread
	Long I	SHOTE I	Spread I	Long I	I	Spread I	Long I	I	Spread I
DV	-0.31%	3.44%	-3.75%	10.59%	-9.85%	19.5%	34.34%	0.02%	28.86%
Size	1.49%	0.86%	0.63%	-0.45%	0.9%	-1.09%	20.89%	2.69%	18.12%
RV	0.3%	1.86%	-1.57%	11.09%	-1.17%	11.63%	34.97%	28.24%	4.02%
Profit	1.34%	1.88%	-0.54%	2.22%	-2.93%	4.13%	6.48%	34.51%	-23.37%
CSU	-0.22%	3.01%	-3.24%	7.18%	-1.36%	6.75%	22.19%	22.37%	-3.07%
Reversals	2.97%	-0.25%	3.23%	3.71%	-4.62%	8.34%	17.14%	7.67%	7.16%
Efficiency	0.88%	3.69%	-2.82%	9.32%	-9.02%	18.72%	37.22%	-3.52%	39.57%
Leverage	0.79%	3.59%	-2.81%	1.81%	-7.69%	7.9%	4.7%	10.6%	-8.63%
EQ	0.87%	2.59%	-1.72%	-0.08%	-3.12%	2.96%	34.38%	10.7%	20.6%
Growth	1.15%	0.81%	0.34%	6.06%	3.57%	2.23%	25.18%	29.53%	-4.04%
EnMOM	1.97%	0.21%	1.76%	-3.37%	5.02%	-7.93%	19.34%	19.91%	-0.51%
ART	1.4%	0.22%	1.17%	1.41%	3.18%	-1.5%	15.77%	23.17%	-6.24%
ARS	0.57%	2.37%	-1.8%	2.62%	0.75%	1.64%	18.29%	25.01%	-5.85%
SIRF	-0.25%	1.65%	-1.9%	3.9%	-1.11%	4.47%	9.22%	18.55%	-9.45%
Stability	-0.52%	2.55%	-3.07%	8.15%	-2.04%	8.66%	14.13%	25.09%	-11.71%
PMOM	3.25%	0.67%	2.58%	-3.24%	8.45%	-10.59%	21.73%	26.41%	-3.49%
Dividends	-0.13%	0.55%	-0.67%	7.38%	5.48%	1.66%	25.82%	22.5%	2.64%
Risk	-0.28%	3.46%	-3.74%	6.17%	-0.1%	3.16%	5.75%	42.52%	-30.35%
RiskOn	0.89%	1.72%	-0.83%	6.32%	-3.04%	9.11%	25.57%	11.88%	12.03%
RiskOff	0.82%	1.75%	-0.93%	2.84%	1.33%	0.89%	18.39%	25.22%	-6.14%
RORO Spread	0.07%	-0.03%	0.1%	3.48%	-4.37%	8.22%	7.18%	-13.34%	18.17%



ESB HEATMAPS – LTD (12-31-20, 19Y MO & 2Y DAILY*, \$-NEUTRAL)



	5Y Long	5Y Short	5Y Spread	Post-07 Long	Post-07 Short	Post-07 Spread	LTD Long	LTD Short	LTD Spread
DV	13.26%	18.34%	-4.8%	12.17%	0.99%	10.44%	15.69%	-7.36%	18.75%
Size	18.05%	19.05%	-0.52%	15.87%	7.09%	8.83%	20.63%	3.11%	17.74%
RV	12.71%	15.34%	-2.79%	10.35%	2.9%	6.62%	17.33%	-6.29%	17.87%
Profit	19.51%	5.86%	6.45%	10.6%	-2.17%	7.86%	11.25%	-12.6%	16.58%
CSU	12.83%	5.72%	5.0%	10.13%	-1.38%	9.5%	13.04%	-8.09%	14.7%
Leverage	17.06%	17.31%	-2.67%	10.69%	2.74%	4.61%	10.85%	-8.85%	14.73%
Reversals	30.26%	4.28%	24.63%	12.13%	0.26%	11.78%	12.05%	-3.98%	16.06%
Efficiency	8.23%	17.23%	-7.67%	7.61%	4.98%	2.75%	11.39%	-5.21%	11.45%
EQ	18.12%	11.51%	5.86%	10.03%	2.31%	7.06%	9.19%	-3.06%	10.82%
Growth	12.46%	17.36%	-6.04%	10.43%	3.17%	4.87%	13.85%	0.9%	10.27%
ART	16.39%	12.43%	-1.16%	14.42%	1.51%	8.27%	15.05%	3.08%	7.91%
EnMOM	19.16%	12.69%	2.7%	11.12%	3.31%	4.78%	10.62%	-0.85%	7.23%
ARS	18.09%	7.88%	5.26%	13.18%	1.35%	8.04%	13.03%	3.05%	6.06%
SIRF	14.81%	13.29%	0.71%	9.28%	5.29%	3.43%	12.91%	8.03%	4.08%
Stability	13.08%	1.19%	8.13%	10.9%	1.69%	5.94%	12.97%	4.24%	3.98%
Risk	11.93%	10.98%	-11.18%	9.78%	1.86%	-4.42%	12.19%	-10.15%	3.06%
PMOM	16.61%	13.77%	-5.06%	9.3%	1.36%	0.49%	6.49%	-4.47%	1.4%
Dividends	9.54%	10.94%	-1.05%	7.11%	6.84%	-0.82%	10.43%	6.57%	1.12%

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COMPOSITE SIGNALS - YTD (03-31-21, MONTHLY REBAL*, \$-NEUTRAL)



	DTD Long I	DTD Short I	DTD Spread I	MTD Long I	MTD Short I	MTD Spread I	YTD Long I	YTD Short I	YTD Spread I
Fabulous Fourteen	0.36%	2.13%	-1.77%	7.32%	-4.77%	11.9%	26.7%	1.04%	23.48%
Sizzling Seven	-0.03%	1.3%	-1.33%	7.76%	-1.88%	9.15%	21.35%	2.66%	16.0%
Famous Five	-0.33%	2.58%	-2.91%	7.07%	-6.88%	13.57%	20.66%	5.98%	11.57%
Enterprise Eighteen	-0.03%	1.8%	-1.83%	7.73%	-3.79%	11.1%	24.01%	5.35%	15.55%
Value Momentum Composite	-0.02%	2.02%	-2.05%	9.82%	-7.4%	17.78%	32.27%	2.85%	27.3%
Value Composite	-0.33%	3.5%	-3.83%	11.89%	-9.76%	20.29%	31.49%	4.6%	20.31%
Quality Momentum Composite	0.49%	1.67%	-1.18%	7.97%	-3.86%	11.93%	22.01%	10.44%	9.75%
Quality Value Composite	-0.46%	4.32%	-4.78%	10.59%	-6.54%	14.72%	24.92%	13.99%	4.33%
Quality Composite	-0.08%	3.93%	-4.01%	6.3%	-3.92%	8.07%	16.46%	15.57%	-3.02%
Growth+Mom Composite	1.66%	0.72%	0.94%	1.73%	1.48%	0.47%	20.36%	12.98%	6.66%





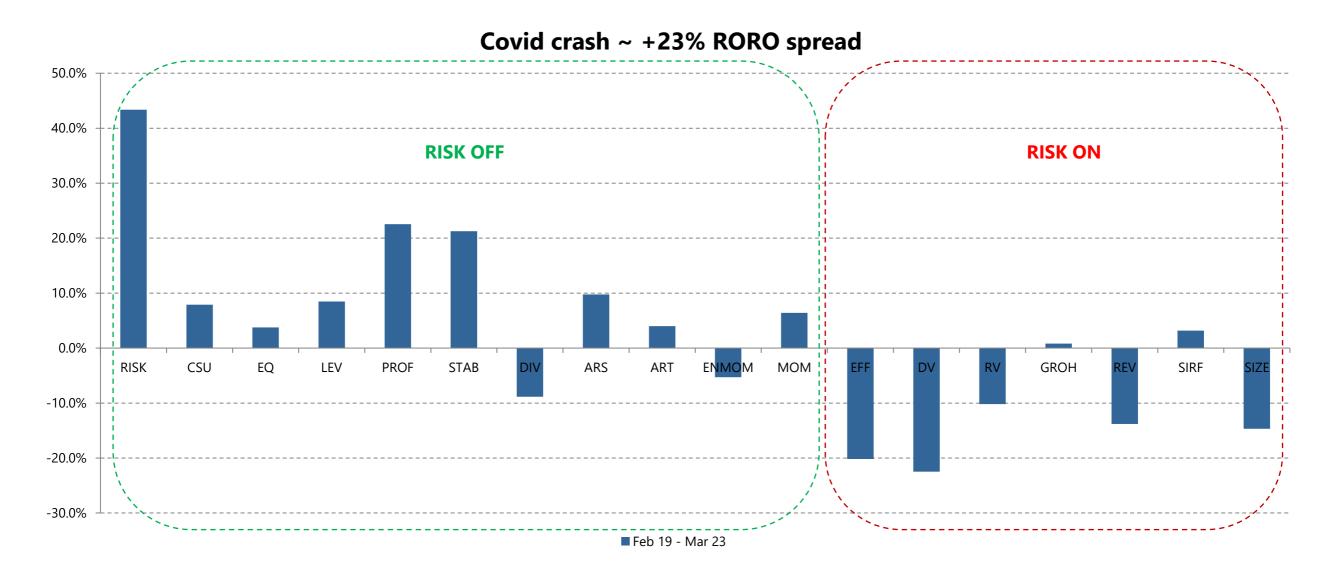
	Sizzling Seven	_ Enterprise _ Eighteen	Fabulous Fourteen	Famous Five	Growth+Mom Composite	Quality Composite	Quality – Momentum Composite	Quality - Value Composite	Value Composite	Value – Momentum Composite
Financials	1	1	1	2	1	4	3	6	7	3
Materials	2	3	4	4	5	5	5	4	2	2
Consumer Staples	3	5	5	1	9	1	6	1	3	7
Communication Services	4	6	6	5	8	6	7	5	4	6
Energy	5	7	7	8	6	9	9	7	1	1
हnergy Industrials	6	2	2	3	3	2	1	2	6	4
Consumer Discretionary	7	4	3	6	4	3	2	3	5	5
Information Technology	8	8	8	7	2	7	4	8	9	8
Health Care	9	9	9	9	7	8	8	9	10	9
Utilities	10	10	10	10	10	10	10	10	8	10





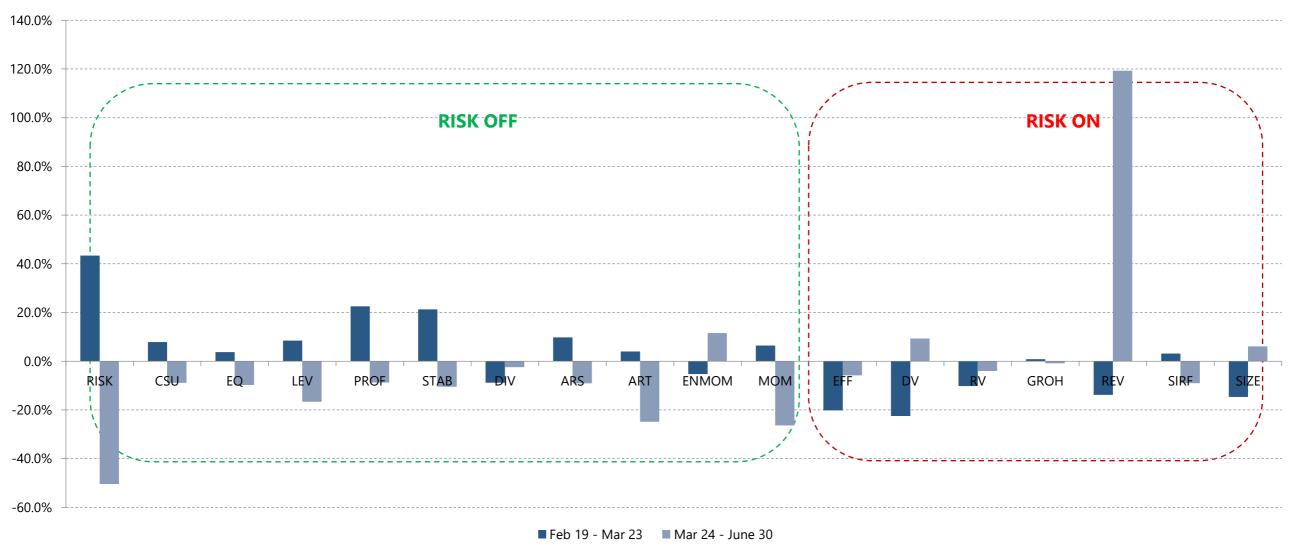
					widends		Efficiency	· Orn	A.	lenet sole	149	.×.		REVERSALS				dility
	ARS	BEL	EN	9 4	Divid	\$0	Effici	ENNON	Growth	eve.	PWOW	Profit	4	584E	Right	SIRK	Sile	diap.
ARS	1.0	0.81	0.18	-0.36	0.03	-0 21	-0.13	0.56	0.52	0.29	0.69	0.49	-0.02	-0.47	0.51	0.19	-0.55	0.35
ART	0.81	1.0	0.11		-0.04				0.5	0.29	0.72	0.41	-0.05		0.46		-0.45	0.29
CSU	0.18	0.11	1.0	0.69	0.72	0.46	0.8	-0.06	0.41	0.69	0.02	0.74	0.86	-0.21	0.78	-0.16		0.8
DV		-0.34	0.69	1.0	0.59	0.5	0.88	-0.45	0.08		-0.45	0.28	0.79	0.18	0.32	-0.3	0.04	0.44
Dividends	0.03	-0.04	0.72	0.59	1.0	0.43	0.65	-0.22			-0.13	0.53	0.69	-0.11	0.64			0.57
		-0.24	0.72	0.5	0.43	1.0	0.53	-0.12	-0.1	0.15	-0.13	0.11	0.41	0.07	0.19	-0.22	0.11	0.26
EQ																		
Efficiency	-0.13	-0.14	0.8	0.88	0.65	0.53	1.0	-0.19	0.18	0.42	-0.17	0.41	0.84	-0.0	0.5	-0.26	-0.07	0.53
EnMOM	0.56	0.59	-0.06	-0.45	-0.22	-0.12	-0.19	1.0	0.22	0.08	0.9	0.12	-0.16	-0.23	0.18	0.25	-0.17	0.02
Growth	0.52	0.5	0.41	0.08	0.27	-0.1	0.18	0.22	1.0	0.57	0.39	0.65	0.45	-0.22	0.56	0.01	-0.38	0.38
Leverage	0.29	0.29	0.69	0.33	0.44	0.15	0.42	0.08	0.57	1.0	0.19	0.86	0.67	-0.31	0.75	0.07	-0.48	0.63
PMOM	0.69	0.72	0.02	-0.45	-0.13	-0.1	-0.17	0.9	0.39	0.19	1.0	0.28	-0.09	-0.39	0.34	0.24	-0.33	0.14
Profit	0.49	0.41	0.74	0.28	0.53	0.11	0.41	0.12	0.65	0.86	0.28	1.0	0.66	-0.34	0.86	-0.01	-0.63	0.75
RV	-0.02	-0.05	0.86	0.79	0.69	0.41	0.84	-0.16	0.45	0.67	-0.09	0.66	1.0	-0.07	0.63	-0.16	-0.23	0.6
Reversals	-0.47	-0.35	-0.21	0.18	-0.11	0.07	-0.0	-0.23	-0.22	-0.31	-0.39	-0.34	-0.07	1.0	-0.41	-0.19	0.46	-0.34
Risk	0.51	0.46	0.78	0.32	0.64	0.19	0.5	0.18	0.56	0.75	0.34	0.86	0.63	-0.41	1.0	-0.03	-0.64	0.81
SIRF	0.19	0.21	-0.16	-0.3	-0.25	-0.22	-0.26	0.25	0.01	0.07	0.24	-0.01	-0.16	-0.19	-0.03	1.0	-0.05	-0.07
Size	-0.55	-0.45	-0.38	0.04	-0.29	0.11	-0.07	-0.17	-0.38	-0.48	-0.33	-0.63	-0.23	0.46	-0.64	-0.05	1.0	-0.53
Stability	0.35	0.29	8.0	0.44	0.57	0.26	0.53	0.02	0.38	0.63	0.14	0.75	0.6	-0.34	0.81	-0.07	-0.53	1.0



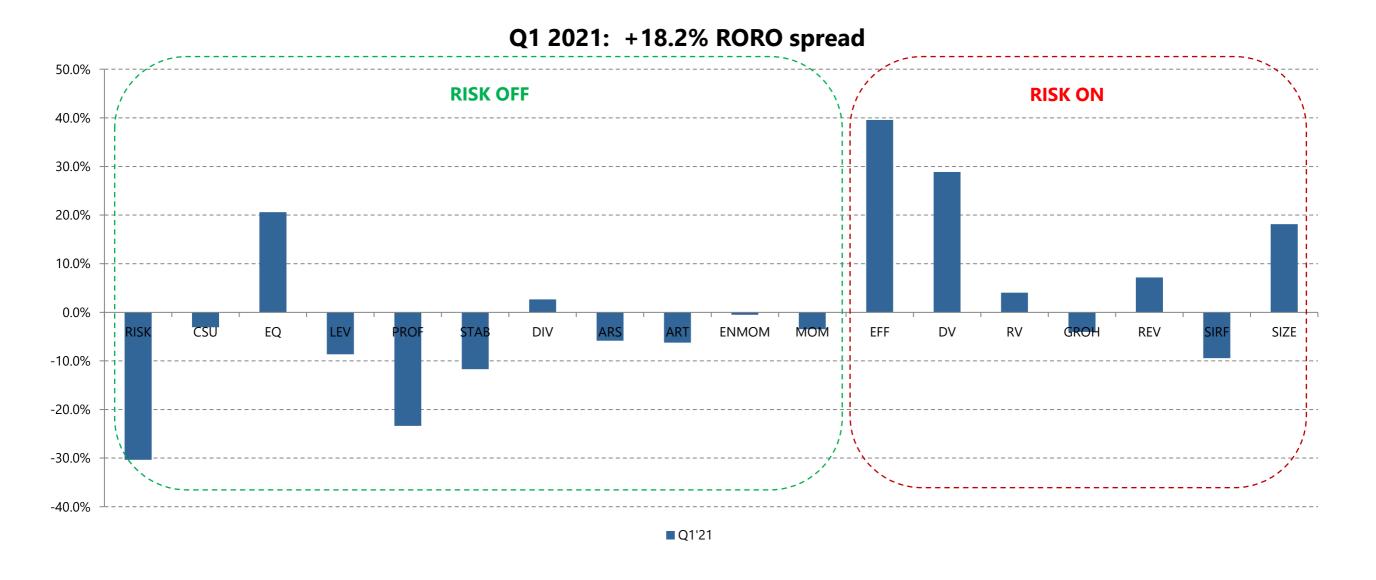




Covid Crash vs Rebound









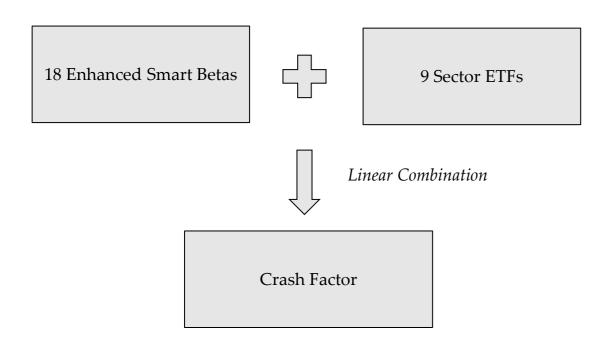
ESB – VACCINE MONDAY 11/9/20 → GREAT VAL/ MO ROTATION



QMIT		Intra-day %			
	Long	Short	\$Neutral L-S	Beta N L-S	Risk ON/OFF
ESB					
Deep Value	8.4%	0.0%	8.4%	8.4%	ON
Relative Value	5.3%	7.1%	-1.9%	0.9%	ON
Analyst Revisions	0.2%	10.3%	-10.0%	-8.1%	OFF
Analyst Ratings	0.6%	10.0%	-9.4%	-9.0%	OFF
Enhanced Momentum	-6.6%	11.2%	-17.8%	-14.5%	OFF
Momentum	-6.8%	17.4%	-24.2%	-23.1%	OFF
Growth	-0.7%	14.1%	-14.8%	-11.1%	ON
Capital Structure & Usage	6.6%	4.9%	1.6%	2.0%	OFF
Efficiency	4.0%	-0.1%	4.1%	4.1%	ON
Earnings Quality	5.2%	2.4%	2.7%	3.2%	OFF
Leverage	1.1%	3.9%	-2.8%	-0.6%	OFF
Stability	3.5%	4.8%	-1.3%	0.4%	OFF
Profitability	-0.2%	9.4%	-9.7%	-4.6%	OFF
Risk [Low Vol]	-0.2%	7.7%	-7.8%	-5.5%	OFF
Short Interest	3.5%	-0.1%	3.6%	3.6%	ON
Dividend	12.4%	4.1%	8.3%	6.4%	OFF
Reversal	2.3%	4.5%	-2.2%	-1.2%	ON
Size	5.4%	-1.5%	6.9%	3.7%	ON
ESB Risk ON/OFF Classification					
ON	4.0%	3.4%	0.6%	1.5%	ON
OFF	1.4%	7.8%	-6.4%	-4.5%	OFF
		Risk On vs OFF	7.0%		

CONSTRUCTION OF A UNIVERSAL CRASH FACTOR





Historical Crash Periods

- Apr 2000 Oct 2002 (Nasdaq Crash)
- Oct 2007 Feb 2009 (2008 Financial Crisis)
- May 2011 Oct 2011 (US Debt-Ceiling Crisis)
- Sep 2018 Dec 2018 (2018 Stock Market Crash)
- Feb 2020 Mar 2020 (Covid Crash)
- 30 months excl Nasdaq; 28 mos excl Covid
- Daily data 24 TDs for Covid Crash

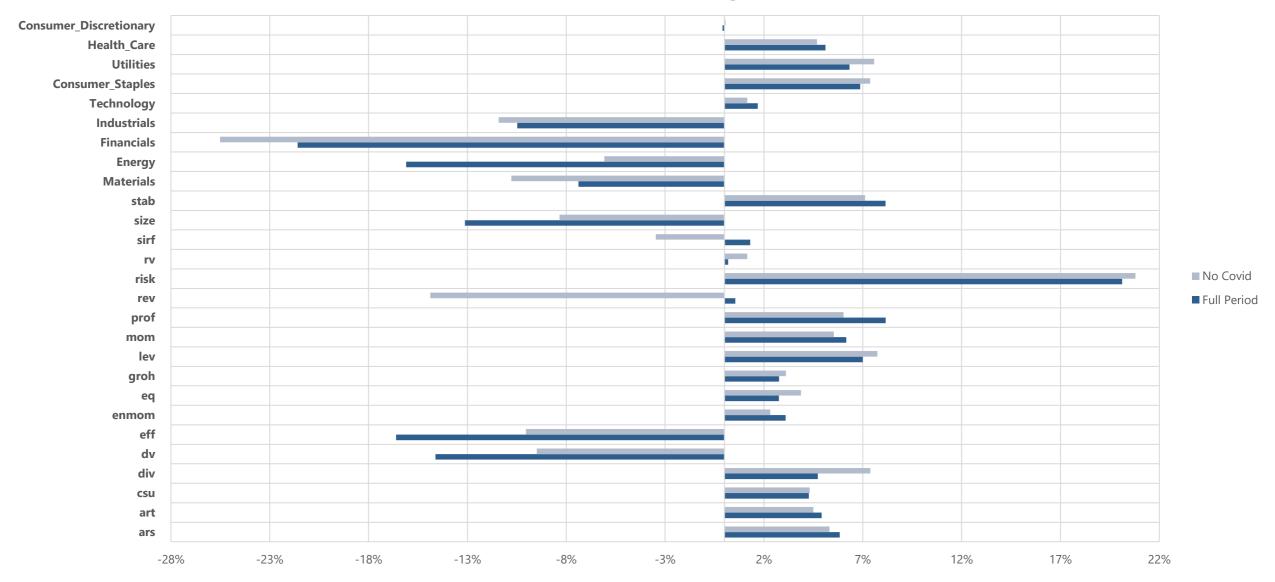
UCF Hedging portfolios

- Long Only
- Market Neutral

UCF WEIGHTS – MARKET NEUTRAL



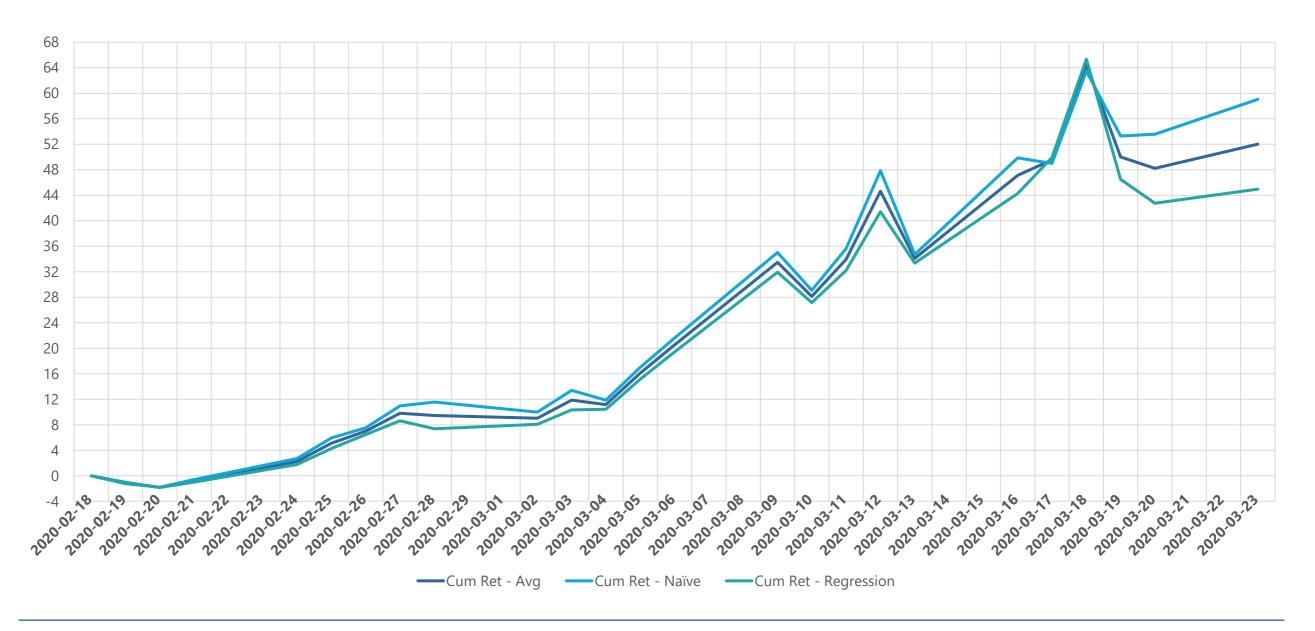
Crash Beta weights

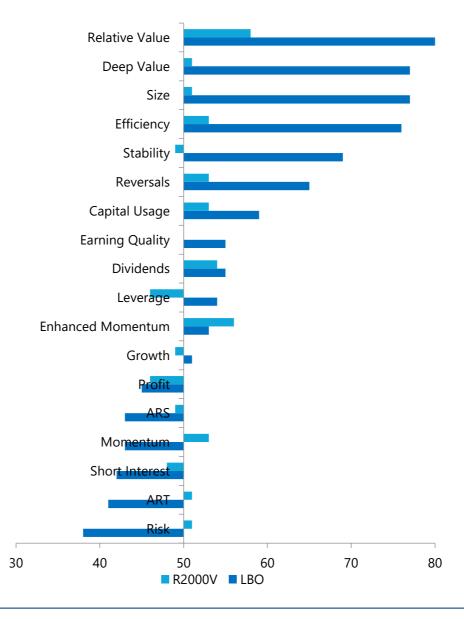




UCF HEDGE OUTSAMPLE – COVID CRASH - EMN









LBO TOP100 MODEL – 22ND YR OF OUTPERFORMING R2000 VALUE

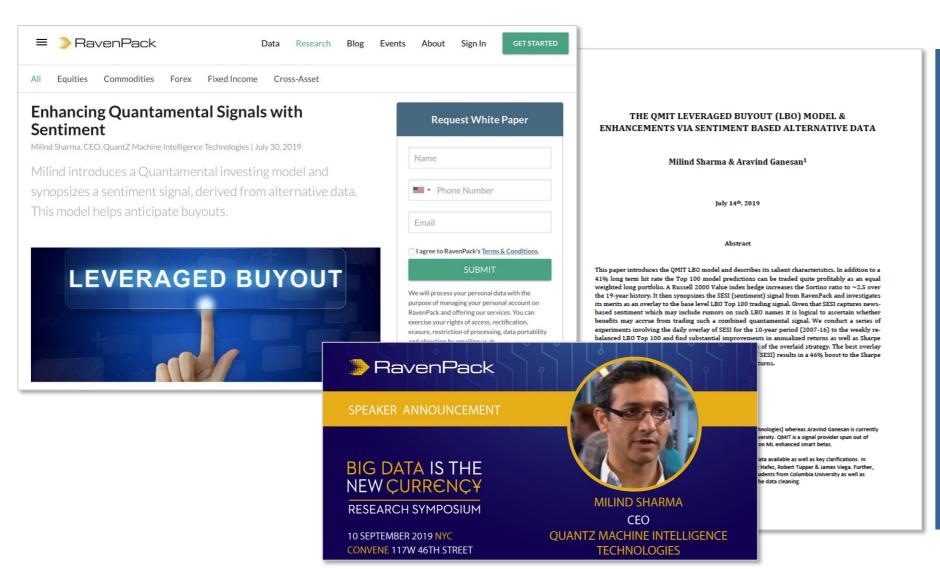
No "Down" years vs R2000 Value-

	LBO100	SPY	R2000 Val	LBO - R2000 Val
2000	29.17%	-9.73%	22.68%	11.06%
2001	39.38%	-11.75%	14.00%	27.26%
2002	12.46%	-21.59%	-11.42%	29.37%
2003	60.63%	28.18%	46.00%	11.11%
2004	40.33%	10.70%	22.14%	15.79%
2005	19.35%	4.83%	4.64%	17.26%
2006	35.21%	15.85%	23.45%	14.34%
2007	-2.42%	5.14%	-9.80%	12.62%
2008	-27.55%	-36.81%	-28.96%	2.17%
2009	84.22%	26.37%	20.50%	50.39%
2010	34.52%	15.06%	24.49%	7.77%
2011	0.27%	1.89%	-5.50%	6.47%
2012	27.43%	15.99%	18.05%	8.21%
2013	51.62%	32.31%	34.52%	12.77%
2014	12.86%	13.46%	4.21%	8.60%
2015	-6.73%	1.25%	-7.47%	1.12%
2016	41.71%	12.00%	31.72%	8.32%
2017	19.32%	21.70%	7.82%	11.57%
2018	-13.60%	-4.56%	-12.85%	0.98%
2019	28.05%	31.22%	22.01%	7.52%
2020	24.28%	18.38%	4.66%	20.48%
2021 YTD	28.66%	6.35%	21.34%	6.01%



USE CASE – ENHANCING QMIT'S LBO SIGNAL WITH RAVENPACK'S SENTIMENT





- Long: Activists, risk arb's, LBO speculators
- Short: Quants eliminating event risk
- QMIT LBO Top100: leveraged buyout prediction use case of Smart Beta library

+

 RavenPack Sentiment Indicator: captures news-based sentiment, may include rumors on LBO names

- +8.6% to annualized returns
- +46% to Sharpe ratio
- Substantial improvements vs benchmark
- Significantly improved drawdown profile





Awards

- Founder has been involved with:
 - Morningstar Fund of the Year
 - Lipper top 1-3%
- QuantZ Capital Multiple awards, including
 - BattleFin Elite
 - Battle of the Quants
 - Best Stat Arb fund





Media



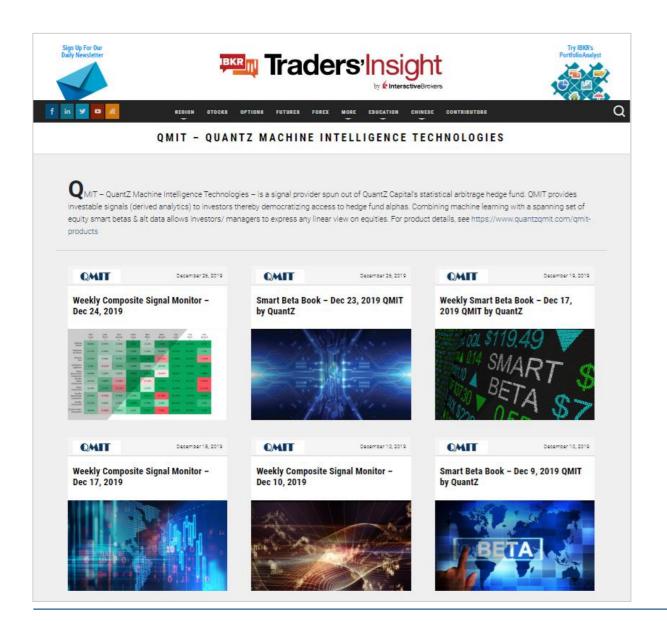
- Bloomberg TV
- Asset TV
- CNBC, Bloomberg news, Hedge Fund Alert, WSJ, FT, AR magazine, HFMWeek
- "The Quants" by Scott Patterson

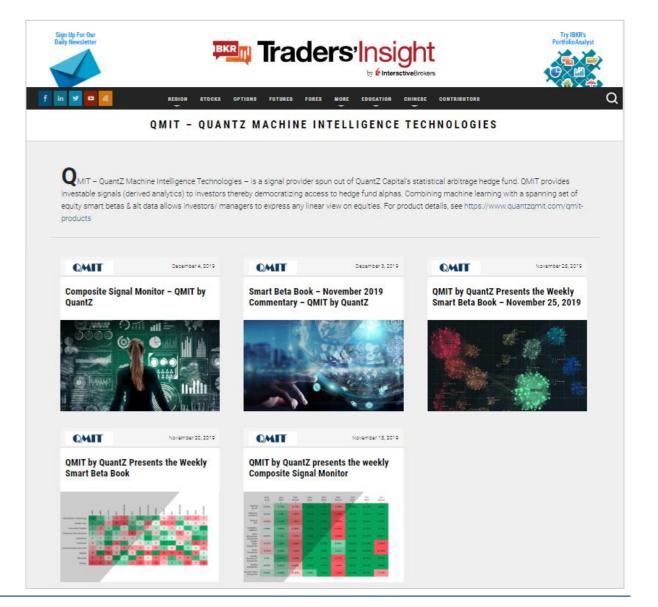


HF Risk Panel at Bloomberg LIVE HF Forum with Simone Foxman













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APPENDIX: ENHANCED SMART BETA DEFINITIONS



ARS: This smart beta composite shows our **Analyst Revisions** cohort based on measures of estimate revisions, dispersion, Standardized Unexpected Earnings surprise (SUE score) & consensus change in both earnings as well as revenues which can outperform traditional metrics like a 1mo consensus change.

ART: This smart beta composite shows our **Analyst Ratings & Targets** cohort based on measures of analyst recommendations, target price, changes & diffusion which can outperform traditional metrics like a 1mo consensus change.

CSU: This smart beta composite shows our **Capital Structure/Usage** cohort based on measures including Buybacks, Total yield, Capex, capital usage ratios etc which can outperform traditional metrics like Cash/MC.

Dividends: This smart beta composite shows our **Dividends** related cohort based on measures including Yield, payout, growth, forward yield etc which can outperform traditional metrics like Dividend Yield.

DV: This smart beta composite shows our **Deep Value** (or intrinsic value) cohort based on measures including tangible book & sales which can outperform traditional Book yield.

Efficiency: This smart beta composite shows our **Efficiency** cohort based on measures including Asset Turnover, Current Liabilities, Receivables etc which can outperform traditional metrics like Asset Turnover.

EnMOM: This smart beta composite shows our **Enhanced Momentum** cohort which can outperform traditional 12-month price momentum in both return & risk adjusted terms particularly at market inflection points.

EQ: This smart beta composite shows our Earnings Quality cohort based on a variety of Accrual measures which can outperform traditional metrics like Total Accruals.

Growth: This smart beta composite shows our **Historical Growth** cohort based on a variety of Earnings, Sales, Margins & CF related growth measures which can outperform traditional metrics like 3yr Sales growth.

Leverage: This smart beta composite shows our Leverage related cohort based on measures of Balance Sheet leverage which can outperform traditional metrics like Debt To Equity.

PMOM: This smart beta composite shows our **PMOM** related cohort which can outperform traditional 12-month price momentum using a variety of traditional momentum factors.

Profit: This smart beta composite shows our Profitability cohort based on measures like ROA, ROE, ROCE, ROTC, Margins etc which can outperform traditional metrics like ROE.

RV: This smart beta composite shows our Relative Value cohort based on measures of EPS, CFO, EBITDA etc which can outperform traditional Earnings yield.

Reversals: This smart beta composite shows our **Reversals** cohort which is comprised of metrics like short term reversals, RSI, DMA & other technical factors which can outperform traditional metrics like a 1-month total return.

Risk: This smart beta composite shows our Risk/ Low Vol cohort which is comprised of metrics like Beta, Low volatility etc.

SIRF: This smart beta composite shows our Short Interest cohort which is comprised of metrics related to Short Interest and its normalization by Float, trading volume etc.

Size: This smart beta composite shows our **Size** cohort which is comprised of metrics related to firm size including market capitalization.

Stability: This smart beta composite shows our Stability cohort which is comprised of metrics like Dispersion of EPS/ SPS estimates as well as the stability of Margins, EPS & CFs etc.

APPENDIX: MILIND SHARMA, CEO & FOUNDER



MILIND SHARMA'S 25 YEARS OF MARKET EXPERIENCE SPAN RUNNING PROP DESKS AT RBC & DEUTSCHE BANK (SABA UNIT) AS WELL AS HEDGE FUNDS (QUANTZ) & MUTUAL FUNDS (MLIM). HIS FUNDS HAVE WON MANY AWARDS OVER THE YEARS INCLUDING THOSE FROM MORNINGSTAR, LIPPER, WSJ, BATTLE OF THE QUANTS & BATTLEFIN. HE WAS A FOUNDING MEMBER OF QUANT STRATEGIES/RISK AT MLIM (NOW BLACKROCK) & MANAGER OF THE RISK ANALYTICS AND RESEARCH GROUP AT ERNST & YOUNG WHERE HE WAS COARCHITECT OF RAVEN (DERIVATIVES VALIDATION ENGINE). HE ALSO CREATED THE AIRAP METHODOLOGY FOR HEDGE FUNDS.

HIS PUBLICATIONS HAVE APPEARED IN THE JOURNAL OF INVESTMENT MANAGEMENT, RISK BOOKS, ELSEVIER BOOKS, WORLD SCIENTIFIC, WILEY FINANCE ETC. HIS EDUCATIONAL BACKGROUND INCLUDES OXFORD, VASSAR, CARNEGIE MELLON & WHARTON. HE HAS ALSO LECTURED, PRESENTED AND/OR TAUGHT CAPSTONE COURSES AT COLUMBIA, CARNEGIE MELLON, GEORGIA TECH, JOHNS HOPKINS, NYU UCSD, UCLA ETC. HE IS PRESIDENT OF THE QUANT SOCIETY < QWAFAXNEW> (FORMERLY QWAFAFEW NY).





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QuantZ

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