Hi Milind,

Q3 2021 QMIT update:

- QuantZ/ QMIT's founder will do an Opalesque Masterclass webinar with Matthias Knab on 11/18.
  Event description: https://www.opalesque.com/campaign.php?id=66
  Event registration: https://www.opalesque.com/webinar/#uw2
  QuantZ/ QMIT's founder presented on the "Frontiers of Factor Investing" at the Trading Show Chicago:
    https://www.terrapinn.com/conference/trading-show-chicago/agenda.stm

  If you like our research please vote for us at the Benzinga Global Fintech Awards:
  https://awards.benzinga.com/entry/vote/dxqYPYxQ/gLJWkWMr?search=6e038d6fe3b586c4-1

- **2021 YTD has been extraordinarily strong for QMIT signals with all of them up double digits** – to wit **GARP (Val+Mo) EMN signal crossed+70% YTD** by mid-October! We have not seen such astounding pure market neutral alpha since the Nasdaq crash years. Our flagship **Value Composite at +55.19%** on an EMN basis as of 09/30/21. YTD has been proof positive that factor investing across a diversified & judiciously chosen spanning set can pay off in spades even amidst the tumultuous hand-off from Growth to Value.
- Our signals had an outlandish positive streak through mid-April followed by a drawdown through June from overbought conditions. Subsequently we've seen them inch back towards the high watermark in Q3 & actually climb to new highs by mid-October.
- SPX was -4.8% in September but +15.6% YTD after its first monthly decline in CY21. Nasdaq fell 5.3%, while the Dow was down by 4.3% while Energy led on the plus side of the ledger boosted by soaring crude oil prices. September saw another rotation away from high growth tech/ ARKK names towards Deep Value & cyclical stocks as 10-year Treasury yields spiked to 1.5%. Financials outperformed on the back of rising yields while growth stocks got hit by the spike in discount rates. In September, FOMC signaled that the taper may begin by the end of this year while the spectre of Evergrande's default roiled Chinese markets.
- **Fabulous 14** has advanced from +32.9% in Q2 to **+46.51%** at the end of Q3.
- Our **Value Composite** was up at **+57.1%** thanks to **DV at +55.68%** which has staged a dramatic turnaround after multiple horrendous years.
- The **Growth-Momentum** complex which was the leader last year was the laggard relative to Value this year but is up double digits at **+16.93%** ($ Neutral).
- The **Quality** composite of six ESBs was flattish at **+2%** end of 2Q but it's already up double digits now to **+16.09%** YTD. Beneath the surface we have tremendous dispersion between the Risk On vs Off components. YTD 3Q mid-year has been Risk On as embodied by the Risk On ESBs inside the Quality composite viz **Efficiency at (+64.22%)** whereas the Risk Off ESB for **Profitability is down -16.97%** ($ Neutral) & Risk Off ESB Stability is -3.71% YTD in a stark reversal of fortunes from the Risk OFF sentiment last year.
- ESB standouts YTD are **Efficiency +64.22%; DV 55.68%; RV 32.1% ($ Neutral Monthly).** Given that we provide live ex-ante Top/ Bottom picks by ESB at month end, one can not only see the sorts of names that are driving Efficiency vs Profitability spreads etc but also independently verify the spread returns from those live position files.
- From a **Long Only** perspective the performance continues to be impressive with **Value Composite** leading the charge at **+47.30%** followed by our flagship **Val+Mo** [aka GARP] **at +45.11%** trouncing the SPX YTD. Given that the vast majority of investors are Long Only and many others are questioning the wisdom of shorting single names, it's worth acknowledging the high octane nature of the Long side of our signals which have consistently delivered but been hamstrung by the shorts in recent years as a result of the Fed's QE inspired melt up.
- The differential performance across our flagship signals is largely attributable to the differential weighting of ESBs like DV, Size, Efficiency & EQ which have had a disproportionate contribution YTD. Ultimately we recommend that clients use their own custom blends so they can take full fiduciary responsibility for the factor weighting schema as reflecting their investment philosophy hence the out-sample performance.
- We noted (rather presciently) in Dec 2020 that "$ neutrality is likely to remain quite challenging for EMN models (like 2009) largely on the short side because the model does not yet see in the numbers that the market is looking through Covid's winter of discontent towards mass vaccinations & the resumption of normalcy." We do know from decades of collective experience that around these inflection points, market neutral quant models tends to underperform (RenTech's RIEF was down another -9.5% in Jan after -22% last year). We expected that being short the re-opening stocks [RCL AAL WYNN LVS …] would hurt as it did in the first half of Q1 till mid-Feb. This was manifest on the short side of ESBs such as EnMom, ARS & PROF which were - not surprisingly – the star performers last year. Such was the rotation out of the FANGs into deep value cyclicals as a result of the mid-Feb selloff (stemming from rate rise fears + re-opening + curve steepening) in the speculative low quality, long duration, growthy names that our Combo signals tend to be short. The damage was compounded in Jan by the Reddit/ WSB fueled speculative fervor or "short-busting" squeezes although SIRF spreads have now mostly recovered to only -1.6% (Beta neutral**)**. When the double alpha kicked in this March with our long stock selection holding up while the speculative shorts tanked (particularly Cathy Wood related names), it boosted our alpha spreads to a historic outlier.
- A consequence of thematic & factor plays dominating this year has been that our **REVs** (aka stat arb) ESB - which more than doubled last year to ring in +109% - has lost considerable steam but is still up at **13.04% YTD**.
- Larger firms are often justifiably skeptical about their ability to monetize our daily rebalanced spreads which are more amenable to smaller & nimbler hedge funds. To drive the point home about the attractiveness of returns even at the low **monthly rebalancing frequency** we highlight that the record outlier results we have been discussing above are based entirely on monthly rebalancing where transactions costs are de minimus at today's institutional commissions. In fact our longer term LTD spreads for the first 19y from 2000-18 (which are still quite impressive) are based entirely on monthly rebalancing which is fairly consistent with out-sample live data published since 2019. Shockingly, our *out-sample live results are often significantly higher than in-sample* for ESBs because higher turnover ESBs such as ARS, ART, EnMom & Reversals are significantly disadvantaged at the monthly rebalancing horizon. Take for instance EnMom which compounded +40% last year or Reversals at +109% but for which we only show LT mean returns of +5.6% & +10.5% respectively (both Beta neutral**)**.
- **Beta vs $ neutrality** continues to be topical in a generally bullish tape & we shall continue to harp on that particularly since for ESBs like Risk [aka Low Vol] & Stability as it makes no sense to look at it any way other than in terms of Beta neutrality given the substantial beta mismatch between the L/ S sides.
- **Sector rotation based on QMIT's Combo Signals:** Fabulous 14 now shows Consumer Discretionary percolating up to the top followed by FInancials (which benefit from the rising rates) while Utilities and Healthcare bring up the rear. This is in stark contrast to last year. Clearly, the bottom up aggregation of model scores seems to capture the zeitgeist.
- **RORO spreads:** By tracking the mean returns of the 7 Risk On vs 11 Risk Off ESBs we can succinctly capture the sentiment spread YTD which happens to lean **+21.1%** in favor of Risk On at **+22.51% vs** Risk Off at 1.42**%** thereby embodying the frothy tape in contrast to the what we saw during the Covid crash last year. A regime based approach has always been the holy grail of factor investing & the litmus test for our ex-ante RORO labels came about during the Covid crash when our Risk Off vs On ESBs registered ~**+23% spread**. Double validation of this approach was provided in the subsequent rebound (following the Fed's actions on 3/23/20) during which period the RORO spreads rather predictably flipped strongly in favor of Risk On vs Off. That trend has continued this year except for the

periods when sentiment flipped eg during the selloff related to ARKK (Cathy Wood) names from mid-Feb to mid-May & once again due to Delta concerns in July.

Q3 UPDATE - combos below are as of 2021-09-30

$ Neutral - Monthly heatmap YTD:

	DTD Long	DTD Short	DTD Spread	MTD Long	MTD Short	MTD Spread	YTD Long	YTD Short	YTD Spread
DV	-1.41%	0.03%	-1.44%	-1.54%	-0.84%	-0.91%	46.75%	-11.47%	55.68%
RV	-1.94%	0.83%	-2.76%	-0.26%	-4.39%	4.11%	49.91%	10.36%	32.1%
Size	0.46%	-0.91%	1.37%	-2.85%	-5.12%	2.46%	13.62%	12.34%	1.73%
Profit	-0.66%	0.88%	-1.54%	-4.99%	-2.79%	-2.76%	14.79%	19.93%	-10.97%
CSU	-1.26%	1.1%	-2.36%	-3.15%	-4.91%	1.37%	27.85%	13.05%	6.37%
Efficiency	-2.52%	1.04%	-3.56%	-3.34%	-8.56%	5.39%	46.16%	-14.26%	64.22%
Leverage	-0.89%	1.33%	-2.22%	-4.26%	-7.78%	3.3%	10.75%	-4.26%	7.74%
Reversals	-1.84%	0.75%	-2.58%	-3.94%	-1.6%	-2.58%	30.39%	14.2%	13.04%
EQ	0.45%	0.06%	0.4%	-1.63%	-4.49%	2.97%	27.68%	8.34%	17.34%
Growth	-1.78%	-0.13%	-1.65%	-1.5%	-1.13%	-0.37%	40.51%	27.2%	9.26%
ART	-1.02%	0.16%	-1.18%	-2.6%	-4.55%	1.92%	25.97%	9.91%	14.58%
EnMOM	-0.62%	0.59%	-1.21%	-3.3%	-3.23%	-0.22%	17.7%	-0.51%	19.28%
ARS	-1.63%	0.29%	-1.93%	-3.51%	-3.66%	0.02%	25.34%	9.01%	13.14%
Stability	-1.84%	0.98%	-2.82%	-4.2%	-2.26%	-2.44%	18.01%	14.13%	-3.71%
SIRF	-0.97%	-0.64%	-0.33%	-2.15%	-3.75%	1.59%	15.58%	19.03%	-5.56%
PMOM	-0.3%	1.24%	-1.54%	0.49%	-6.17%	6.9%	26.18%	8.06%	17.89%
Dividends	-0.82%	-1.72%	0.9%	-0.92%	-1.08%	0.07%	29.52%	24.32%	3.28%
Risk	-0.99%	0.48%	-1.47%	-3.96%	-2.0%	-3.03%	8.13%	29.31%	-26.84%

$ Neutral - Monthly rebalanced – Combo signals YTD:

	DTD Long	DTD Short	DTD Spread	MTD Long	MTD Short	MTD Spread	YTD Long	YTD Short	YTD Spread
Fabulous Fourteen	-2.59%	1.15%	-3.74%	-3.94%	-5.66%	1.35%	33.34%	-13.1%	46.51%
Sizzling Seven	-1.74%	0.87%	-2.61%	-2.95%	-6.08%	2.81%	26.47%	-10.64%	34.32%
Famous Five	-1.92%	0.89%	-2.81%	-3.96%	-7.04%	2.9%	23.28%	-7.39%	26.54%
Enterprise Eighteen	-2.24%	0.94%	-3.18%	-3.52%	-6.56%	2.75%	32.79%	-10.47%	40.51%
Q-GARP	-3.35%	0.9%	-4.25%	-4.3%	-6.84%	2.21%	36.21%	-10.75%	44.65%
Value Momentum Composite	-2.51%	0.79%	-3.3%	-1.68%	-5.64%	3.84%	45.11%	-11.06%	57.13%
Value Composite	-2.23%	1.04%	-3.27%	-1.2%	-5.34%	3.89%	47.3%	-12.82%	55.19%
Quality Value Composite	-3.5%	1.11%	-4.61%	-5.36%	-7.45%	1.69%	29.9%	-6.73%	26.79%
Quality Momentum Composite	-2.58%	0.93%	-3.5%	-5.08%	-5.83%	0.35%	28.59%	-4.31%	30.0%
Quality Composite	-2.58%	0.86%	-3.43%	-5.46%	-7.89%	2.08%	22.78%	-2.2%	16.09%
Growth+Mom Composite	-1.86%	0.46%	-2.32%	-3.91%	-3.29%	-0.83%	28.56%	9.29%	16.93%

$ Neutral - Daily heatmap – ESBs YTD:

	DTD Long	DTD Short	DTD Spread	MTD Long	MTD Short	MTD Spread	YTD Long	YTD Short	YTD Spread
DV	-1.39%	-0.41%	-0.99%	-1.52%	-1.18%	-0.68%	44.62%	-15.36%	60.53%
RV	-1.98%	0.62%	-2.6%	0.34%	-4.21%	4.53%	55.84%	17.53%	29.2%
Size	0.43%	-1.0%	1.43%	-3.13%	-5.04%	2.08%	11.81%	10.97%	1.19%
Profit	-0.64%	0.73%	-1.37%	-4.9%	-3.54%	-1.92%	16.1%	26.4%	-14.4%
CSU	-1.29%	1.13%	-2.42%	-3.01%	-4.0%	0.59%	27.69%	12.25%	6.99%
Efficiency	-2.5%	0.88%	-3.38%	-3.44%	-8.7%	5.51%	45.3%	-17.65%	70.25%
Leverage	-0.78%	0.89%	-1.66%	-4.04%	-7.6%	3.37%	11.98%	-8.92%	14.57%
Reversals	0.98%	-0.77%	1.75%	-4.14%	1.55%	-5.76%	9.33%	12.13%	-4.15%
EQ	0.23%	0.06%	0.17%	-2.68%	-4.58%	1.96%	39.1%	0.81%	37.01%
Growth	-1.66%	0.03%	-1.69%	-0.99%	-1.34%	0.38%	40.86%	34.64%	3.45%
ART	-1.08%	0.34%	-1.42%	-2.52%	-3.89%	1.28%	26.18%	19.58%	5.11%
EnMOM	-0.79%	0.24%	-1.03%	-4.84%	-5.71%	0.7%	10.98%	15.77%	-4.42%
ARS	-1.45%	0.16%	-1.61%	-2.49%	-4.0%	1.44%	32.2%	16.02%	12.15%
Stability	-1.86%	0.8%	-2.66%	-4.05%	-2.4%	-2.12%	17.82%	12.39%	-2.2%
SIRF	-0.75%	-0.97%	0.22%	-2.05%	-3.96%	1.88%	17.43%	17.75%	-2.83%
PMOM	-0.08%	0.69%	-0.77%	-1.21%	-6.37%	5.27%	17.47%	18.25%	-0.53%
Dividends	-0.89%	-1.74%	0.85%	-1.17%	0.26%	-1.53%	32.35%	30.48%	0.53%
Risk	-1.04%	0.67%	-1.71%	-3.69%	-2.39%	-2.27%	7.75%	27.57%	-26.06%
RiskOn	-0.98%	-0.23%	-0.75%	-2.13%	-3.27%	1.13%	32.17%	8.57%	22.52%
RiskOff	-0.89%	0.31%	-1.2%	-3.06%	-3.66%	0.34%	22.76%	17.95%	1.42%
RORO Spread	-0.09%	-0.54%	0.45%	0.93%	0.39%	0.79%	9.41%	-9.38%	21.1%

Beta neutral - Daily heatmap – ESBs YTD:

	DTD Long	DTD Short	DTD Spread	MTD Long	MTD Short	MTD Spread	YTD Long	YTD Short	YTD Spread
DV	-0.47%	-0.41%	-0.06%	-0.63%	-1.16%	0.12%	33.5%	-15.41%	46.71%
RV	-1.54%	0.62%	-2.16%	0.19%	-4.19%	4.22%	53.4%	12.81%	32.83%
Size	0.41%	-1.0%	1.41%	-3.47%	-5.08%	1.75%	5.43%	10.67%	-4.71%
Profit	-0.64%	0.52%	-1.16%	-4.92%	-2.93%	-2.25%	16.11%	10.11%	4.45%
CSU	-1.3%	0.81%	-2.1%	-3.02%	-2.88%	-0.32%	27.72%	8.79%	14.55%
Efficiency	-1.04%	0.88%	-1.92%	-1.35%	-8.72%	7.58%	38.59%	-17.66%	60.57%
Leverage	-0.78%	0.62%	-1.4%	-4.05%	-5.03%	0.87%	12.0%	-6.1%	16.97%
Reversals	0.98%	-0.49%	1.47%	-4.73%	1.04%	-5.72%	1.11%	7.58%	-7.01%
EQ	0.23%	0.06%	0.18%	-2.77%	-4.24%	1.54%	27.5%	1.14%	23.91%
Growth	-1.39%	0.03%	-1.41%	-0.84%	-1.35%	0.48%	40.74%	28.34%	9.03%
ART	-0.82%	0.34%	-1.16%	-1.71%	-3.88%	2.03%	20.94%	19.65%	-0.07%
EnMOM	-0.59%	0.24%	-0.83%	-3.6%	-5.81%	2.09%	5.75%	15.61%	-9.78%
ARS	-1.45%	0.16%	-1.61%	-1.99%	-3.87%	1.81%	30.93%	14.0%	13.46%
Stability	-1.86%	0.48%	-2.33%	-4.06%	-1.38%	-2.82%	17.83%	8.35%	7.31%
SIRF	-0.75%	-0.63%	-0.12%	-2.08%	-2.77%	0.69%	17.39%	9.11%	6.37%
PMOM	-0.04%	0.69%	-0.73%	-0.29%	-6.37%	6.08%	13.46%	18.25%	-5.79%
Dividends	-0.89%	-1.01%	0.12%	-1.17%	0.07%	-1.22%	30.01%	30.26%	-0.33%
Risk	-1.04%	0.04%	-1.08%	-3.68%	-0.16%	-3.53%	7.73%	2.48%	5.06%
RiskOn	-0.54%	-0.14%	-0.4%	-1.84%	-3.18%	1.3%	27.17%	5.06%	20.54%
RiskOff	-0.84%	0.23%	-1.07%	-2.72%	-3.14%	0.34%	19.8%	12.86%	5.28%
RORO Spread	0.3%	-0.37%	0.67%	0.88%	-0.04%	0.96%	7.37%	-7.8%	15.26%

$ Neutral - 19y Monthly + Daily (thereafter) heatmap - ESBs LTD:

	5Y Long	5Y Short	5Y Spread	Post-07 Long	Post-07 Short	Post-07 Spread	LTD Long	LTD Short	LTD Spread
DV	18.83%	13.94%	2.71%	14.34%	-0.19%	13.47%	17.08%	-7.82%	20.64%
RV	19.17%	17.69%	0.62%	13.15%	3.89%	8.14%	19.09%	-5.38%	18.59%
Size	16.6%	20.43%	-2.92%	15.88%	7.48%	8.45%	20.47%	3.49%	17.15%
Profit	20.88%	6.41%	7.22%	11.16%	-0.49%	6.32%	11.6%	-11.24%	15.15%
CSU	16.31%	6.85%	6.38%	11.43%	-0.54%	9.49%	13.84%	-7.33%	14.52%
Efficiency	14.31%	10.33%	3.07%	9.96%	3.35%	6.38%	12.9%	-5.88%	13.78%
Leverage	18.01%	13.25%	0.89%	10.97%	1.95%	5.34%	11.03%	-8.96%	14.9%
Reversals	28.32%	5.33%	21.12%	12.16%	1.03%	10.83%	12.07%	-3.34%	15.25%
EQ	20.41%	10.56%	8.65%	11.98%	2.25%	8.99%	10.52%	-2.92%	12.03%
Growth	18.23%	20.97%	-4.24%	12.45%	5.11%	4.85%	15.15%	2.26%	10.08%
ART	18.95%	12.49%	1.77%	15.45%	2.67%	8.2%	15.73%	3.82%	7.88%
EnMOM	20.01%	12.29%	4.14%	11.31%	4.17%	4.21%	10.77%	-0.15%	6.75%
ARS	22.07%	7.8%	9.02%	14.62%	2.3%	8.46%	14.01%	3.65%	6.41%
Stability	14.55%	0.89%	8.94%	11.55%	2.41%	5.47%	13.34%	4.66%	3.74%
SIRF	16.3%	15.42%	-0.38%	9.97%	6.19%	3.05%	13.27%	8.56%	3.8%
PMOM	18.36%	12.77%	-1.66%	10.01%	2.44%	0.43%	7.05%	-3.58%	1.32%
Dividends	12.46%	14.27%	-1.64%	8.78%	8.42%	-0.74%	11.48%	7.65%	1.11%
Risk	11.4%	12.19%	-13.5%	9.82%	3.46%	-6.14%	12.13%	-8.81%	1.54%

Sector ranks based on QMIT Combo Signals:

Sector ranks based on QMIT Enhanced Smart Betas:

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

20y Return correlations for QMIT Enhanced Smart Betas:

sector	Sizzling Seven	ARS	ART	CSU	Dividends	DV	Efficiency	EnMOM	EQ	Growth	Leverage	PMOM	Profit	Reversals	Risk	RV	SIRF	Size	Stability
Consumer Staples	1	7	9	3	3	1	3	9	9	9	4	9	2	2	2	7	3	9	1
Financials	2	2	2	1	2	8	7	10	3	5	1	2	1	8	3	2	5	2	9
Communication Services	3	10	10	6	6	4	6	7	5	6	7	7	4	3	4	5	2	5	6
Consumer Discretionary	4	3	7	2	10	5	1	8	2	1	2	6	3	4	9	3	10	6	5
Industrials	5	5	4	4	7	6	4	6	7	7	3	4	7	5	6	6	6	7	2
Materials	6	4	6	7	4	3	5	5	8	3	5	3	5	9	7	4	4	3	4
Health Care	7	9	5	8	8	10	9	1	4	8	8	8	9	1	5	9	7	4	7
Utilities	8	8	8	10	1	7	10	2	10	10	10	10	6	7	1	10	1	10	3
Information Technology	9	1	3	5	9	9	8	4	6	4	6	5	8	6	8	8	8	8	8
Energy	10	6	1	9	5	2	2	3	1	2	9	1	10	10	10	1	9	1	10

	ARS	ART	CSU	DV	Dividends	EQ	Efficiency	EnMOM	Growth	Leverage	PMOM	Profit	RV	Reversals	Risk	SIRF	Size	Stability
ARS	1.0	0.35	0.23	0.06	0.1	-0.03	0.13	0.31	0.24	0.26	0.4	0.29	0.21	-0.09	0.11	0.0	-0.28	0.2
ART	0.35	1.0	0.07	-0.05	0.01	-0.01	0.02	0.32	0.15	0.09	0.43	0.07	0.08	-0.08	-0.05	-0.02	-0.05	0.03
CSU	0.23	0.07	1.0	0.19	0.18	0.12	0.37	0.08	0.3	0.46	0.11	0.46	0.54	-0.05	0.24	0.11	-0.19	0.31
DV	0.06	-0.05	0.19	1.0	0.2	0.02	0.6	-0.03	0.11	0.07	0.02	0.09	0.49	-0.07	0.03	0.13	-0.07	0.35
Dividends	0.1	0.01	0.18	0.2	1.0	0.01	0.1	0.01	-0.04	0.19	0.05	0.37	0.26	-0.16	0.36	0.11	-0.2	0.21
EQ	-0.03	-0.01	0.12	0.02	0.01	1.0	0.25	-0.02	0.03	-0.12	0.06	-0.16	0.12	0.02	-0.09	0.02	0.08	-0.11
Efficiency	0.13	0.02	0.37	0.6	0.1	0.25	1.0	-0.06	0.17	0.1	0.09	0.08	0.49	-0.03	-0.07	0.07	0.02	0.34
EnMOM	0.31	0.32	0.08	-0.03	0.01	-0.02	-0.06	1.0	0.2	0.15	0.78	0.17	0.05	0.22	0.04	-0.08	-0.19	0.09
Growth	0.24	0.15	0.3	0.11	-0.04	0.03	0.17	0.2	1.0	0.38	0.26	0.31	0.55	-0.01	-0.07	-0.0	-0.08	0.05
Leverage	0.26	0.09	0.46	0.07	0.19	-0.12	0.1	0.15	0.38	1.0	0.11	0.7	0.45	-0.06	0.3	0.07	-0.34	0.34
PMOM	0.4	0.43	0.11	0.02	0.05	0.06	0.09	0.78	0.26	0.11	1.0	0.17	0.17	-0.06	-0.13	-0.11	-0.14	-0.0
Profit	0.29	0.07	0.46	0.09	0.37	-0.16	0.08	0.17	0.31	0.7	0.17	1.0	0.44	-0.11	0.36	0.09	-0.39	0.29
RV	0.21	0.08	0.54	0.49	0.26	0.12	0.49	0.05	0.55	0.45	0.17	0.44	1.0	-0.07	0.09	0.11	-0.11	0.28
Reversals	-0.09	-0.08	-0.05	-0.07	-0.16	0.02	-0.03	0.22	-0.01	-0.06	-0.06	-0.11	-0.07	1.0	-0.05	-0.01	0.22	-0.01
Risk	0.11	-0.05	0.24	0.03	0.36	-0.09	-0.07	0.04	-0.07	0.3	-0.13	0.36	0.09	-0.05	1.0	0.18	-0.3	0.38
SIRF	0.0	-0.02	0.11	0.13	0.11	0.02	0.07	-0.08	-0.0	0.07	-0.11	0.09	0.11	-0.01	0.18	1.0	-0.02	0.12
Size	-0.28	-0.05	-0.19	-0.07	-0.2	0.08	0.02	-0.19	-0.08	-0.34	-0.14	-0.39	-0.11	0.22	-0.3	-0.02	1.0	-0.34
Stability	0.2	0.03	0.31	0.35	0.21	-0.11	0.34	0.09	0.05	0.34	-0.0	0.29	0.28	-0.01	0.38	0.12	-0.34	1.0

The LBO Top100 model beat the R2000V index by +20.48% last year finishing at +24.28%. It's already up +31.95% YTD & has more than TRIPLED since the Covid lows!

QMIT's LBO model truly delivered in 2020 despite a tumultuous year for small caps & value. At **+ 31.95% YTD** & +7.49% hedged the model is now on ***Year 22 of index outperformance*** as per below (traded live for the past ~18 years). Following the GFC in 2009 the model rang up a spectacular +84.2% return besting the index by 50.4%! Our Q4 remark turned out to be rather prescient: "To the extent that the market is now looking through the Covid valley to the vaccine recovery trade we should see similarly outsized gains on some of these deep value beaten down small caps." While the model has more than TRIPLED since the Covid lows, Small Cap & Value may still have a lot of catching up to do vis-à-vis the speculative growth names which have dominated for years. An interesting side note – GME was the #1 ranked LBO target 2 years back & finally got ejected from the model by Dec 2020:

	DTD	MTD	YTD
LBO100 Hedged	-2.02%	-1.91%	7.49%
LBO100	-3.08%	-3.72%	31.95%
IWN	-1.06%	-1.83%	22.79%

$ Neutral - Weekly rebalanced YTD [daily geometric chain-linked returns]:

Month	Top 100	Hedged
2020-03 Stub	18.63%	3.51%
2020-04	22.29%	9.30%
2020-05	9.00%	5.85%
2020-06	6.10%	3.25%
2020-07	2.39%	0.36%
2020-08	7.27%	1.81%
2020-09	-2.28%	2.50%
2020-10	4.87%	1.11%
2020-11	20.74%	1.23%
2020-12	7.46%	-0.50%
2021-01	7.93%	2.76%
2021-02	11.31%	1.61%
2021-03	7.09%	1.53%
2021-04	1.86%	0.02%
2021-05	4.81%	1.64%
2021-06	-0.26%	0.53%
2021-07	-3.07%	0.46%
2021-08	3.20%	0.68%
2021-09	-3.72%	1.91%
Comp. Geom.	223.27%	47.28%

QMIT is a signal provider spun out of QuantZ's award winning statistical arbitrage hedge fund which provides highly customized ML enhanced signals to democratize access to hedge fund alphas. Combining machine learning with a spanning set of equity smart betas & alternative data allows investors to express any linear view on equities. Milind has 25 years of market experience running prop desks as well as hedge funds & mutual funds at Merrill Lynch (now BlackRock), RBC & Deutsche Bank before starting QMIT. His funds have won many awards over the years (Morningstar, Lipper, BattleFin etc) and his publications have appeared in Risk, JoIM, Wiley, Elsevier etc. His educational background includes Oxford, Vassar, Carnegie Mellon & Wharton. He has also lectured, presented and/ or taught Capstone courses at Columbia, Carnegie Mellon, Courant, Georgia Tech, Johns Hopkins, Rutgers, NYU Tandon, UCSD, UCLA etc.

EXPLANATORY FOOTNOTES:

- *Sector Ranks are aggregated bottom up average ranks for each of the ESBs. Enhanced Smart Beta (ESB).*
- *ESB portfolios are not sector neutral.*
- *Generated weekly as of previous trading day's close, this report shows the DTD, MTD, YTD and LTD spread returns for our ESBs.*
- *ESB spreads are long-short based on top vs bottom 5%-tile (~125x125) of the largest liquid US traded stocks (usually ~2,500 depending upon market capitalization & minimum $ price criterion for stocks listed on NYSE & Nasdaq).*
- *Certain industries like Biotechs and REITS are excluded due to event risk or because a generic quant model is not appropriate for those industries.*
- *Daily vs Monthly rebalaning - Our Monthly Heatmaps are based on a T-1 month end optimization to solve for the optimal factor weights. While we use optimal factor weights based on month end optimization, in Daily Heatmaps, we refresh individual Factor Ranks on a daily basis therefore resulting in an intra-month varying Long/Short Portfolio. The optimal factor weights & selection of the "Best Flavor of the Month" is still static intra-month in order to prevent excessive turnover & unnecessarily noisy ESBs.*
- *Dollar neutral vs Beta Neutral - Beta-neutrality implies daily de-levering of the higher beta side of the Long/Short factor portfolio. Indeed, the beta neutrality has to be enforced via daily rebalance since the factor ranks (& top/ bottom portfolios) are being refreshed daily.*
- *MTD spread returns are geometrically chain-linked DTD spread returns where both are based on ESB portfolios formed at the prior month end close in the case of Monthly Heatmaps and formed at the prior trading day's close in the case of Daily Heatmaps.*
- *YTD & LTD returns are based on geometric chain-linking of monthlies without transaction costs or fees as is customary in the factor literature.*
- *Multi-period spread returns are not the difference of cumulative top vs bottom returns. Instead, they represent the daily geometrically compounded rebalancing of the market neutral "active return" differential of the top vs bottom portfolios which is a more realistic representation.*
- *Both Max Sharpe & Risk Parity optimization routines are based on a Hybrid methodology where we 1] find the optimal factor mix within the Smart Beta cohort based on signal blending/ "mixing" but 2] subsequently run the combined ESB spreads outsample on a fully "integrated" basis not just as the linear combination of factor returns.*
- *Since liquid equity commissions are now de minimus for both the institutional & even the retail world and market impact is really a function of the investor's AUM we simply leave out the impact of TCosts as is customary in factor research.*
- *LTD data commences January 2000.*

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.

For prior webinars + research papers please see: https://www.quantzqmit.com/media

Best Regards,

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