

## **Investment Insight**

October 2019

### How GVA Thinks About Risk

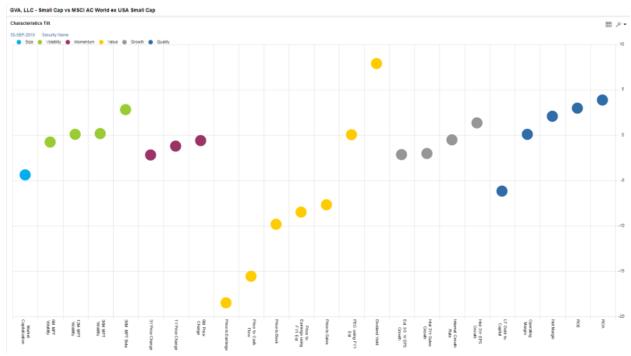
he investment team meets formally each month to review attribution, risk reports, and portfolio exposures. Models are reviewed at the beginning of each month and portfolio construction discussions occur after fundamental research has been conducted on new names. Research and monitoring of each holding is conducted on an ongoing basis.

GVA analyzes risk from both a stock level and portfolio level. For individual companies, we are looking at a variety of risk factors which include business risk, currency risk, and macroeconomic risk. From the portfolio level, we are regularly monitoring sector and country exposures vs the benchmark and the model. We pay closer attention to deviations vs the model than deviations vs the benchmark. Lastly, we closely monitor the portfolio risk metrics vs the benchmark (beta, standard deviation, and value at risk). As a reminder, GVA's models produce high annual excess return with portfolio risk metrics close to the benchmark and high information ratios.

Below are some highlights from a Factset recent risk report for GVA's International Small Cap portfolio. The following attributes are fairly consistent for GVA's investment approach:

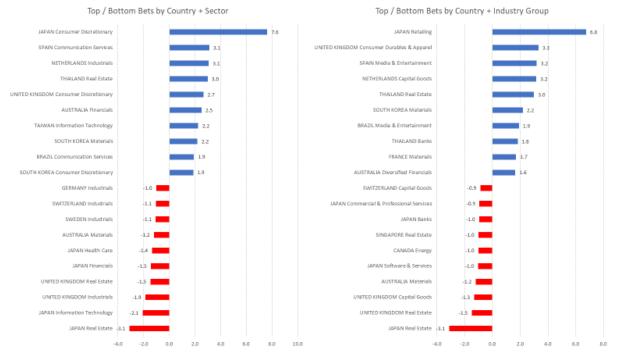
- Average size is slightly below the benchmark (light blue).
- Volatility is in-line with the benchmark (green).
- Momentum is at or slightly below the benchmark (maroon).
- Valuation metrics well below the benchmark (yellow).
- Growth metrics slightly below the index (gray).
- Quality metrics slightly above the benchmark (dark blue).





Source: Factset

The team regularly reviews its top/bottom country, sector, and industry bets. We compare these to both the model and the benchmark. An example report vs the benchmark is below.



Source: Factset



GVA has also run its International Small Cap and Global equity portfolios through Barra. A snapshot of the risk report output is below. Note that we do not currently subscribe to Barra.

The Barra risk report for GVA's International Small Cap portfolio reveals the following highlights:

### **Risk Overview**

- Roughly half of the portfolio risk comes from stock specific factors (55%). Note that this is well ahead of the model (at ~35%). GVA's fundamental stock picks have higher company specific risk, which is where we historically derive the majority of our alpha.
- Remaining 45% of the portfolio risk comes from Common Risk Factors.

### **Common Risk Factors**

• Breaking down the common risk factors further, show that the biggest risk categories are coming from Country (13%), Industries (10%), and Currency (5%). We aren't taking much risk from any of the other categories, other than Earning Yield (5%). There are no surprises here, as GVA takes large bet by both country and industry vs the index.

### **Active Risk**

• Barra- Active Risk: Here the risk model is attempting to predict tracking error (also called ex-ante tracking error). Barra is predicting that the future tracking error will be around 4%. Note that this is below our historical model backtest tracking error of 7%.

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## Barra Risk Report as of May 31, 2018

Back-Tested*:	GVA Global Equity Portfolio	Equity Quant Model	GVA Int'l Small Cap Portfolio	Small Cap Quant Model
Risk Characteristics				
Barra- Total Risk	10.76	11.18	12.17	12.64
Barra- Benchmark Risk	10.61	10.61	10.95	10.95
Barra- Active Risk	4.20	4.05	4.15	4.2
Risk (%)				
Barra- % Contribution- Asset Selectic	32.59	20.81	56.35	32.9
Barra- % Common Factor Risk	67.41	79.19	43.65	67.1
Barra- % Contribution- Common F	actors			
Beta	5.38	5.69	0.23	1.0
Book-to-Price	0.65	2.64	0.11	1.3
Dividend Yield	2.11	1.51	3.04	2.9
Earnings Quality	0.00	0.02	0.00	0.0
Earnings Variability	0.03	0.31	0.17	0.0
Earnings Yield	2.01	2.39	5.41	5.1
Growth	0.38	0.28	0.10	0.2
Investment Quality	0.18	0.20	0.65	0.6
Leverage	0.37	0.18	0.17	0.0
Liquidity	0.05	0.55	1.40	1.6
Long-Term Reversal	0.02	0.32	0.00	0.0
Mid Capitalization	0.64	1.38	0.05	0.0
Momentum	0.00	0.84	0.19	2.2
Profitability	0.10	0.05	0.75	0.1
Residual Volatility	0.10	0.00	0.79	0.6
Size	3.48	7.26	0.02	0.2
Industries	7.60	11.00	10.15	7.8
Countries	40.28	34.33	12.52	14.8
Currencies	16.76	11.25	5.52	8.1
Market				
Covariance* 2	-12.72	-1.00	2.38	20.0
Totals	67.41	79.19	43.65	67.1

GVA has also stress tested its International Small Cap and Global equity portfolios. The projected relative returns vs the benchmark of several market scenarios are depicted below. The most important take-away is that GVA's process works in a variety of different stress scenarios. The primary scenario that the model *won't* work is during times of extreme growth markets. The Barra model also predicts a slight loss in both portfolios if oil prices collapse. The best outperformance scenario comes during strong value rallies.

Note that GVA's back-tested historical model\* outperforms in both growth and value years. The majority of the outperformance comes during value rallies. The model slightly outperforms when growth dominates, but cannot do so at the extremes. See FAQ: "How does GVA perform in growth vs value markets?"



### Stress Test Scenario Analysis as of May 31, 2018

Analysis of active performance relative to index based on hypothetical scenario and portfolio and index holdings.

hypothetical scenario and dex holdings.	GVA Int'l Small Cap Portfolio	GVA Global Equity Portfolio
Bear Market - S&P500 -20% Oil -20% VIX +150%	1.60	-0.52
Bull Market - S&P500 +20% Oil +20% VIX -40%	2.77	-2.84
Bear Market - ACWI -20% Oil -20% VIX +150%	0.96	-1.99
Bull Market - ACWI +20% Oil +20% VIX -40%	2.19	0.23
Growth +10% Value -10%	-5.61	-7.66
Value +10% Growth -10%	4.01	4.05
USD/EUR FX Rate -10%	0.25	-0.97
USD/EUR FX Rate +10%	0.69	1.44
Gold +10%	0.46	0.75
Crude Oil +20%	0.45	-0.24
US Treasury Bond 10 Yr Yield +100bps	1.00	-0.66
Credit Crisis (10/2008)	0.57	-0.50
Oil Prices Drop - May 2010	-0.42	-0.95

GVA Global Equity vs. MSCI ACWI GVA Int'l Small Cap vs. MSCI ACWI exUS Small



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#### \*GVA Back-test Disclosure:

The information presented in the presentation represents back-tested performance based on the GVA Proprietary Model (the "Model") and does not include qualitative analysis or portfolio manager selections. The performance results shown represent a larger group of stocks than would be included if qualitative analysis was applied. Our Model narrows down our universe to approximately 125-175 stocks and then we conduct fundamental analysis in order to determine inclusion in the portfolio. The strategy being offered includes both the quantitative analysis cannot be applied retroactively. Back-tested presentations may not be relied upon for investment purposes and are not meant to represent actual current or future performance.

The Model is described on a previous slide. For more details on the Model please contact info@globalvalueadv.com. Back-tested performance is hypothetical (it does not reflect trading in actual accounts) and is provided for informational purposes only to indicate historical performance had the portfolios been available over the relevant time period. Securities were selected with the full benefit of hindsight, after their performance over the period shown was known. There are inherent limitations of data derived from retroactive application of a model portfolio. The results may not reflect the impact that any material market or economic factors might have had on GVA's use of the back-test Model if the Model had been used during the period to actually manage client assets. GVA was not managing money during the period tested. For comparison purposes, the GVA International Small Cap Model performance is measured against the MSCI All Country World ex-US Small Cap Index. Results in back-test do not guarantee future results.

The Model identifies companies with positive free cash flows, that have positive total return to shareholders, excludes companies whose leverage is in the highest 20% of the starting universe, are the cheapest 20% of the starting universe and illiquid companies are eliminated. Foreign exchange is implicit in the total return. The Model assumes it is fully invested with no cash and includes the reinvestment of all income. The U.S. dollar is the currency used to express performance. All returns are presented gross of investment management fees, trading costs, and all other costs, expenses and commissions associated with client account trading. As there are no fees or expenses deducted, actual client returns could be materially different. The client may experience a loss.