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Which Factors Didn't Flinch?

Analyzing Recent Market Movements Using Risk-Adjusted Factor Returns

Anthony A. Renshaw, Ph.D.

Markets worldwide tumbled last week and plummeted yesterday. A dreadful combination of debt concerns, dysfunctional politics and rising investor fear has led to the worst one-week market performance since 2008.

We analyze market trends over the last three months using Axioma's daily fundamental factor risk model. We assess factor performance by creating long-only portfolios that either maximize or minimize their exposure to one risk factor while remaining neutral to all other factors in Axioma's risk models. The relative performance of these portfolios compared with the benchmark produces a risk-adjusted factor return that indicates the relative performance of that factor.





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The results show the following:

- In both the Russell 1000 and Russell 2000 universes, the correlation of sector returns and index returns surged in the last month, corroborating the old adage that when markets fall, correlations converge toward one.
- The factors that have outperformed the market recently include:
 - High Exchange Rate Sensitivity (large cap and small cap)
 - Low Leverage (large cap)
 - High Size (large cap)
 - Low Volatility (large cap and small cap)

Perhaps the most interesting result here is the performance of High Exchange Rate Sensitivity, which suggests that the market is expecting the US dollar to remain strong (or stronger than other major currencies) despite the recent US debt

ceiling debate and S&P's downgrading of US debt.

- The market appears to be struggling to price exposure to Value and Growth, as neither High nor Low exposures to these factors have outperformed the market recently. One may want to consider reducing exposures to these factors during the current market.

1. Market Performance

Figure 1 shows the cumulative return of the Russell 1000 index since the beginning of May 2011. Also shown on the graph are the cumulative returns of the 10 GICS sectors computed using stocks from the Russell 1000 index. Figure 2 shows the same data for the Russell 2000 index.

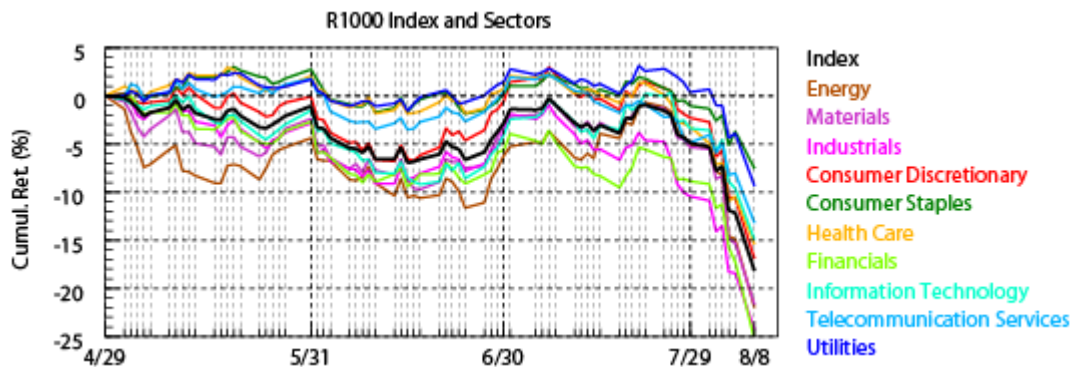


Figure 1. Cumulative return of the Russell 1000 index and the 10 GICS sectors for Russell 1000 equities (cap weighted).

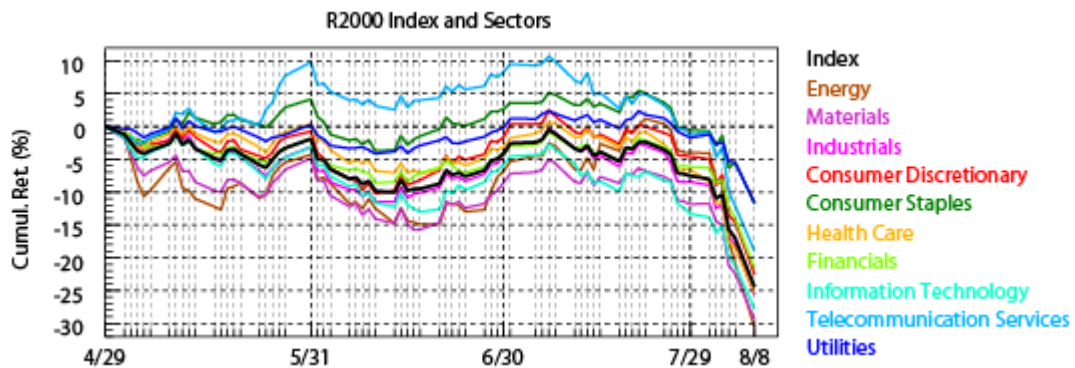


Figure 2. Cumulative return of the Russell 2000 index and the 10 GICS sectors for Russell 2000 equities (cap weighted).

Returns of both benchmarks and all sectors dropped sharply on August 4th and then again on August 8th. Both benchmarks have been declining steadily for the last two and a half

weeks, but the magnitude of the declines on August 4th and August 8th were unexpectedly large.

Table 1 shows the correlation between each of the 10 GICs sectors and the corresponding benchmark computed separately for May, June, and July plus August. In recent weeks, sector/benchmark correlations have been noticeably higher than in previous months.

- This data corroborates the old adage that correlations converge toward one as markets plunge.
- With correlations so high, differences between sectors and the market have all but evaporated.

GICS SECTOR	RUSSELL 1000			RUSSELL 2000		
	May (4/29 - 5/27) (21 Trading Days)	June (5/31 - 6/29) (22 Trading Days)	July & Aug (6/30 - 8/8) (27 Trading Days)	May (4/29 - 5/27) (21 Trading Days)	June (5/31 - 6/29) (22 Trading Days)	July & Aug (6/30 - 8/8) (27 Trading Days)
Energy	79.2%	90.0%	96.7%	84.8%	87.3%	95.6%
Materials	87.9%	92.5%	98.5%	94.9%	96.2%	97.6%
Industrials	89.7%	97.3%	97.6%	98.2%	98.8%	99.3%
Consumer Discretionary	87.3%	96.3%	98.6%	93.3%	95.5%	99.0%
Consumer Staples	66.0%	82.4%	93.8%	89.7%	95.1%	96.0%
Health Care	80.0%	92.5%	95.0%	96.3%	96.6%	97.5%
Financials	87.2%	87.2%	96.4%	93.1%	90.6%	98.7%
Information Technology	92.3%	93.2%	95.6%	97.5%	95.7%	97.1%
Telecommunication Services	64.9%	90.2%	91.1%	80.5%	95.4%	96.6%
Utilities	71.7%	77.4%	93.8%	88.2%	80.7%	95.2%

Table 1. Correlation of the daily returns of the 10 GICs sectors to the benchmark for the Russell 1000 and Russell 2000 universes for May (21 trading days), June (22 trading days) and July & August (27 trading days).

2. Risk-Adjusted Factor Returns That Have Outperformed the Market

One might wonder if any of the 10 style factors in Axioma’s daily fundamental factor, short horizon risk models are differentiating themselves from the market. To assess this, we computed “risk-adjusted factor returns,” which are the returns of long-only portfolios constructed to either maximize or minimize the exposure of the portfolio to one style factor, subject to both a tracking error limit as well as being perfectly market neutral to all other factors in Axioma’s daily, fundamental factor, short horizon risk model (nine other style factors and all 68 GICs industries). The returns of these portfolios represent returns for “pure” factor exposures.

If the factor is behaving in a symmetric factor, the active cumulative return of the portfolio that maximized factor exposure should be the inverse of the active cumulative return of the portfolio that minimized factor exposure with the same tracking error constraint¹. Generally speaking, the factor return with the larger tracking error should also be larger than that with less tracking error.

For the Russell 1000 universe, the factors that have outperformed the market recently include:

- High Exchange Rate Sensitivity² (since 7/28)
- Low Leverage (since 6/30)
- High Size (since 7/7)
- Low Volatility (since 7/26)

Figures 3 through 6 show the cumulative active returns for the risk-adjusted factor portfolios computed using stocks from the Russell 1000 index for these four factors with tracking errors of 1% and 2% annual volatility. Note that the vertical scale is not the same for all graphs.

¹ Since we impose a long-only constraint, asset underweights are constrained while overweights are not. This asymmetry may drive some of the asymmetry between the High and Low exposure portfolios.

² The Exchange Rate Sensitivity (ERS) factor provides a quantitative measure of equity's sensitivity to global currency changes. For any given equity, this sensitivity may be derived from explicit international operations, needed overseas raw materials or processed goods, foreign sales or, potentially, a liability to the debt ratings and solvency of other countries. High ERS scores are typical among companies such as US airlines that prefer a strong US dollar or import much of their product line. High ERS scores also occur for companies that are especially sensitive to consumer spending patterns such as Netflix, Safeway, and Energizer. Low ERS scores are common with many energy and materials companies that effectively export into the US and thrive when the dollar is weak. Low ERS companies can be viewed as hedges against a weak US dollar. Average or moderate ERS scores are typical of domestic US companies whose performance is less affected by currency changes.

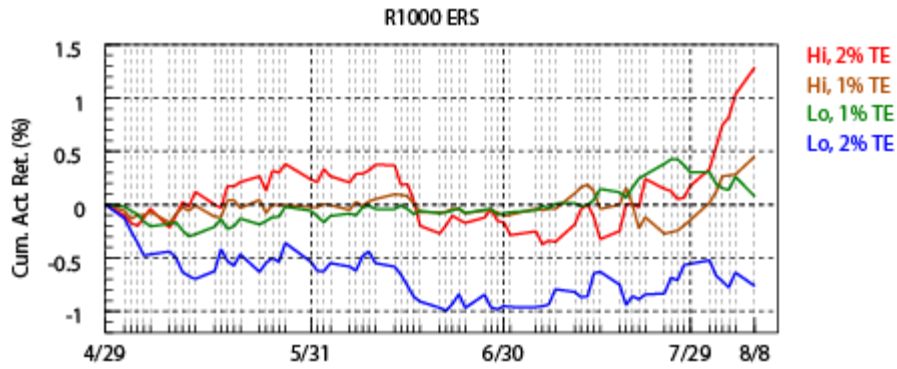


Figure 3. Cumulative active returns of the Exchange Rate Sensitivity factor for the Russell 1000.

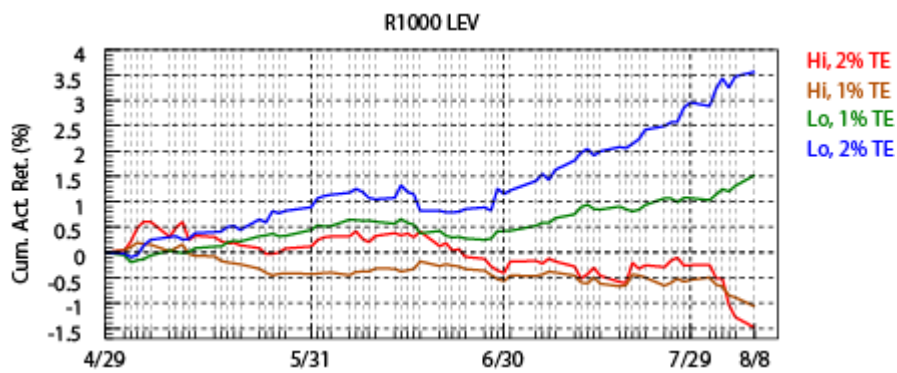


Figure 4. Cumulative active returns of the Leverage factor for the Russell 1000.

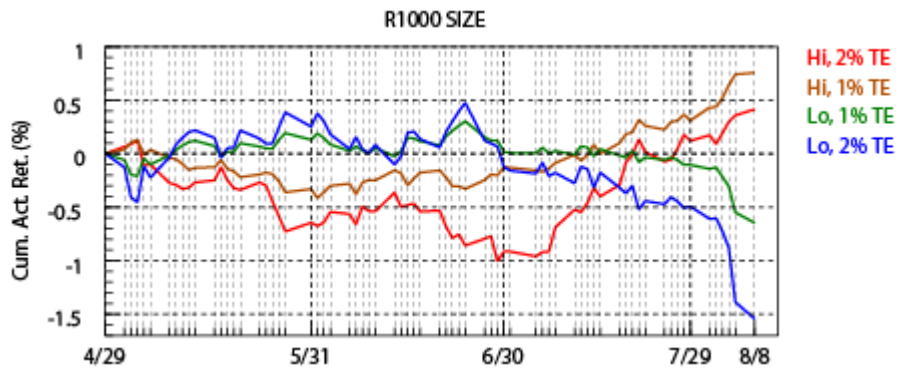


Figure 5. Cumulative active returns of the Size factor for the Russell 1000.

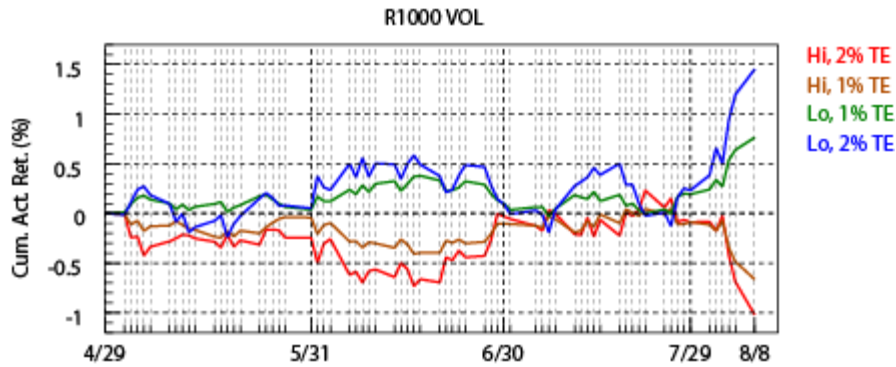


Figure 6. Cumulative active returns of the Volatility factor for the Russell 1000.

For the Russell 2000 universe, the outperforming factors have been:

- High Exchange Rate Sensitivity (since 7/28)
- Low Volatility (since 7/5)

Figures 7 and 8 show the cumulative active returns for the risk-adjusted factor portfolios computed using stocks from the Russell 2000 index for these two factors, with tracking errors of 1% and 2% annual volatility.

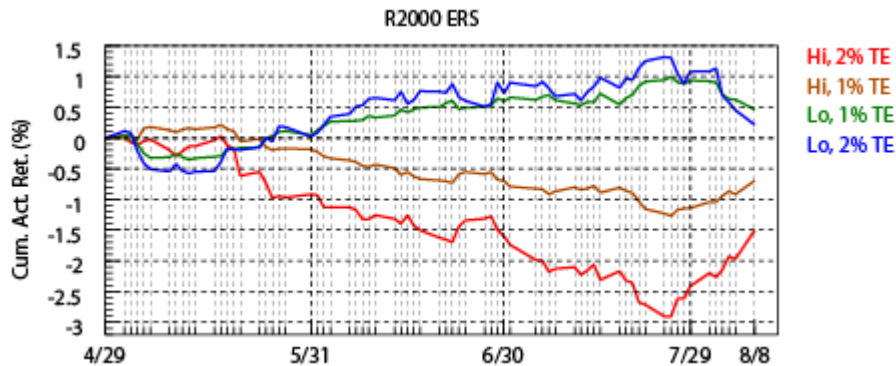


Figure 7. Cumulative active returns of the Exchange Rate Sensitivity factor for the Russell 2000.

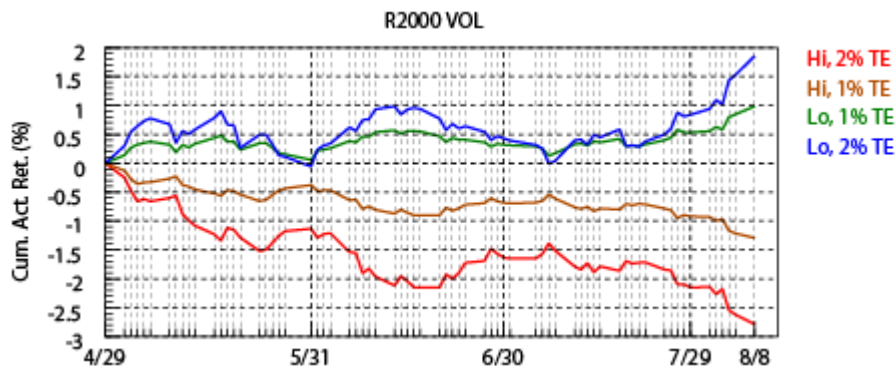


Figure 8. Cumulative active returns of the Volatility factor for the Russell 2000.

The performance of Low Volatility is not surprising, and has been noted by numerous observers. Similarly, the performance of Low Leverage within large cap stocks has also been noted by many. The performance of High Size within the Russell 1000 universe indicates that mega-cap stocks may be being utilized as a safe haven for jittery investors.

Perhaps the most surprising result reported here is the strong, recent performance of High Exchange Rate Sensitivity. Companies with High Exchange Rate Sensitivity do well when the US dollar is strong. The results in Figures 3 and 7 indicate that the market has been expecting these companies to do well since 7/26 –before the US debt ceiling was lifted and well before S&P’s downgrading of US debt after the market close on August 5th. High Exchange Rate Sensitivity companies still outperformed on August 8th. This data strongly suggests that the market expects the US dollar to be strong, or at least stronger than other currencies.

3. Value and Growth

After Size, the most well known, studied, and utilized investment factors are Value and Growth. Axioma’s risk-adjusted factor returns indicate that the market is having a hard time pricing both of these factors because neither High nor Low exposures to these factors are outperforming. Indeed, in most cases, both High and Low exposures are underperforming.

Figures 9 to 12 show the risk adjusted, 1% and 2% tracking error, factor returns for Growth and Value for the Russell 1000 and Russell 2000 universes. The graphs show that any Value exposure has been underperforming for at least a month. One might want to consider reducing Value and Growth exposures in the current market.

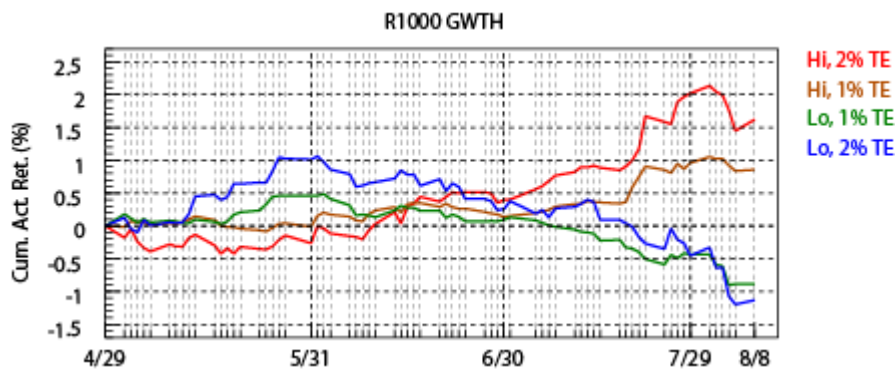


Figure 9. Cumulative active returns of the Growth factor for the Russell 1000.

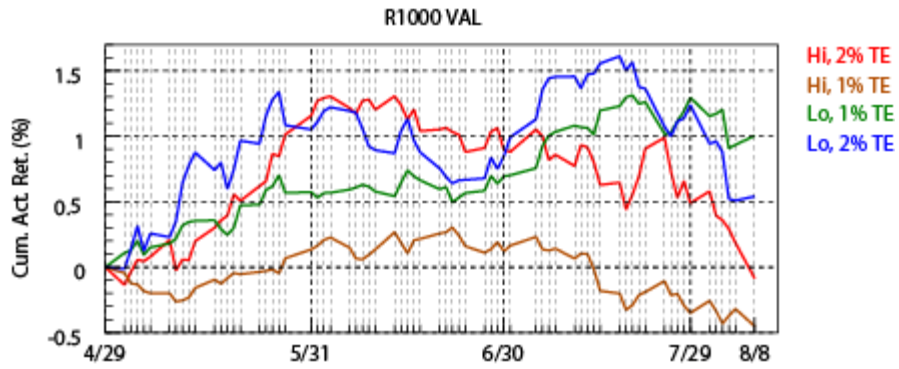


Figure 10. Cumulative active returns of the Value factor for the Russell 1000.

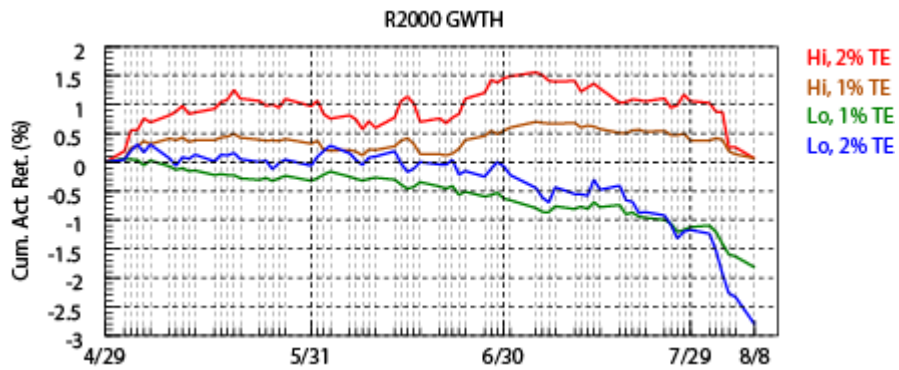


Figure 11. Cumulative active returns of the Growth factor for the Russell 2000.

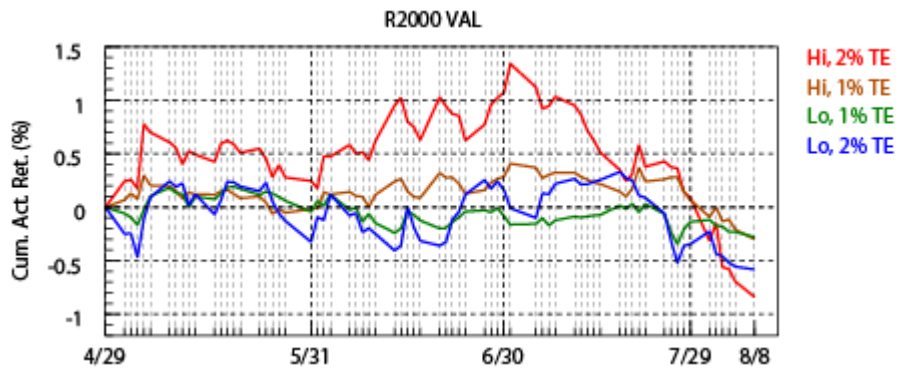


Figure 12. Cumulative active returns of the Value factor for the Russell 2000.