

EQUITY FACTOR REPORT



2024 Q3

VALUE AND LOW VOLATILITY STRATEGIES RALLY



RUSSELL INVESTMENTS RESEARCH

Contents

Overview	2
Factor Performance	3
Global Russell Investments Factor Portfolios' performance dynamics	3
Russell Investments Factor Portfolios' performance across regions	4
Performance of subfactors in the global universe	5
Ex-ante correlations and active risk of Global Russell Investments Factor Portfolios	6
Spotlight on: Choosing a carbon metric for factor portfolios	7
Comparing WACI and Carbon Footprint	7
Implications for factor portfolios	8
The bottom line	10

Equity Factor Report

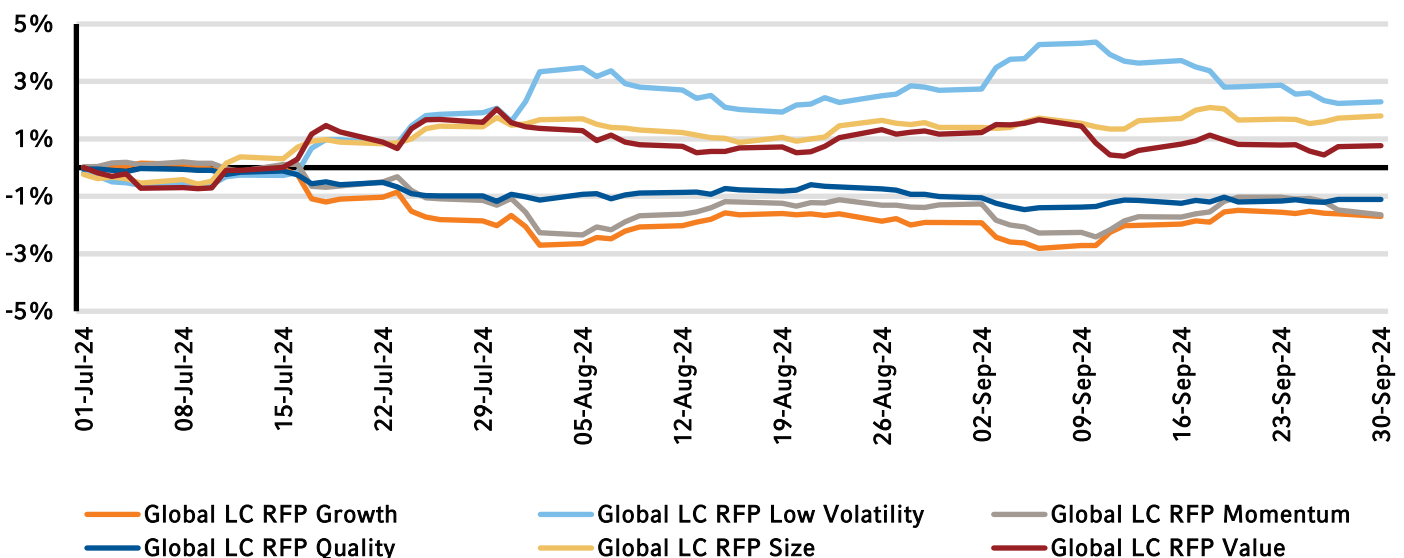
2024 Q3: Value and low volatility strategies rally

Overview

In anticipation of interest rate cuts, investors buoyed Small Cap and Value stocks to kick off the third quarter, with the rally fading as the quarter progressed. Small Caps handily outperformed their Large Cap counterparts across the U.S. and Developed ex-U.S. regions. The Russell 2000 Index (+9.3%) outperformed the Russell 1000 Index (+6.1) and the MSCI ex-U.S. Small Cap Index (10.6%) outpaced the MSCI ex-U.S. Large Cap Index (7.8%). After a sluggish start to the quarter, the MSCI Emerging Markets index finished with a return of +8.9%, with most of that return coming in the month of September (+6.7%). The MSCI All Country World Index (ACWI) had a positive return for the quarter of +6.7%.

When considering Russell Investments' global factor portfolios (RFPs), Global Large Cap Low Volatility, Size and Value outperformed the benchmark for the quarter with positive excess returns of +2.3%, +1.8% and +0.8%, respectively. Conversely, the Global Large Cap Quality, Momentum and Growth portfolios underperformed for the quarter with excess returns of -1.7%, 1.6% and -1.1%, respectively. The performance of the factor portfolios this quarter is a stark contrast to the prior two quarters where Momentum and Growth were the outperformers.

Exhibit 1: Cumulative excess returns for Global Russell Investments Portfolios vs. MSCI ACWI



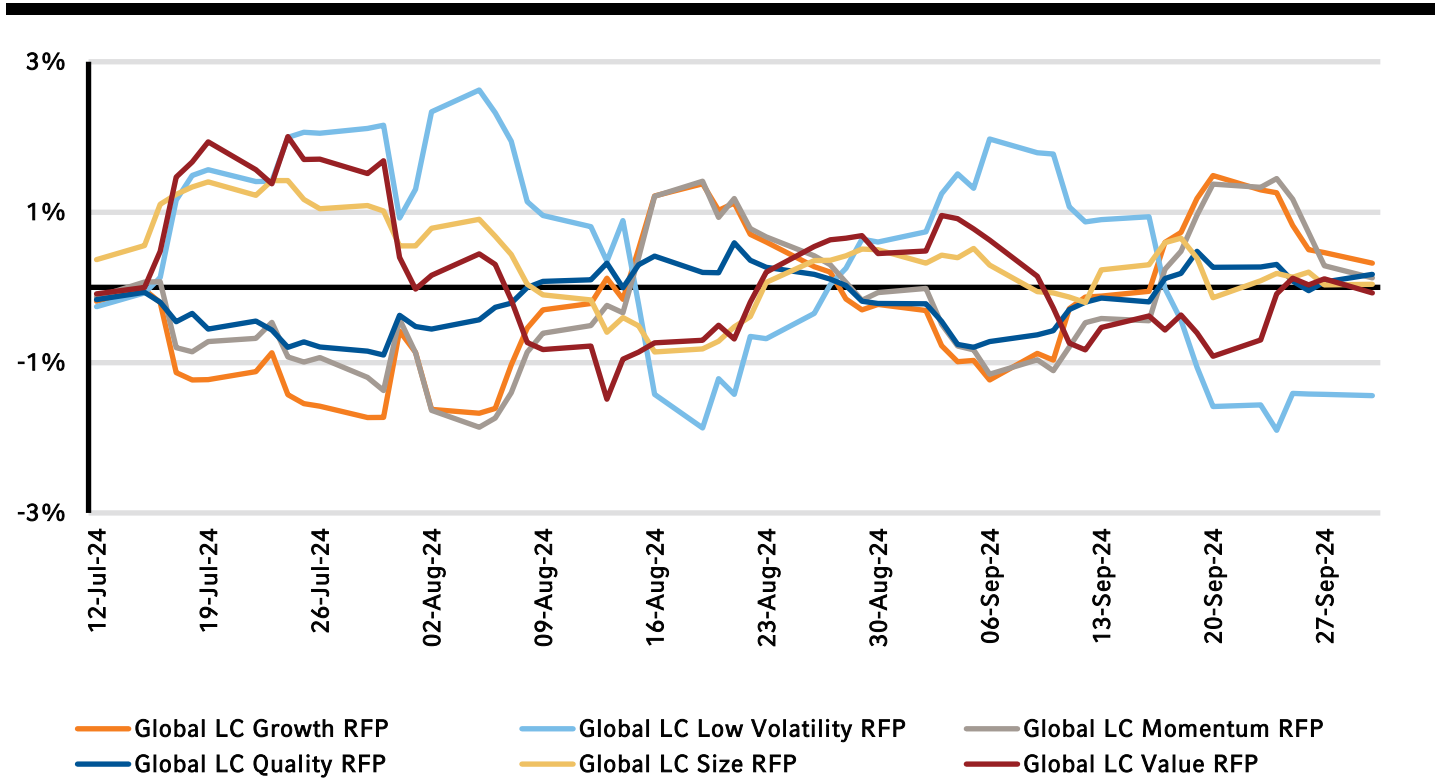
Source: Russell Investments and MSCI; Data as of 07/01/2024-09/30/2024.

Factor Performance

Global Russell Investments Factor Portfolios' performance dynamics

The performance dispersion among Global Russell Factor Portfolios (RFPs) this quarter was larger than prior quarters, with dispersions between Value and Growth factors ranging almost +/-5% before coalescing at quarter-end. Growth and Momentum lagged the market for much of July before recovering slightly to finish the quarter off their lows.

Exhibit 2: 10-Day rolling excess returns for Global RFPs vs. MSCI ACWI



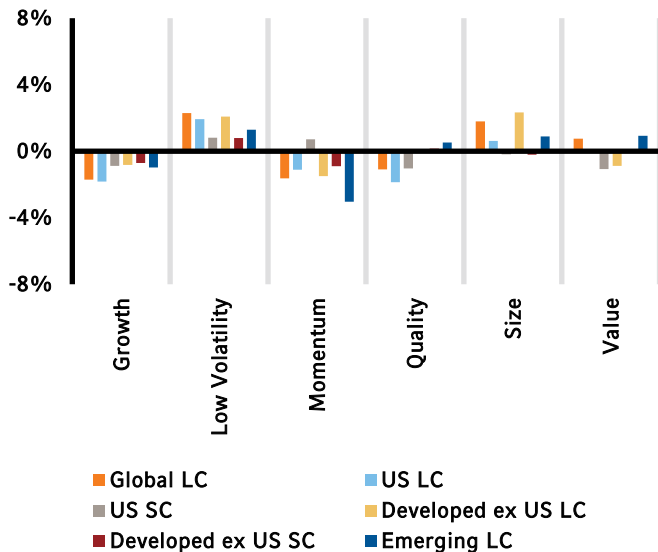
Source: Russell Investments and MSCI; Data as of 07/12/2024-09/30/2024.

Russell Investments Factor Portfolios' performance across regions

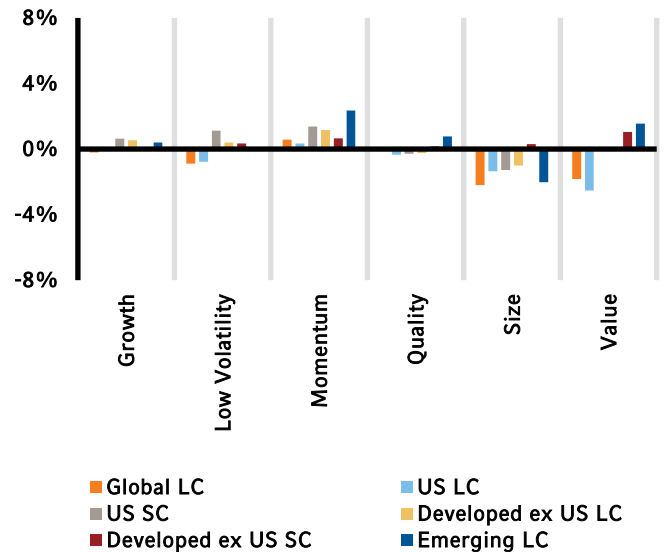
In the third quarter of 2024, the performance of the factor portfolios was uniform in some regions and divergent in others. The Low Volatility factor outperformed strongly across all regions against their respective benchmarks, with excess returns ranging from +0.8% to +2.3%. Conversely, the Growth factor underperformed across all regions with excess returns ranging from -0.7% to -1.8%. Similarly, the Momentum factor underperformed their respective benchmarks across all regions with the exception of U.S. Small Cap, which had a positive excess return of +0.7%. The divergence in performance in Size was along the cap tier spectrum with Large Caps in the U.S., Developed ex-U.S. and Emerging Markets outperforming with excess returns of +0.6%, +2.3% and +0.9%, respectively, while Small Caps underperformed with excess returns of -0.2% for both the U.S. and Developed ex-U.S. regions. The performance of the Quality factor was split between U.S. and ex-U.S. regions, with underperformance in the U.S. Large Cap (-1.9%) and Small Cap (-1.0%) regions and outperformance in both Large Cap and Small Cap Developed ex-U.S. regions (+0.1% and +0.2%, respectively) as well as in Emerging Markets, with excess returns of +0.5%. The performance of the Value factor was mixed, with positive excess returns in Emerging Markets (+0.9%), negative excess returns in U.S. Small Cap and Developed ex-U.S. Large Cap of -1.1% and -0.9%, respectively, and flat returns in U.S. Large Cap and Developed ex-U.S. Small Cap. The weakest performance among factors in all regions for the quarter was in Emerging Markets, where the Momentum factor underperformed (-3%).

Exhibit 3: Excess returns of RFPs vs. corresponding benchmarks

Q3 2024



Q2 2024



Source: Russell Investments; FTSE Russell; MSCI

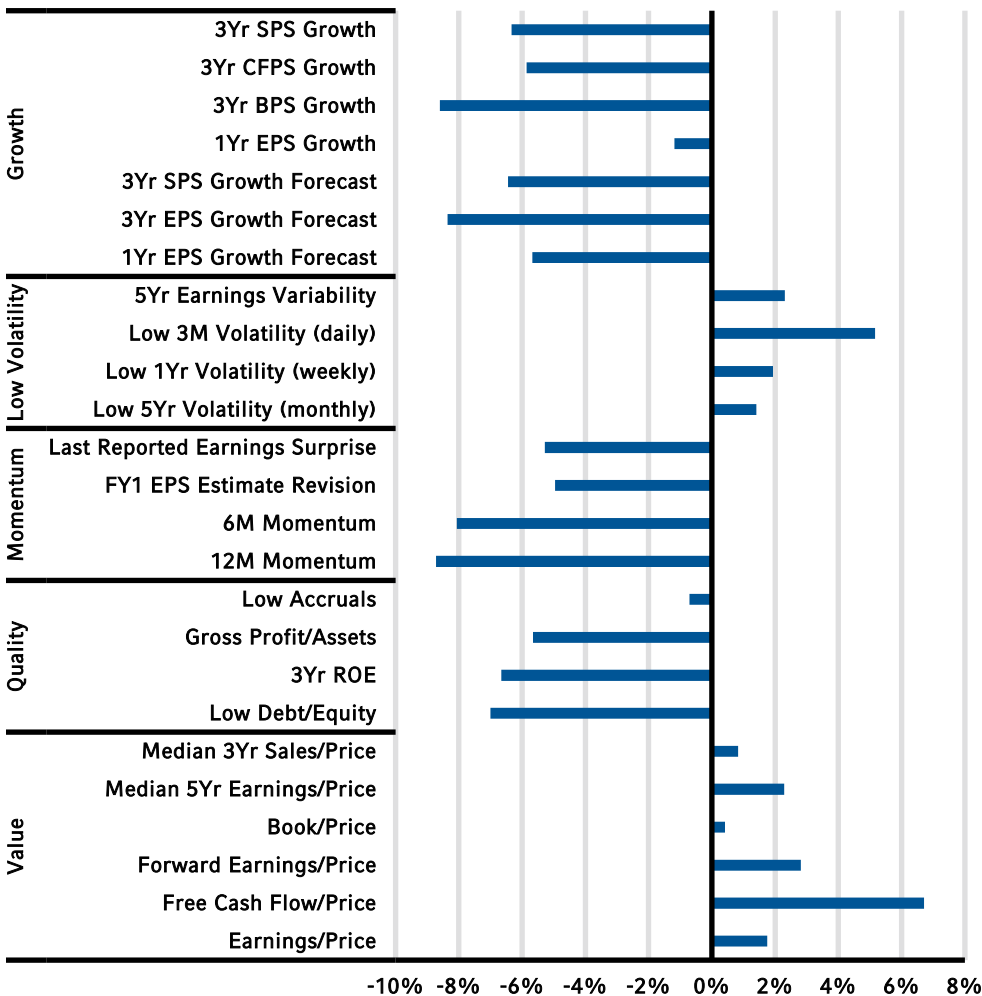
Performance of subfactors in the global universe

Exhibit 4 illustrates the performance of various subfactors in the MSCI ACWI universe for the last quarter, represented by top minus bottom quintile portfolios¹. All Value subfactors had a positive return in Q3, reversing a trend from the prior two quarters. The largest positive return for the quarter came from the Free Cash Flow to Price subfactor, with a return of +6.7%. In addition, all Low Volatility subfactors had a positive return as well, with 3-Month Daily Volatility having one of the largest positive returns of the quarter at +5.2%. The performance of all Growth subfactors was strongly negative, with 3-Year EPS Growth Forecast (-8.4%) and 3-Year Book-to-Price Growth (-8.6%) having some of the largest negative returns for the quarter. Similarly, all momentum factors had negative returns, with the largest negative return for the quarter belonging to the 12-month Momentum factor, which had a return of -8.7%. Quality subfactors were also negative across the board, with all factors having a negative return. Among these, Accruals had the smallest negative return at -0.7%.

Subfactor performance

In a reversal from the prior quarter, all Value and Low Volatility subfactors had positive performance in Q3 while all Growth, Momentum and Quality subfactors had negative returns. 3-Year EPS Growth Forecast and 3-Year Book-to-Price Growth were the leading laggards (-8.4% and -8.6%, respectively). The Free Cash Flow to Price subfactor was the best performer with a return of +6.7%.

Exhibit 4: Performance of cap-weighted top-minus-bottom quintiles – Q3 2024



Source: Russell Investments; MSCI; Refinitiv

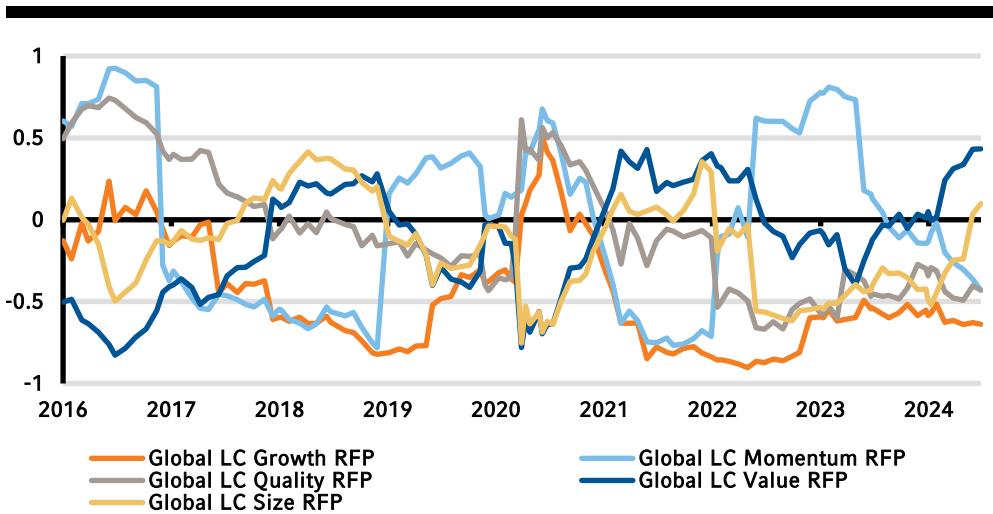
Ex-ante correlations and active risk of Global Russell Investments Factor Portfolios

In the third quarter, the rise in correlations between the Value factor and Low Volatility observed over the past year flattened, as illustrated in **Exhibit 5**. The trend between Size and Low Volatility continued to increase in the prior quarter and is now close to matching a near term high last reached in 2022. Momentum continues to become more uncorrelated to Low Volatility and is now as uncorrelated as Growth and Quality. Ex-ante active risk levels—predictive measures of the active risk associated with factor portfolios in **Exhibit 6**—displayed a slight trend up over the prior quarter in Value, Low Volatility and Growth portfolios. Even with the recent uptrend, the active riskiness of the factor portfolios is still within a normal level.

Ex-ante correlations and active risk

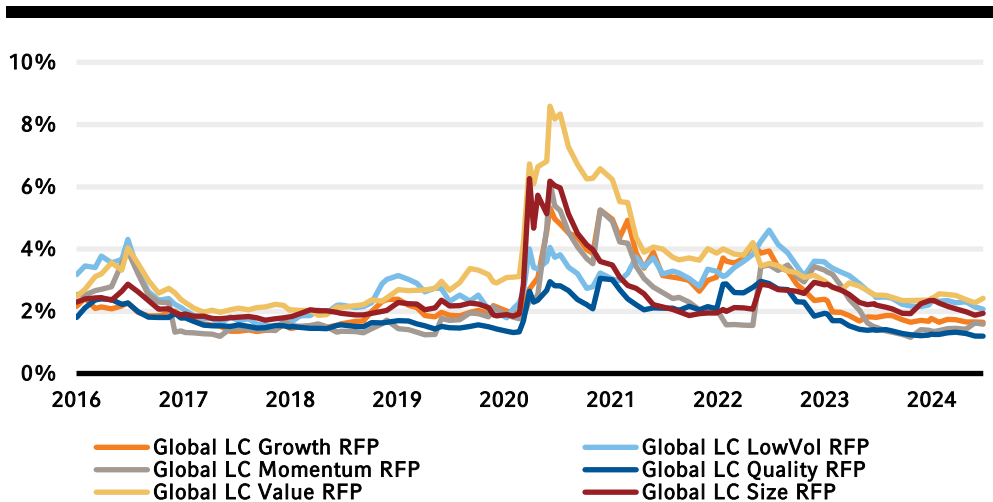
The correlation between Global LC Value RFP and Global LC Low Volatility RFP leveled off in the third quarter. However, the correlation between Size and Low Volatility continued its recent uptrend and is close to a recent high. The Momentum RFP continues to become more uncorrelated to Low Volatility and is now as uncorrelated as Growth and Quality. The ex-ante active risk levels—predictive measures of the active risk associated with factor portfolios—showed a slight increase for Value, Low Volatility and Growth in Q3.

Exhibit 5: Ex-ante correlations with Global LC Low Volatility RFP



Source: Russell Investments; Axioma; MSCI; Data as of 01/2016-09/2024.

Exhibit 6: Ex-ante tracking errors of Global RFPs



Source: Russell Investments; Axioma; MSCI; Data as of 01/2016-09/2024.

Spotlight on: Choosing a carbon metric for factor portfolios

Metrics for measuring carbon emissions in investment portfolios, often referred to as portfolio carbon footprinting metrics, play a central role in regulations, net-zero commitments, and building sustainable portfolios. While these metrics face justified criticism, the importance of tracking emissions remains critical, ensuring some version of them is here to stay. Two commonly used metrics, weighted average carbon intensity (WACI) and financed emissions (using EVIC), are often contrasted, though many other options exist. These metrics are increasingly used in a portfolio construction framework, especially when attempting to minimize exposure to carbon risk.

We define and contrast two commonly used measures, WACI and carbon footprint using EVIC, and the different aggregation methods at a portfolio level. Finally, we compare the impact of each approach for the Russell Factor Portfolios.

Comparing WACI and Carbon Footprint

An individual company emits greenhouse gases (GHGs), often measured in terms of Scope 1 and 2 emissions. These "absolute" emissions are raw figures without standardization. Larger companies, especially within the same industry, typically have higher emissions. Therefore, a carbon intensity metric can offer more insight: for each unit of output, how much does the company emit?

Standardization brings its own challenges. Ideal sector-specific intensity measures, such as emissions per liter of beverage for Coca-Cola or per ton of steel for ArcelorMittal, work well within sectors but are difficult to aggregate across a portfolio that include companies that are diversified. A more generic standardization method, like emissions per unit of revenue, becomes useful in this scenario.

Two commonly used methods, WACI and carbon footprint using EVIC, use different metrics to standardize GHGs of each individual security. WACI, widely recommended by the Task Force on Climate-related Financial Disclosures (TCFD), utilizes revenue of the security, while the newer "enterprise value including cash" (EVIC) metric, recommended by the Partnership for Carbon Accounting Financials (PCAF), is more often used with carbon footprint because it can be applied for both equity and fixed-income portfolios.

Another difference between the two metrics is the approach used to aggregate emissions across a portfolio. WACI calculates portfolio exposures using portfolio weights and typically relies on a carbon intensity measure at the security level. Alternatively, carbon footprint is measured using absolute emissions and typically aggregates emissions using an ownership share approach before normalizing it by the portfolio's AUM. This method assigns a portion of a company's emissions to the investor based on their ownership or financing share (see below). The main choice here is how to calculate ownership share—historically, market cap was used, but this poses problems for fixed-income portfolios.

$$\begin{aligned} \text{CarbonFootprint}_{EVIC,Portfolio} &= \frac{\sum_i \frac{\text{MarketValue of Position}_i}{EVIC_i} * \text{Emissions}_i}{\sum \text{MarketValue of Position}_i} \\ &= \sum_i \frac{\text{MarketValue of Position}_i}{\sum \text{MarketValue of Position}_i} * \frac{1}{EVIC_i} * \text{Emissions}_i \\ &= \sum_i w_i * \frac{\text{Emissions}_i}{EVIC_i} \end{aligned}$$

These metrics are increasingly used in a portfolio construction framework, especially when attempting to minimize exposure to carbon risk.

Implications for factor portfolios

Despite the differences between WACI and carbon footprint using EVIC, by making one assumptionⁱⁱ, we can align the two different data sets for comparison. The difference can be reduced to their choice of denominator—revenue or EVIC.

Exhibit 7 compares the two metrics for companies in the MSCI ACWI universe. The correlation between security-level emissions per revenue and emissions per EVIC is 0.75. This suggests that for a well-diversified portfolio, the choice of metric has minimal impact.

Exhibit 7: Security-level emissions scaled by revenue vs EVIC

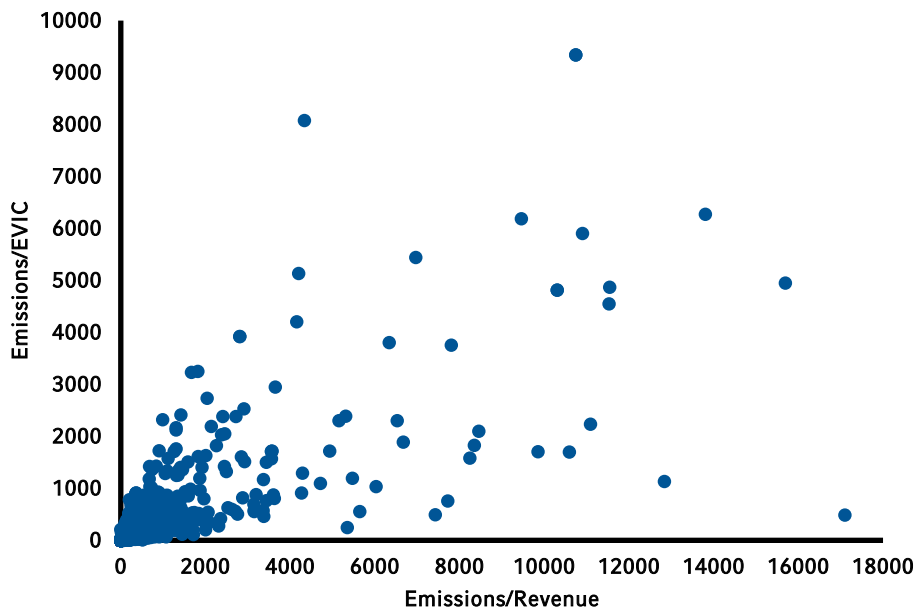


Exhibit 7 compares the two metrics ... this suggests that for a well-diversified portfolio, the choice of metric has minimal impact.

Source: Axioma, MSCI, Russell Investments; Data as of 9/30/2024.

We next explore managing carbon exposure risk within factor portfolios to understand the differences that can arise by the choice of metric used. To examine this, we apply a commonly used approach in the industry by constructing a decarbonized version for each of the Russell Factor Portfolios (RFPs) that targets a 50% reduction in exposure while minimizing the deviation to the respective factor portfolio using both EVIC and revenue-based measures. We construct two versions of each portfolio, one where sector weights are not constrained in the portfolio and another where sector weights are constrained to a maximum of 5% of active weight versus the benchmark. We test both versions due to the concentration of carbon emissions within sectors such as Energy that can drive a large portion of carbon exposure.

Exhibit 8 shows the ex-ante tracking errors of decarbonized RFPs that target a 50% reduction in carbon exposure when measured against the benchmark. All RFPs except for Value have similar active risk measures regardless of the metric chosen. The Value portfolio, however, has more than a 75% increase in active risk when using EVIC vs. revenue intensity. This increase persists even with sectors constrained.

Exhibit 8: Comparison of quarterly Ex-ante tracking errors of MSCI ACWI Russell Factor Portfolios with decarbonization constraints versus the benchmark

FACTOR PORTFOLIO	SECTOR UNCONSTRAINED		SECTOR CONSTRAINED	
	REVENUE INTENSITY	EVIC INTENSITY	REVENUE INTENSITY	EVIC INTENSITY
Value	0.28%	0.49%	0.24%	0.43%
Quality	0.04%	0.10%	0.03%	0.08%
Momentum	0.12%	0.15%	0.12%	0.15%
Low volatility	0.10%	0.04%	0.10%	0.05%
Growth	0.09%	0.08%	0.08%	0.07%

Source: Axioma, MSCI, Russell Investments; Data as of 09/30/2022 to 09/30/2024.

When applying carbon risk reduction strategies to factor portfolios, the measure used can cause differences in active risk. In broad based benchmarks, the choice of carbon metric is likely to have little impact, except perhaps in value portfolios, which could have a slightly higher active risk when a EVIC intensity measure is used. In addition, since value portfolios tend to have higher carbon footprints, the choice of metric may be more impactful because larger deviations might be required to achieve carbon reduction targets.

The bottom line

- The choice of metric used within factor portfolios to manage carbon exposure risk typically has minimal impact in broad-based benchmarks, with the exception of some value portfolios.
- In a stark reversal from the prior two quarters of 2024, among Russell Investments Factor Portfolios, Global Large Cap Low Volatility, Size and Value outperformed the benchmark for the third quarter while Global Large Cap Quality, Momentum and Growth underperformed
- During the third quarter, the rise in correlations between the Value factor and the Low Volatility factor in Russell Investments Factor Portfolios—which had been observed over the past year—leveled off.

ⁱ Top minus bottom cap-weighted quintile portfolios are not investible and are used to proxy the performance of the subfactors used in the construction of RFPs. RFPs are long only portfolios.

ⁱⁱ Note however that to make this simplification we've ignored the potentially significant issue of aligning the timing of each of data item. For e.g. in order to divide emissions by revenues in WACI, we align these data items to be pulled from the same financial year, e.g. both taken from FY2021 reporting statements. Similarly, presumably to divide our position by EVIC, these also should have been harmonized to the same date (e.g. fiscal year end). But to do that, we no longer have the equivalence to portfolio weight, which will vary through the year. For the time being, we will ignore this issue to make high level comparisons between the key variables of $\frac{Emissions_t}{Revenue_t}$ and $\frac{Emissions_t}{EVIC_t}$

QUESTIONS?

Call Russell Investments at **+822 6137 6900**
or visit russellinvestments.com/kr



ABOUT RUSSELL INVESTMENTS

Russell Investments is a leading global investment solutions partner providing a wide range of investment capabilities to institutional investors, financial intermediaries, and individual investors around the world. Since 1936, Russell Investments has been building a legacy of continuous innovation to deliver exceptional value to clients, working every day to improve people's financial security. Headquartered in Seattle, Washington, Russell Investments has offices worldwide, including: Dubai, London, New York, Paris, Shanghai, Sydney, Tokyo, and Toronto.

IMPORTANT INFORMATION

The information, analyses and opinions set forth herein are intended to serve as general information only and should not be relied upon by any individual or entity as advice or recommendations specific to that individual entity. Anyone using this material should consult with their own attorney, accountant, financial or tax adviser or consultants on whom they rely for investment advice specific to their own circumstances. This material is not an offer, solicitation or recommendation to purchase any security. These views are subject to change at any time based upon market or other conditions and are current as of the date at the top of the page. Nothing contained in this material is intended to constitute legal, tax, securities, or investment advice, nor an opinion regarding the appropriateness of any investment, nor a solicitation of any type. The general information contained in this publication should not be acted upon without obtaining specific legal, tax, and investment advice from a licensed professional. Copyright © Russell Investments 2024. All rights reserved. This material is proprietary and may not be reproduced, transferred, or distributed in any form without prior written permission from Russell Investments. It is delivered on an "as is" basis without warranty. The information contained herein

has been obtained from sources that we believe to be reliable, but its accuracy and completeness are not guaranteed. You can contact us by telephone on +82-2-6137-6900. Russell Investment Tujajamun Chusik Hoesa (Russell Investments Korea Limited), Registration no. 110111-4653047, of 19 Floor 10, Gukjegeumyung-ro, Yeongdeungpo-gu, Seoul, Korea 150-945 holds a discretionary investment management and investment advisory license issued by the Financial Supervisory Service in Korea. Russell Investments' ownership is composed of a majority stake held by funds managed by TA Associates with minority stakes held by funds managed by Reverence Capital Partners and Russell Investments' management. Frank Russell Company is the owner of the Russell trademarks contained in this material and all trademark rights related to the Russell trademarks, which the members of the Russell Investments group of companies are permitted to use under license from Frank Russell Company. The members of the Russell Investments group of companies are not affiliated in any manner with Frank Russell Company or any entity operating under the "FTSE RUSSELL" brand.

First used: October 2024
CORP-12542