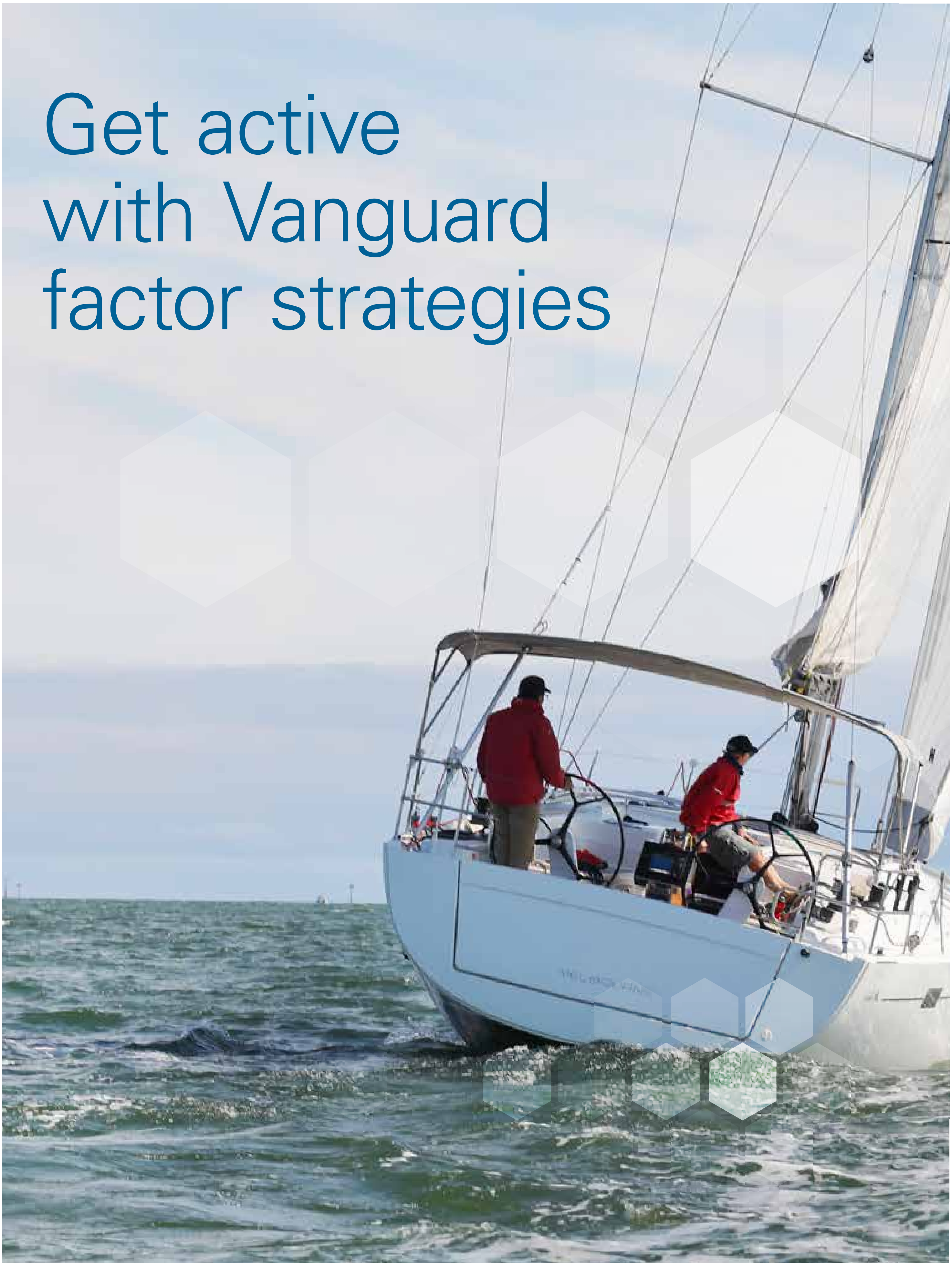
Vanguard®

Get active with Vanguard factor strategies



Factor investing has gained attention in recent years, in part because of the rise of alternatively weighted indexes and "smart-beta" products. Yet factor investing has existed in various forms for many decades.

One way to think about factors is as the DNA of an investment. They are underlying attributes that explain and influence how an investment behaves. By targeting these attributes, factor-based investments attempt to deliver an investment premium, such as market outperformance or reduced volatility.

Vanguard's active factor funds and ETFs use a dynamic, rules-based active strategy to target the risk and return premiums of well-documented factors. Our Global Minimum Volatility strategy can help client's weather volatile markets, and the Global Value strategy can help investors capture excess long term returns through exposure to the value factor.

What is factor investing?

Every investment is influenced by underlying factors that help explain its risk and returns. One factor you're probably familiar with is the *market factor*. Also known as equity risk, the market factor shapes and explains the risk and returns of a market-capitalisation-weighted equity portfolio.

Historically, a portfolio exposed to the market factor has outperformed "risk-free" investments such as short-term government bonds. This return premium has been an investor's reward for bearing the additional risks of equity investing.

Value is another well-known factor. The value factor has outperformed not only risk-free investments, it has also outperformed the market factor. Traditional value investing—buying stocks that look inexpensive compared with a company's fundamental value—is one of the ways investors seek to earn the value factor premium.

Factors exist in fixed income markets, too. The outperformance of long-maturity bonds relative to short-maturity bonds is known as the *term factor*, while the outperformance of low-credit-quality bonds relative to high-credit-quality bonds is called the *credit factor*.

Academic research has identified hundreds of factors. Some have earned historical return premiums, while others have produced premiums in the form of lower volatility. Many factors haven't produced any premiums at all.

Our Vanguard active factor strategies seek to achieve specific risk and return objectives through the relevant factor exposures:

- **Low volatility.** Stocks with low volatility have earned higher risk-adjusted returns than stocks with high volatility.
- **Value.** Stocks that are inexpensive relative to company fundamentals have earned higher returns than stocks that are expensive relative to company fundamentals.

> "Factors are the DNA of an investment portfolio. They determine how an investment behaves."

Joel Dickson
Principal in Vanguard Investment Strategy Group

Factors are everywhere

Many investors' portfolios tilt toward certain factors and away from others, whether they know it or not. These tilts explain much of the risk and returns across a range of investments, including "smart beta" products that track an index, traditional active funds, as well as market-cap-weighted index funds that track a subset of the broad market (for example, value or growth stocks).

While factor tilts can be implemented actively or passively, it's important to keep in mind that any deviation from a market-cap-weighted portfolio is, in essence, an active decision.

Potential benefits of factor investing

All investing is influenced by factors, but that influence is often indirect or unintentional. Vanguard factor ETFs attempt to directly target factors. A direct targeting of factors offers potential benefits related to transparency, control, and cost.

Transparency. By deliberately focusing on factor exposures, you can gain a clearer understanding of how factors drive the returns of a portfolio.

Control. Factor funds may provide a more consistent exposure to a given factor over time. While many investors let a fund manager or an index determine their factor exposure, factor investing lets you have control over the factors you are exposed to.

Cost. Investors often obtain exposure to factors through high-cost traditional active managers. Direct targeting of factors can offer a more cost-effective way to obtain the same exposures.

When factor theory meets investing reality

While academic studies shed light on the merits of factor investing, real-world issues can affect the success of the approach. A factor investment with high portfolio turnover, for example, could see its performance dragged down by transaction costs. Also, the performance of a factor investment will vary depending on the factors it's exposed to, how those factors are defined and, ultimately, whether the premiums associated with certain factors continue in the future.

As with any strategy, investor behavior matters. Factor returns can be highly cyclical and individual factors may underperform for extended periods. Staying the course during periods of poor performance can improve your chances of success.

Using factors in a portfolio

Vanguard believes a market-cap-weighted index is the best starting point for building a portfolio. Factor investing offers a complementary approach for investors who wish to tilt their portfolios away from market-cap weightings. When evaluating factor-based strategies, investors should consider their tolerance for performance swings and understand the investment rationale supporting the factors they wish to target.

Above all, remember that factor investing is a form of active management and should be evaluated as such.

How we manage our active factor strategies

Vanguard active factor funds and ETFs are actively managed, globally diversified, and low cost. We believe this combination of attributes sets our strategies apart from other factor investments.

Actively managed

Factor investing is inherently active because it involves making a decision to tilt a portfolio away from market-cap weightings. Even so, many investments that target factors do so by passively tracking an index.

We actively manage our factor funds and ETFs rather than track an index. Not being tied to the rebalancing schedule of an index offers several advantages. It gives our portfolio managers the flexibility to add or reduce positions as needed to maintain continual, dynamic exposure to the desired factors, even as markets and shares change through time. It also helps us control costs. Our portfolio managers don't trade unless they determine that the benefits more than offset the resulting transaction costs.

Our factor funds and ETFs are not only adaptable, they are transparent. Similar to an index provider, we define and build factors using a transparent, rules-based approach. However, unlike with indexes, we're also able to build the factors and monitor our portfolios daily to ensure that we maintain exposure to the current factor.

Ultimately, our aim is to offer investors the best of both worlds: flexible and efficient targeting of the desired factors and a clear understanding of how we build factors and assemble the portfolios.

Who manages Vanguard factor strategies?

Our factor funds and ETFs are managed by Vanguard Quantitative Equity Group (QEG), which operates from Vanguard's global headquarters in Valley Forge, Pennsylvania. QEG manages about AUD 50 billion across a wide range of active equity investments.[1] Its investment approach is defined by rigorous research, vigilant risk management, discipline, and low costs.

QEG is staffed with a deep bench of credentialed professionals. Among its 31 strategists, analysts, and portfolio managers, 16 hold the CFA designation and eight have Ph.D.s. The team's smaller size promotes close collaboration among team members. Meanwhile, it benefits from the support of the larger Vanguard organisation and leverages the best practices, low-cost execution, and expertise of 40 traders in multiple markets around the globe.

QEG doesn't rely on a star manager or key individual. Since no one person is responsible for all portfolio management decisions, you can be assured of continuity in our investment approach.

1 As of 31 March 2018.

Globally diversified

Our funds and ETFs invest globally because the factors we target have been shown to work globally. A global equity portfolio also helps diversify risk while increasing investment capacity and liquidity.

Low cost

Investors earn more when they pay less. The annual ongoing management fee for Vanguard active factor funds is 0.35% and just 0.28% for our ETFs.

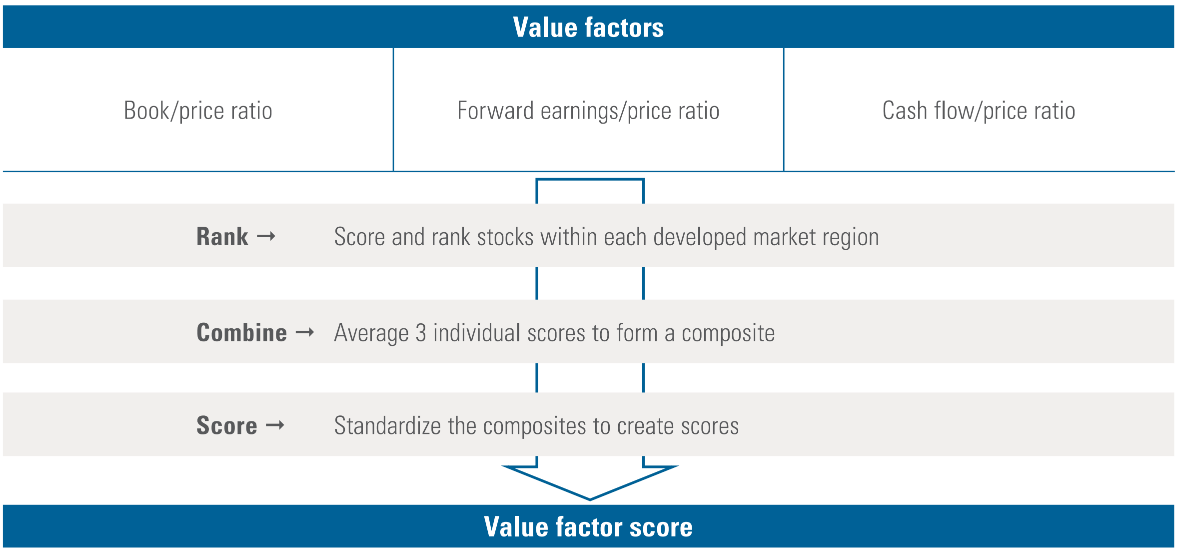
How we build our active factor portfolios

Our active factor funds and ETFs are systematic, rules-based strategies with the objective of providing targeted and consistent exposure to the value or minimum volatility factors in a highly diversified, low cost and transparent way.

We begin by dividing the investment universe into developed market regions—the United Kingdom, Europe ex-U.K., Japan, Asia Pacific ex-Japan, Canada, and the United States. To account for the depth of the U.S. market, U.S. stocks are further divided into three market-cap size groups.

Our quantitative models use three metrics to gauge a stock’s strength in a given factor. The metrics we use are the commonly recognised measures for each factor. We calculate an equal-weighted average of these metrics for each stock. Then we rank stocks within each region and country group, based on their factor strength. Only the highest-scoring stocks are included in each portfolio. A stock’s weight in the portfolio is determined by its factor score, subject to a set of risk controls.

Scoring value, factor strength



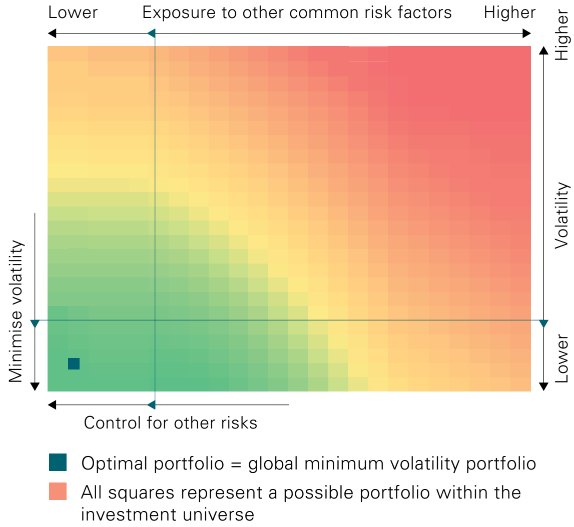
Note: Chart represents Vanguard’s proprietary factor portfolio construction process and is for illustration purposes only.

Each day, we repeat the same process. By continually assessing the factor strength of each stock in the investment universe, we can buy or sell shares as needed to maintain dynamic exposure to the desired factors.

Our minimum volatility fund and ETF also uses a rules-based active strategy to build its portfolio. We select stocks from developed and emerging markets that display a combination of factors that can result in lower portfolio volatility. We assess not only the volatility of individual stocks, but also the correlation of returns among stocks. Our aim is to create a global equity portfolio that's less volatile than the overall equity market.

While the portfolio targets minimum volatility, we also put additional risk controls in place around country, sector, individual stock weights, and other factors. These controls help ensure diversification and liquidity, while avoiding concentrated exposure to major risk factors. Our quantitative models then identify the most appropriate portfolio given these restrictions. To further reduce volatility, we hedge the portfolio to the Australian dollar.

Creating a minimum volatility portfolio



Source: Vanguard.

Risk management is an integrated part of our process

Vanguard factor strategies are subject to independent monitoring by Vanguard Risk Management Group (RMG). RMG monitors portfolio positions against limits, undertakes attribution analysis and works with our portfolio managers to make sure risks are identified and managed.

RMG's reporting structure distinguishes our approach to risk management. RMG's head reports directly to The Vanguard Group, Inc.'s chief investment officer. This structure keeps RMG close to our investment process and ensures we're aware of rapid changes to markets and portfolios, along with their related risks and potential effects on strategies.

Vanguard active factor strategies

Vanguard Global Minimum Volatility strategy

Why target minimum volatility stocks?

Investors committed to an equity allocation in pursuit of their long-term investment objectives can find near-term volatility unsettling. Minimum volatility investing attempts to capture a significant share of stock market performance, while avoiding the sharpest market highs and lows. This allows investors to maintain exposure to equities with the potential for improving risk-adjusted returns.

Investment objective

The fund and ETF seeks to provide long-term capital appreciation with less volatility than the global equity market.

Investment approach

The fund and ETF uses a rules-based active strategy to select stocks from developed and emerging markets that display a combination of factors that can result in lower portfolio volatility. Its dynamic quantitative approach is designed to minimize volatility while limiting exposure to common risk factors, even in changing market environments.The fund and ETF will generally seek to hedge most of its currency exposure back to the Australian dollar, with the aim of further reducing volatility.

Vanguard Global Minimum Volatility Fund

Key facts

Management fee	0.35%
Investment universe	FTSE Global All Cap Index (AUD hedged)
Number of holdings	Approximately 200
Inception date	July 2015
Manager	Vanguard Quantitative Equity Group

Vanguard Global Minimum Volatility Active ETF (Managed Fund)

Key facts

Management fee	0.28%
ASX code	VMIN
Investment universe	FTSE Global All Cap Index (AUD hedged)
Number of holdings	Approximately 300
Inception date	13 April 2018
Exchange	Australian Securities Exchange
Manager	Vanguard Quantitative Equity Group

Vanguard Global Value Equity strategy

Why target the value factor?

A portfolio of stocks with low share prices relative to the company's book value, earnings or other measures is likely to have exposure to the value factor. Historically, a portfolio exposed to the value factor has outperformed the broad equity market. This return premium can be explained in part by investor behavioral biases, such as the tendency to shun companies that may be struggling in the short term, while overpaying for companies exhibiting recent growth.

Investment objective

The fund and ETF seeks to provide long-term capital appreciation.

Investment approach

The ETF uses a rules-based active strategy to select stocks from developed markets that display the strongest value factor characteristics. Its dynamic quantitative approach is designed to ensure the portfolio maintains significant exposure to the value factor, even in changing market environments.

Vanguard Global Value Equity Fund
Key facts

Management fee	0.35%
Investment universe	FTSE Developed All-Cap in Australian dollars
Number of holdings	Approximately 1,200
Inception date	08 September 2016
Manager	Vanguard Quantitative Equity Group

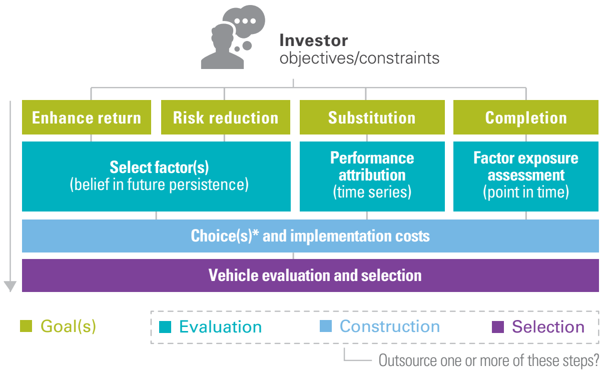
Vanguard Global Value Equity Active ETF (Managed Fund)
Key facts

Management fee	0.28%
ASX code	VVLU
Investment universe	FTSE Global All Cap Index (AUD hedged)
Number of holdings	Approximately 1,200
Inception date	13 April 2018
Exchange	Australian Securities Exchange
Manager	Vanguard Quantitative Equity Group

Applications for investors

Equity-based factor investing can be used in a range of different ways by investors, depending on their objectives, constraints, due-diligence capabilities and belief sets. The decision tree below provides a guide to help investors make the appropriate choice based on a number of important considerations.

A decision-making framework for equity factor tilts



* Decisions include single factor versus multiple factors, active versus index, global versus local, weightings across and within factors and regions, top-down versus bottom-up (if multifactor), and impact on a portfolio.

Source: Vanguard.

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