

ESG: strategy

October 2019

Introducing QbrickS and taking sustainability integration to the next level in portfolio management

This concept provides an outlook on the next phase of integrating sustainability into our discretionary investment process for equity, fixed income and multi-asset strategies at Metzler.

- We're convinced that sustainability will become a standard investment overlay in the next 10–15 years. By then, we expect almost 100% of global assets under management to be covered by commitments to invest responsibly, an outcome which is not yet fully priced in by markets.
- As tracked by the United Nations PRI (Principles for Responsible Investments), regulating bodies around the world relentlessly promote this outcome, which has profound implications for the way securities are traded. This is an ongoing investment opportunity worth positioning for.
- We thus provide our clients with a tool-box that enables them to take advantage of economically relevant sustainability aspects when allocating capital. This concept is forward-looking and fully customizable given its modular structure.
- QbrickS allows individual preferences (and restrictions) related to sustainable investing to be embedded into a macro-economically sound but fully discretionary asset allocation process.
- Clients can utilize QbrickS to subject negative (exclusion) and positive (inclusion) lists to stress testing. They can also use it to define their preferences for issues like climate change, the UN Sustainable Development Goals (SDG), risk premiums, and sector or regional allocations. This capability is unique and differentiating.
- Ultimately, QbrickS manages to tie longer-term sustainability aspects with tactical and strategic portfolio allocation. With this, we seek to lower portfolio risk, increase potential to generate excess returns and reduce transaction costs.
- Aside from valuable insights for Metzler's own portfolio risk management, QbrickS provides important guidance for active engagement with the companies in which we invest – a prerequisite for assessing corporate management quality and its ability to create value in the long run.

20 years of experience in sustainable investing

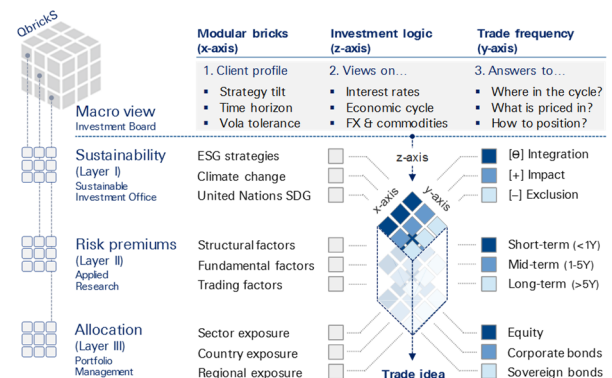
Metzler Asset Management was a pioneer to sustainable investing when the first ESG (environment, social and governance) mandate was launched in 1999. Integration of ESG has continuously adapted to best practices over time and is now entering into its third decade.

As evidenced by our long-lasting partnerships with leading ESG data vendors that were set up in the early 2000s, we have never seen sustainable investing as just a trend. As one of the first German asset managers to sign the United Nations Principles for Sustainable Investment (UN PRI) in 2012, we now have one of their best ratings worldwide. Today, we manage EUR 28 billion in sustainable assets, which represents 56% of total AuM and 100% of listed equities and corporate bonds.

A new form of sustainability integration is required

We expect all assets under management will be subject to some kind of sustainability commitment in the future – an isolated glance at key performance indicators to measure sustainability will no longer add value. In future, true added value will only arise from concepts that derive the fair value of securities as a function of sustainability.

QbrickS in a nutshell: customized & modular sustainability



We derive the term **QbrickS** from a modular and three-dimensional cube (**Q**) that consists of building blocks (**bricks**), which integrate sustainability (**S**) aspects into a consistent investment logic across all asset classes.
Source: Metzler

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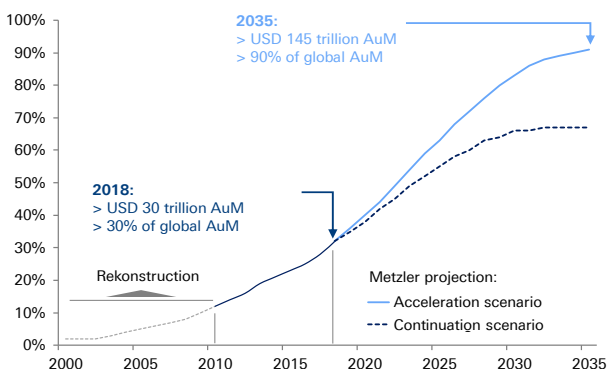
Our multi-layered approach offers our clients the highest degree of flexibility to master these challenges. QbrickS, our model for factoring sustainability into investments, combines a systematic top-down approach with bottom-up stock picking to optimize a fund's risk-return profile.

Why bother with sustainability investing?

Simply because capital markets are pricing this in. This can be seen in the extreme intensity with which sustainable investing is being discussed not only by academic literature but also by the global financial press and television talk show roundtables.

Money flow reflects this heightened interest as the share of global assets under management that is subject to investor commitments to invest responsibly is rising. We expect growth trends to accelerate and lead to an outcome where sustainable investing becomes a standard.

Sustainable investing: a global standard in 10 to 15 years (AuM subject to sustainability commitments, as % of global)*



* While the "continuation" scenario projects historic growth into the future, the "acceleration" scenario assumes increased a) trend following among global asset managers and b) regulatory efforts to consider sustainability can drive AuM higher.

Sources: Metzler, Global Sustainable Investment Alliance

As tracked by the UN PRI, regulatory bodies around the world are in the process of defining sustainability aspects as a strictly mandatory standard for asset managers who advise clients. This already influences the way capital is being allocated. Neglecting to consider associated key performance indicators can cause explanatory details to play less of a role in the analysis of a portfolio's input factors.

Why consider sustainability as a factor?

It just makes economic sense. If there are key performance indicators related to financial or non-financial el-

ements that flag a company as 'low risk' (as opposed to 'high risk'), investors should have a great interest in understanding how to benefit from this.

Strong sustainability profiles based on leading third-party vendor ratings are often associated with lower risk and higher risk-adjusted returns¹. Thus, there are two main channels that link sustainability aspects to accounting metrics: cash flow generation and valuation. Returns on capital employed play a central role in this regard.

In theory, companies with high sustainability ratings enjoy competitive advantages over lower-rated peers amid superior capital productivity. This is because higher-rated peers benefit from a lower cost of capital that allows the company to outperform the competition and win market share.

Excursus: breaking down cost of capital into key drivers

$$CoC = \text{cost of equity } (re) \times ER + \text{cost of debt } (rd) \times DR$$

with

$$re = \text{risk free rate } (rf) + \text{equity risk premium} \times \beta$$

$$\text{equity risk premium} = \text{market return } (rm) - rf$$

$$\beta = \frac{\sigma_{im}}{\sigma_m^2} = \frac{\text{covariance } (\text{stock return } (r_i), rm)}{\text{variance } (rm)} = \frac{\sigma_i}{\sigma_m}$$

$$\text{equity ratio } (ER) = \text{shareholders' equity} \div \text{total assets}$$

and

$$rd = (rf + \text{credit-rating-implied risk premium})$$

$$\text{debt ratio } (DR) = \text{total debt} \div \text{total assets} \times \text{tax shield}$$

$$\text{tax shield} = 1 - \text{effective tax rate } (etr)$$

$$etr = (\text{pre-tax profit} - \text{net income}) \div \text{pre-tax profit}$$

Source: Metzler

We believe higher capital productivity (and valuation ratios) of companies with more sustainable profiles can be largely attributed to the following:

First of all, lower business risk implies stronger and less volatile earnings and cash flow profiles. This benefits the systematic risk factor beta (β) within the cost of equity equation – a measure for volatility in standard valuation frameworks like the capital asset pricing model (CAPM)².

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Secondly, sustainably managed firms can benefit from lower cost of debt because implied default risks are reduced by better credit ratings. This is offset to some extent by lower tax shields and higher effective corporate tax rates due to increased tax reporting transparency that rating agencies and regulators are pushing for.

Thirdly, returns on capital employed can be higher because competitive advantages enable the funding of otherwise unprofitable projects. This can lead to higher top-line growth and market share gains. In a best case, this also goes hand in hand with a lower cost base – backed by superior resource efficiency and human capital management with a positive spin on earnings profiles.

The more investors differentiate between these aspects, the greater the impact of sustainability as an investment factor (or risk premium) will be. It is precisely this outcome for which our clients should position themselves. We therefore need to establish an investment logic that can translate sustainability aspects into accounting terms and also into tactical (short-term) and strategic (long-term) portfolio allocation.

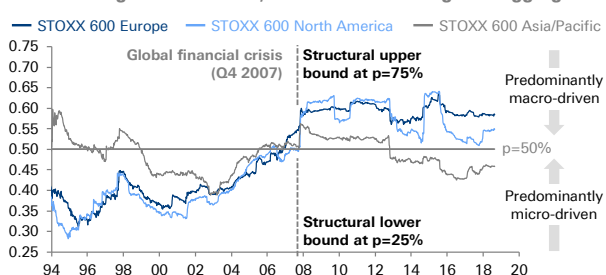
Why combine top-down & bottom-up elements?

If the investment environment is characterized by only mildly correlated movements of individual securities with the broader markets, discretionary stock picking will be the dominating approach for positioning (as was the case from the mid-1990s to the mid-2000s). However, the current setting is only suitable for this to a limited extent.

The global financial crisis led to a paradigm shift in 2007 that made consideration of top-down systematic models indispensable for explaining price changes across asset classes. This is particularly true for equities that are considered a product of other markets. The focus here is on European equities (large caps) in particular.

Paradigm shift on the global equity markets

Market-cap-weighted average of 5-year correlation between a) total return of single stocks and b) their STOXX 600 regional aggregate



Sources: Metzler, Thomson Reuters DataStream

The paradigm shift lent new momentum to the structural flow of assets from actively to passively and quantitatively managed funds, thereby reinforcing the need for systematic investment approaches. Unless this trend reverses, we will continue to combine top-down and bottom-up models to factor sustainability into portfolios.

Investing with ObrickS in three steps & three layers

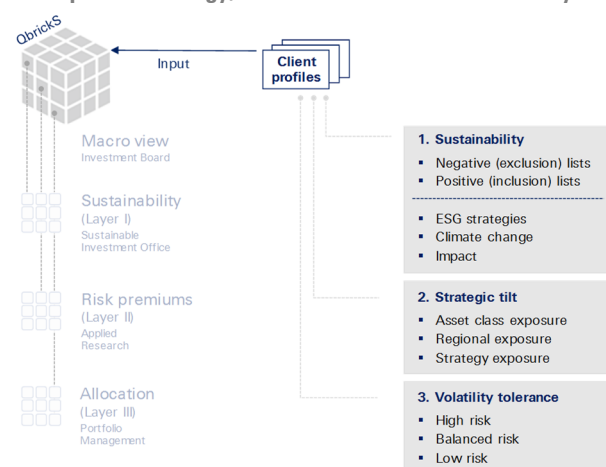
In order to maximize the added value from our modular tool-box, we follow a three-step logic. **(1)** We compile a client profile based on preferences for the three layers of our model: sustainability (layer I), risk premiums (layer II) and thematic allocation (layer III). **(2)** We then transfer our top-down investment logic to portfolio strategies and **(3)** align these with our forward-oriented positioning across all layers of the model.

(1) Understanding the client's investment profile

Focusing on the client is key to the success of our model. To get the most out of a client's individual preferences (or constraints), we bear the client's profile in mind at all times, e.g. the client's (i) strategy tilt, (ii) the investment horizon and (iii) tolerance for certain levels of volatility.

We then use stress tests to determine how this affects the positioning in an investable universe, and we simulate more favourable alternatives that also meet the needs of the client. This dialogue forms the basis for a cooperation with clients on equal footing.

Client profile: strategy, investment horizon and volatility



Source: Metzler

(2) Deriving a consistent & forward-oriented view

We use multivariate models to translate forward-looking assessments of monetary and fiscal policy into fore-

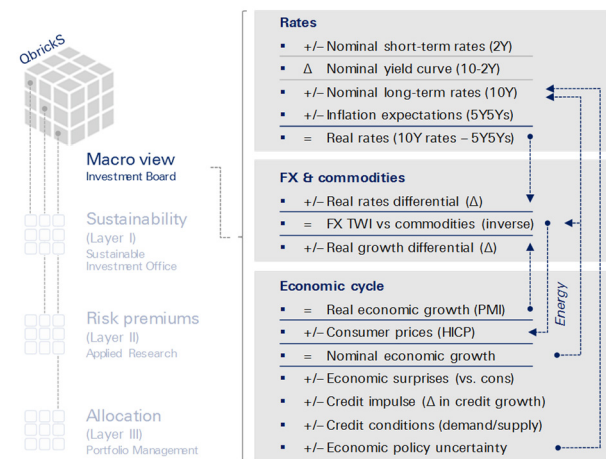
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casts for the equity, foreign exchange and commodity markets as well as for the economic cycle.

The output from these models can be used to a) forecast absolute index targets (yield levels) for the equity markets (bond markets) and b) determine relative positioning for excess return potential.

The starting point for this process is usually a change in central bank policy which can have a profound ripple effect on the overall economic environment with consequences for interest rates, economic growth, currencies and commodity prices.

Macro view: consistent across asset classes



Source: Metzler

Example: Let's assume the domestic central bank lowers short-term policy rates in order to stimulate the economy while other central banks remain neutral. This causes nominal yields on short-dated bonds in the domestic economy to fall. While the change in monetary policy has delayed effects on growth and consumer prices, which in turn has a positive impact on nominal yields on longer-term bonds, the yield curve steepens.

If monetary policy stimulus is credible, the inflation expectations of financial market players (as measured by inflation-linked swap rates) will rise and push real rates even lower.

It is important to keep an eye on trends in real rates because their rate differentials to other currencies is one of the most important factors for explaining changes in the domestic currency. A lower real rate differential has a negative impact on the trade-weighted currency index because investors will divest domestic currency due to

falling yields in order to benefit from rising yields on foreign currencies.

While lower funding costs stimulate domestic growth, the effects of a weaker currency depend largely on an economy's export ratio. A positive ratio (exports > imports) means that the weaker domestic currency supports domestic economic growth because exported goods and services become cheaper for customers outside the domestic economy. If the ratio is negative (imports > exports), the weaker domestic currency makes imports more expensive and this can weigh on domestic growth.

Assuming the export ratio is neutral, the effect of monetary policy stimulus would be positive for domestic growth. This would drive the trade-weighted domestic currency index, which can largely be described as a function of real growth and interest rate differentials. Commodities, on the other hand, largely reflect the inverse US dollar cycle.

It is clear that short-term (long-term) nominal yields tend to be lower (higher) and thus tend to steepen the yield curve, weaken the currency, strengthen domestic economic growth and, depending on the respective export ratio, weigh on or drive commodity prices. These relationships can now be transferred to financial markets in order to forecast equity index targets and interest yields.

Excursus: transferring macro views to the markets

Equity index target =
price-to-earnings (PE) multiple × earnings per share (EPS)
 with
inverted PE = earnings yield = risk-free rate + real rates
real rates = long-term nominal yield + equity risk premium
 and
EPS [as a function of] =
real rates, growth, currency, commodity, policy uncertainty
 in addition to
(non-) financial yield spreads [as a function of] =
macro sentiment, overnight index swap rates, shadow interest rates and, in case of financials, also loan growth

Source: Metzler

(3) Aligning portfolios consistently across all layers

Why is all this relevant in the context of an integrated sustainability approach? Because there are a lot of

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structural parallels between a company's sustainability profile and its accounting metrics that are influenced by the economic climate. The better the relationship between sustainability and accounting metrics is researched, the more meaningful the signals from a macroeconomic model are for a company's sustainability profile. It also makes more sense to predict economic scenarios than to estimate how sustainability profiles will change over time, thus influencing the valuation of the securities concerned.

Connecting the dots: portfolio construction with QbrickS



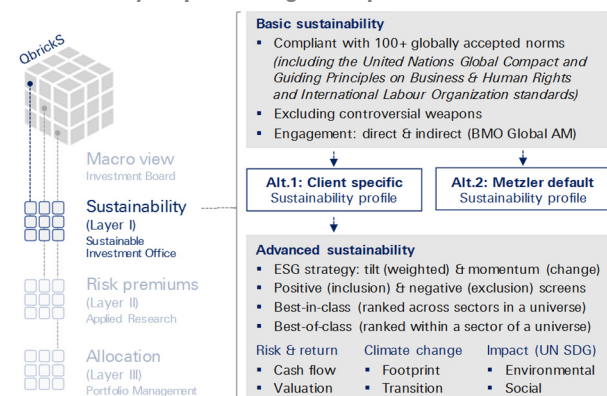
Source: Metzler

Layer I – Sustainability: the heart & soul of QbrickS

Our concept comprises a basic variant ("basic sustainability") and an advanced variant that links a wide range of ESG aspects to the other two layers of the model (risk premiums and allocation), embedded into a macroeconomic assessment across asset classes.

QbrickS can also be used to implement other sustainability investment approaches, such as best-in-class (cross-sector), best-of-class (industry-specific), risk and return optimization as well as climate change and impact (aligned with the UN Sustainable Development Goals).

Sustainability: implementing client preferences



Source: Metzler

In addition to providing valuable input for portfolio risk management, QbrickS lends important guidance for active engagement with the companies in which we invest. This is a prerequisite for assessing the quality of corporate governance and management's ability to create sustainable value. This supplements the process we established with BMO Global Asset Management for voting at annual general meetings (AGMs).

- **Basic sustainability:** We exclude companies from the global investment universe that violate a list of over 100 universally accepted norms and principles. This approach has enabled us to achieve an annual excess return of seven basis points over the MSCI World equity index in the past ten years. At the same time, the tracking error was only 0.3% per annum³.

Excluding companies from the investment universe reduces incentive for companies to violate one of the norms or principles. This inevitably leads to lower demand for shares and bonds in the respective companies and implicitly leads to higher capital costs.

There is therefore strong incentive for companies to turn to capital-market-oriented governance, thus reversing increased funding costs. Alternative investments with higher risk in order to compensate for increased funding costs would be counterproductive, as this would dampen, rather than heighten, investor demand for the company's issued securities.

- **Advanced sustainability:** The quality of sustainability profiles is closely linked to the risk level of the respective company, which in turn is closely linked to the cost of capital. This is important for determining the profitability of growth initiatives.

Therefore, any key ESG indicator that influences a company's risk profile and thus its cost of capital is of interest to our clients. We thus sort ESG KPI according to the transmission channels (cash flow and valuation) through which they affect fair values. In our model, the most relevant factors are those most sensitive to changes in the cost of capital. While we apply governance KPI across all industries, we weight our environmental and social KPI in our model based on industry specifics.

- **Environment – risk vs. opportunity:** Market consensus is most pronounced on environmental issues. Not only the experts agree that

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an energy shift towards a world free of fossil fuels is the key to slowing climate change and limiting global warming to 2 °C.

Managing environmental risk means keeping an eye on a) the environmental footprint (air pollution, potential emissions, energy intensity, power mix and generation, waste management & biodiversity, water scarcity), b) the physical elements (forest fires, droughts, flooding, storms, earthquakes) and c) the regulatory costs (fines and taxes).

However, risk exposure can be offset or even overcompensated by setting environmental footprint reduction targets, making environmentally friendly changes in products and services, and introducing other solutions in other parts of the value chain. The potential opportunities for companies doing this increase accordingly.

We prefer to invest in companies with a positive risk-reward quota, especially companies where most negative news has already been priced into the valuation and where announced changes are credible enough to dynamically unlock added value.

- **Social – products, people, processes:** As with environmental issues, we also apply the risk-reward logic to social issues and prefer companies with distinctly positive balances.

Specifically, we take a closer look at the three Ps: **P**roducts (safety & exposure), **P**eople (workforce) and **P**rocesses (supply chain management). In our assessment, we consider the very different roles of the relevant Ps from sector to sector.

An overlap of sustainability and risk premiums from our QbrickS model suggests that global value stocks (low valuation with high dividend yields) with complex supply chains and marginally rising sales are particularly likely to attract negative attention due to a breach of internationally accepted norms and principles.

Such companies may be more tempted to tolerate anti-competitive practices in order to

boost weak sales growth or escape the grips of tightening regulation.

This often results in significant fines and reputational damage with adverse effects on the company's customer and supplier relationships..

- **Governance – plea for a global standard:** Corporate governance, i.e. the management of a company, has the strongest influence on the cost of capital.

However, the notion of "good" corporate governance varies greatly from country to country and from region to region due to cultural differences, national legislation and protectionist motives.

In our opinion, these differences are not likely to be priced in accordingly on the capital markets. From a risk perspective, a standard for capital-market-oriented governance is therefore desirable to help minimize risks stemming from this.

Moreover, such a standard would likely act as an ideal catalyst for higher returns. However, this is more or less relevant depending on the company's development stage and thus the valuation of individual securities should take this into account.

We distinguish between three stages of corporate development: emerging (factor-driven), growing (innovation-driven) and established (efficiency-driven).

As a company advances through the stages, its governance should become more consistently geared to mastering the challenges of increasingly complex value chains and stricter regulations.

Layer II – Risk premiums: leveraging sustainability

Risk premiums are factors for which investors expect compensation in the form of excess returns above the risk-free interest rate. We believe the combination of financial (accounting-related) and non-financial (sustainability-related) risk premiums holds significant potential to generate excess returns.

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In addition, risk premiums have repeatedly proven to be a useful control function for portfolio managers to identify (un)intended strategy tilts in their portfolios. This results in maximum transparency, which in turn is a prerequisite for targeted risk management.

Risk premiums: flexibility via style and investment horizon



Source: Metzler

With regard to fixed-interest securities, we focus on four risk premiums: carry, value, momentum and defensive. For equities, we differentiate between structural, fundamental and price-based premiums stretching over three investment horizons: short (<1 year), medium (1–5 years) and long (>5 years). This matrix offers maximum flexibility for switching between tactical (shorter-term) and strategic (longer-term) portfolio allocations.

- **Structural risk premiums** offer excess returns that are stable throughout the economic cycle and deliver robust, risk-adjusted returns with low volatility. These include investments in companies with a certain ownership structure, market capitalization or a specific exposure to high-growth products and services. Indicators that show this therefore create added value.
- **Fundamental risk premiums** are backed by statistically significant correlations with economic indicators or other key figures that help explain why a risk premium can be sustainable going forward. These premiums can be divided into high-risk and low-risk groups. We prefer those that offer solid risk-return profiles and low transaction costs. Sustainability KPI that move in sync with risk (positive and negative) are helpful additions here.

- **Price-based risk premiums** offer the opportunity to participate in market trend reversals. These include price momentum, sensitivity to market movements (beta) and volatility. We believe that integration of sustainability KPI that contribute to lower default risks are interesting.

Layer III – Allocation: competitive advantages

The main reason to consider thematic allocation in QbrickS is the conviction that competitive advantages are reflected in aggregates like (sub)sectors, countries or regions. This reduces the complexity of portfolio allocation and allows for higher exposure to high-conviction ideas in a portfolio, making it possible to invest in these competitive advantages.

It is one thing to determine the thematic exposure of an investment universe, but it is a much more complex task to connect the dots between the themes using a joint investment logic. This logic must be a) consistent across all asset classes, b) able to translate signals into trading ideas at single security level, and c) able to sustainably improve a portfolio's risk-return profile while reducing its turnover frequency and transaction costs.

We are sure that sectoral and regional aggregates add significant value to medium- and long-term portfolio allocations when combined with sustainability (level I) and risk premiums (level II). Most market players allocate capital based on all these aggregates when they have a strong opinion of a particular benchmark. Tying these considerations together, as we have depicted at all three levels, adds concentrated value to the portfolio.

However, the order of these considerations plays a decisive role here. For example, if we start with sectors that offer substantial exposure to global megatrends like climate change, technological progress, demographics or urbanization, we would tend to have a bias for solution providers that already look expensive in terms of simple valuation multiples.

In combination with structural views on sustainability aspects and risk premiums, however, one might conclude that "expensive" in a historical context or in a current peer group comparison is not necessarily an obstacle to investing in these securities. After all, even high valuations can continue to trend higher if investor demand increases.

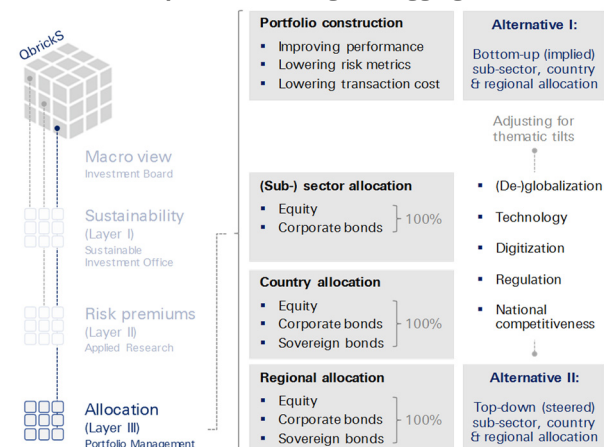
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In such a supply-demand constellation, it is quite possible that capital market players might grant valuation premiums to single securities compared to the peer group and/or the broad market, thereby fuelling further outperformance of these securities.

Country aggregates, on the other hand, add value when weighted according to the degree of national competitiveness. This can lead to higher productivity and efficiency gains and thus to superior returns for share- and bondholders.

The sustainability and risk premium layers reinforce these preferences because the global world of finance is increasingly guided by these aspects. Risk controlling also helps us to identify and avoid extreme positioning.

Allocation: competitive advantages of aggregates



Source: Metzler

Case study (equities): Metzler European Growth

To demonstrate how ObrickS works in practice, we apply the model's output to our European Growth fund which is benchmarked against the EUR-denominated MSCI Europe Growth equity index.

The basic idea behind the fund's strategy is to identify stocks in companies with a sustainable business model supported by structural development, thereby fostering long-term growth.

- **External factors:** Companies that benefit from structural growth trends combined with competitive advantages in products and services that give rise to high market access barriers, robust market share gains and pricing power throughout the cycle.

- **Internal factors:** High-quality management with a solid track record and risk-averse corporate governance.
- **Financials:** Solid balance sheet with appropriate debt ratios and high transparency of cash flow.
- **Sustainability:** Positive ESG risk-reward profile and exposure to products and/or services that serve the United Nations' sustainable development goals.

Dialogue between Metzler's Sustainable Investment Office, our clients and our portfolio managers is set up in three steps:

1. Basic sustainability: A filter is used to ensure that the portfolio is free from investments in companies with violations of any of the 100 or more generally accepted norms and principles.

2. Status quo analysis (thematic tilts): The fund's macro exposure tilt is pro-cyclical, which makes the fund generally more sensitive to steepening yield curves and geared towards political stability. The fund is also more defensive in terms of movement in local currency (EUR) and prices on the commodity markets.

Assuming market players' trade-war-induced recessionary fears are already largely priced in to capital market prices, we believe the current positioning of the Metzler European Growth fund enables investors to benefit from a rebound in the market – our base case scenario.

With regard to risk premiums, the fund is in line with the strategy that backs it, i.e. overweight in small and mid-sized capitalized firms, high in quality (high return on equity, low debt level, stable returns), and with stable growth (high sales and EPS growth in the past 3–5 years and predicted for the future).

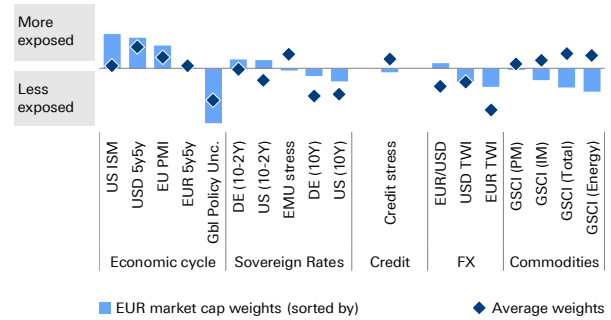
The strictly implemented strategy guidelines also ensure that portfolio turnover and the associated costs are kept down.

Due to the great importance of such factors to the quality of a sustainable profile, the Metzler European Growth fund enjoys better sustainability ratings (e.g. by MSCI ESG Research) than the benchmark index.

Furthermore, Metzler's fund has disproportionately high exposure to companies offering goods and/or services that promote the United Nations sustainable development goals.

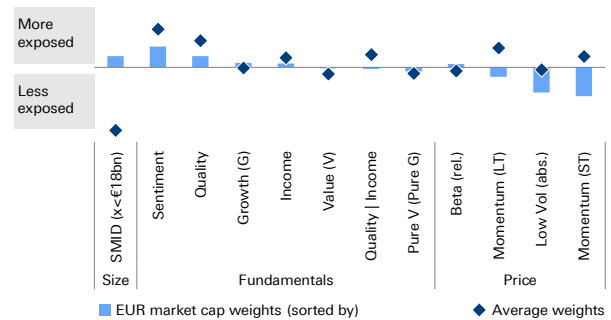
3. Alignment: The current alignment of the Metzler European Growth fund delivers what it promises so that no significant changes are required. To improve its risk-reward profile, single positions could be challenged on an ongoing basis and replaced (assuming the timing is right) by potentially more promising alternatives.

Metzler European Growth: macroeconomic exposure Fund versus benchmark⁴: standardized Z-score deltas



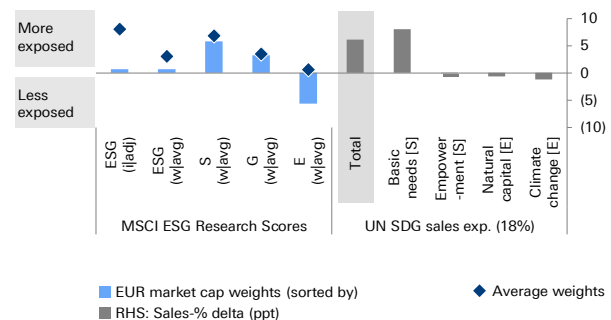
Sources: Metzler, Thomson Reuters Datastream

Metzler European Growth: risk premium exposure Fund versus benchmark⁴: standardized Z-score deltas



Sources: Metzler, Thomson Reuters Datastream

Metzler European Growth: sustainability exposure Fund versus benchmark⁴: score percentage point deltas



Sources: Metzler, Thomson Reuters Datastream

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Footnotes, legal references and disclaimer

- ¹ Giese, G. et al. (2019): Foundations of ESG Investing: How ESG Affects Equity Valuation, Risk, and Performance. The Journal of Portfolio Management 45 (5).
- ² Sharpe, W. F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk". Journal of Finance. 19 (3): 425–442.
- ³ Lee et al. (2017): Do Corporate Controversies Help or Hurt Performance? The Journal of Environmental Investing, Volume 8, No. 1.
- ⁴ MSCI Europe Growth (EUR)

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