

BLACKROCK IMPACT
SCREENS ESG IMPACT

Creating a
sustainable core

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Overview

Environmental, social and governance (ESG) investing is becoming a mainstream consideration for investors. Whether to align values, help manage risks and opportunities, or respond to stakeholders, more investors are seeking to incorporate ESG considerations throughout their entire portfolios.

There are a number of ways investors can integrate ESG into their investment process. Historically, investors have used exclusionary screens to remove companies or industries not aligned with their values. Increasingly however, investors have looked to employ more proactive approaches to investing through dedicated ESG investment strategies across investment styles and asset classes. We see growing demand for active ESG public equity and fixed income funds, but also sustainable real estate, infrastructure and private equity strategies.

On the passive side, there is also a range of ESG solutions available, but a gap remains for benchmark-aware investors seeking ESG exposures. The prevailing ESG index approach is designed to select top-rated ESG securities within a given sector to seek higher ESG

scores. Some investors prefer to focus on the highest performing ESG companies, but the limited universe may cause the portfolio to significantly deviate from traditional benchmarks.

To help index investors balance their ESG and risk objectives with more precision, ESG optimisation can meaningfully improve a portfolio's ESG rating while seeking to closely track a traditional benchmark, such as the MSCI World Index. In addition, for investors with additional carbon footprint objectives, ESG optimised portfolios may potentially yield significant carbon reductions. The level of ESG and carbon performance can vary across regional exposures, but improvements are stable over time irrespective of the underlying investment universe.

Our key findings include:

- The conventional ESG approach of screening for the highest rated companies may be suitable for investors seeking exposure to the highest ESG rated companies and willing to accept large deviations in active risk from a traditional benchmark.
- Using risk-based ESG optimisation, a core equity portfolio's overall ESG rating can be considerably improved while maintaining low active risk, or tracking error relative to a traditional benchmark.
- ESG-aware portfolios can result in a lower portfolio carbon footprint, which is a distinct but related investment goal for many investors.
- ESG ratings improvements are likely to persist over time based on back-tested analysis, but can vary by region when keeping tracking error the same.

Current ESG strategies

The traditional approach to ESG index investing is to screen for the highest ESG-rated companies within a given investment universe. Often called the ‘best-in-class’ methodology, there are two primary approaches to these strategies:

- Market-cap weighted: remove all securities that fall below a particular ESG score (e.g. below a BB rating) and rebalance the remaining securities according to company market capitalisation.
- ESG factor weighted: remove all securities that fall below a particular ESG score (e.g. below a BB rating) and rebalance the remaining securities according to ESG score, starting with highest rated, or AAA-rated companies.

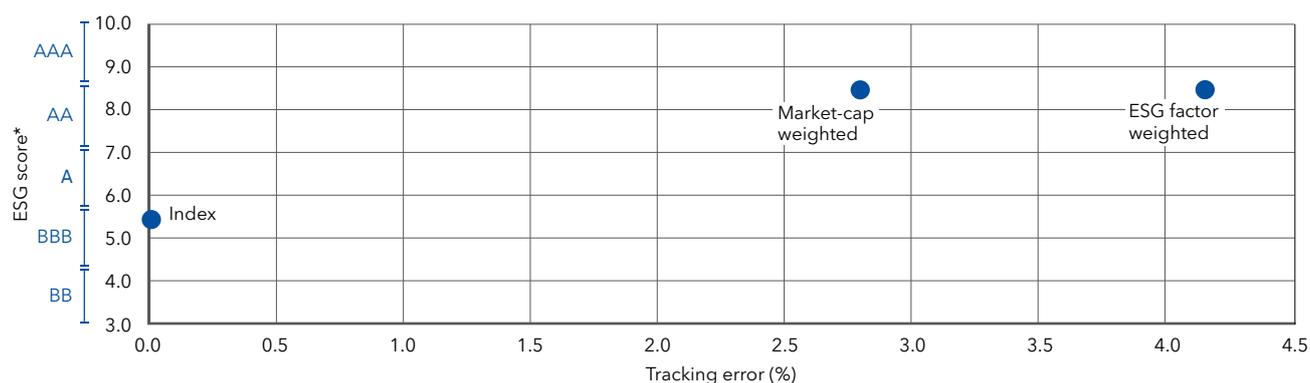
Often, these approaches will also remove specific companies and/or sectors, such as alcohol, tobacco and firearms. The strategies are highly effective in

improving the overall ESG rating of the portfolio. However, the trade-off is higher active risk.

Analysing the MSCI World Index, Figure 1 demonstrates the trade-off between ESG rating and tracking error for the two approaches. Both result in an overall AAA ESG rating, relative to the BBB ESG rating of the standard market-capitalisation weighted index equivalent. However the high ESG rating is accomplished with typical tracking errors ranging from 300 bps to 450 bps on an annualised basis, relative to the benchmark. The higher tracking error is partially driven by concentration as those strategies generally invest in 25% of the universe.

For ESG investors who are able to accept high active risk relative to standard market-capitalisation weighted benchmarks, using a rating cutoff to screen companies may be an appropriate investment strategy. For others, especially those managing against a standard investment policy benchmark, this approach may not be suitable.

Figure 1: How the highest ESG-rated strategies stack up



Source: MSCI, BlackRock calculations as of 30 December 2016. Notes: The above is based on a simulation that aims to maximise a hypothetical portfolio's ESG rating. In constructing the hypothetical portfolio, BlackRock takes the top 25% companies in the MSCI World Index and MSCI ESG data and weights each stock according to a) its market cap and b) weighted by ESG score. The forward looking tracking error is an estimation that uses the BlackRock Fundamental Risk for Equity model. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy. Indices are unmanaged and used for illustrative purposes only. They are not intended to be indicative of any fund or strategy's performance. It is not possible to invest directly in an index.

* MSCI ESG ratings range from the highest, AAA, to the lowest, CCC, and are based on data collected from 100+ sources including company reports, litigation reports and media interviews.

Seeking to optimise ESG versus active risk

Due to the high active risk of traditional ESG best-in-class indices relative to market-cap benchmarks, a variety of investors have come to us asking:

- Can a portfolio's ESG rating be improved without adding significant active risk relative to a standard equity market index?
- Is there a minimum tracking error level that would give a sufficient increase in ESG rating?
- What is the marginal increase in ESG rating that is acceptable for the additional increase in tracking error?

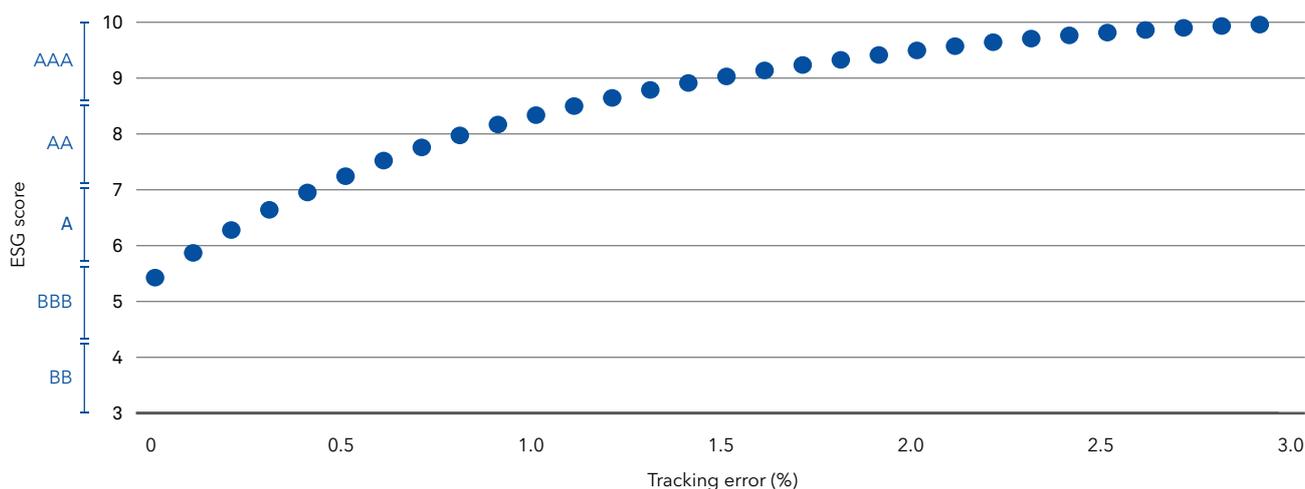
To help answer these questions, we have constructed various portfolios that consider both active risk

and a portfolio's overall ESG rating. In Figure 2 our optimisation model shows the maximum achievable portfolio ESG rating relative to a targeted tracking error versus the MSCI World Index.

The marginal improvement in ESG rating decreases as the tracking error increases. A tracking error as little as 10 bps can improve the portfolio's ESG rating from BBB to A. When the risk target increases to 50 bps, the ESG rating goes up to AA. To have an ESG rating of AAA, the tracking error target would need to rise to 120 bps.

To limit active risk, a specific tracking error target can be set and the portfolio may be optimised within that constraint. To target a specific ESG score, the risk budget can be relaxed until that score is achieved.

Figure 2: Trade-off between tracking error and ESG rating



Source: MSCI, BlackRock calculations as of 30 December 2016. Notes: The above is based on a simulation that aims to maximise a hypothetical portfolio's ESG rating. In constructing the hypothetical portfolio, BlackRock takes all companies in the MSCI World Index and MSCI ESG data and performs a standard mean variance optimisation for each given tracking error. The forward looking tracking error is an estimation that uses the BlackRock Fundamental Risk for Equity model. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy.

Incorporating carbon emission reduction

In addition to targeting an overall ESG score, investors can also target multiple ESG-related objectives. In particular, reporting and reducing a portfolio's carbon footprint is gaining in importance, bolstered by regulatory milestones such as the international climate change agreement signed in Paris at the 21st Conference of the Parties in 2015.

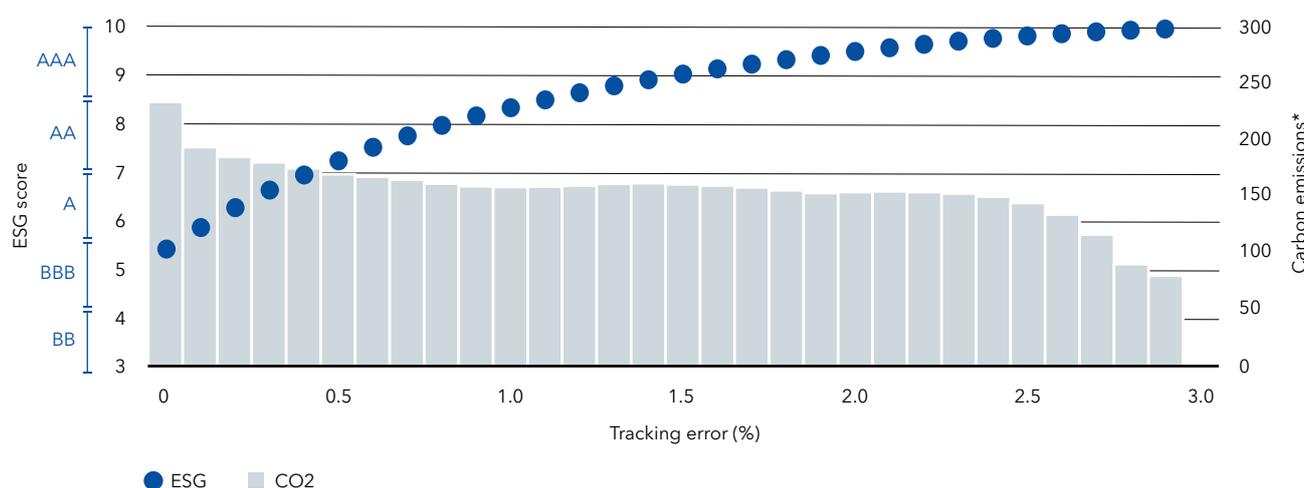
Higher ESG scores generally lead to lower portfolio emissions, with a majority of the carbon reduction occurring within the first 60 bps of tracking error relative to MSCI World. See Figure 3. The reason for this is that the highest carbon emitters will often also have lower ESG scores, which will lead to an underweight position in an optimised portfolio. With a tracking error of around 60 bps, it is possible to improve ESG ratings by two notches as well as reduce carbon emissions by

30%. However, after that point, it takes over 200 bps of tracking error before further significant carbon reduction is achieved.

The relationship between carbon emission and ESG rating is not necessarily consistent. However, companies with low carbon emissions may have low ESG ratings due to, for example, corporate governance concerns.

For investors explicitly seeking to achieve both lower emissions and higher ESG scores, an alternate solution is to use an optimisation model that seeks to maximise both ESG and minimise carbon emission. In optimising for two factors, though, higher active risk is needed to achieve the same ESG ratings improvement when compared to a one-factor ESG optimiser.

Figure 3: Comparing tracking error, ESG and carbon emission



Source: MSCI, BlackRock calculations as of 30 December 2016. Notes: The above is based on a simulation that aims to maximise a hypothetical portfolio's ESG rating. In constructing the hypothetical portfolio, BlackRock takes all companies in the MSCI World Index and MSCI ESG data and performs a standard mean variance optimisation for each given tracking error. Carbon emissions data are measured in metric tons per million US dollars in total capital (total equity and debt). The forward looking tracking error is an estimation that uses the BlackRock Fundamental Risk for Equity model. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy.

*Emissions are measured in tonnes per million US dollars in total capital (total equity and debt).

What about emerging markets?

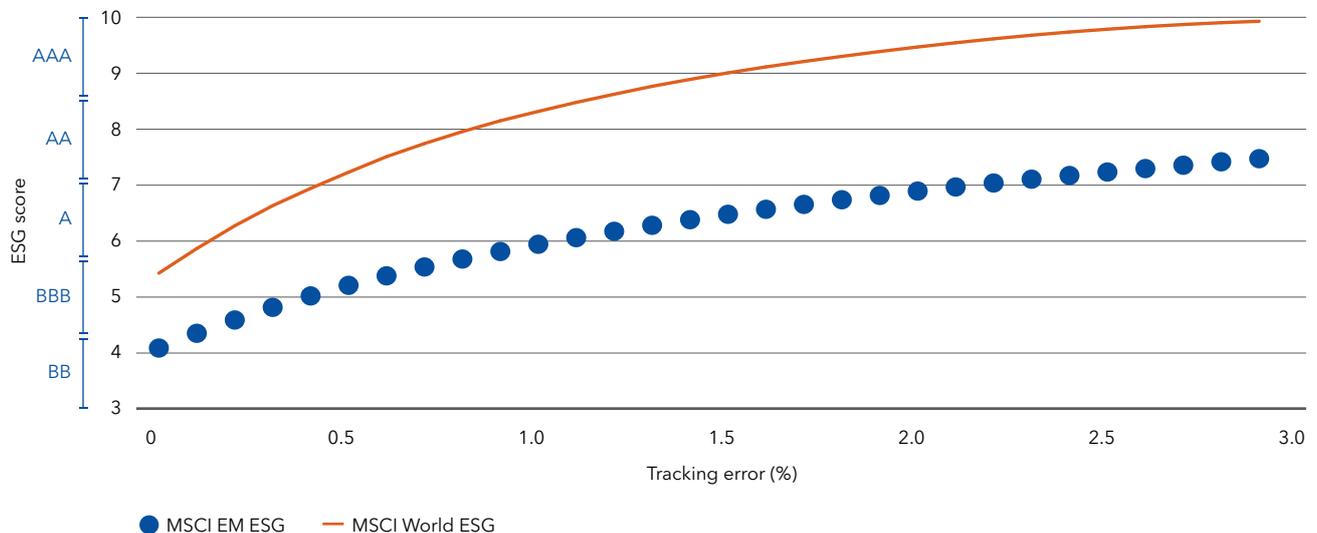
Not all investment indices can be optimised for the same ESG improvement while targeting a similar tracking error. For example, the MSCI Emerging Markets Index has an overall ESG rating of BB, according to MSCI data. While a higher overall ESG rating can be achieved, this will materialise at a higher tracking error when compared to the developed market equivalent (MSCI World Index). See Figure 4.

Using our optimisation approach, the ESG rating of a standard emerging market index can be improved to AA with a tracking error target of 300 bps. Emerging market companies tend to have a lower ESG rating compared to their developed market counterparts, partly due to differences in the legal and regulatory framework but

also because of a lack of company reporting. Given the lower starting ESG rating, it is very difficult for the MSCI EM universe to achieve a well-diversified fund if targeting a AAA rating.

From a carbon perspective, a significant reduction – or 30% – can be obtained with a tracking error of around 50 bps for the MSCI EM index. While further emission reductions can be reached with higher tracking errors, any benefits are significantly diminished relative to the additional risks taken. Compared to developed markets, the starting level of carbon emission is also much higher for the MSCI EM index, and therefore, it is not possible to reach a similar level of emission reduction with similar tracking errors.

Figure 4: Trade-off between tracking error and ESG in EM



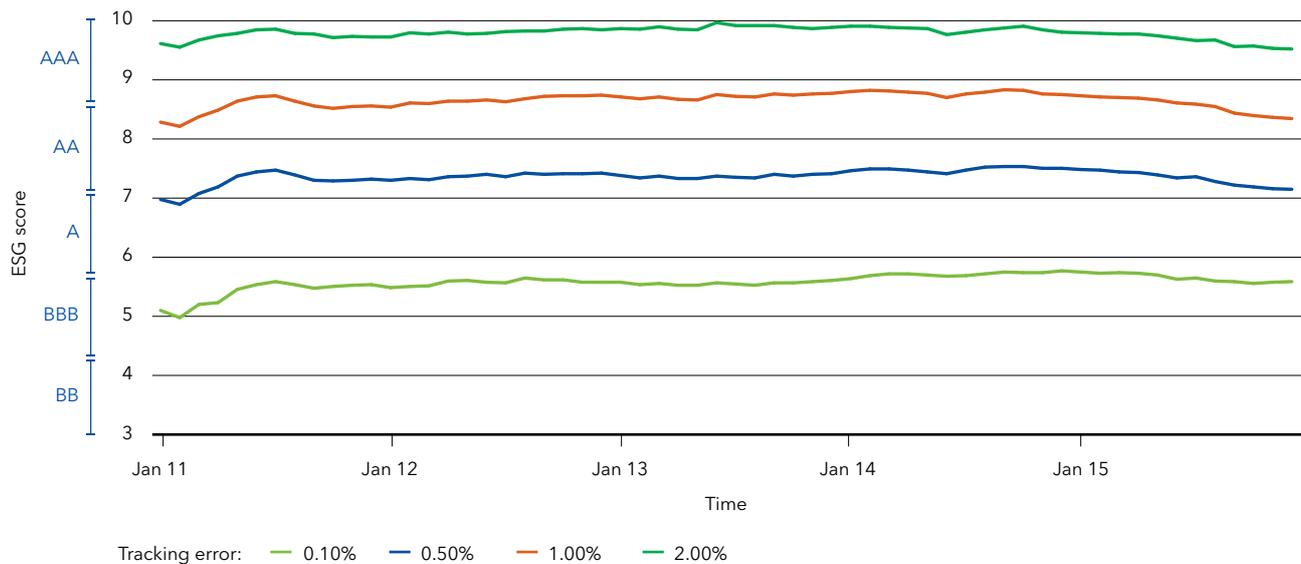
Source: MSCI, BlackRock calculations as of 30 December 2016. Notes: The above is a simulation that aims to maximise a hypothetical portfolio's ESG rating. In constructing the hypothetical portfolio, BlackRock takes all companies in the MSCI World Index and the MSCI EM Index and MSCI ESG data and performs a standard mean variance optimisation for each given tracking error. The forward looking tracking error is an estimation that uses the BlackRock Fundamental Risk for Equity model. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy.

ESG improvements are stable over time

In the previous examples, the trade-off between ESG rating, carbon emission and tracking error is measured at a single point in time. But how do ESG ratings behave over time? Figure 5 demonstrates that through optimisation, ESG improvements can be consistently achieved. For example, a tracking error target of 50 bps yields a stable improvement in ESG rating - to AA from BBB - over the past five years, based on MSCI World.

The ESG improvement over time can be explained by the steady overall ESG distribution of companies. It is true that an individual company's ESG rating can and does change, but on a sector-relative basis, the distribution has remained consistent. The optimised approach will always result in a higher ESG rated portfolio versus its benchmark, however the magnitude of the improvement might change over time. What is likely to remain stable will be the tracking error.

Figure 5: ESG improvements have been constant



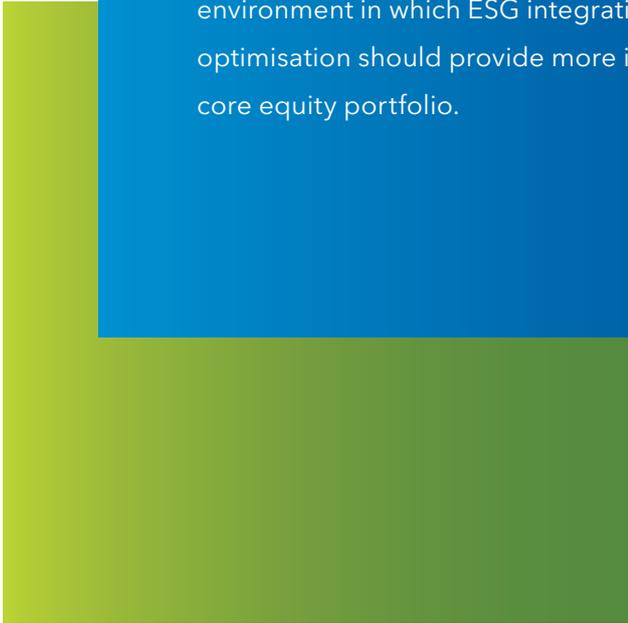
Source: MSCI, BlackRock, January 2011 to December 2015. Notes: The above is a simulation that aims to maximise a hypothetical portfolio's ESG rating over the period January 2011 – December 2015. In constructing the hypothetical portfolio, BlackRock takes all companies in the MSCI World Index and MSCI ESG data and performs a standard mean variance optimisation for each given tracking error. The forward looking tracking error is an estimation that uses the BlackRock Fundamental Risk for Equity model. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy.



Conclusion

Relative to traditional ESG indices, risk-based ESG optimisation presents an alternative, more flexible approach for benchmark aware investors. We show that ESG optimisation can be used to help maximise a portfolio's overall ESG rating, minimise a portfolio's carbon emission footprint, or any combination thereof within specific active risk constraints. Although results can vary depending on the investment universe and the level of active risk, ESG rating improvements can be consistently achieved over time across both developed and emerging markets.

ESG optimisation can also be applied to specific E, S and G factors, such as water efficiency and gender diversity, and any of these combinations can be integrated with traditional financial factors such as low volatility, value or growth. In an environment in which ESG integration is increasingly a necessity, risk-based ESG optimisation should provide more investors with a sustainable solution for their core equity portfolio.



Unless otherwise stated all data is as at December 2016, BlackRock.

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