CFA Institute

PRI Principles for Responsible Investment

GUIDANCE AND CASE STUDIES FOR ESG INTEGRATION: EQUITIES AND FIXED INCOME

CFA Institute is a global community of more than 150,000 investment professionals working to build an investment industry where investors' interests come first, financial markets function at their best, and economies grow.

The United Nations-supported Principles for Responsible Investment (PRI) Initiative is an international network of investors working together to put the six principles for responsible investment into practice. Its goal is to understand the implications of Environmental, Social and Governance issues (ESG) for investors and support signatories to incorporate these issues into their investment decision making and ownership practices. In implementing the principles, signatories contribute to the development of a more sustainable global financial system. There are currently more than 2000 signatories to the PRI who collectively manage approximately US$80 trillion in assets. Visit www.unpri.org.

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EXECUTIVE SUMMARY

Portfolio managers and analysts are increasingly incorporating ESG factors into their investment analyses and processes. However, ESG integration remains in its relative infancy, with investors and analysts calling for more guidance on exactly "how" they can "do ESG" and integrate ESG data into their analysis.

CFA Institute and Principles for Responsible Investment (PRI) set out to create a best-practice report (*Guidance and Case Studies for ESG Integration: Equities and Fixed Income*) and three regional reports [one for the Americas (AMER), one for Asia-Pacific (APAC), and one for Europe, the Middle East, and Africa (EMEA)] to help investors understand how they can better integrate ESG factors into their equity, corporate bond, and sovereign debt portfolios. We are able to achieve this goal by:

- surveying 1,100 financial professionals, predominantly CFA members, around the world;
- running 23 workshops in 17 major markets (see the table on the next page);
- interviewing many practitioners and stakeholders;
- publishing more than 30 case studies written by equity and fixed-income practitioners;
- analyzing Bloomberg's ESG company disclosure scores; and
- reviewing data from the PRI reporting framework, the largest global database of information on investors' ESG practices.

This publication, *Guidance and Case Studies for ESG Integration: Equities and Fixed Income*, provides a global insight on the ESG integration techniques of leading practitioners across all regions of the world and includes case studies by analysts, portfolio managers, and investors, who share how they integrate ESG into their analysis and tell their stories of ESG integration. It also introduces an ESG Integration Framework that can be a reference for practitioners to use when comparing their ESG integration techniques with their peers' ESG integration techniques and identify those techniques that are suitable for their own firm.

We hope the work presented here helps both equity and fixed-income investors to better understand the many ways in which they can integrate ESG analysis into their investment decision making.

THE 17 MARKETS WHERE THE 23 ESG WORKSHOPS WERE HELD

ESG WORKSHOPS ACROSS THE WORLD		
AMER	**APAC**	**EMEA**
Brazil	Australia	France
Canada	China	Germany
United States	Hong Kong	Netherlands
	India	Russia
	Japan	South Africa
	Singapore	Switzerland
		United Arab Emirates
		United Kingdom

Abbreviations: AMER, Americas; APAC, Asia Pacific; EMEA, Europe, Middle East, and Africa.

CASE STUDY TABLE

We collected more than 30 case studies to demonstrate many of the techniques found in the ESG integration framework (see the section "ESG Integration Framework"). The case studies were written by leading practitioners across 13 markets in the Americas, EMEA, and APAC regions.

You can use the case study table provided below to help you navigate the case studies found in this volume.

THE CASE STUDY TABLE

DOMICILE OF THE CASE STUDY AUTHOR	FIRM PROVIDING THE CASE STUDY	SECTOR/COUNTRY	ASSET CLASS	PAGE
Australia	Alliance Bernstein L.P.	Healthcare	Equity	30
Brazil	Santander Asset Management	General	Equity	95
Canada	AGF Investments Inc.	Chemicals	Equity	26
Canada	Manulife Asset Management	Technology	Equity	64
Canada	RBC Global Asset Management	Healthcare	Equity	92
China	E Fund Management Co., Ltd.	Chemicals	Equity	42
China	Hwabao WP Fund Management Co., Ltd.	Chemicals	Equity	56
Hong Kong	The Goldman Sachs Group, Inc.	Semiconductor	Equity	50
India	Quantum Advisors Private Ltd.	Chemicals	Equity	87
India	SBI Funds Management Pvt. Ltd., India	Waste Management	Equity	97
Japan	Nissay Asset Management Corporation	Industrials	Equity	76
Netherlands	NN Investment Partners	Materials	Equity	80

(Continued)

THE CASE STUDY TABLE (CONTINUED)

DOMICILE OF THE CASE STUDY AUTHOR	FIRM PROVIDING THE CASE STUDY	SECTOR/COUNTRY	ASSET CLASS	PAGE
Netherlands	Robeco	Telecoms	Corporate bond	122
Netherlands	Robeco	Turkey	Sovereign debt	152
Singapore	Arisaig Partners	Consumer Products	Equity	33
Singapore	AXA Investment Managers Asia (Singapore) Ltd.	Software	Equity	37
Singapore	Eastspring Investments	Automotive	Equity	45
South Africa	Momentum Investments	Property	Equity	71
South Africa	Old Mutual Investment Group	Mining	Equity	83
South Africa	Futuregrowth Asset Management (PTY) Ltd.	South African SOEs	Sovereign debt	141
Switzerland	UBS Asset Management	Multiple	Corporate bond/ Sovereign debt	126
United Kingdom	Inflection Point Capital Management	Chemicals	Equity	60
United Kingdom	Hermes Investment Management	Oil & Gas	Corporate bond	106
United Kingdom	Insight Investment	Technology	Corporate bond	110
United Kingdom	Man GLG	Food Retailer	Corporate bond	114
United Kingdom	Colchester Global Investors	Russia	Sovereign debt	132
United Kingdom	PIMCO	South Africa	Sovereign debt	148
United States	High Pointe Capital Management	General	Equity	53
United States	MFS Investment Management	IT Outsourcing	Equity	67
United States	Breckinridge Capital Advisors	Beverage	Corporate bond	102
United States	Sage Advisory Services, Ltd. Co.	Utilities	Municipal bond	156
United States	Angel Oak Capital Advisors, LLC	Financials	Structured credit	162
United States	PIMCO	Financials	Corporate bond	117

THE ESG INTEGRATION FRAMEWORK

After extensive analysis of the ESG integration techniques of direct investors across the globe, CFA Institute and PRI collated the many ESG integration techniques used by practitioners and developed the ESG Integration Framework (see **Figure 1**).

FIGURE 1: THE ESG INTEGRATION FRAMEWORK

The ESG Integration Framework is not meant to illustrate the perfect ESG-integrated investment process. Rather, the ESG Integration Framework is meant to be a reference so that practitioners can analyze their peers' ESG integration techniques and identify those techniques that are suitable for their own firm. We believe that this will be a useful resource and reference as you develop your ESG-integrated investment process over time. As every firm is unique, the ESG integration techniques of one firm are not necessarily the right techniques for all firms.

We recommend you refer to the ESG Integration Framework as you read this report as well as the "Investment Practices of Local Practitioners" subsections of each regional report.

RESEARCH: THE INNER CIRCLE

Qualitative Analysis

- **Company questionnaires:** Questionnaires sent to companies to collect more ESG data and information where the company's level of public ESG disclosure is inadequate. These questionnaires are also used in parallel with regular company meetings, where investors and companies will meet to discuss the most material ESG issues.
- **Red-flag indicators:** Securities with high ESG risk are flagged in lists, research notes, dashboards, and databases.
- **Watch lists:** Securities with high ESG risk are added to a watch list for regular monitoring.
- **Internal ESG research:** Based on a variety of data sources, proprietary ESG research/views/scores are created for all securities in the portfolio and investment universe.
- **SWOT analysis:** ESG factors are included in the traditional SWOT (strengths, weaknesses, opportunities, and threats) analysis.
- **Materiality framework:** A materiality/sustainability framework is created that includes all the key ESG risks and opportunities for each sector/country. This framework is referred to when making investment decisions and is regularly updated.
- **ESG-integrated research note:** Research notes/credit notes consist of traditional financial information and analysis and ESG information and analysis.
- **Centralized research dashboard:** Traditional financial data and ESG data are kept on one platform (dashboard/database) so practitioners can analyze concurrently traditional financial factors and ESG factors.
- **ESG agenda at (committee) meetings:** Investment teams (and possibly ESG teams/specialists) have a dedicated ESG item on all agendas of investment team meetings. Committees meet to discuss ESG strategy, ESG performance of portfolios, and/or controversial securities.

Active Ownership

- **Voting:** This structured process captures all voting rights and applies a rigorous analysis to management and shareholder resolutions before casting votes. In addition to being used for voting, this process can be employed to submit resolutions on which other shareholders may vote.
- **Individual/collaborative engagement:** Engagement captures any interactions between the investor and current or potential investee companies on ESG issues and relevant strategies, with the goal of improving (or identifying the need to influence) ESG practices and/or improving ESG disclosure. It involves a structured process that includes dialogue and continuously monitoring companies. These interactions might be conducted individually or jointly with other investors.

SECURITY LEVEL: THE MIDDLE CIRCLE

Security Valuation—Equities

- **Forecasted financials:** Adjustments are made to forecasted financials (e.g., revenue, operating cost, asset book value, capital expenditure) for the expected impact of ESG factors.
- **Valuation-model variables:** Adjustments are made to valuation-model variables (e.g., discount rates, perpetuity growth, terminal value) for the expected impact of ESG factors.
- **Valuation multiples:** Adjustments are made to valuation multiples to calculate “ESG-integrated” valuation multiples. These multiples are then used to calculate the value of securities.
- **Forecasted financial ratios:** Forecasted financials and future cash flow estimates are adjusted for ESG analysis and the effect on financial ratios is assessed.
- **Security sensitivity/scenario analysis:** Adjustments are made to variables (sensitivity analysis) and different ESG scenarios (scenario analysis) are applied to valuation models to compare the difference between the base-case security valuation and the ESG-integrated security valuation.

Security Valuation—Fixed Income

- Credit analysis
  - **Internal credit assessments:** ESG analysis is used to adjust the internal credit assessments of issuers.
  - **Forecasted financials and ratios:** Forecasted financials and future cash flow estimates are adjusted for ESG analysis and the effect on financial ratios is assessed.
  - **Relative ranking:** ESG analysis impacts the ranking of an issuer relative to a chosen peer group.

- **Relative value analysis/spread analysis:** An issuer's ESG bond spreads and its relative value versus those of its sector peers are analyzed to find out if all risk factors are priced in.
- **Duration analysis:** The impact of ESG issues on bonds of an issuer with different durations/maturities is analyzed.
- **Security sensitivity/scenario analysis:** Adjustments to variables (sensitivity analysis) and different ESG scenarios (scenario analysis) are applied to valuation models to compare the difference between the base-case security valuation and the ESG-integrated security valuation.

PORTFOLIO LEVEL: THE OUTER CIRCLE

Risk Management

- **ESG and financial risk exposures and limits:** Companies, sectors, countries, and currency are regularly reviewed and monitored for changes in ESG risks and opportunities and for breaches of risk limits.
- **Value-at-risk analysis:** ESG analysis feeds into value-at-risk models.
- **Portfolio scenario analysis:** Different ESG scenarios are run to assess the impact of ESG factors on portfolio risk and return.

Portfolio Construction

- **ESG profile (versus benchmark):** The ESG profile of portfolios is examined for securities with high ESG risks and assessed relative to the ESG profile of a benchmark.
- **Portfolio weightings:** Adjustments are made to weightings of companies, sectors, countries, and/or currency in a portfolio to mitigate ESG risk exposures and avoid breaching ESG risk limits and other risk limits.
- **Portfolio scenario analysis:** Different ESG scenarios are run to assess the impact of ESG factors on portfolio risk and return.

Asset Allocation

- **Strategic asset allocation:** Strategic asset allocation (SAA) strategies factor in ESG objectives and analysis to progressively mitigate the ESG risks and enhance financial performance.
- **Tactical asset allocation:** Tactical asset allocation (TAA) strategies factor in ESG objectives and analysis to mitigate short-term ESG risks.
- **Portfolio scenario analysis:** Different ESG scenarios are run to assess the impact of ESG factors on SAA strategies and TAA strategies.

ESG INTEGRATION OVERVIEW

WHAT IS ESG INTEGRATION?

ESG practitioners use multiple acronyms, terms, and practices when they talk about ESG integration. This makes it difficult for non-ESG practitioners to know if they are performing ESG integration. Terms such as *sustainable investing*, *ESG investing*, *socially responsible investing (SRI)*, *green investing*, *ethical investing*, and *impact investing* are often used interchangeably.

In this volume, *ESG integration* is defined as "the explicit and systematic inclusion of ESG factors in investment analysis and investment decisions." It is a holistic approach to investment analysis, where material factors—ESG factors and traditional financial factors—are identified and assessed to form an investment decision.

ESG integration typically has three components:

1. **Research:**
   - *Information gathering:* Practitioners gather financial and ESG information from multiple sources (including but not limited to company reports and third-party investment research).
   - *Materiality analysis:* Practitioners analyze relevant financial and ESG information to identify material financial and ESG factors affecting a company, sector, and/or country.
   - *Active ownership assessment:* Practitioners discuss material traditional financial factors and ESG factors with companies/issuers and monitor the outcome of engagement and/or voting activities.
2. **Security and portfolio analysis:** Practitioners assess the impact of material financial and ESG factors on the corporate and investment performance of a company, sector, country, and/or portfolio. This can lead to adjustments to their forecasted financials, valuation-model variables, valuation multiples, forecasted financial ratios, internal credit assessments, and/or portfolio weightings (see "Qualitative Analysis versus Quantitative Analysis" for more information).
3. **Investment decision:** The material traditional financial factors and ESG factors identified and assessed influence a decision to either buy/increase weighting, hold/maintain weighting, sell/decrease weighting, or do nothing/not invest.

WHAT ESG INTEGRATION IS NOT

ESG integration does not mean that:

- investment in certain sectors, countries, and companies is prohibited;
- portfolio returns are sacrificed to perform ESG integration techniques;
- immaterial ESG factors affect investment decisions and traditional financial factors are ignored; or
- major changes to your investment process are necessary.

ESG Integration Does Not Prohibit Investing in Certain Companies, Sectors, or Countries

Some practitioners believe that ESG integration and exclusionary screening are one and the same. However, these practices have two fundamental differences:

- One approach potentially reduces the investment universe; the other does not.
- One approach is a "values" approach; the other is a "value" approach.

Exclusionary screening is implemented through a screening policy that reduces the investment universe. The policy is applied at either the firm or the fund level and includes:

- a list of prohibited practices, products, and/or services; and
- rules that identify countries, sectors, and companies in which investment is prohibited.

Typically, exclusionary screening is implemented *before* any investment analysis takes place. This is contrary to ESG integration, where financial information and ESG information are embedded in the security selection and portfolio construction process and all companies, sectors, and/or countries in the investment universe can be bought and sold.

Portfolio Returns Are Not Being Sacrificed to Perform ESG Integration Techniques

A key component of ESG integration is lowering risk and/or enhancing returns. Practitioners apply ESG integration techniques to uncover hidden risks that might remain undiscovered without the analysis of ESG information and ESG trends.

ESG practitioners also look for investment opportunities to enhance returns. For example, some practitioners analyze automotive companies to see how they are reacting to trends in car electrification and factor this assessment into their revenue forecasts. Another example is practitioners who invest in companies with strong ESG management that are likely to outperform their competitors in the long run.

Immaterial ESG Issues Do Not Affect Investment Decisions

Another key component of ESG integration is materiality. Practitioners assess all material factors—traditional financial factors as well as ESG factors—to identify investment risks and opportunities that are considered highly likely to affect corporate performance and investment performance:

- If traditional financial and ESG factors are analyzed and found to be material, an assessment of their impact is carried out.
- If traditional financial and ESG factors are analyzed and found not to be material, an assessment is not carried out.

Practitioners assess several factors when judging whether ESG issues are material, including the following:

1. **Sector and country considerations:** Material ESG issues are commonly associated with certain sectors and countries. They include regulatory and technological changes associated with the business activity that the companies in a sector are involved in or the markets to which they source or sell.
2. **Company considerations:** Material ESG issues related to a sector may not be valid for all companies in the sector because:
   - material ESG issues of a company's business lines unrelated to the sector could outweigh material ESG issues of business lines related to the sector;
   - a company's products and/or services that benefit from ESG trends could mitigate or outweigh the ESG risk associated with its sector; or
   - a company's strong environmental and social management and good governance could mitigate the ESG risk associated with its sector.
3. **Time-frame considerations:** Practitioners who are long-term investors are likely to integrate ESG factors more regularly than short-term investors, as ESG factors tend to be low-frequency, high-impact factors that drive long-term performance.

No Major Changes Are Needed to Investment Processes and Practices

ESG integration is a useful complement to practitioners' current investment process and practices. The main addition to practitioners' process is the sourcing and analyzing of ESG information, which is necessary to understand the top ESG issues affecting a company, sector, or country.

Some practitioners develop new valuation models to include ESG information. Others feed ESG information into their existing models.

QUALITATIVE ANALYSIS VERSUS QUANTITATIVE ANALYSIS

ESG integration is commonly implemented by using approaches and analysis that are more qualitative than quantitative. Increasingly, however, practitioners are quantifying and integrating ESG issues into their company/issuer valuations.

Some examples of practitioner use of qualitative analysis of ESG issues to inform investment decisions include the following:

- The ESG analysis of a company or country is studied alongside the investment analysis of that company or country to inform a "buy/sell/hold/don't invest" decision. For example, if a company or country is viewed poorly based on its ESG performance and on its valuation assessment, it could lead to a "sell" or "don't invest" signal. If the same company or country is rated poorly on its ESG performance but well on its valuation assessment, it could lead to a deeper analysis of the company or country before a decision is made.

- The ESG analysis can be the deciding factor between otherwise identical companies or countries. If all other factors are equal, the practitioner will choose the company or country that performs better on its ESG analysis.
- Practitioners invest in undervalued securities that have an opportunity to outperform based on improving ESG performance and divest from overvalued securities that could underperform based on deteriorating ESG performance.
- If a company has a low ESG score/assessment on certain ESG factors, engagement with the company can improve those factors, resulting in a buy/hold decision.
- The ESG analysis can influence the maturity of the bond that an investor purchases.

Some examples of practitioner use of quantitative analysis of ESG issues to inform investment decisions include the following:

- ESG analysis of a company or country leads to an adjustment of its internal credit assessment.
- Temporary upward/downward adjustments to forecasted financials, valuation-model variables, valuation multiples, forecasted financial ratios, and/or portfolio weightings are made for ESG analysis/ESG scores through sensitivity analysis.
- Permanent upward/downward adjustments to forecasted financials, valuation-model variables, valuation multiples, forecasted financial ratios, and/or portfolio weightings are made for ESG analysis/ESG scores.
- Adjustments to forecasted financials, valuation-model variables, valuation multiples, forecasted financial ratios, and/or portfolio weightings are made through scenarios.
- ESG data/analysis is used as a factor in quant models/factor investing that impact portfolio construction decisions.
- Statistical techniques are used to identify the relationship between an ESG factor(s) and/or aggregated ESG score, and future asset price movements and/or company fundamentals. This can result in systematic rules that lead to portfolio-weighting recommendations.
- The beta of bonds with lower/higher levels of ESG risk is adjusted downward/upward so that the amount investors are able to hold in their portfolios could be more/less than previously calculated.

EQUITY INVESTING VERSUS FIXED INCOME INVESTING

Investment Practices

Currently, fixed-income practitioners practice ESG integration less than their equity practitioner counterparts. The CFA-PRI survey, which ran from 2017 to 2018,[1] showed that a higher percentage of **all** respondents are often/always integrating governance issues, environmental issues, and social issues into their equity analysis, compared to the percentage

[1] CFA Institute and Principles for Responsible Investment (PRI) commissioned the firm YouGov to administer a global survey on ESG integration. The survey asked questions to gauge investor attitudes toward ESG integration as well as to obtain a better understanding of how ESG integration is done in practice.

TABLE 1: RESPONDENTS WHO OFTEN/ALWAYS INTEGRATE MATERIAL ESG ISSUES INTO THEIR INVESTMENT ANALYSIS

	EQUITY ANALYSIS	CREDIT ANALYSIS
Governance Issues	56%	42%
Environmental Issues	37%	27%
Social Issues	35%	27%

of respondents who are often/always integrating governance issues, environmental issues, and social issues into their credit analysis (see **Table 1**).

This result may not come as a surprise. The first application of responsible investment practices—predominantly divestment and voting practices—were to fundamental equity strategies. ESG integration in equities started gaining momentum at the beginning of the 21st century, while ESG integration in fixed income is still in its infancy, although expanding rapidly. As a result, most asset owners and investment managers look to integrate ESG issues into their equity portfolios and funds before turning to their fixed-income portfolios and funds.

The belated development of ESG integration in fixed income reflects a previously widespread view that ESG integration and fixed income are incompatible, based on arguments such as the following:

- The inherent complexity of bond markets—given the greater size of the market, variety of instrument types, maturities, and issuing entities—makes it harder to integrate ESG issues into credit risk assessments, especially when assessing interest rate risk and liquidity risk.
- Corporate bondholders can't vote, and find it harder to effectively engage due to limited access to management (bondholders do not have a formal communication process such as the annual general meeting), while sovereign debtholders find it harder to effectively engage with sovereign debt issuers such as governments.
- ESG factors impact bond prices less frequently because:
  - low liquidity in the credit market (especially compared to equity markets) makes it hard to buy or sell bonds based on news of ESG controversies; and
  - traditional financial factors (interest rates, inflation, etc.) have the overriding influence on prices and therefore it is not necessary to analyze ESG issues.

These views are gradually changing as an increasing number of practitioners incorporate ESG issues into fixed-income portfolios and funds. Of course, fixed-income practitioners still can't vote, but they do engage[2]. Portfolio managers and credit analysts regularly contact companies and meet management in person, sometimes with their firm's equity portfolio managers and equity analysts, and at roadshows. However, it is still rare for a

[2] PRI (2018). *ESG Engagement for Fixed Income Investors—Managing Risks, Enhancing Returns. https://www.unpri.org/fixed-income/esg-engagement-for-fixed-income-investors-managing-risks-enhancing-returns-/2922.article*

group of fixed-income practitioners to engage with companies collaboratively and for fixed-income practitioners to engage with sovereign debt issuers.

In fixed income, a key application of ESG data is to inform the analysis of issuer creditworthiness. Some practitioners have integrated ESG factors into their interest rate risk analysis when assessing bonds with varying maturities issued by the same issuer. For some issuers, the material ESG factors associated with a five-year bond will differ from those associated with a ten-year bond.

That practitioners are now integrating ESG factors into their fixed-income analysis suggests they do believe that ESG factors can be material and therefore can affect bond returns. The CFA-PRI survey supports this conclusion. **Table 2** shows that survey respondents believe that ESG issues are impacting share prices, corporate bond prices, and sovereign debt prices and will do so even more frequently in five years' time (2022).

TABLE 2: THE IMPACT OF ESG ISSUES IN 2017 AND THE EXPECTED IMPACT IN FIVE YEARS' TIME (2022) ON SHARE PRICES, CORPORATE BOND YIELDS/SPREADS, AND SOVEREIGN DEBT YIELDS

	AFFECTED IN 2017	WILL AFFECT IN 2022
ESG ISSUES IMPACT ON SHARE PRICES		
Governance	58%	65%
Environmental	23%	52%
Social	23%	46%
ESG ISSUES IMPACT ON CORPORATE BOND YIELDS/SPREADS		
Governance	41%	53%
Environmental	15%	40%
Social	15%	35%
ESG ISSUES IMPACT ON SOVEREIGN DEBT YIELDS		
Governance	35%	44%
Environmental	12%	31%
Social	18%	32%

Note: Percentages represent respondents who answered "often" or "always."

ESG Issues

Table 2 also shows that across governance issues, environmental issues, and social issues, practitioners believe that these issues are impacting share prices more often than bond prices. Some arguments that practitioners have used to back these results include the following:

1. Share prices are more reactive to news flow and market sentiment than bond prices. When an ESG controversy that impacts a company becomes public knowledge, the effect on the company's share price is greater than the effect on the company's bond prices.
2. The equity market is more liquid and has higher volatility than the credit market. Thus, ESG factors have a more immediate impact on share prices than bond prices.
3. Client demand is higher for equity products with ESG mandates. Therefore, asset flows drive share prices more than bond prices.
4. The upside potential of bonds is limited, which can act as a buffer to bond price movements.
5. Macroeconomic factors, in particular interest rates, are key drivers of bond prices and override the impact of ESG issues.
6. Due to the fixed-income market's size, variety of instrument types, maturities, capital structure positioning, and issuing entities, ESG factors impacting an issuer may manifest themselves differently depending on the bond characteristics.

When comparing the figures for corporate bonds and sovereign debt, the results suggest that environmental, social, and governance issues impact sovereign debt prices less frequently than corporate bond prices, but only slightly.

Interestingly, social issues are considered to be impacting sovereign debt yields more frequently than environmental issues both in 2017 and in 2022. Social and environmental issues are considered to impact share prices and corporate bond yields/spreads at roughly the same frequency now but by 2022, environmental issues will impact more frequently than social issues.

ESG IN EQUITY ANALYSIS

Typically, ESG practitioners apply qualitative ESG analysis to inform investment decisions. They use internal and third-party research to create individual proprietary scores for environmental issues, social issues and governance issues, which are also weighted to create an aggregate ESG score for each company in the portfolio and in the investible universe. Several ESG practitioners hold regular ESG-dedicated meetings to discuss these proprietary scores and their accompanying analysis to assess the potential impact of ESG issues on corporate performance and investment performance of companies and sectors.

Systematic Strategies—Quant Strategies and Smart Beta Strategies

Although ESG integration has historically been associated only with fundamental strategies, quant and smart beta strategies are now integrating ESG factors into their valuation models and investment decisions. As ESG data become more prevalent, statistically accurate, and comparable, more managers are likely to perform statistical techniques to identify correlations between ESG factors and price movements that can generate alpha and/or reduce risk.

The quant managers who perform ESG integration have constructed models that integrate ESG factors alongside other factors, such as value, size, momentum, growth, and volatility. ESG data are included in their investment processes and could result in upward or downward adjustments to the weights of securities, including to zero.

Quant and smart beta strategies use two main approaches when integrating ESG factors into quantitative models. These approaches involve adjusting the weights of:

- securities ranked poorly on ESG to zero, based on research that links ESG factors to investment risk and/or risk-adjusted returns; and
- each security in the investment universe, according to the statistical relationship between an ESG dataset and other factors.

Fundamental Strategies

Buy-side fundamental practitioners and sell-side brokers integrate ESG factors, together with all other material factors, into their absolute and relative valuation models. They indicate their views on the impact of ESG factors and traditional financial factors on company valuations by adjusting future revenue growth rates, future operating costs, future capital expenditures, discount rates, terminal value, and other variables.

Revenue

To forecast revenue, practitioners typically take a view on how fast the industry is growing and whether the specific company will gain or lose market share. They integrate ESG factors into these forecasts by increasing or decreasing the company's revenue growth rate(s) by an amount that reflects the level of investment opportunities or risks.

Operating Costs, Operating Margin, and EBIT Margin

Practitioners make assumptions about the influence of ESG factors on future operating costs and either adjust them directly or adjust the operating profit margin/earnings before interest and taxes (EBIT) margin. They may forecast some operating costs explicitly but, depending on the level of disclosure by companies, may find it necessary to make adjustments to the operating margin instead. For example, a practitioner may reduce future operating costs of a company due to a variety of initiatives that will reduce the company's energy consumption and reliance on fossil fuels.

Book Value and Impairment Charge

ESG factors can influence assets' anticipated cash flow, such as by forcing long-term or permanent closure, and therefore alter the net present value of the assets. The impact is most likely to be a reduction, resulting in an impairment charge being made to bring the company's book value down accordingly, and therefore reducing not only the asset value but also the company's earnings for the year in which the noncash, one-off impairment charge is recorded on the income statement.

Capital Expenditure

A practitioner may believe that ESG factors will lead a company to decrease or increase its future capital expenditure.

Terminal Value

ESG factors could cause practitioners to believe that a company or its business line will not exist forever. In these cases, the practitioner might reduce the terminal value to a lower value or to zero, respectively.

Beta and Discount Rate Adjustment

Some practitioners adjust the beta or discount rate used in company valuation models to reflect ESG factors. This technique is ideal when there is an apparent ESG risk to the company, but it is difficult to price it into the company's valuation. One approach used by practitioners is to run a peer analysis of companies within the sector and then rank them by an ESG factor(s). The practitioner can then increase/decrease the beta/discount rate for companies considered to possess high/low ESG risk, in turn reducing/increasing the fair value.

ESG IN FIXED-INCOME ANALYSIS

Originally, corporate bond practitioners adapted the materiality/sustainability frameworks and ESG techniques used by the equity practitioners in their firms. This approach still happens and is relevant today.

More recently, ESG integration techniques applied by fixed-income practitioners have become more sophisticated; some practitioners have fully adapted their processes and analysis to integrate ESG factors.

Additional aspects should be considered when analyzing ESG risks and opportunities in fixed-income investing as compared to equity investing. Bonds come in all shapes and sizes, with differing issuer types, credit quality, duration, payment schedules, embedded options, seniority, currencies, and collateral. Bond prices are strongly influenced by fundamentals, macroeconomic factors, interest rates, and liquidity, which require a multilayered analysis of credit risk, interest rate risk, yield curve risk, and liquidity risk.

All these variables require a sound understanding of how ESG issues can affect a bond. For example, due to the long-term nature of ESG risks, short-dated bonds issued by a company could be investible while the company's long-dated bonds may not be, if the practitioner perceives that the ESG risk will not materialize within the next five years.

Corporate Credit Analysis

That the order of the frequency of impact of environmental, social, and governance issues on corporate bond prices and share prices is the same is not surprising. The material ESG issues for a company remain the same regardless of whether the investor is a shareholder or a bondholder. For example, health and safety remains a top ESG issue for mining companies and their owners and lenders (see **Figure 1** for examples of ESG issues analyzed by equity and corporate bond investors).

This is reflected in the approach used by some practitioners. Materiality/sustainability frameworks—a regularly reviewed list of sector-specific and/or country-specific ESG issues—are shared by corporate fixed-income practitioners and equity practitioners to identify material ESG issues. In instances where asset owners and investment managers deploy dedicated ESG teams, fixed-income and equity practitioners share this resource and use the same company ESG research. Other practitioners will adapt the materiality/sustainability frameworks used by equity teams where material issues can be different for corporate bond issuers (e.g., innovation management may be less relevant), especially when considering the duration of bonds.

Practitioners use materiality/sustainability frameworks and company ESG research in their credit risk analysis. Few practitioners have looked at the impact of ESG issues on interest rate risk, yield curve risk, and liquidity risk.

Practitioners assess the impact of ESG issues on a company's ability to pay its debt obligations and liabilities. Their main approach is to use third-party ESG scores or proprietary ESG scores along with traditional credit analysis when making investment decisions. Some practitioners embed their company ESG research and scores into their internal credit assessments. When they do so, the ESG issues can influence credit assessments and investment decisions.

FIGURE 1: EXAMPLES OF ESG ISSUES ANALYZED BY EQUITY INVESTORS AND CORPORATE BOND INVESTORS

GOVERNANCE ISSUES	SOCIAL ISSUES	ENVIRONMENTAL ISSUES
Business integrity	Human rights	Climate change
Shareholder rights	Employee relations	Biodiversity
Executive pay	Skilled labor	Energy resources and management
Audit practices	Health and safety	Biocapacity and ecosystem quality
Board independence and expertise	Diversity	Air pollution
Fiduciary duty	Customer relations	Natural resources
Transparency/accountability	Product responsibility	Water resources and pollution
Related-party transactions		
Dual-class share structures		
Tax practices		

On a lesser scale, the impact of ESG issues is being quantified by practitioners in portfolio construction processes and fundamental credit analysis. Portfolio construction tools would examine how ESG issues are influencing macroeconomic and market factors. The impact on the portfolio is through the weighting of sectors and companies.

Through fundamental credit analysis, key credit ratios are adjusted for ESG issues. Practitioners assess these ratios to understand whether the creditworthiness of the company is deteriorating or improving and ultimately, to see the potential impact on credit ratings and credit spreads.

Sovereign Credit Analysis

As compared to their use with corporate bonds, ESG integration practices in sovereign debt are less widespread.

The current low adoption of ESG integration by sovereign-debt practitioners is due in part to the lack of understanding of how to integrate ESG issues into sovereign debt. Unlike some corporate bond practitioners, sovereign-debt practitioners are not able to simply borrow techniques and materiality/sustainability frameworks from their fellow equity practitioners, which might speed up the integration process. Extensions to existing frameworks or additional frameworks drawn up for country-specific factors are likely needed.

The lack of understanding may be exacerbated by the difficulties expressed by practitioners with sourcing ESG data on countries as compared to sourcing company data, especially environmental data (see **Figure 2** for sources of ESG data used by sovereign debt investors). This makes it more difficult for practitioners to assess the absolute and relative

FIGURE 2: EXAMPLES OF ESG DATA SOURCES FOR SOVEREIGN CREDIT ANALYSIS

Freedom House—Freedom in the World survey
Reporters without Borders—World Press Freedom Index
Forum for a new World Governance—Worldwide Governance Index
Bündnis Entwicklung Hilft—The World Risk Index
Transparency International—Corruption Perceptions Index
World Bank—Ease of Doing Business Index
United Nations Development Program—Human Development Index
Fund for Peace—Fragile State Index
Organisation for Economic Co-operation and Development—Better Life Index
International Labour Organization—labor and health and safety statistics
Access Initiative and World Resources Institute—Environmental Democracy Index
Natural Resource Governance Institute—Resource Governance Index
Yale University—Environmental Performance Index
World Energy Council—Energy Trilemma Index
International Monetary Fund—country reports
EU—country reports
US Central Intelligence Agency—World Factbook
ESG research providers
Credit rating agencies

FIGURE 3: EXAMPLES OF ESG ISSUES ANALYZED BY SOVEREIGN DEBT INVESTORS

GOVERNANCE ISSUES	SOCIAL ISSUES	ENVIRONMENTAL ISSUES
Institutional strength Corruption Regime stability Rule of law Security Regulatory effectiveness and quality Accounting standards Freedom of the press Political and civil liberties	Human rights Education and human capital Health levels Political freedoms Demographic change Employment levels Life expectancy Social exclusion and poverty/ income disparity Trust in society/institutions Crime and safety Food security	Effects of climate change Water resources and pollution Biodiversity Energy resources and management Biocapacity and ecosystem quality Air pollution Natural disasters Natural resources

ESG performance of a country and in turn, convert the ESG data/analysis into meaningful indicators to support their ESG integration practices.

Another reason for the lower usage of ESG in sovereign credit analysis relates to the CFA-PRI survey finding that suggests that ESG issues are less material for sovereign debt compared to their impact on shares and corporate bonds (see Table 2). Practitioners may believe that ESG issues do not impact sovereign debt prices and therefore ESG integration is not applicable. However, the CFA-PRI survey did indicate that governance issues, social issues, and environmental issues are impacting prices (see **Figure 3** for examples of ESG issues analyzed by sovereign debt investors).

As highlighted earlier, the respondents believe that social issues more frequently affect sovereign debt prices than environmental issues (see Table 2). Practitioners are more likely to analyze social information on a country than environmental information, especially as the time scale of social issues is more aligned with the investment horizon for sovereign debt. The more-readily available social data also makes it easier for practitioners to integrate social issues into their sovereign credit analysis.

Despite these challenges, practitioners are integrating ESG issues into their sovereign credit analysis. The majority are making qualitative assessments of ESG issues through the use of third-party research and/or internal research; these assessments then inform their investment decisions. Quantifying ESG issues in sovereign credit analysis is not widespread and is practiced less than when performed with corporate credit analysis. It tends to be performed by feeding ESG research and/or scores into the credit analysis of an issuer, which can cause adjustments to credit ratings or internal credit assessments.

Another common approach to sovereign credit analysis is to analyze ESG issues through portfolio construction tools. ESG issues can then influence allocations to regions and countries, providing underweight, neutral, and overweight signals.

As well as analyzing the impact of ESG on a country's *ability* to pay its debt obligations, practitioners have used ESG information to assess a country's *willingness* to pay its debt obligation. For example, an investment manager who believes a link is present between a country's level of corruption and its willingness to pay might use that link as justification to adjust country credit ratings and outlooks that they believe do not reflect the level of corruption in those countries.

Municipal Credit Analysis

ESG Integration Practices

The sub-sovereign bond market is composed of any level of government below the national or central government. This includes relevant bodies from regions, provinces, states, or municipalities that issue bonds. The US sub-sovereign market consists of mainly munipical bonds. At approximately $3.85 trillion in size, the US municipal bond market represents most of the global municipal bond market.[3]

ESG factors have long been used to determine a bond's credit quality in the municipal space and to identify financial risks in a municipality's operations or for a particular public project. The quality of the issuer's governance and management practices are typically a constant in credit analysis for any municipal bond issuer. Practitioners look at overall transparency and reporting, corruption levels, sound budgetary practices, and responsible use of debt (e.g., close monitoring of long-term pension liabilities and principal maturities, implementation of affordable capital plans, strong financial controls). They might view a management team that provides robust disclosure in a positive light relative to its peers.

Sound governance can also be assessed for those issuers who think beyond immediate budgetary needs and make investments intended to strengthen the economic success and social inclusiveness of their communities, as inclusive communities should exhibit stronger creditworthiness and lower risk for practitioners. As such, municipal borrowings that provide social benefits may offset the negative impact of temporarily weak finances.

For both general obligation and revenue bonds, chronic social and environmental problems can affect the issuer's ability to raise revenues from taxes or other types of income. For example, low high school graduation rates, high violent crime rates, lack of affordable housing stock in the community, and high unemployment rates could result in long-term credit stress. Environmental factors such as the region's air quality and associated health risks for its constituents, the quality of public infrastructure such as wastewater treatment plants, or the long-term impact of climate change can all pose potential risks to macro factors that may affect an issuer's ability to repay its debt. Overall, some practitioners find that the more a municipality's purpose or public project aligns with the environmental and social needs of its constituents, the more likely it is that it will repay the bond.

For project revenue bonds, practitioners may also integrate additional ESG factors based on the underlying use of the proceeds (e.g., giving more weight to environmental factors for electric and water utilities, to social factors for education, and to healthcare issuers).

Because of the limited coverage of this asset class by third-party research providers, practitioners often use discretion to determine materiality and integrate ESG factors through the fundamental research process. Practitioners in the municipal market may

[3] SIFMA US Quarterly Highlights 1Q '18, April 2018. https://www.sifma.org/wp-content/uploads/2018/04/US-Quarterly-Highlights-2018Q1-2018-04-06-SIFMA.pdf

depend more strongly on credit ratings agency research, and may integrate ESG factors by expanding their view to include environmental indicators that capture local and regional resource challenges.

Structured Credit Analysis

ESG Integration Practices

In addition to bonds issued by governments and companies, the fixed-income market includes securities backed, or collateralized, by a pool of financial assets, such as mortgages, accounts receivable, or automobile loans. Practitioners are just starting to consider how to systematically integrate ESG factors into structured credit analysis, largely because ESG data coverage is less readily available for some of the transaction parties, including the special purpose vehicles that issue the securities, and the inherent complexity of assessing underlying asset pools that may run into the thousands.

The integration process typically seeks to capture risks at several levels: at the transaction level, relating to the originator/ servicer/issuer of the securities; at the "collateral" or "cover" pool of underlying assets; and sometimes, informing a view on the overall deal structure. Some practitioners give more weight to the originator, others to the credit quality of the underlying asset pool. The approach varies for different types of securitized investments depending on whether the issue is government backed, and with respect to the overall composition/asset concentration levels of the loan portfolio.

At the *transaction level*, ESG analysis plays an important role in determining the true risk-adjusted credit profile of a securitization through an understanding of the corporate governance strategy of each of the parties associated with the deal. For example, practitioners may review the lending practices of the financial institutions that are originating the securitization, prioritizing those with clearly stated guidelines for underwriting and a positive record of servicing loans, and avoiding those with predatory practices, poor risk management and regulatory compliance track records, and any conduct failings that could lead to litigation risks and other adverse consequences for loan enforceability.

Strong governance practices cover transparency of management (e.g., publicly listed companies with audited, detailed financial statement disclosures, whose management team communicates regularly with investors), executive compensation, and board independence (e.g., a diverse board with appropriate controls). Practitioners may also evaluate whether the parties are using securitization as a method of exit or risk transfer, or as a funding source in which they will continue to participate.

At the *asset pool, or collateral, level*, practitioners consider how ESG factors may affect the financial sustainability of the asset pools, such as auto loans and mortgages.[4] Although the analysis can differ between different asset pools, the objective remains the same—to understand if any ESG risks exist that would inhibit the asset pool from performing as expected, and to accurately value those risks.

[4] PRI 2014, Fixed Income Investor Guide. https://www.unpri.org/fixed-income/fixed-income-investor-guide/30.article

Depending on the nature of the collateral, ESG analysis may be given more focus. Consider these examples:

- When analyzing securities backed by power assets or power contracts, practitioners may focus on the environmental risk profile of the underlying assets (e.g., the source of power generation).
- When analyzing securities backed by commercial or residential properties, practitioners may consider environmental factors on either a specific property or a corporate level, given the increasing impact of environmental regulation faced by property owners in some markets. As such, practitioners can analyze the energy efficiency of a property portfolio in relation to standards such as the UK's Energy Performance Certificate (EPC) or the US Leadership in Energy & Environmental Design (LEED) certification program.
- When analyzing securities backed by auto loans, environmental and governance failings such as the 2015 automotive sector emissions testing deception are assessed as a material risk to the value of the automobiles in auto loan/lease securitizations.
- When analyzing securities backed by general consumer/credit card loans, practitioners tend to consider societal risks, such as discriminatory and predatory lending and aggressive and deceptive marketing practices, as material factors.

Quantifying ESG issues in structured credit analysis is limited to the extent that it helps identify securities with mispriced prepayment assumptions, which may trade at a discount relative to intrinsic value. For example, servicers that aggressively target borrowers for refinances or servicers that have streamlined procedures for refinances may be avoided, or valued less when bonds are trading at a premium. Qualitative analysis focusing on conducting thorough due diligence of parties to the transaction may ensure no red flags are present among those associated with deals, while looking through the underlying assets may assist with monitoring the performance of the deal for as long as the practitioner is invested in the security.

Many of the practices mentioned in this section are demonstrated by analysts, portfolio managers, and investors, who share how they integrate ESG into their analysis and to tell their stories of ESG integration.

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EQUITY CASE STUDIES

AGF INVESTMENTS INC.

EVALUATING ESG IMPACT ON REVENUE AND MARGINS

Hyewon Kong, CFA

Environmental, social, and governance (ESG) factors are incorporated on a top-down basis by looking at macro trends to identify investment risks or opportunities. Our process seeks to identify companies aligned with ESG macro themes: energy and power technologies, waste management and pollution control, water and wastewater solutions, and health and well-being. As the world transitions to a more sustainable economy, investing in these themes positions the portfolio to benefit from these long-term trends, which provide long-term secular growth.

BOTTOM-UP INTEGRATION

Our bottom-up fundamental analysis incorporates ESG factors in our security selection process that are material to long-term financial performance. ESG analysis is not conducted by segregated ESG analysts but performed by our investment team members (including portfolio managers and analysts), who examine ESG considerations for the companies they cover. We adjust the most relevant financial forecasts (revenue, profits/returns on capital, capital and operational expenditures, and cash flows) based on material ESG factors. We also consider the potential ESG impact on the overall security valuation by adjusting the target multiples (discount/premium, discount rate).

PORTFOLIO COMPANY: COMPANY A

Company A is one of the world's leading suppliers of specialty chemicals based on renewable raw materials that are used in personal care, life sciences, performance technologies, and industrial chemicals. Company A enjoys an industry-leading position in sustainability, having differentiated itself from its petrochemical-based specialty chemical peers. Two-thirds of Company A's raw materials come from natural sources, and 94% of the company's sustainable products—those expected to be top-50 sellers over the next five years—offer a known sustainability benefit in use.

Company A is well positioned to participate in this transition, as its growth drivers are directly influenced by global megatrends, including:

- aging populations that will require more health and well-being products;
- regulations that influence a move toward biodegradable/bio-derived plastics;

- evolving consumer sensitivity to "green" issues, including sustainability—having "100% renewable" energy and product sources is likely to become an increasingly important differentiator; and
- disposable income growth in emerging economies that will increase the demand for greater crop protection and yield enhancements (crop care was 15% of Company A's 2017 earnings before interest and taxes [EBIT]).

INNOVATION-DRIVEN BUSINESS MODEL

Company A develops innovative ingredients with intrinsic and extrinsic sustainability benefits. The company monetizes on its innovation-driven and protected product portfolio (see **Figure 1**).

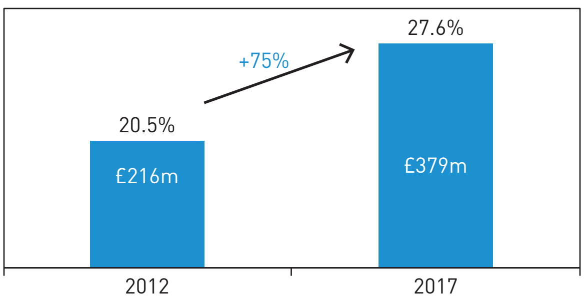
Through continuous innovation and products heavily protected via a network of patents, Company A has established itself in a leading position in terms of both relative margins and returns. Technology and innovation provide a strong moat in the form of high barriers to entry and close customer relationships, enabling strong pricing power and superior EBIT margins for Company A compared with its chemical-sector peers (see **Figure 2**).

In line with its history of innovation, Company A opened an in-house bio-based ethylene oxide (EO) plant in 2017. Surfactants are traditionally produced from the fossil fuel–based petrochemical ethylene. The feedstock for the new plant is bioethanol, and Company A will produce first-of-its-kind bio-based surfactants, replacing 21 kilotons of synthetic EO capacity.

FINANCIAL IMPACTS

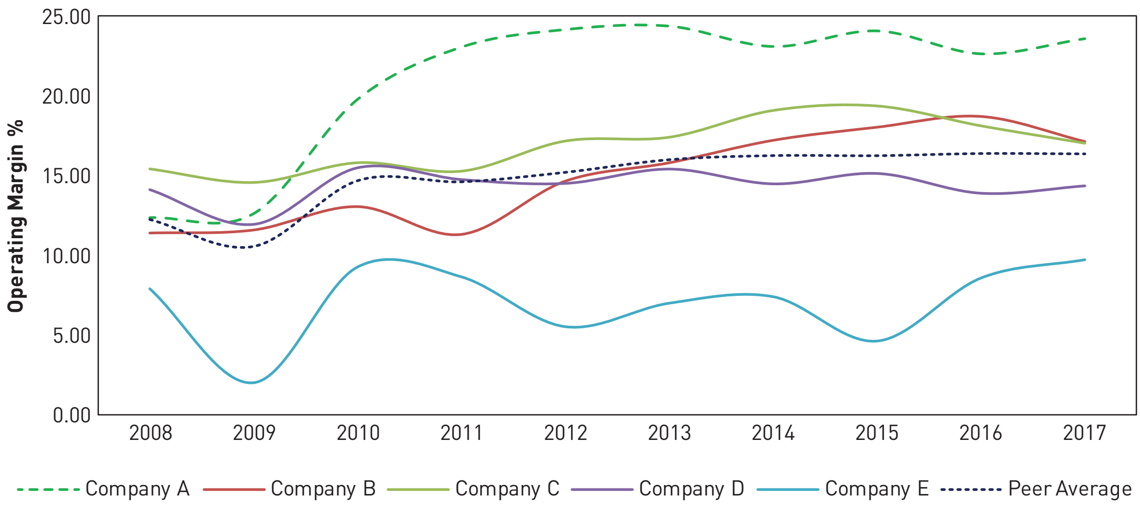
- Revenues: The plant will allow Company A to capture more of the value chain in surfactants (replacing bought-in petrochemical-derived EO) and enable Company A to charge a premium as consumers are willing to pay more for sustainable products. This will improve revenue growth through increased share and pricing

FIGURE 1: SALES GROWTH AS A PERCENT OF GROUP SALES IN NEW AND PROTECTED PRODUCTS



Source: Croda Capital Markets Presentation, April 2018.

FIGURE 2: COMPANY A'S OPERATING MARGIN VERSUS CHEMICAL-SECTOR PEERS



Source: Bloomberg, as of 31 December 2017.

growth by converting existing product sales to 100% renewable, 100% bio-based new product line, which will be tested and certified to the BioPreferred® Program by the US Department of Agriculture.

- Operational costs: Company A will be able to reduce its operating costs through improved management and a decrease in the need to manage the logistics of hazardous materials such as petrochemical ethylene.

Our valuation assumes that Company A's latest innovation in biosurfactants can positively contribute to both revenue and profit growth. Our base-case scenario assumes no volume benefit but a 2% price increase (a "premium" for sustainable surfactants by upgrading the existing product sales to the new product line certified to the USDA BioPreferred® Program). This can contribute 30 basis points (bps) to the group's top-line for the next five years and a 100-bps benefit to EBIT from cost savings (including transport logistics, because the need for costly shipping of EO materials is eliminated due to the shift to in-house bio-based EO) (**Figure 3**).

Company A trades at a discount to the average multiple for consumer chemical stocks given its recent muted organic growth. Following its innovation and new products developments, we believe Company A can return to a long-term 4%-plus organic growth rate (with the contribution from bio-based EO) and pricing growth, which will help Company A's target multiples to be re-rated. Our discounted cash flow model implies an upside of 14% with a value of £56.34 per share, based on a weighted average cost of capital of 6.2%.

FIGURE 3: EBIT UPLIFT FROM THE INTRODUCTION OF SUSTAINABLY SOURCED ETHYLENE OXIDE

US PERSONAL CARE SALES	**15%**
Volumes	+0%
Price	+200 bps
INCREMENTAL ORGANIC GROWTH	**+200 bps**
CONTRIBUTION TO GROUP ORGANIC GROWTH	**+30 bps**
Cost of goods sold savings	£4 m
EBIT	**+100 bps**

Source: AGF Investments Inc., as of 30 June 2018.

ALLIANCEBERNSTEIN L.P.

ESG INTEGRATION IN ACTION: APOLLO HOSPITALS

Edward Bryan

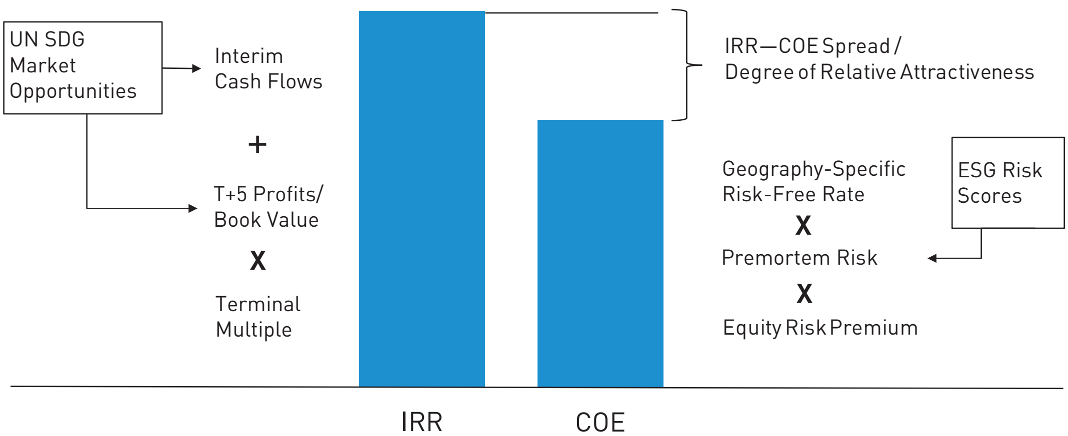
AllianceBernstein's Sustainable Global Thematic team assesses investment candidates based on the spread between the return potential given a five-year holding period and an estimated cost of equity (COE) hurdle rate. This hurdle rate considers a bottom-up, fundamental risk analysis, which also incorporates each company's key environmental, social, and governance (ESG) issues (**Figure 1**).

Apollo Hospitals Enterprise Limited operates the largest chain of private hospitals and pharmacies in India. Over the years, Apollo has built one of the most trusted healthcare brands in a country whose healthcare infrastructure is far below the World Health Organization's recommendations for hospital beds per person. Apollo recently expanded its inventory of hospital beds to meet local demand, straining its balance sheet and profitability.

During our on-the-ground due diligence of Apollo's operations, we learned more about innovations such as a "hub and spoke" approach to serving local markets and a telemedicine command center that enables rural clinics to access treatment and procedure advice from doctors in larger cities. We also saw firsthand the promising strategic position of its hospitals within cities.

These findings gave us confidence that Apollo's profitability is poised to rebound as patient occupancy in new hospitals improves. We believe the company has a long runway of

FIGURE 1: ALLIANCEBERNSTEIN'S INVESTMENT FRAMEWORK ILLUSTRATIVE EXAMPLE



Abbreviations: COE, cost of equity; IRR, internal rate of return; UN SDG, United Nations Sustainable Development Goals.

potential revenue and earnings growth as well as reinvestment opportunities as it addresses India's need for more modern medical facilities. Beyond the recent expansion of hospital beds, future investment areas include diagnostic labs, pharmacies, and smaller clinics in smaller cities to further improve access to care in India and generate referrals for Apollo's larger hospitals.

Also, our grassroots meeting with consumers highlighted better access to infrastructure and awareness of health issues through the adoption of smartphones—these are underappreciated drivers of demand for modern medical services.

These insights make us confident in our attractive outer-year growth forecasts and terminal value calculation, which are major drivers of our company valuation models. We calculate a bottom-up internal rate of return (IRR) for the company, which approximates the return potential for owners of the business. IRRs are calculated using the current share price, cash flow over the next five years, and a terminal value for the business, discounted back to today.

The typical focus in IRR calculations is on financial projections over the next few quarters. We seek to generate the most differentiated views relative to consensus by leveraging our insights for growth potential over a multiyear period, which we believe is necessary in understanding the potential of a long-term theme such as healthcare improvements in India. Our insights are informed by analysis of products and services that stand to benefit from or help in the application of the United Nations' Sustainable Development Goals (a collection of 17 global goals set in 2015).

We compare our IRR estimate to a bottom-up, forward-looking COE hurdle rate to determine how attractive the investment is on a relative basis. Our COE scores are the function of a risk-free rate, adjusted for the geographical breakdown of each business, and a 6% equity-market risk premium. This is adjusted by a forward-looking beta based on the aggregate of what we see as the company's top-10 risks—this must include a specific score for ESG issues and controversies.

We derive the top-10 individual risks from a "premortem" exercise. We imagine that the stock has already been a disappointment and we ask why that might be. We give each risk a score ranging from 1 to 10, representing the financial impact and likelihood of the risk playing out over our investment time horizon.

One example of a top-10 individual risk is recruitment and retention. In Apollo's case, given the relative shortage of medical personnel, maintaining a staff of well-trained doctors is a high priority (particularly during its recent expansion phase) and a key social risk.

To properly assess key issues such as recruitment and retention, we believe that it is critical to engage directly with company management. We learned about recent changes to Apollo's remuneration policy for doctors, including the extension of guaranteed salaries for the first year of a new hospital's operation. According to Apollo, this helps attract medical talent in the first year or two as patient volumes increase. After that period, doctors can rely on the traditional "fee for service" salary model for competitive compensation.

Apollo estimates its doctor attrition rate at about 2%, which it sees as being lower than other hospitals in India. However, the company faces more acute retention issues among nurses, where employee turnover is above 30%. According to Apollo, nurses view the company's operations as an attractive system for training but are then lured overseas by higher salaries. Although these nurses eventually return to India, Apollo recognizes the impact the turnover rate has on productivity and has hired a consultant to develop new recruiting and retention tools and incentives to address this turnover issue.

Key risks such as staffing—and Apollo's strategies to address them—are direct inputs into our COE hurdle rate. Without engaging with Apollo management, the analysis would be less granular—and the inputs less informed. Employee retention is still a high-impact risk for Apollo, but a strong brand and efforts to retain and attract employees are offsetting factors that reduce this social-risk score in our premortem analysis. We adjust the inputs dynamically based on the success of Apollo's strategies or lack thereof.

A company's efforts to reduce risk are factored into the premortem analysis. Lower risk scores can make companies appear more attractive—in the same way that higher revenue and profit growth would improve the IRR. The swing from high to low premortem risk scores can mean the difference between an unattractive investment candidate and one for which the return potential compensates for the risk.

ARISAIG PARTNERS

DEVELOPMENT OF A BROADER ESG STRATEGY FOR GODREJ GROUP: ARISAIG PARTNERS' APPROACH TO ESG CRITERIA

Amitoj Saini

Founded in 1996, Arisaig Partners is a boutique investment management firm that invests in what we believe are the best emerging-market consumer business. We run concentrated portfolios in our Asia, Africa, Latin America, and Global portfolios, and our buy-and-hold investment approach is very long term—we value our businesses using a 20-year view. We see ourselves as partners of both our portfolio holdings and our clients. Our long-term investment horizon means that understanding how environmental, social, and governance (ESG) factors contribute to investment performance is integral to our approach.

Our ESG approach is organized across three pillars: Understand, Integrate, and Engage (**Figure 1**).

Our ESG assessment directly feeds into our valuation models, as we incorporate a "fade factor" into our forecasts, which is an additional discount rate that we apply to the terminal value of a company. The "fade factor" incorporates the impact that factors such as ESG have on the sustainability of a company's economic moat over the long term; it is based on the assumption that despite the long heritage and strong brands of our consumer franchises, the durability of their competitive advantage will diminish over time. The "fade factor" will be lower for companies with good ESG practices, strong management, and sustainable moats. Retailers, for example, which are traditionally more prone to disruption, will have a higher "fade factor" as compared to branded consumer companies.

GODREJ CONSUMER PRODUCTS LIMITED

An example of our approach to ESG has been our analysis of and engagement with Godrej Consumer Products Limited (GCPL). GCPL is the largest listed company within the Godrej Group, one of the largest and oldest conglomerates in India with a significant presence in the areas of manufacturing, real estate, and the consumer segments. GCPL is India's largest household insecticides and hair color company and the second-largest soaps company. In addition to its markets in India, GCPL has an international business—with a presence in Indonesia, Africa, and Latin America—that accounts for almost half of its revenues.

ARISAIG'S ENGAGEMENT WITH GCPL

Arisaig Partners has been an investor in GCPL since the company first listed in 2001, and we have met with its management about 150 times over the last 17 years. During this time,

FIGURE 1: THE THREE PILLARS OF ARISAIG'S ESG INVESTMENT APPROACH

Understand

We undertake research in order to develop a broad view of the evolving sustainability landscape that companies face. By focusing on the most material issues for our holdings, our ambition is to understand the potential impact of these issues on investment returns.

Integrate

All of our ESG assessments are undertaken by the analysts covering the stocks and this information is captured in our central modeling systems. Following the assessment of a company across the complete range of ESG areas, we then identify the most material issues for that particular business.

Engage

Our ESG approach is engagement focused. We do not exclude companies based on ESG issues and would rather work with companies to help them improve their ESG performance. We discuss ESG issues with our holdings on a regular basis. The objective of our engagement is not only to garner information to inform our investment analysis but also to encourage behavior change.

Source: Arisaig Partners.

we have collaborated with GCPL's management in several areas, from strategic discussions to developments on the ESG front. On the governance front, we have provided introductions to potential female corporate board members from our network in Africa.

GODREJ'S GOOD & GREEN PROGRAM

Even at a relatively early stage of Godrej's maturity, as an investor, we found that the Godrej family was managing the business with long-term value creation for both the business and broader society in mind. Launched in 2011, the Good & Green program formalized Godrej's many initiatives into a broader strategy, with targets to 2020.

These targets include the following:

1. **Ensure employability,** with a goal to train one million rural and urban youths in skills that enhance their earning potential through employability projects.
2. **Create a greener India,** with a goal to achieve a zero landfill waste, carbon neutrality, a positive water balance, a 30% reduction in specific energy consumption, and an increased use of renewable energy sources through the Greener India projects.
3. **Innovate for good and green products,** with a goal to have a third of Godrej's portfolio revenues composed of good and/or green products and services—defined as products that are environmentally superior or that address a critical social issue (e.g., health, sanitation, disease prevention) for consumers at the bottom of the income pyramid.

The Good & Green program is set up at the group level, but corporate-level targets are set for each of the group's subsidiaries. As a consumer business, GCPL has played a key role in achieving these objectives. GCPL runs the Salon-i program, which encourages more women to enter the work force and supports micro-entrepreneurs who are starting their own beauty salons. So far, over 150,000 women have been trained as part of this program. This is the most tangible example of the alignment of the social and economic missions of the company and its stakeholders.

TANGIBLE IMPACT

Our conversations with management over the last 17 years have been wide ranging, covering topics such as sustainable palm oil sourcing, governance setup, executive remuneration, gender equality issues, and LGBTQ issues. We undertake site visits to meet staff at all levels of the organization and around the world.

We have seen a significant improvement in GCPL's investor engagement and corporate governance practices. Today, GCPL is one of the few companies in India where close to one-third of the company's board representatives are women—a rarity in India. We see this as business-critical given that about three-quarters of consumer product purchasing decisions are made by women.

There have been broader benefits from Godrej's forward-thinking approach. We believe it has one of the strongest corporate cultures in our consumer universe, becoming one of India's foremost employers of choice—a hallmark previously attributed to only multinational companies (MNCs) in the fast-moving consumer goods (FMCG) space (e.g., Unilever or Procter & Gamble Co. in India). The ability to attract and retain talent has played an important role in improving the company's operational performance. A direct impact has been on GCPL's execution capabilities, as the company acquired businesses in new categories in India and expanded its presence in markets such as Indonesia, Africa, and Latin America. Our trust in GCPL management's capabilities and the company's solid corporate culture allowed us to provide steady support as the company evolved into an "MNC of the future."

These strengths have also had a material impact on our assessment of GCPL's potential returns. **Figure 2** illustrates how our estimated internal rate of return (IRR) for GCPL changes with different "fade factors." Currently, we are applying a fade factor of 7.5% to the terminal value for GCPL, which gives us an estimated IRR of 9% for the company over the next 20 years.

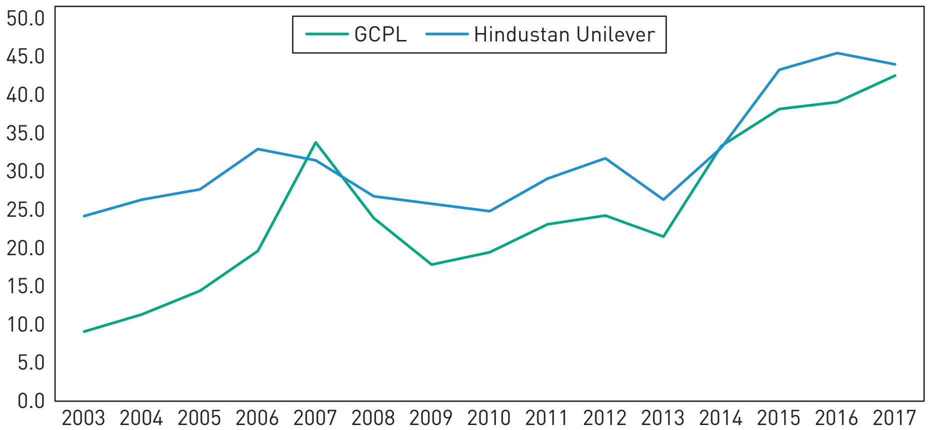
FIGURE 2: APPLYING THE "FADE FACTOR" TO GCPL'S IRR

FADE FACTOR	0.0%	5.0%	7.5%	10.0%
GCPL IRR	**12%**	**9.5%**	**8.5%**	**7.6%**

Source: Arisaig Partners.

Looking through a different lens, there is little doubt that GCPL's management professionalization and efforts such as the Good & Green program have played a key role in narrowing the valuation gap with MNCs in India such that investors now view local champions like GCPL on a par with any MNC from an investment standpoint. As illustrated in **Figure 3**, GCPL's 12-month rolling price-to-earnings valuations are now comparable with those of Hindustan Unilever (Unilever's India subsidiary and India's largest FMCG company). Over the period of our investment, GCPL has rewarded patient shareholders like us handsomely with a total shareholder return of 16% on an annualized basis.

FIGURE 3: PRICE-TO-EARNINGS VALUATIONS—GODREJ CONSUMER VERSUS HINDUSTAN UNILEVER



Source: FactSet Research Systems Inc.

AXA INVESTMENT MANAGERS ASIA (SINGAPORE) LTD.

A FRAMEWORK TO INCORPORATE SUSTAINABILITY "SUSTAINABLY" FOR QUANTITATIVE MANAGERS

Anubhuti Gupta, CFA, and Kathryn McDonald

The purpose of this case study is to show how Rosenberg Equities integrates sustainability holistically across all our quantitative equity strategies. We share a framework for any asset manager who desires to incorporate sustainability into the existing investment process.

We believe that the process to integrate environmental, social, and governance (ESG) should begin with defining the motivation (the "why")—the way any sound investment process begins. We believe you should define your ESG principles the way you would define your investment principles—they should be grounded in research and analysis and should have a link to measures that you believe drive risk and return in equities (see **Figure 1**).

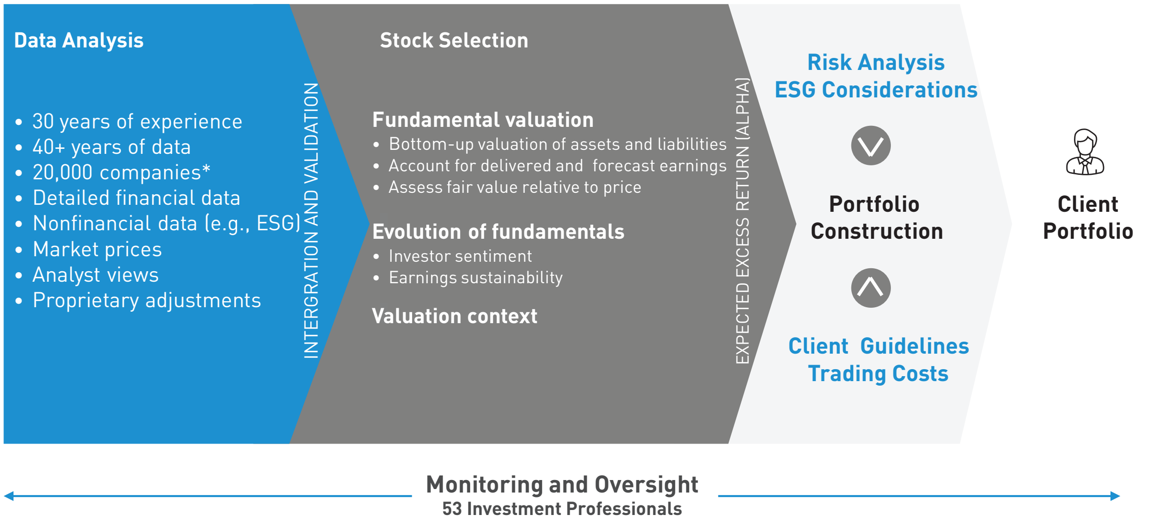
The following are our ESG investment principles:

- Companies that use their resources wisely should have an economic advantage over those that do not.
- ESG information is economic in nature (independent of a values judgment) and complementary to traditional fundamentals (meaning it may change our opinion of the fundamental "worth" of a stock).
- We see ESG information as complementary to the inputs we use to evaluate investment opportunities, in part because ESG generally represents long-horizon information. This belief is confirmed by our observation that ESG information is largely orthogonal to fundamental measures that we believe drive risk and return in equities.
- We believe that ESG will help improve return and lower risk, over time and at the margin. We do not believe that ESG is a massive, untapped source of alpha, nor do we believe that ESG can help us avoid all low-probability/high-impact risk events. ESG is simply another lens that allows us to develop a more complete understanding of the opportunities and risks faced by companies.

We arrived at these principles through our research, which gives us confidence that there is a link between ESG concepts and fundamental drivers of return and risk.

- We show that companies with better governance exhibit higher quality and lower risk.
- We show that carbon is being priced by equity investors. It behaves as an expense when modeled as an income statement item.
- We show that corporate governance and attractive dividend profiles are well aligned, and we demonstrate that environmentally minded investors need not sacrifice their beliefs to achieve higher payout ratios.

FIGURE 1: THE INVESTMENT PROCESS



Source: *Rosenberg Equities as of 31 March 2017. Rosenberg Equities reserves the right to modify any of the procedures, processes, and controls described herein at its discretion.

- We show that diversity works as a "profitability moat" within the most profitable companies, allowing them to better preserve their profitability by withstanding competitive forces.
- The ESG scores we use in portfolio construction add value to our investment decisions.
- We are continuously expanding our research in this area to further refine our understanding and implementation of ESG insights into our investment process.

Additionally, there is a long history of published literature and a growing body of research that supports the idea that ESG may be value-adding in both return and risk spaces.

Having established the investment principles, the next step is to determine the framework for implementation (the "what") based on your research process and data availability. Our ESG framework follows.

Our ESG scores are determined by our proprietary ESG Analysis Framework. To state the obvious, a system of comparable scores is needed for a quantitative process such as ours. We require significant data breadth for the ESG information to be actionable within our process—the system we have in place allows for excellent coverage in general.

As of this writing, there is no market standard for ESG scoring, and no supplier is able to fully address all dimensions to our satisfaction. The quantitative scoring system we use within AXA Investment Managers seeks to build robust ESG scores by bringing together best-of-breed providers, applying qualitative expertise, and mitigating unintended biases. Our scores are based on data from multiple third-party vendors and qualitative expertise from sector specialists. The framework is built around three pillars: environment (E), social (S), and governance (G) criteria. Each pillar is then divided into factors and subfactors to best address current trends and challenges facing today's society. The scores are computed from the ground up, based on what we believe to be the best data items within each pillar, weighted according to what our team experts believe to be "material" information for stocks in each sector and adjusted to remove regional/sector biases to suit our investment process. We believe this process captures the most comprehensive, holistic view of a company's ESG threats and opportunities.

We have a strong preference NOT to apply divestment as a lever because the investment argument is mostly ambiguous. However, in some limited cases we have chosen to divest based on a unique investment case (such as tobacco companies, severe controversies, etc.).

We also model the carbon and water footprint of companies separately because these factors represent a risk to portfolios that is not adequately captured in traditional risk measures. Independent modeling offers us additional levers that we can use to adjust the carbon and water exposures of our portfolios. It also enables us to meet more bespoke client needs related to the carbon and water footprints of their portfolios.

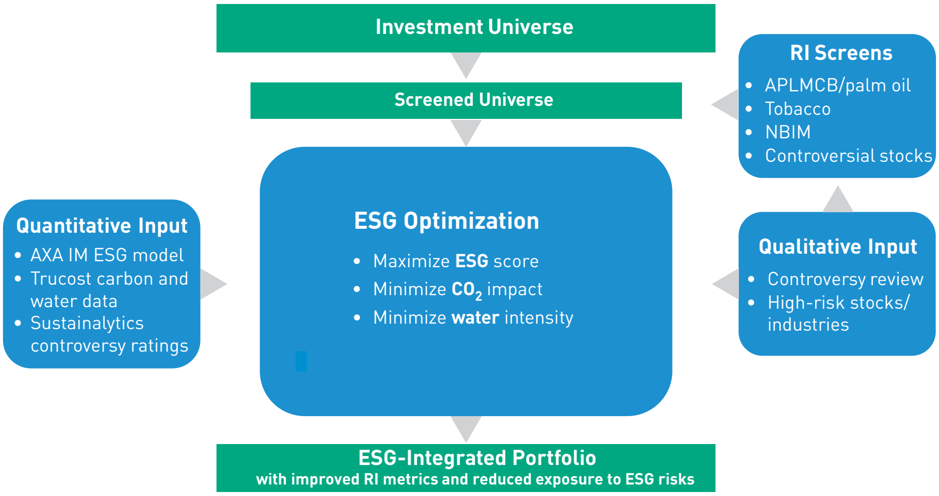
Once you have clearly defined your ESG principles and established your ESG framework, you need to determine the appropriate implementation model (the "how") to integrate ESG into your investment process. This model will depend on your investment style, the tools available to you, the degree of ESG conviction, and the diversity of investment strategies managed.

For the purpose of this case study, we focused on how we integrate ESG into our Equity Alpha strategies. Our portfolio construction process for Equity Alpha strategies begins with the ranking of Rosenberg Equities' proprietary fundamental valuation and earnings evaluation of all companies in our global investment universe (**Figure 2**). The riskiness of each stock is then calculated using a multifactor risk model. The risk and return assessments for each company in the investment universe are input to a Portfolio Construction Tool or Optimizer, along with several key parameters and constraints (such as exposures to industries, sectors, countries, and risk factors; stock position and active weight limits; client-specific restrictions; and trading costs). **This is where the ESG integration is applied.**

- Our objective is to maximize risk-adjusted return by building well-diversified portfolios with superior fundamentals and modest active exposures to common risk factors and an improved ESG profile relative to the client's chosen benchmark.
- We exclude the select companies and business lines we have chosen for divestment by restricting them from entering the optimization (again, these divestment cases are extremely limited).

We provide the companies' ESG scores, carbon and water scores, and ESG outcome key performance indicator (KPI) data as additional inputs to the portfolio construction module. The idea is to consider ESG outcome KPIs in an integrated fashion alongside return and risk considerations and other constraints. We define an additional expected utility term that is proportional to the company's ESG score in the objective function.

FIGURE 2: INTEGRATION OF ESG CONSIDERATIONS



Source: AXA IM. Exhibit created January 2018. AXA IM reserves the right to modify these processes at any time.

From an individual stock perspective, the following is an example of how ESG integration impacts the weights of stocks in our portfolios.

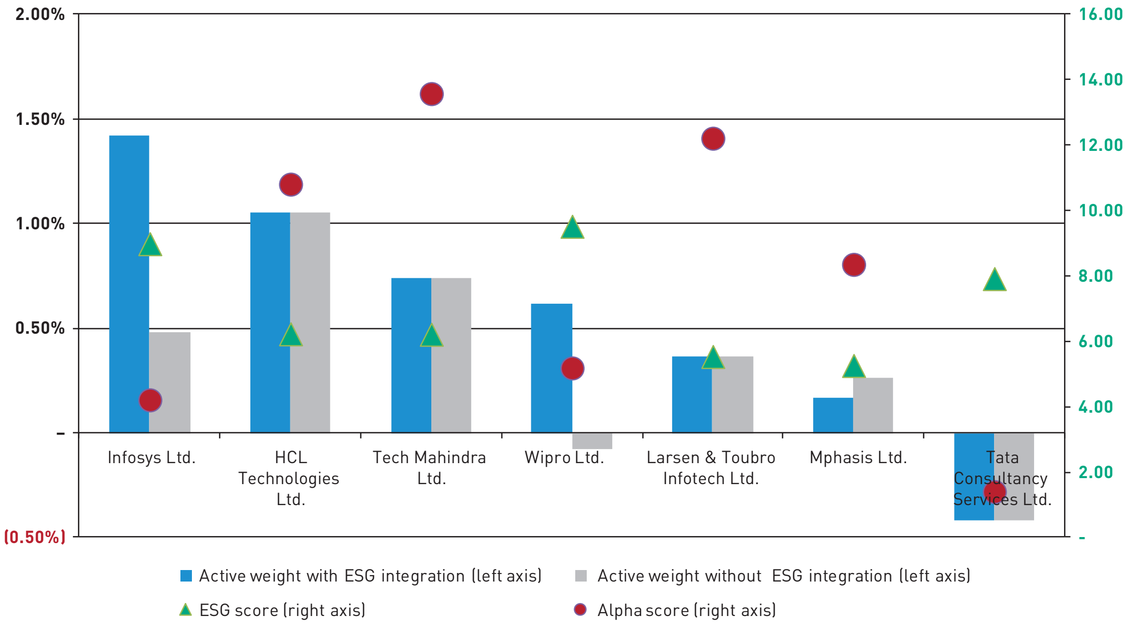
Figure 3 shows the composition of the India software and services sector for a model Asia (excluding Japan) Large Capitalization portfolio, with and without ESG integration. We can see that the active weights of companies are the outcomes of a balancing act between alpha scores, risk considerations, and ESG.

- Tata Consultancy Services has a very high ESG score, but its alpha score is very low relative to its peers, so it is underweight in the ESG-integrated portfolio as well.
- Larsen & Toubro and Mphasis Ltd. have similar ESG scores, which are lower than those of their peers. Larsen & Toubro has a much higher alpha score, so it receives as high an overweight allocation as it would in a non–ESG-integrated portfolio. Mphasis Ltd., on the other hand, receives a smaller overweight allocation because the alpha is not as high.
- Wipro and Infosys have very high ESG scores, and the alpha scores are moderately high. Thus, they receive higher overweight allocations in the ESG-integrated portfolio than they would in the absence of ESG integration.

Overall, the ESG-integrated portfolio has an improved ESG profile, while maintaining a similar risk profile and ex-ante risk-adjusted returns as the non–ESG-integrated portfolio.

In summary, we suggest that you carefully examine your beliefs about ESG and clearly document the investment motivation that forms the necessary "why" of any investment

FIGURE 3: ESG INTEGRATION USING A MODEL ASIA (EXCLUDING JAPAN) LARGE CAPITALIZATION PORTFOLIO



Source: Rosenberg Equities as of June 2018. The companies mentioned herein are for illustrative purposes only and do not constitute investment advice or recommendations.

process. Once this has been established, the focus should turn to the "what"— the framework for implementation. This should be very specific to a manager's unique investment process and should focus on what is "actionable" with respect to attainable information and achievable implementation. Finally, documenting the effect of ESG integration on the portfolio is a critical final step. We have found that reporting based on both ESG scoring as well as specific KPIs that speak directly to client interest has been well received.

E FUND MANAGEMENT CO. LTD.

VALUATION ADJUSTMENT ACCORDING TO ENVIRONMENTAL REGULATIONS

Yixi Wei

In pursuit of long-term sustainable returns for our clients, E Fund Management Co., Limited incorporates environmental, social, and governance (ESG) factors into its investment research framework. In our investment philosophy, companies that perform well in ESG will benefit from enhanced long-term competitive advantages, reduced downside risks, and strengthened reputations.

OUR UNDERSTANDING OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS

We believe that good corporate governance allows for higher profits, lower expenses, and more innovation. It also reduces volatility by lowering financial risks and reducing financing costs. Companies adhering to sustainability development principles and outstanding environmental and social standards will more likely build up a positive brand image by providing high-quality products and services, which, in turn, will enhance client loyalty and employee motivation.

INTEGRATING ESG INTO OUR RESEARCH AND INVESTMENT PROCESS

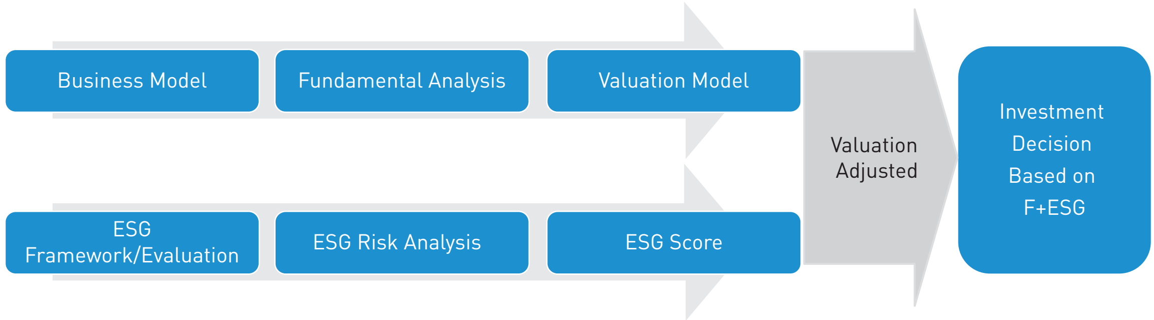
Our ESG evaluation is conducted in parallel with fundamental analysis (**Figure 1**). When our portfolio managers make investment decisions, the ESG score is taken into account during the valuation adjustment. Therefore, a company's ESG performance will be thoroughly considered in our investment decision.

HOW WE ANALYZE SPECIFIC ESG ISSUES

On 11 November 2017, the Ministry of Ecology and Environment of China published "Regulations on a List of Key Pollution Entities." These regulations emphasized four major types of pollution—water, land, air, and noise—each covering a variety of industries.

Our ESG research team concluded that the government will enforce stringent pollution controls and decided to pay more attention to environmental risks in certain upstream

FIGURE 1: ESG EVALUATION COMBINED WITH FUNDAMENTAL ANALYSIS



industries, such as the mining, metal smelting, and chemical industries. The following is a list of actions we took:

1. **Developing an analysis framework:** To analyze the environmental performance of companies, our ESG research team constructed a framework that consists of four factors, specifically focusing on environmental protection (these factors comprise one part of our ESG framework).
   - industry-related environmental risks and their impacts on the company
   - the company's strategy in response to environmental risks and the quality of the company's resource management
   - capital expenditure on environmental protection equipment and the effectiveness of resource use
   - the company's history regarding environmental issues, including negative news and violation records from local regulation departments
2. **Rating and scoring environmental performance:** Our analysts and portfolio managers use the framework as a guideline to evaluate companies. After in-depth research, analysts and portfolio managers rate each factor; a higher score means lower environmental risks and greater competitive advantages. By doing so, we convert the environmental performance to a quantitative score.
3. **Valuation adjustments based on the environmental score:** Our analysts and portfolio managers use environmental scores as references to guide valuation adjustments. Portfolio managers use the adjusted valuation to make investment decisions. The following are a few types of adjustment techniques.
   - adjusting target price to earnings (P/E), which reflects the company's competitiveness in comparison to its peers with higher/lower environmental standards
   - adjusting cost assumptions, which is related to future capital expenditures in environmental protection spending
   - adjusting required return rate or discount rate, which is influenced by the environmental risk premium.

4. **Making better investment decisions:** After implementing the ESG-integrated investment process, our portfolio managers can make better and more objective decisions. In our research and investment process, ESG analysis serves as an important supplement to fundamental analysis. We believe that this process enables us to evaluate a company from a new perspective, one that is often ignored by most portfolio managers.

CASE EXAMPLE

Early this year, we conducted analyses on two companies (Y Chemical and H Corporation, both in the chemical industry sector) in the China A market. These two companies have similar business models and fundamental performances.

Following our environmental framework, our analysts provided the following viewpoints:

- Both Y Chemical and H Corporation have high levels of exposure to environmental risks. Environmental Risk Ratings for both Y Chemical and H Corporation were low.
- According to onsite visit results, Y Chemical's environmental management was slightly better than that of H Corporation's. Y Chemical had its own sewage management system that was above the government-required standards. The Risk Response Rating was higher for Y Chemical as compared to H Corporation.
- Y Chemical had consistently invested in various sewage and disposal projects; a good amount of investment was disclosed in annual reports since 2007. H Corporation disclosed cumulative capital expenditures in recent years without detailed information. The Capital Expenditure Rating was higher for Y Chemical compared to H Corporation.
- Y Chemical had three negative news announcements in the last three years. H Corporation was fined four times by the local government for environmental violations and had two negative news announcements in the last three years. The Historical Record Rating was higher for Y Chemical compared to H Corporation.

We concluded that Y Chemical's total score was 9, and H Corporation's score was 5, indicating that Y Chemical has lower environmental risks as compared to H Corporation.

No reliable method was available for us to estimate the projected environment protection cost, so our portfolio manager decided to adjust the target P/E to reflect our lower return expectation for H Corporation. Compared to the industry average—23.7 P/E (trailing 12 months)—H Corporation was given a discounted target of 20 P/E by our portfolio manager, while maintaining the same estimation for other fundamental valuations. As a result, H Corporation was estimated to have a negative return in our valuation model and deemed not worth investing in. We considered H Corporation to be overpriced by the market because the environmental risks were not fully considered.

EASTSPRING INVESTMENTS

MITSUBISHI MOTORS CORPORATION

Michael Woolley

Eastspring Investments (Singapore) Limited Singapore-based Value Equity team focuses solely on exploiting significant price episodes, where changes to the market's risk perceptions and expectations have caused a meaningful dislocation between the price and long-term trend valuation of a company.

First, we identify significantly mispriced opportunities based on long-term relative valuation. Our focused research helps us to understand the sources of market mispricing through deep fundamental analysis.

In addition to exploiting significant price episodes, we invest a significant amount of effort into conducting a thorough due diligence on both the financial and nonfinancial aspects of a company. In building our fundamental assumptions that underpin the valuation for a company, we apply a holistic approach to identifying material risks—including environmental, social, and governance (ESG) issues—to the sustainable earnings of a company. We rely on the robustness of our proprietary fundamental research process and apply our judgment to assess material factors that impact sustainable earnings. We require significant valuation support to compensate for material risks to longer-term sustainable earnings.

ESG issues and their potential impact differ across companies and are only incorporated into our fundamental analysis and decision-making process when we believe they could have a material impact on a company's valuation and financial performance. We have adopted tools that assist in the efficient identification of ESG issues related to the companies we research. We currently use the Sustainalytics ESG tool to assist in our deep due diligence, which includes preparation for company engagement.

As part of our due diligence, we test aspects that are material to a company's ability to fund its longer-term operations:

- changes in its level of capital efficiency;
- its ability to focus on parts of the business that are core to the future drivers of profitability;
- the ability and willingness of management to respond in a competitive market environment;
- potential impacts from the quality of corporate governance; and
- the risks associated with environmental and social business performance that may impact its "social agency"—its ongoing franchise and the likely impact of management's behavior on longer-term returns.

We test the sensitivity of our valuation to changes in our trend assumptions, which inform the level of confidence (or conviction) we may gain for the longer-term trend valuation of a company.

Implicit in our approach is that we do not screen out companies solely on the basis of perceived problematic ESG issues. Although this approach does not prohibit us from purchasing or holding a position due to an ESG issue, consideration of these issues is made part of the investment decision.

Having identified potential risks to sustainable earnings, we may consider an investment where there is sufficient conviction in our fundamental assumptions and where we are more than compensated by valuation support.

A patient time frame can improve the probability of outcomes. We believe our focused, valuation-driven approach is clearly aligned with stewardship activities, including ongoing company engagement, for shareholder value realization over the longer term. Our approach is aligned with promoting increased long-term value creation and sustainable business practices by companies. The approach focuses principally on long-term factors that determine companies' earnings, rather than on the short-term factors that may predominate in determining share prices. We place a high level of importance on an ongoing dialogue with investee companies primarily based on what we believe will maximize shareholder value as long-term investors.

All investment professionals are responsible for the integration of ESG issues into the investment process, rather than outsourcing this responsibility to dedicated ESG or stewardship specialists.

CASE EXAMPLE: MITSUBISHI MOTOR CORPORATION—AN AUTO MANUFACTURER

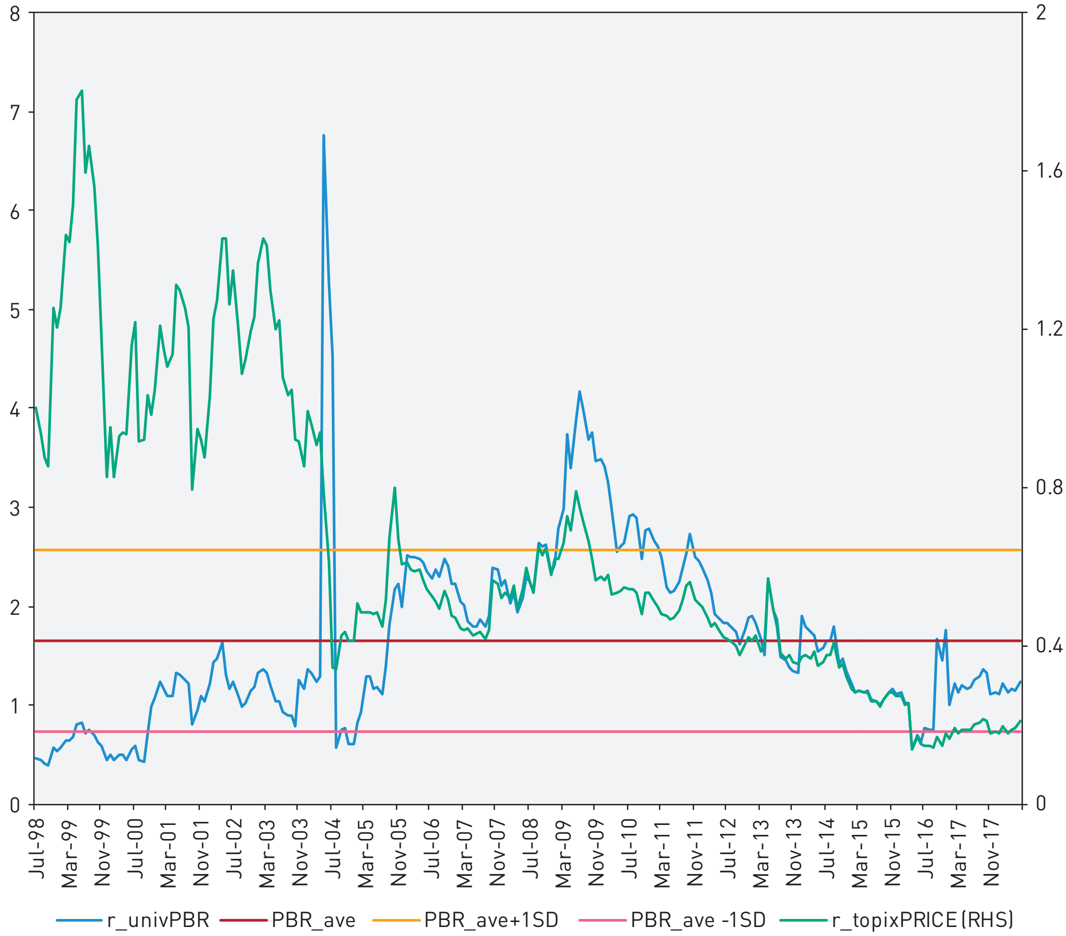
Mitsubishi Motor's (MMC's) competitive position had eroded materially over several decades. After being negatively affected by the Asian financial crisis in 1997, it faced a major defect cover-up scandal in Japan in 2016. In an unsuccessful attempt to improve a weak position in the developed markets, MMC then underwent a capital raising, which culminated in a recapitalization by the parent company.

In recent years, MMC has taken steps to remain competitive by changing its production footprint and model range. MMC exited its developed-market production, reconfigured its domestic production, and shifted its focus to emerging markets. MMC is now a specialist producer of sport utility vehicles, plug-in electric hybrids, and affordable cars for emerging markets.

Notwithstanding this ongoing restructuring, significant governance, ethical, and social failures continued, exacerbated by an insular corporate culture with insufficient feedback between junior and senior management and insufficient board oversight. Shares were significantly de-rated from brand damage related to the fuel efficiency scandal in Japan (announced in early 2016). The scandal was the third known ethical transgression that the company had admitted to, and further highlighted the deficiencies in risk management and controls. The damage to MMC was compounded by negative cyclical earnings factors, which further impacted market-pricing beliefs regarding the likely level of shorter-term earnings for MMC (see **Figure 1**).

In addition to the question of business ethics and management credibility, the market was also skeptical of MMC's ability to remain as a competitive and viable standalone auto business based on its small scale of operations.

FIGURE 1: MITSUBISHI MOTOR PRICE TO BOOK (RELATIVE) AND PRICE TO THE TOKYO STOCK PRICE INDEX (TOPIX) UNIVERSE



Abbreviations: ave, average; PBR, price to book (relative); RHS, right-hand side; SD, standard deviation; univ, universe.

Source: Eastspring Investments, as of 30 April 2018. The securities mentioned are included for illustration purposes only. It should not be considered a recommendation to purchase or sell such securities. There is no assurance that any security discussed herein will remain in the portfolio of the funds managed by Eastspring Investments (Singapore) Limited at the time you receive this document or that the security sold has not been repurchased.

Changes That Have the Potential to Be Supportive for Longer-Term Sustainable Returns

In October 2016, Nissan Motor Company Ltd. acquired a 34% share in MMC, becoming its largest shareholder. As what is now the third-largest global auto group, the alliance stands to benefit from scale advantages in parts procurement, and over the medium term, from access to shared technology and research and development, as well as the use of common parts, modules, and platforms.

The fuel economy scandal in 2016 forced a fundamental change at MMC through the introduction of an outside party (Nissan) with a credible restructuring track record. As a result, major changes have been made in the management structure, decision-making processes, and management oversight and internal communications; performance-based incentive structures have also been introduced.

Our due diligence was conducted in early 2017, after MMC's shares had been significantly de-rated. Our strategies subsequently initiated an investment into MMC on the basis that the material risks we had identified (such as the lack of management credibility with a history of poor governance and business ethics, ongoing risk management and control, and MMC's scale as a standalone auto company) were being addressed by new management installed by Nissan.

Our conviction levels were supported by our observation that the market was not fully recognizing or pricing-in the structural changes being made by MMC with regard to material issues such as governance and business ethics, ongoing risk management, and the scale required to remain a viable business. This is an example of where changes to the market's risk perceptions and expectations have caused a meaningful dislocation between the price and long-term trend valuation of a company, which offers an opportunity for the patient investor.

Engagement and ESG Improvement

MMC is not cited as a strong ESG performer but rather as a company that needs to address and improve its ESG performance. We continue to monitor and engage with MMC to test whether trend changes in structure and processes are being thoroughly implemented.

We continue to look for changes to company culture, which are likely to protect minority shareholder interests, and we have signaled our position in our voting of proxies. For example, further progress is required with regard to governance structures and the level of independence of the board membership at both MMC and for the Nissan board.

SUMMARY OF VALUATION PROCESS IN ACTION

Identify significantly mispriced opportunities based on valuation:

- The 2016 scandal impacted share prices materially.

Understand the sources of market mispricing through deep fundamental analysis—focus on materiality:

- The market was not fully recognizing or pricing in the company's structural responses to the various issues that were visible.

Take a holistic approach that does not separate ESG risks from other material risks:

- Our trend valuation incorporated an assessment of a range of material financial and nonfinancial risks to sustainable earnings, including evidence relating to MMC's willingness and ability to address trend issues such as governance and business ethics; communication across business, ongoing risk management, and the scale required to remain a viable business brings high conviction for valuation.

Invest in high-conviction and high-valuation upside stocks to compensate for:

- material risks to sustainable earnings (financial and nonfinancial); and
- the time frame it may take to realize shareholder value.

Continue to engage with the investee company to encourage longer-term, sustainable value realization:

- We can afford to be patient and exploit short-term share price volatility because of the high valuation upside and our high conviction levels regarding the likely sustainable earnings the company can generate.
- Value realization is encouraged via ongoing engagement with the company regarding material issues. Our patient investment time frame is aligned with changes that occur in economic time frames—not financial industry time frames.

THE GOLDMAN SACHS GROUP, INC.

NAVIGATING 21ST-CENTURY BUSINESS RISKS AND OPPORTUNITIES

GS SUSTAIN

Since its inception in 2007, the aim of GS SUSTAIN (a proprietary research service of Goldman Sachs) has been to identify companies that can offer investors strong returns over long time horizons (3 years or longer). Our process includes quantitative screens and qualitative analysis to identify companies with persistent high returns on capital, access to growth, a durable competitive edge, and strong engagement on key environmental, social, and governance (ESG) issues. From Goldman Sachs Global Investment Research coverage of approximately 3,200 companies, we use this process to identify the "GS SUSTAIN 50"—our list of long-term investment ideas.

We believe that tomorrow's industry leaders must be financially sound and operationally excellent, but looking around corners to mitigate less conventional risks, such as environmental and social risks, among others. For investors, ESG integration can help identify companies that are well placed to mitigate these risks and to benefit from any associated opportunities.

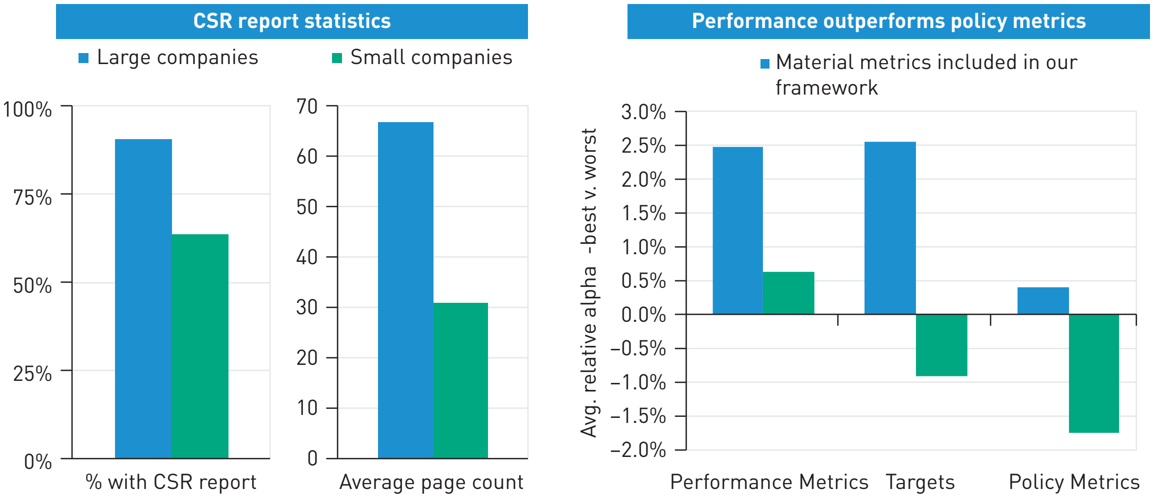
Over the last decade, we have found that integrating ESG into an investment analysis framework can offer valuable insights—for management and for investors—into a company's culture (e.g., talent attraction and retention, employee engagement), operational excellence (e.g., resource efficiency), and risks (e.g., conflicts of interest, environmental impact, supply chain, data privacy, and climate change, among others).

DISTINGUISHING BETWEEN ESG ENGAGEMENT AND ESG DISCLOSURE

Since the mid-2000s, a step change has taken place in the focus on ESG issues and data availability. As a result, a detailed corporate social responsibility (CSR) report is not necessarily a signal of differentiated company engagement as it relates to underlying ESG risks. For investors or corporate managers seeking insight from ESG integration, it is critical to distinguish between companies that simply provide ESG disclosure and those that are truly engaged regarding the underlying risks and opportunities.

This reality is highlighted in **Figure 1**, which shows that larger, mature companies are more likely to have a long CSR report, and that scoring companies on policies and targets alone without a materiality overlay does not add to alpha. Despite market-leading ESG disclosure, large companies based in Europe remain exposed to environmental catastrophes or governance scandals.

FIGURE 1: CORPORATE SOCIAL RESPONSIBILITY STATISTICS AND METRICS



Source: Bloomberg, Thomson Reuters, FactSet, Goldman Sachs Global Investment Research.

In our investment process, we attempt to combat this scoring issue with a focus on the materiality of the metrics assessed, links to alpha generation, and the use of quantifiable performance metrics where possible (as opposed to a focus on disclosure of generic policies). For example, our quantitative Environmental and Social (E&S) framework for company evaluation uses an average of 14 material metrics that we have back-tested to ensure that they link to alpha generation.

USING ESG ANALYSIS TO PROVIDE INSIGHTS INTO THE SEMICONDUCTOR INDUSTRY

To give an example of our ESG analysis, we evaluated a leading manufacturer of critical components for the global semiconductor industry. We were initially attracted to the company due to its:

1. high returns on capital employed relative to sector peers;
2. high and stable market share and expanding gross profit and operating income margin, implying a competitive moat and pricing power; and
3. good track record of capital allocation, including dividend payments, capital ratio, and reinvestment into the business at incrementally high rates.

However, the company's valuation was elevated; to achieve long-term value creation for investors, we needed to have a strong conviction regarding the company's ability to maintain its industry-leading products and profitability.

Key operational risks that we identified included the maintenance of the company's technical leadership through investment in human and physical capital, and the potential for manufacturing delays or product defects that may impact its reputation and market share.

We supplemented our analysis of these risks by using quantifiable E&S data. Within our E&S framework, the company scored as the best performer (100th percentile) among its sector peers in the MSCI ACWI index (representing large- and mid-capitalization companies across 23 developed markets and 24 emerging markets countries). Through our framework, we derived further insights into the following aspects of the company:

- **Asset quality and efficiency:** We evaluated the company's resource and emissions intensity to benchmark the efficiency of the company's manufacturing assets versus those of its sector peers. We found that the company has industry-leading resource (water and energy) intensity per unit of revenue, higher performance regarding water and waste recycling, and lower carbon emission intensity than its peers. These conclusions helped support our view that the company was thinking beyond simple direct operating costs to consider its operations through a more expansive lens of looking at the indirect environmental performance of its operations.
- **Attracting and retaining talent:** We evaluated employee engagement and compensation to help gauge the risks associated with attracting and retaining talent. We found that the company's average employee wage is significantly higher than its peers (100th percentile) and that it has low employee turnover (14th percentile). In a highly complex research and development–intensive industry, this suggests that the company is well positioned to attract and retain top talent, which could enhance the company's innovation potential. The company receives positive reviews from current and former employees and appears to have embraced the reality that its employees are one of its most important assets, and that employee retention and satisfaction are fundamental to retaining its industry-leading position.
- **Business model:** Looking beyond the numbers, we were encouraged by the company's (1) positioning as enabling smaller, faster, and more energy-efficient electronics; (2) customer-centric approach of providing aftermarket enhancements and refurbishments to improve customers' capital efficiency; and (3) culture of innovation and collaboration with internal and external stakeholders that have the potential to generate both new business opportunities and broader social benefits.

The findings from our ESG analysis supported our investment case for the company and helped moderate concerns regarding potential risks to the company's competitive advantage and growth outlook. The company was ultimately added to a GS SUSTAIN list of industry leaders.

HIGH POINTE CAPITAL MANAGEMENT

USING ESG CRITERIA TO ASSESS FRANCHISE QUALITY AND FAIR VALUE

Gautam Dhingra, CFA

High Pointe Capital Management's investment process was developed on the central premise that as the US economy made its transition from the manufacturing era to the information era, more of the value of a company was going to shift to intangible assets (e.g., patents, brands, network effects, reputation, employee satisfaction) rather than physical assets (e.g., plant and equipment, inventory). This insight led our firm to create a metric called the Franchise Quality Score to measure a company's intangible assets and use it as a key component of selecting stocks for the firm's value-oriented investment strategy.

THE FRANCHISE QUALITY SCORE

The Franchise Quality Score is calculated by assigning a value (on a scale of 1 to 5; a higher value indicates a higher-quality company) to eight component factors. These eight factors are designed to answer two all-encompassing questions:

1. How good is the business?
2. How well is it being managed for long-term success?

Figure 1 lists the components of the Franchise Quality Score and provides a brief description of the scale (1–5) used for scoring each factor.

The factors of the Franchise Quality Score that address the question "How well is the business being managed for long-term success" automatically tilt High Pointe's portfolios toward companies that are good stewards from an environmental, social, and governance (ESG) perspective. Governance is obviously a well-known ESG factor. The factor "Engagement with employees, community, and government" is also a key element of the social factors usually associated with ESG investing.

High Pointe derives the composite Franchise Quality Score from this framework and uses it as an independent variable in a regression model that uses valuation, quality, and growth factors to identify undervalued stocks. Specifically, the regression model specification is as follows **(Equation 1):**

$$P/E = \alpha + \beta 1(\text{Franchise Quality Score}) + \beta 2(\text{expected growth rate}) \qquad (1)$$

This model establishes a fair price-to-earnings (P/E) for each stock in light of its Franchise Quality Score and expected growth rate. A comparison of fair P/E with the stock's actual P/E reveals the degree of undervaluation or overvaluation for each stock.

FIGURE 1: FRANCHISE QUALITY SCORE FACTORS

HOW GOOD IS THE BUSINESS?

FACTOR	5	4	3	2	1
Barriers to entry	High	...	Medium	...	Low
Degree of competition	Benign oligopoly	...	Balanced	...	Cut-throat and fragmented
Pricing power vs. customers	Sellers' market	...	Equilibrium	...	Buyers' market
Pricing power vs. suppliers	Buyers' market	...	Equilibrium	...	Sellers' market

HOW WELL IS THE BUSINESS BEING MANAGED FOR LONG-TERM SUCCESS?

FACTOR	5	4	3	2	1
Management	Excellent track record	...	Unproven / mediocre	...	Poor record
Governance	Shareholder-oriented	...	Mixed	...	Entrenchment mentality
Engagement with employees, community, and government	Partnership	...	Average	...	Short-term profit orientation
Sustainability of competitive advantage	Long-lasting	...	Medium	...	Short / unpredictable

Below, we explain why this framework of evaluating the merits of a stock in light of its valuation, quality, and growth characteristics is not only logical but also mathematically consistent with the discounted cash flow (DCF) approach to stock valuation.

A COMPARISON WITH THE DCF MODEL

We start with a well-known DCF model; namely, the dividend discount model as shown in the following equation:

$$\text{Dividend Discount Model: } P = D_0/(k - g)$$

(where P = price; D = Current dividend; k = discount rate; g = dividend growth rate)

By rewriting dividends as earnings multiplied by the payout ratio, we get:

$$P = (E \times \text{payout ratio}) \ / \ (k - g)$$

Dividing both sides of the equation by E, we derive the following equation:

$$P/E = \text{payout ratio} \,/\, (k - g)$$

In its functional form, we can write this equation as follows:

$$P/E = fn\ (\text{payout ratio, discount rate, growth rate})$$

If we make an assumption that the payout ratio is relatively constant over time and, therefore, not an important variable, we can further simplify this equation as follows **(Equation 2):**

$$P/E = fn\ (\text{discount rate, growth rate}) \qquad (2)$$

A comparison of High Pointe's model represented by Equation (1) and the DCF model represented by Equation (2) makes clear that the valuation (P/E) of a stock is primarily a function of two main factors. One of these factors is growth. The other factor, according to High Pointe's model, is Franchise Quality (while according to DCF, it is the discount rate).

The two models are actually quite consistent with each other, despite this apparent difference. This is because in the DCF model the discount rate is a proxy for risk, and High Pointe's view is that its Franchise Quality Score is an ideal way to measure risk. The higher the Franchise Quality Score is, the lower the risk of a company is and, by implication, the lower its discount rate is.

Having established that growth and quality are the two most important factors that explain stock valuations, it is easy, then, to see that in this era when so much of the value of companies lies in intangible assets, a measure such as the Franchise Quality Score using ESG and other relevant factors is an ideal way to assess the value of companies.

SUMMARY

A company's quality is one of the two dimensions of stock valuation. ESG factors are essential for determining whether the quality of a company's business will be ephemeral or everlasting. A holistic integration of ESG factors can help investors arrive at more accurate, long-term-oriented estimates of the fair value of each stock and, in doing so, improve their ability to outperform the market.

HWABAO WP FUND MANAGEMENT CO., LTD.

NEW PERSPECTIVES UNDER HIGH-QUALITY DEVELOPMENT TREND IN CHINA: A CASE STUDY FOR APPLICATION OF ESG INVESTMENT IN THE AGROCHEMICAL INDUSTRY

Hwabao WP Staff

As environmental, social, and governance (ESG) investment criteria are still in the early stage of development in China, Hwabao WP Fund Management has committed to being a pioneer in this area. The Green Finance Committee of the China Society for Finance and Banking, led by Jun Ma, former chief economist at People's Bank of China, is the first professional organization that aims to promote Green Finance Development research, product innovation, government policy, and industrial coordination in China. Hwabao WP Fund Management became a formal member of the Green Finance Committee of the China Society for Finance and Banking in 2017 and is now working to integrate ESG factors into its investment and research framework, to include both passive and active investments. The following describes the various developments with regard to ESG investing in China.

BACKGROUND

Reasons for and Sustainability of a More Stringent Environmental Monitoring Mechanism

Following the 19th National Congress of the Communist Party of China in 2017, China has taken a top-down approach to governance on environmental protection; its approach can be divided into three levels:

1. Treat pollution prevention as one of the three national critical battles, with the aim of controlling pollution levels within a certain range by 2020.
2. Establish a long-term supervision mechanism. From state council to local government, China plans to set up top-down environmental monitoring organizations to conduct regular inspections and supervision to ensure that government policy targets are achieved.

3. Establish assessment and ranking mechanisms to pursue "green" gross domestic product growth. China's government will compile a quantitative ranking of pollutants in provinces, municipalities, and autonomous regions, and will impose administrative penalties on those areas with low rankings.

From these initiatives, we can conclude that environmental protection has become a "new normal" facet of China's economic growth, and that this trend will continue for a long time.

Changes in the Competitive Pattern of China's Chemical Industry under the New Governance

Since 2016, the Ministry of Environmental Protection of China has conducted several rounds of environmental inspections. In the chemical industry, the main inspection targets include highly polluting enterprises and chemical industrial parks. To achieve its goals, the Ministry of Environmental Protection imposes various sanctions on enterprises that fail to meet emission requirements or lack environmental protection equipment. These sanctions include financial penalties, factory shutdowns, and company rectifications.

The agrochemical industry represents a typical industry affected by China's more stringent environmental supervision. For instance, the Environmental Protection Department of Jiangsu Province shut down the local chemical industrial parks for inspection purposes in March 2018. This shutdown involved 70 agrochemical companies (about 13% of the local chemical industry)—far above the national average level of 1.3%.

From a short-term perspective, the price of pesticide products will increase after the government shuts down those chemical industrial parks; in the long term, the leading agrochemical companies that complied with the environmental protection standards will improve their market share, bargaining power, and profitability after such supply-side reforms.

CASE EXAMPLE: INTEGRATING ESG FACTORS AND CHINA'S REGULATORY CHANGES INTO EQUITY VALUATION

From an equity valuation analysis perspective, we will use an A-share-listed agrochemical firm, Company B, to illustrate how the regulatory changes in China's environmental protection mechanism would be integrated and what the impact on the industry's competitive structure would be.

Company B's major business is the production and sale of agrochemical products, including insecticide, herbicide, and other agrochemical products. Major clients are downstream preparations, focusing on exports. Because of its advanced production technology, highly efficient production line, and high environment protection standards (higher

FIGURE 1: PRODUCT STRUCTURE OF COMPANY B

PRODUCT	REVENUE PERCENTAGE (%)	GROSS MARGIN (%)	MARKET SHARE
Product A (insecticide)	43.0	45.6	Will achieve the world's largest production capacity after reaching new target level of production capacity. Market share: more than 50%.
Product B (herbicide)	44.7	50.3	World's largest production capacity. Market share: more than 50%.
Others	12.3	4.2	…

Source: Annual report; both Product A and Product B have entry barriers and comply with the new environmental requirements.

than the industrial average), Company B is always ranked in the first tier of China's agrochemical industry. The company's Product A (insecticide) sales volume is ranked first in China and second in the world. Its Product B (herbicide) sales volume is increasing, having become more popular based on the product's high efficiency and low level of toxic ingredients. **Figure 1** shows the company's main product structure.

Under the influence of China's new environmental protection mechanism, Company B's profitability will change in two ways. First, Company B will see an increase in its short-term profitability—agrochemical product prices will increase immediately following the shutdown of unqualified agrochemical companies. Second, the company's revenue and return on equity will increase in the long run after Product A reaches its target production capacity. Following the withdrawal of production capacity not compatible with the new environmental protection mechanism, the concentration ratio of the whole industry will increase. Thus, Company B can ensure its leading position in the industry and increase its market share.

SEIZING SIMILAR INVESTMENT OPPORTUNITIES IN LIGHT OF THE NEW ENVIRONMENTAL PROTECTION MECHANISM

Previously, most ESG research was conducted to avoid risk, especially in the fixed-income market. However, it is also important for equity portfolio managers to pursue excess returns by integrating ESG factors into the investment decision-making process. We have the opportunity to explore a broader range of investment opportunities because China is on track to improve its environmental protection standards. Referring to the equity valuation analysis example above, if we sort China's publicly listed companies (especially those with excess capacity, low industry concentration, high pollution, high energy dissipation, and high emissions problems seen in traditional industries) by using factors such as related production capacity, product segmentation, and market share (among others), we can adjust our forecast of the short-term product price trend and the industry's long-term competitive structure based on the progress of China's environmental protection supervision. Then, we can amend our company-specific valuation model to uncover potential investment opportunities.

INFLECTION POINT CAPITAL MANAGEMENT

STRATEGICALLY AWARE INVESTING

Matthew Kiernan

Companies need new approaches and strategies if they are to retain their social license to operate, and to remain competitive and profitable. Investors, in turn, require new assumptions, approaches, and tools to identify the winning—and losing—companies of tomorrow.

THE INVESTMENT THESIS

Inflection Point Capital Management's (IPCM's) investment approach requires that conventional financial analysis be supplemented by the addition, analysis, and seamless integration of two critical, "nontraditional" risk and return drivers:

1. Companies' performance and strategic positioning with regard to five key components of the "intangible value," which academics believe currently constitutes 75%–80% of companies' true risk profile and value-creation potential, yet are generally not captured in financial statements. Those five attributes are environmental sustainability, human capital, organizational capital, adaptability and responsiveness, and innovation capacity.
2. Companies' relative exposure to both the downside risks and upside opportunities created by a series of powerful, secular global megatrends such as population growth and demographic change, climate change, natural resource depletion, urbanization, and the expansion of new middle classes in countries such as China and India.

THE INVESTMENT PROCESS

Step 1: Alpha Pool Generation

This process is largely quantitative, designed to winnow the investable universe (approximately 2,500 companies) down to a more tractable number—about 230–250 companies. This winnowing process applies to both sustainability and financial assessments, and uses data largely generated by third parties. At this stage, the financial factors receive significantly more weight. This reasoning is straightforward: we see little sense in allocating resources to an in-depth assessment of the sustainability characteristics of companies whose poor financial data would render them noninvestable regardless of any sustainability merits they might possess. The outcome of Step 1 is the creation of an "Alpha Pool" of 230–250 names that we believe justify further, deeper in-house analysis.

Step 2: Focus List Generation

This phase of the analysis is much more qualitative, and is composed of three strands: traditional financial analysis; a "5-factor" assessment of key intangibles (see **Figure 1**); and an assessment of relative megatrends exposures, both positive and negative.

It should be noted that at least three of the five factors in the IPCM model go beyond the dimensions typically captured by environmental, social, and governance (ESG) analysis: organizational capital, adaptability and responsiveness, and innovation capacity. We consider all three to be critical capabilities for competitive and financial success in the 21st century, and therefore worthy of a systematic comparative analysis.

During this phase, in addition to the "nontraditional" factors noted in Figure 1, more traditional factors are assessed in depth, including balance sheet strength, profitability, earnings quality, the competitive dynamics of the particular industry sector, and valuations. The outcome of Step 2 is the creation of a smaller "Focus List" of 120–130 names.

Step 3: Balancing Sector and Geographic Exposures

At Step 3, particular emphasis is given to ensuring that both the sectoral and geographic exposures of any potential portfolio are ones that the portfolio manager and chief investment officer are comfortable with. This is also true of the correlations among the stocks themselves, which are examined to ensure that the portfolio is sufficiently diversified in terms of risk factors. This is a particularly quantitative part of the process, and we receive strong support from the investment analysis group's financial engineering and risk control teams.

FIGURE 1: IPCM'S 5-FACTOR MODEL

Step 4: Portfolio Construction

Taking into account all of the factors reviewed during Step 3, a final portfolio of approximately 60–70 names is constructed. The timing of the actual stock purchases is dictated by the then-current valuation levels.

It is important to note that with the exception of Step 1 where financial considerations predominate, financial and nontraditional factors receive roughly equal weight throughout the rest of the decision-making process.

A COMPANY EXAMPLE

It may be instructive to illustrate, in an extremely summarized form, the application of the 5-Factor and global megatrends models to a specific company case. The example we have chosen is a UK-headquartered specialty chemicals company, which operates in the premium, high-margin segment.

We have been studying the key secular global megatrends and their company-specific impacts for many years and have identified at least five megatrends that provide a "tailwind" for the company's products and services:

1. demographic shifts—growing customer demand for more environmentally sustainable products;
2. emergence of more affluent middle classes in several emerging markets;
3. climate change;
4. growing demand for clean water; and
5. growing demand for food, especially in emerging markets.

We believe that each of these external structural changes promises to unfold to the benefit of the company going forward. We then turn to the company's performance and strategic positioning on each element of the 5-Factor model.

1. **Environmental sustainability** is the first of IPCM's five factors. In this case, we judged the company to be a strong performer: its carbon intensity is lower than its subsector industry average, and its energy efficiency is superior because of its materials-use efficiency. An emphasis on renewable feedstocks permeates the company's entire product development strategy; as a direct result, it derives a sector-leading 63% of its raw material inputs from renewable sources, such as a bio-based ethylene oxide.
2. **Human capital management** is similarly strong. The company devotes an exceptional volume of resources to staff training and development; 86% of the staff receives some sort of training each year. The company also has a high level of participation in the employee shares program—84% in the United Kingdom. We were also favorably impressed by the company's recruitment and retention strategies, which are explicitly designed to promote diversity in its workforce.
3. The company has created valuable **organizational capital** by devoting considerable energy to the sharing of a variety of performance data with its customers;

therefore, it is hardly surprising that its customer relations are well above average compared to its sector peers. The same is true with its supply chain: the company makes extensive use of enhanced life-cycle analysis, where both social and environmental impacts are calculated and monitored, and corrective action is taken where necessary. One example of this is the firm's aggressive efforts to ensure that its supplies of palm oil are secured through sustainable methods.

4. **Adaptability and responsiveness** are most visible in the company's early recognition of and adaptation to several key megatrends. One example is the growing global concern regarding both the quantity and quality of fresh water, to which the company responded rapidly by engineering a number of new water purification technologies, chemicals, and products.
5. Evidence of the firm's **innovation capacity** is provided by its major strategic emphasis on "green chemistry" in product development, which has meant that fully 65% of the company's new products are driven primarily by sustainability considerations—new water treatment chemicals and low volatile organic compound coatings are just two examples.

MANULIFE ASSET MANAGEMENT

HOW THE "G" FACTOR AFFECTS THE EQUITY VALUATION MODEL: A NORTH AMERICAN SOFTWARE COMPANY CASE STUDY

Patrick Blais, CFA; Christopher Mann, CFA; and the Canadian Core Team

Manulife Asset Management's Canadian Core investment team's approach to environmental, social, and governance (ESG) analysis, incorporated within individual stock fundamental analysis, hones in on quantifiable and material ESG factors that may impact future free cash flow generation and cash flow return on investment. Good corporate governance and incentive compensation are viewed as critical to help drive effective capital allocation decisions. The investment team's approach to effective stewardship of capital includes an engagement practice that fosters a constructive dialogue with company management to address relevant ESG issues.

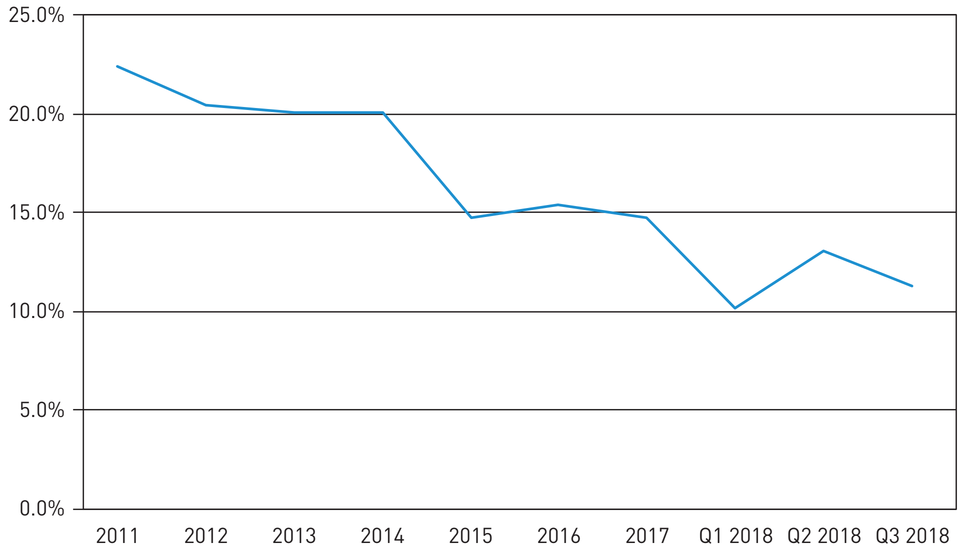
This practice is in line with Manulife Asset Management's global ESG policy, which states our belief that successful companies in the long term will have a strong and effective board, good internal controls, effective remuneration structures in line with long-term performance, high-quality and meaningful reporting to shareholders and other stakeholders, and good management of the environmental and social aspects of their business.

BACKGROUND TO THE INVESTMENT CASE

An acquisitive technology holding in the investment team's portfolio experienced material share price underperformance relative to its peers, with the shares trading at a significant discount to the peer group. The investment team initiated a formal review process, which incorporated an ESG analysis.

The review determined that the share price underperformance was linked to declining return on investment capital (ROIC). Although the company had historically generated a relatively stable ROIC of 20%, its returns have declined to the low teens (see **Figure 1**), levels that are currently at least 2% lower than that of its peers. Based on the investment team's analysis, it was determined that the lower ROIC was the result of the relatively high price paid for recent acquisitions, a departure from the more disciplined approach previously taken by the company. This led the investment team to more closely consider certain governance issues, specifically incentive compensation structures and the impact on valuation multiples paid for acquisitions.

FIGURE 1: COMPANY'S RETURN ON INVESTED CAPITAL (BASED ON HISTORICAL CALCULATIONS PERFORMED BY MANULIFE'S INVESTMENT TEAM)



Note: "Any one-time deferred tax gains" are removed to prevent distortion of the recurring financial metrics of the company.

Source: Manulife, May 2018.

POTENTIAL CORPORATE GOVERNANCE ISSUES RELATED TO INCENTIVE COMPENSATION

A review of management's compensation structure concluded that the company's incentive programs were potentially failing to incentivize the necessary discipline surrounding acquisitions.

- **Short-term incentive compensation** was based on revenue targets and adjusted operating income targets. In the investment team's opinion, these absolute-dollar metrics were considered poor drivers of shareholder value creation. In addition, the adjusted metrics ignored the majority of amortization costs associated with acquisitions. The investment team was concerned that this short-term incentive plan could induce management to pursue acquisitions while overlooking their price and valuation.
- **Long-term incentive compensation** was linked to absolute and relative stock performance over a three-year period. This, and the fact that the long-term incentive was more than three times the size of the short-term incentives, could align management with shareholder value creation. However, the investment team was concerned that without a clear link to critical operational metrics and given the subjective nature of the overall amount initially granted, this long-term incentive could encourage management to take on excessive risk, as demonstrated by the increase in leverage to fund recent acquisitions.

The investment team took the view that the company should improve the link between management incentive compensation and clear drivers of shareholder value creation. In the investment team's experience, companies sometimes overemphasize absolute dollar and growth targets and underemphasize free cash flow generation and returns. Given the material impact of acquisitions on company returns, the investment team determined that it would be beneficial to have some portion of incentive compensation linked to ROIC (see Figure 1).

RESPONSE TO GOVERNANCE CONCERNS

The investment team engaged with company management in 2018 to encourage linking executive compensation to ROIC, which would in turn demonstrate to shareholders that company management had a long-term focus, and its actions and capital allocation decisions were in alignment with shareholder interests.

The company was responsive to the concerns raised—including the comments on tying compensation to ROIC—and noted that a review was underway to determine compensation items for fiscal year 2019. Part of this review also included whether to provide additional disclosure (such as an organic growth figure), which should help alleviate the fear that the underlying business may be deteriorating faster and contributing to the declining ROIC.

KEY TAKEAWAYS

We believe that a constructive, open dialogue with a company, demonstrating how strong governance measures around executive compensation are considered by investors, can help provide solutions for both the investee and the investor.

Although this case analysis is ongoing, we are encouraged by the open dialogue and hope that the company will take active measures to improve disclosure and executive compensation measures to demonstrate that it believes it can restore ROIC closer to the historical level of about 20%. The Manulife Asset Management investment team feels confident that if such a plan can be executed, it could be a major driver for improving capital allocation decisions and, in turn, shareholder results, versus other proposals (such as deploying more capital into even more acquisitions).

MFS INVESTMENT MANAGEMENT

INEQUALITY, OUTSOURCING, AND INDIAN IT SERVICES COMPANIES

Rob Wilson

At MFS Investment Management, our approach to environmental, social, and governance (ESG) integration has always been built on a foundation of in-depth, bottom-up research on individual securities. We strongly believe this bottom-up, materiality-driven approach, rather than one based heavily on ESG ratings, leads to true ownership of ESG issues among our industry analysts and portfolio managers. As a result, we have developed a detailed and comprehensive ESG integration strategy designed to enable the broader investment staff to better understand how ESG issues can impact their decision-making process. The framework for this strategy is supported by both analytic and systematic elements (**Figure 1**).

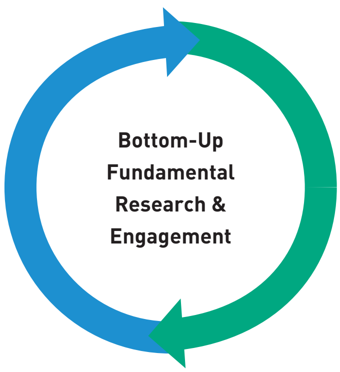
INEQUALITY AND OUTSOURCING: REASSESSING COST FORECASTS AND DEVELOPING SCENARIO ANALYSES

The topic of income and wealth inequality has garnered increased attention recently.[1] Although data suggest that global inequality has decreased over the past few decades, inequality appears to have increased within many individual developed-markets countries. This increase appears to

[1] Marcelo Giugale, "Piketty, Stiglitz and Our Renewed Interest in Inequality," The World Bank (13 May 2015). www.worldbank.org/en/news/opinion/2015/05/13/piketty-stiglitz-and-our-renewed-interest-in-inequality

FIGURE 1: MFS' ANALYTIC AND SYSTEMATIC ESG STRATEGY FRAMEWORK

Analytic
- Industry Initiations
- Ad Hoc Research Requests
- ESG *in Depth*
- Sector/Thematic Research
- ESG Portfolio Dashboards
- ESG Security Dashboards



Systematic
- Semiannual risk reviews led by quantitative team
- Systematic distribution of external ESG rating changes
- ESG tab in research notes for companies\issuers
- Automated distribution of low-rated securities reports

have at least partially impacted some recent political outcomes,[2] while also affecting the debate surrounding a wide variety of topics such as drug pricing, outsourcing, and immigration. Given the potentially broad impacts of this social issue, investors should consider where and when inequality-related topics might need to be considered in their modeling and valuation analysis, as exemplified in this case study on the information technology (IT) outsourcing industry.

INEQUALITY'S IMPACT IN DEVELOPED MARKETS

Thomas Piketty's oft-questioned[3] but unquestionably popular[4] book, *Capital in the Twenty-First Century*, set off a debate on the long-term consequences associated with increased inequality. An independent review of the available data appears to suggest that income inequality has increased in many developed markets,[5,6] even though global inequality appears to be falling.[7,8] Although the decrease in global inequality is clearly positive from a social perspective, growing inequality in developed markets appears to be driven by structural factors, such as increasing automation, ongoing penetration of outsourcing activities, and a declining unionization rate, which could further exacerbate the risk of this issue for investors whose portfolio companies operate in developed countries. As a result, investors need to understand the potential drivers of inequality to properly assess which investments may be at risk—or which may provide an investment opportunity—as a result of this issue.

RISKS IN THE OUTSOURCING BUSINESS MODEL

Based on both academic research[9] and other media reports,[10] outsourcing is a topic that is often intertwined with the broader discussion regarding inequality. Recent political

[2] Mark Scott and Charlie Cooper, "Brexit Is an Opportunity to Tackle Inequality," *Politico* (updated 24 December 2017). www.politico.eu/article/brexit-theresa-may-eu-european-union-leave-u-k-britain-uk-article-50-david-davis/

[3] Jon Hartley, "Why Economists Disagree with Piketty's 'r-g' Hypothesis on Wealth Inequality," *Forbes* (17 October 2014). www.forbes.com/sites/jonhartley/2014/10/17/why-economists-disagree-with-pikettys-r-g-hypothesis-on-wealth-inequality/#6d3054a56c40

[4] Megan McArdle, "Piketty's Capital: An Economist's Inequality Ideas Are All the Rage," *Bloomberg Businessweek* (30 May 2014). www.bloomberg.com/news/articles/2014-05-29/pikettys-capital-economists-inequality-ideas-are-all-the-rage

[5] Jared Bernstein and Ben Spielberg, "The Whys of Increasing Inequality: A Graphical Portrait," *Washington Post* (14 August 2017). www.washingtonpost.com/news/posteverything/wp/2017/08/14/the-whys-of-increasing-inequality-a-graphical-portrait/?noredirect=on&utm_term=.7db7eead44db

[6] "20 Facts About U.S. Inequality That Everyone Should Know," Stanford Center on Poverty and Inequality (2011). https://inequality.stanford.edu/publications/20-facts-about-us-inequality-everyone-should-know

[7] "Poverty," The World Bank (last updated: 11 April 2018). www.worldbank.org/en/topic/poverty/overview

[8] Laurence Chandy and Geoffrey Gertz, "Two Trends in Global Poverty," *Brookings* (17 May 2011). www.brookings.edu/opinions/two-trends-in-global-poverty/

[9] David H. Autor, David Dorn, and Gordon H. Hanson, "Untangling Trade and Technology: Evidence from Local Labor Markets," *National Bureau of Economic Research Working Paper* No. 18938 (April 2013). www.nber.org/papers/w18938

[10] Nicholas Bloom, "Corporations in the Age of Inequality," *Harvard Business Review*. https://hbr.org/cover-story/2017/03/corporations-in-the-age-of-inequality

debate[11,12] on outsourcing has caused a number of firms in the IT outsourcing industry to adjust their business strategy to avoid political risks and improve their reputation in the countries in which they operate. This change in strategy has primarily taken the form of "localization," where employees are hired and work within the country where they generate revenue. Given the historical and current cost benefits associated with outsourcing certain technical skills, increasing localization due to growing concerns regarding inequality will have an impact on the future staffing costs for companies that offer IT outsourcing solutions.

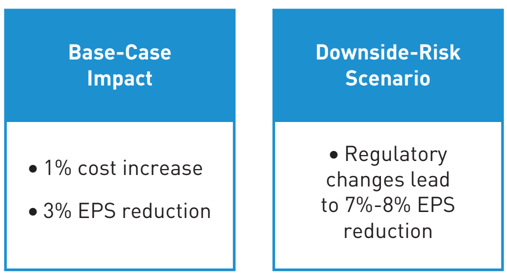
In our modeling of the India-domiciled companies in the IT services industry (**Figure 2**), we chose to increase our run rate of wage-related costs by approximately 1% annually to account for an increase in employee localization from about 33% today to 50% over the next few years. Assuming no productivity or other offsets, this change would decrease our earnings projections for these companies by about 3%. Although this base-case modeling impact is relatively small, we considered a range of potential cost and earnings impacts, given the risks associated with inequality. For example, given the specific focus on H-1B visas (which allow US employers to employ foreign workers) and the importance of that market to the IT outsourcing industry, we also reviewed various scenarios to assess the potential risks of regulatory changes regarding visa availability. We believe a 7%–8% decrease in earnings is the most probable additional downside earnings risk based on this specific H-1B–related visa issue.

Although we view inequality as a financially material risk for companies in the IT outsourcing industry, we still believe some of these companies are attractive investments and that their valuations already reflect some of these issues. We expect these companies will continue to see growing demand for their services as more companies struggle with the complexity of IT system implementation, change management, and maintenance. We also believe the higher-quality management teams in this industry will be able to withstand the risks associated with inequality by anticipating and appropriately localizing their

[11] Joshua Brustein, "Trump's H-1B Reform Is to Make Life Hell for Immigrants and Companies," *Bloomberg* (6 November 2017). www.bloomberg.com/news/articles/2017-11-06/trump-s-h-1b-reform-is-to-make-life-hell-for-immigrants-and-companies

[12] Jim Pickard, "UK Will Review Tier 2 Visa System, Says Sajid Javid," *Financial Times* (3 June 2018). www.ft.com/content/5089896e-6714-11e8-b6eb-4acfcfb08c11

FIGURE 2: BASE-CASE AND DOWNSIDE-RISK SCENARIOS



workforces. For example, our highest-rated company in this industry's peer group is a firm whose management team has recognized this risk and has articulated the clearest set of goals to increase localization. Although this approach will not necessarily improve its cost profile versus its peers over the near term, we do believe it shows a deeper understanding of the long-term threat to the business model posed by the issues of outsourcing and inequality.

Finally, we believe these companies have been positive contributors to the global decrease in inequality, as they offer a large number of high-quality jobs to individuals in emerging-market countries.

MOMENTUM INVESTMENTS

INTEGRATION OF DIRECTOR EQUITY PARTICIPATION IN COMPANY VALUATION

Piet van der Merwe

Environmental, social, and governance (ESG) integration is part of a fundamental company analysis. To list it as a separate factor is to negate the very concept of integration. Therefore, the quality of management must be considered an important factor in the evaluation of potential investment targets. Top company management sets the culture and tone of the company, which in turn establishes whether any ESG factors are integrated into the company's strategy and operations. Yet many analysts prefer to recommend investment decisions based only on "hard figures" gathered from financial statements rather than additionally integrating the more subjective issues relating to management remuneration and performance.

In times of economic difficulty, management rewards are always scrutinized and criticized. At times this is unfair, but in other instances it is warranted, because remuneration as an expense directly affects the shareowners of a company and touches on societal or moral issues. Recently, in two South Africa cases, remuneration issues led to dramatic reversals in company market valuations.

Companies may assume that executive directors, who usually have substantial personal stakes in companies, will be incentivized to better manage the company on behalf of shareholders as a result of economic alignment of interests. However, when the executive positions are extensively leveraged, the sheer size of the executive interests may result in trades that adversely affect the share price.

INFORMATION TECHNOLOGY OUTSOURCING VALUATION

The first example of such an unforeseen consequence was seen in a company specializing in outsourced information technology solutions. The board structure was not optimal, with more than half of the board consisting of executive directors. This created the potential—even if unintentional—result that the interests of management would carry more weight than those of other shareholders.

In December 2017, excessive selling of company shares occurred in the market over a period of days. Outside the world of short sellers, this was unusual. Shareholders seldom trade in volumes detrimental to the share price of their own investment.

The effect of trades in the share price can be seen in the share price charts. **Figures 1** and **2** cover December 2017, which illustrates the stock's daily share price and trades. After 3 days of intense short selling, the closing share price had declined by 38.7%.

FIGURE 1: DAILY SHARE PRICE AND TRADES

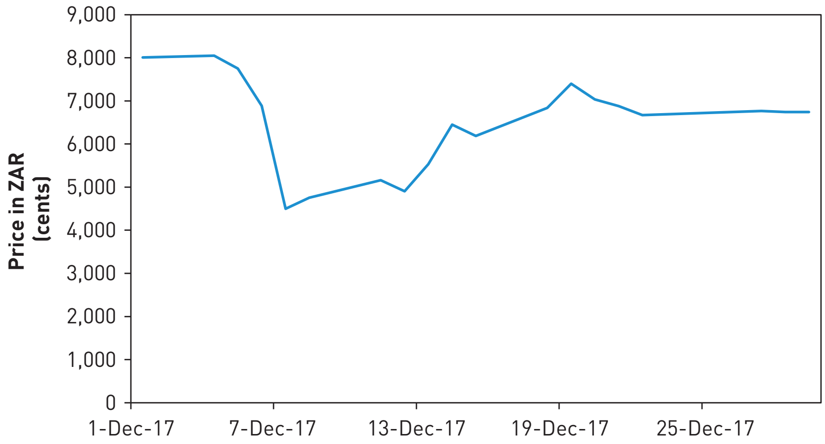
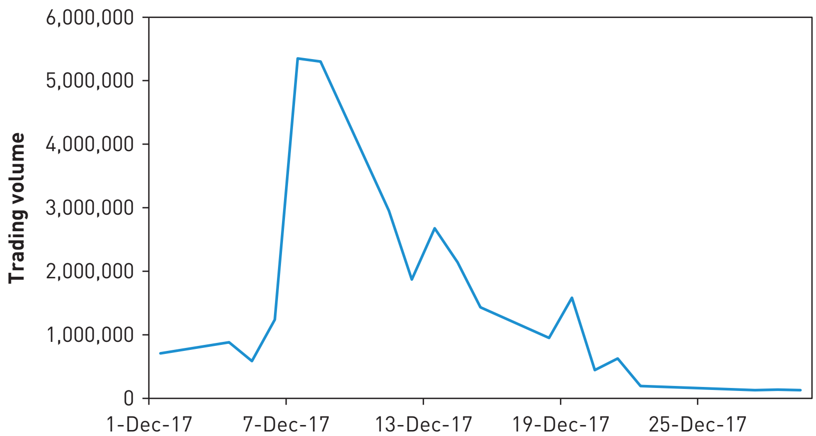


FIGURE 2: THE TRADING VOLUMES DURING THAT PERIOD



After the short-selling wave, a South African news service (FIN 24) (11 December 2017 by Jan Cronje) reported "the stock of EOH, an information and communications technology services provider, dropped from ZAR69.51 on Thursday morning to just ZAR30.95 on Friday morning, a fall of 55%. The price recovered somewhat during trade on Friday and shot up to ZAR60.78 as of 11:00 on Monday, just 12% below its opening price on Thursday."

After days of speculation, the company confirmed that the dramatic collapse was not due to hedge fund short sellers but because of forced margin call sales by company directors.

The Johannesburg Stock Exchange issued a SENS announcement, which confirmed the news reports, the gist of which is provided in **Figure 3**.

FIGURE 3: JOHANNESBURG STOCK EXCHANGE SENS ANNOUNCEMENT

EOH: EOH HOLDINGS LIMITED - Involuntary Dealing in Securities by an Associate of a Director and a Director
Involuntary Dealing in Securities by an Associate of a Director and a Director
EOH HOLDINGS LIMITED
Incorporated in the Republic of South Africa
(Registration number 1998/014669/06)
Share code: EOH ISIN: ZAE000071072
INVOLUNTARY DEALING IN SECURITIES BY AN ASSOCIATE OF A DIRECTOR AND A DIRECTOR
In compliance with paragraphs 3.63 to 3.74 (both inclusive) of the Listings Requirements of JSE Limited, the following is disclosed:

Name of director: Jehan Mackay
Company: EOH Holdings Limited
Name of associate: Tactical Software Systems Proprietary Limited ("TSS")
Relationship of associate to director: Jehan Mackay is a trustee and beneficiary of a family trust which owns 100% of TSS
Extent of director´s interest: Indirect beneficial
Nature of the transaction: Forced sale of shares on market actioned by a financial institution due to the shares being linked to an equity finance transaction resulting in a margin call.

Date of transaction:	5 December 2017	6 December 2017	7 December 2017	8 December 2017
Number of shares:	120 200	240 778	1 809 168	300 000
Lowest selling price:	76.24	68.88	38.50	29.50
Highest selling price:	80.41	77.60	71.13	43.40
Volume weighted average price per security:	77.9579	71.9875	50.3106	31.1678
Total value:	9 370 542.62	17 333 004.34	91 020 256.19	9 350 340.00

Name of director: John King
Company: EOH Holdings Limited
Clearance to deal: Yes
Extent of director´s interest: Direct Beneficial
Nature of the transaction: Forced sale of shares on market actioned by a financial institution due to the shares being linked to an equity finance transaction resulting in a margin call. The equity finance transaction was implemented to acquire more EOH shares at the time.

Date of transaction:	6 December 2017	7 December 2017	8 December 2017
Number of shares:	45 955	199 105	49 261
Lowest selling price:	68.88	38.50	26.55
Highest selling price:	77.60	69.30	46.55
Volume weighted average price per security:	72.1748	55.5562	38.8886
Total value:	3 316 792.93	11 061 523.37	1 915 691.32

Johannesburg
11 December 2017
Sponsor
Merchantec Capital

At the company's annual general meeting on 12 April 2018, the shareholders made their displeasure known, as the remuneration policy and the implementation thereof was nearly voted down. The votes against the implementation of the remuneration policy were 44.9%, with 6.2% of shareholders abstaining.

Management was also aware that the shareholders were extremely unhappy with the current board structure. The company planned to appoint more nonexecutive directors and reduce the number of executive directors in the future.

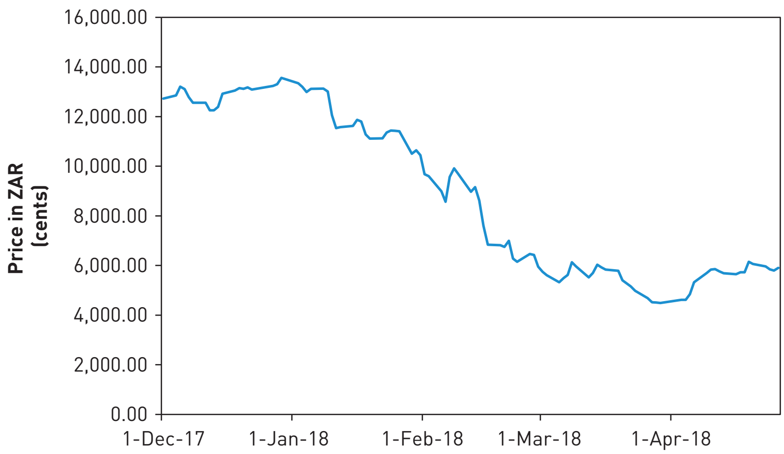
PROPERTY VALUATION

In this second case, a property company leveraged structures that formed part of an incentive scheme, which led to reputational consequences, resulting in a severe drop of the stock price.

The company had an incentive scheme whereby employees could borrow 20 times their annual remuneration to buy stock in the company. For example, the CEO (earning a total package of ZAR30 million) could buy ZAR600 million worth of company stock with money advanced by the company. The group structure and pattern of buying and selling within the group of companies made some investors suspicious that the trades were intended to benefit management's leveraged equity positions and to enable managers to pay back the loaned funds on time.

For shareholders and regulators, it is difficult to differentiate between rational buying and manipulation, because these types of remuneration structures persist. The rumors of the use of group structures and remunerations had a cumulative negative effect on the share price, as shown in the price chart in **Figure 4**.

FIGURE 4: COMPANY SHARE PRICE AND TRADING VOLUMES FROM 1 DECEMBER 2017 TO 26 APRIL 2018



The share price closed at ZAR127.77 on 1 December 2017 and traded at ZAR59.04 at the end of April 2018, a decline of 46.2%.

Momentum Investments has consistently voted against these remuneration structures at shareholder meetings. These structures do not necessarily work to the advantage of either shareholder returns or the reputation of management. Consequently, the risk may affect the size of our holdings in companies that allow their directors to leverage positions in their company's stock.

CONCLUSIONS

- Company executives should not be able to take sizeable leveraged positions in the companies they manage on behalf of all shareholders.
- If they do take leveraged positions, compliance measures should be in place to prevent the consequences described in the given examples.
- From Momentum Investments' perspective, such remuneration structures do affect the valuation, as well as the size of Momentum Investments' holding in a company.
- In the case of the information technology outsourcing company, the portfolio manager made the decision to hold only a small number of shares in the company until further notice.
- In the case of the property company, no shares were sold from the portfolio because the decline in the share price automatically down-weighted the counter value in the listed property portfolio to a level the portfolio manager was comfortable with.

NISSAY ASSET MANAGEMENT CORPORATION

INTEGRATING ESG FACTORS CONSIDERATION INTO EQUITY VALUATION

Toshikazu Hayashi

In 2008, Nissay Asset Management (Nissay AM) introduced environmental, social, and governance (ESG) analysis (mainly a three-point-scale ESG rating system) of Japanese-listed equities by in-house analysts covering more than 500 names from the viewpoint of corporate value enhancement. In the ensuing 10 years, the rating methodology has been improved, and approximately 20 in-house analysts now conduct financial forecasts for the next five years by reflecting ESG analysis, to calculate intrinsic value based on discounted cash flow methodology.

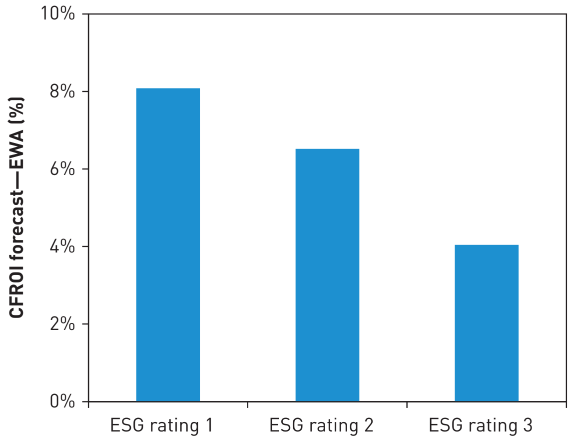
Because the materiality of ESG issues differs by sector (and even for individual companies), each analyst drills down into the relationship between ESG factors and long-term financial forecasts, adjusting revenue growth forecasts, operating margin forecasts, capital expenditures forecasts, and other forecasts, and adjusts cash flow forecasts accordingly.

Figure 1 shows the relationship between Nissay AM's ESG rating and its fifth year's (i.e., year t+5) cash flow return on investment (CFROI) forecasts. Companies with the highest ESG rating (ESG rating 1) have relatively higher levels of CFROI forecasts than others. Companies with high ESG ratings are also likely to have wider discrepancies between their intrinsic value and market price, which means more upside opportunities are available (**Figure 2**). Furthermore, a breakdown of historical stock return of Nissay AM's ESG ratings universe demonstrates that companies with the highest ESG ratings have outperformed those with ESG ratings of 2 or 3 since Nissay AM introduced the ESG rating system in December 2008 (**Figure 3**).

INTEGRATING THE EFFECT OF THE RAPID EXPANSION OF RENEWABLE ENERGY INTO FINANCIAL FORECASTS

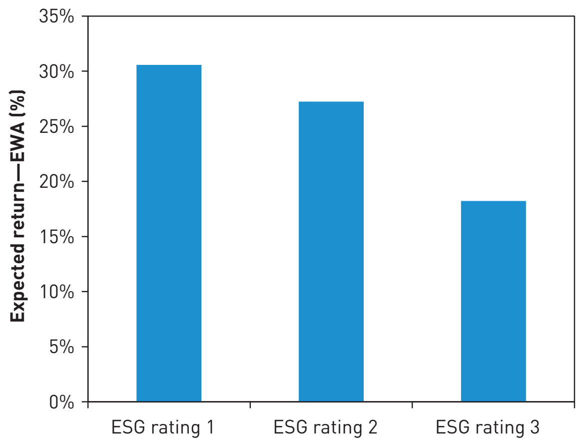
The following case illustrates an example of a Japanese machinery maker whose main products are high-efficiency gas turbines and thermal power plants. Conventionally, gas-fired products with high energy-conversion efficiency provide competitive advantages over their peers and therefore enhance corporate value. However, the rapid expansion of renewable energy led to a sharp decline in the demand for coal power plants as well as natural gas power plants, and the company faced sluggish orders for its high-efficiency gas turbines. Considering such a transformational change, the analyst demoted the environmental (E) rating of the company. Furthermore, because the company had failed to provide timely growth strategy updates in response to these structural changes (being behind in labor reallocation and fixed costs optimization in the industry), the analyst also decided

FIGURE 1: ESG RATING AND FIFTH YEAR'S CFROI FORECASTS (AS OF SEPTEMBER 2016)



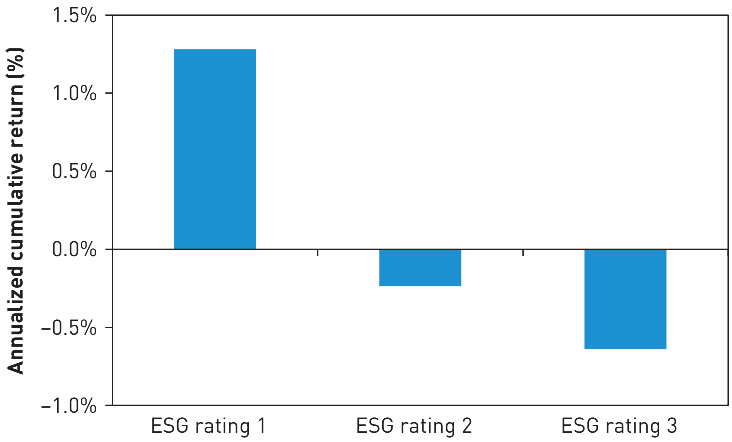
Abbreviation: EWA, equally weighted average.
Note: ESG rating 1 = highest rating.
Source: Nissay Asset Management.

FIGURE 2: ESG RATINGS AND EXPECTED STOCK RETURNS (DISCREPANCY BETWEEN INTRINSIC VALUE AND MARKET PRICE) (AS OF SEPTEMBER 2016)



Note: ESG rating 1 = highest rating.
Source: Nissay Asset Management.

FIGURE 3: ESG RATINGS AND AVERAGE ANNUALIZED RETURNS (COMPARED TO ESG RATING UNIVERSE)



Notes: ESG rating 1 = highest rating. Returns are calculated based on equally weighted monthly rebalancing portfolio from December 2008 to March 2018.

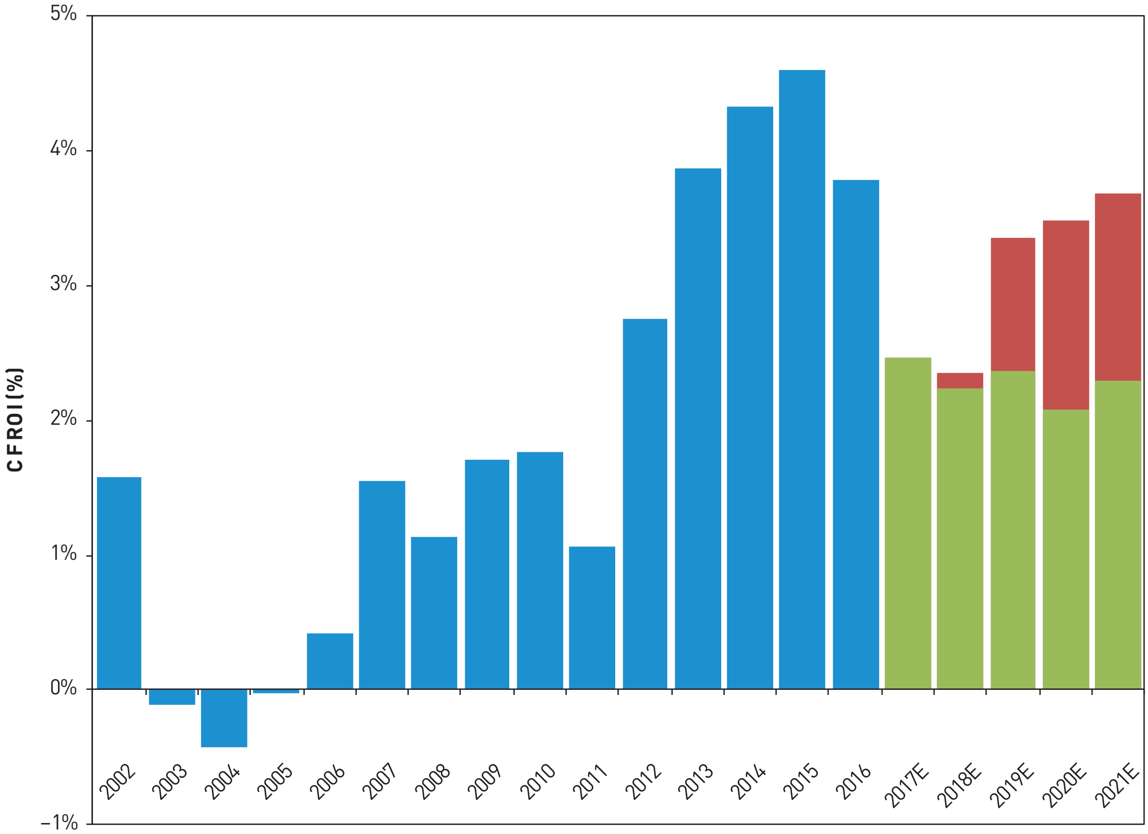
Source: Nissay Asset Management.

to demote the governance (G) rating of the company. As a result, the overall ESG rating was demoted from the highest rating to a middle rating.

Following the downgraded ESG ratings, the analyst updated the company's financial forecast (i.e., revenue growth and operating margin for the next five years), which indicated a decline in CFROI forecasts (**Figure 4**) and an expected stock return decline of more than 30%; thus, the analyst reconsidered the investment recommendation.

ESG integration makes it possible to reflect a company's long-term perspective in its intrinsic value, leading to more appropriate investment decision making.

FIGURE 4: ESG RATING UPDATES AND CHANGES IN CFROI FORECASTS



Source: Nissay Asset Management.

NN INVESTMENT PARTNERS

ALUMINUM STOCK CARBON PRICE CASE

Matt Huston and Willem Schramade

This aluminum company is one of the most sustainable metals companies in the world. Aluminum is a very energy-intense product to manufacture, yet this company produces it with a largely renewable energy mix. Its products are used for light-weighting cars and in various aerospace applications. Moreover, the company offers certified aluminum and has a long tradition of reporting on its sustainability efforts. This case presents how environmental, social, and governance (ESG) criteria affected our valuation of the company in June 2017.

ESG STRENGTH IN A DIFFICULT SECTOR

The metals and mining sector faces serious ESG headwinds, such as health and safety issues, environmental issues, and the management of local stakeholders in politically difficult locations around the world. Within the sector, aluminum has the additional problem of being highly energy intense. Worse still, many producers generate that energy using coal. However, this particular company stands out from its peers in several ways. First, its energy consumption mix is mostly renewables (with the balance being gas), which means it actually has a positive sensitivity to carbon pricing. Second, the company has a strong safety record, resulting in lower risk and higher margins. Third, it has been a pioneer in sustainability reporting (starting in the 1980s) and in providing certified aluminum, with a transparent supply chain for buyers.

IMPACT ON VALUE DRIVERS—BASE CASE

When we talked to the company's chief financial officer in 2014, he told us that he identified a clear correlation at the company's plants between costs and health and safety. We estimated that this saves the company about $150 million per year, which is about a 100 basis-point (bps) margin. The company's health and safety profile also lowers the risk of disruptive accidents, for which we adjusted the cost of capital by 50 bps. As a result, our target price was 17% higher than it would have been without a favorable view on the company's sustainability profile (see **Figure 1**).

Although the company's superior health and safety record is reflected in higher margins and lower risk, these factors are not necessarily captured by the market.

IMPACT ON VALUE DRIVERS—CARBON PRICE SCENARIO

Although the company already benefits from its better health and safety record, it does not show a clear financial benefit from its renewable energy mix—or at least, not yet. This will

FIGURE 1: TARGET PRICE WITH AND WITHOUT AN ESG BENEFIT

	WITH ESG BENEFIT (BASE CASE)	WITHOUT ESG BENEFIT	ADJUSTMENT	$ CHANGE IN TARGET PRICE	% CHANGE IN TARGET PRICE
WACC—OH&S	9.0%	9.5%	–0.5%	4.7	8%
Margin—OH&S	13%	12%	1%	5.1	9%
Target price	67.1	57.3	…	9.8	**17%**

Abbreviations: OH&S, occupational health and safety; WACC, weighted average cost of capital.

change, though, if the negative externalities of its competitors (i.e., high pollution from coal-based aluminum production) are internalized—by a carbon price, taxation, or other regulatory measures (such as forced closures).

We modeled a scenario in which the carbon price goes to €40 in 2022. In such a scenario, we expect the company to enjoy a $200-per-ton additional cost advantage against its peers, resulting in 200-bps higher margins. Moreover, we expect five years of 100-bps higher sales growth as aluminum displaces more steel in light-weighting applications. In combination, this gives a 27% higher target price than the base case (see **Figure 2**).

The increase is even greater—34%—when compared to the prevailing market price of €54. The carbon benefit impact is large, but it should be interpreted with caution. First, this is just one possible scenario. One could disagree on the size and timing of a carbon price rise. A lower and later carbon price rise would yield a smaller percentage impact to the target price. Conversely, even higher target prices may be obtained if one assumes a higher and/or earlier rise in the carbon price.

FIGURE 2: TARGET PRICE WITH AND WITHOUT A CARBON BENEFIT

	WITH CARBON BENEFIT	WITHOUT CARBON BENEFIT (BASE CASE)	ADJUSTMENT	CHANGE IN TARGET PRICE	% CHANGE IN TARGET PRICE
Sales growth in 5-year window	5%	4%	1%	7.7	11%
Margin	15%	13%	2%	10.5	16%
Target price	85.3	67.1	…	18.2	**27%**

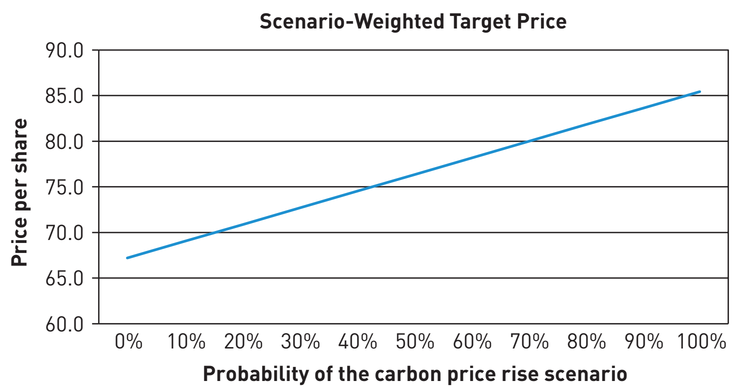
Second, one could attach varying probabilities to such scenarios. **Figure 3** plots the scenario-weighted target price against the probability of a carbon price scenario (or equivalent) occurring.

For example, if one attaches a 50% probability to this carbon price scenario, one arrives at a 76 target price. A zero-percent probability brings us back to the base-case target price of 67.

Third, as such scenarios are admittedly quite simplistic, they should not be taken too literally. In this case, the €40 carbon price should not be seen as a point estimate, but as the weighted average expected outcome.

In spite of the noted caveats, scenario analysis is valuable as it provides a good indication of the sensitivity or impact of events. And it is a great way to discuss the risk–return on stocks, even if one disagrees on major assumptions. Too often, analysts model small things with high supposed precision (and little valuation impact), while large events that may or may not happen are left implicit—until they do occur and turn out to have a much greater impact than anticipated.

FIGURE 3: CARBON PRICE PROBABILITIES AND PRICE PER SHARE



OLD MUTUAL INVESTMENT GROUP

FRAMING THE FUTURE FORTUNES OF A GLOBAL DIVERSIFIED MINER USING AN ESG ANALYSIS LENS

Jon Duncan

This case study is framed by the idea that the winners in the future economy will be those who can rapidly "decarbonize" their economic growth—the transition to a low-carbon economy is now recognized as being imperative. The normative framing of this sustainability issue is founded in the scientific consensus that runaway climate change will have massively destabilizing effects on investment markets, societies, and biophysical systems. Further support for this normative framing is provided by the now global acceptance that addressing environmental, social, and governance (ESG) factors is firmly in scope for those acting as fiduciaries.

For long-term investors, the challenge of portfolio decarbonization in line with the requirements of science is a reality. Investors have strategic choices to make over the next 15 years. These choices could include, but are not limited to, a combination of investments in low-carbon indices, the pursuit of growth companies that benefit from a low-carbon economy, or investments in carbon-intensive businesses coupled with the aim of changing behavior through engagement. For emerging-market investors, the challenge is further compounded by the fact that some emerging-market countries have economic growth and climate policies that allow for the absolute growth of greenhouse gas emissions out to 2030 through the continued use of fossil fuels. Added to this is the currently sparse low-carbon opportunity set in the emerging market–listed equity environment.

This case study showcases the use of an ESG lens to assess one aspect of a mining company's long-term strategy. The approach has relevance in the context of a bottom-up fundamental analysis and provides insight into why active company engagement is so critical.

REVIEWING STRATEGY THROUGH A SUSTAINABILITY LENS

As a diversified global mining and commodity trader, this particular company is a complex business—though when viewed through a sustainability lens, the company's strategy appears relatively simple and focused. The company is playing both sides of the climate change story—on the one side, there is a play on unloved thermal coal, and on the other side, the focus is on the metals needed for sustainable mobility and mass electrification. Whether this strategy is intentional or not is a moot point; the fact is that there are ESG risks on either side of this strategy. Elements of these ESG risks are described below.

Loving Coal

With respect to coal, the company is betting that between Japan, India, and China, there will be buyers of high-grade thermal coal until at least 2030. The company has recently acquired coal assets and looks intent on further building up its coal portfolio. Energy products (oil and coal) generated as much profit for the company in 2017 as in the previous three years combined, and accounted for a quarter of the group's earnings.

The company's fossil fuel strategy might be unpopular, but if executed correctly, it could be profitable and aligned with a two-degree future scenario. It is potentially a "last person standing" game—founded on the idea that the company will be able to produce the highest-quality thermal coal as slumping demand knocks out the marginal mining pits and keeps coal prices up. The key to successful implementation will be to make sure the company does not overpay for coal assets (i.e., it can monetize them within the 2030 time horizon), has secure long off-take agreements (i.e., it understands who the long-term buyers are and has off-take agreements), and has enough cash set aside for full mine rehabilitation (or can sell the mines before it gets to that point).

However, global pressure is mounting for companies to disclose how they will manage the transition to a zero-carbon world; the biggest industry initiative is the Financial Stability Board's Task Force on Climate-Related Financial Disclosures (TCFD). The company has slowly changed its public narrative with respect to climate change and is now supportive of TCFD's recommendations. Going forward, the company has made a commitment to report on the physical, liability, and transition risks associated with climate change and the implications for its business. On the face of it, the business appears to be making the right gestures; however, it is making many assumptions regarding the future demand for coal and the replacement rate of renewables. For example, China's rate of reduction is happening faster than anticipated (driven by its 13th five-year plan's green economy focus). In 2017, China cancelled over 100 planned or under-construction coal plants. Nevertheless, China remains the world's largest energy consumer, accounting for 23% of global energy consumption and contributing 27% to the global energy demand growth (BP Statistical Review 2017 – China Energy Market in 2016). Coal remains China's dominant fuel source, accounting for 62% of its energy consumption in 2017 (down from 74% in 2006), with a 58% target for 2020. Chinese demand will fall, but the coal supply will fall as well.

Facing Headwinds or Fanning Growth?

The company will face the headwinds of the financial market's enhanced awareness of the destabilizing risks of runaway climate change, the emergence of economic policies that seek to price the externality costs associated with carbon emissions (either by way of national tax or cap and trade mechanisms), shifts in public sentiment on climate ethics, disinvestments by large asset owners, rapid declines in renewable energy costs, and an accelerating renewable energy penetration (i.e., 50% of installed energy capacity in 2018 will come from renewables).

Counterbalancing these challenges is the stark reality that many emerging-market economies have climate policies that envision an increase in absolute carbon emissions until 2030, followed by a stabilization of emissions, and then a decline through 2050. At present, some 80% of global energy is produced from fossil fuels. Although developed countries are experiencing sharp declines in their reliance on fossil fuels, many emerging-market economies will still have a demand for coal. The question for investors is, "Can this company responsibly mine coal and deliver the planned-for coal demand in emerging markets, while at the same time support the transition to a low-carbon economy?"

CHALLENGES FOR VALUATIONS

A foreseeable challenge for companies that primarily hold fossil fuel assets is that their shares will likely be traded at a discount going forward; as a consequence, shareholders should demand enhanced dividends. The idea of reducing coal assets in line with global requirements and returning the cash to shareholders may be seen as a potential market-based approach to transitioning to a zero-carbon world, but both the issuers and holders will need government and public support for this to happen. A precursor to this is the arduous task for national governments to set carbon budgets and police emissions—both of which take time and, in some cases, are being hampered by lobbying activities of big businesses with vested interests in the fossil fuel markets.

As an investor in a company of this nature, incorporating these climate and sustainability considerations into valuation calculations is not an easy task. Currently, part of our approach is to use these insights to test assumptions regarding future coal demand, rates of renewables replacement, and levels of company transparency and capacity with regard to managing climate risk. We use this approach as the basis for building bull- and bear-case scenarios. Alongside this, demanding a higher margin of safety, prudently managing capital, and seeking high dividends are all important considerations when analyzing a company of this type.

Analyzing the quality of the company's board is also a crucial step in our approach, primarily to ensure it has the requisite skills to oversee the climate dimension of the business risk and that there is an appropriate level of transparency with regard to the business's associations and lobbying activities.

The need for sound corporate governance also extends to the company's dealings with the governments that host its operations. Metals used in the sustainable mobility transition account for a substantial portion of the company's core profit—more than double the proportion of its major listed competitors. One of the key challenges is that the company's main metal assets are located in jurisdictions that have significant political challenges. The risks in this case include the rapidly changing political environment, the historical context of how mineral rights were acquired, concerns over the security of future mineral rights, and the potential changes to royalty taxes. Navigating these risks will require strong ethical company leadership and sound governance practices at the board level. Direct engagement with both the company management and board is critical for assessing the quality of leadership and robustness of governance practices.

SUMMARY

The intention of this case study is not to provide a "paint-by-numbers" approach to building ESG issues into a discounted cash flow; neither is it a business case advocating an investment in fossil fuels. Rather, this case study aims to highlight some of nuanced macro-thematic issues that emerge when looking at a company's business strategy through an ESG lens. We believe this approach is a critical starting point for an analysis of a long-term investment that is aligned with the transition to a low-carbon economy.

ESG INVESTING IN INDIA: THE INDIAN AGROCHEMICALS INDUSTRY

Bhavesh Bajaj

Environmental, social, and governance (ESG) investing is at a nascent stage in India. At present, only a handful of asset management companies are considering integrating ESG into their investment analysis process. The demand comes from foreign institutional clients or the foreign partners of asset managers. The biggest challenge for ESG investing in India is the lack of data availability, as only about 85 companies in India have published their sustainability reports. Of the companies that do provide sustainability reports, almost 60% have been released only in the last five years. Companies in India that publish their sustainability reports follow Global Reporting Initiative (GRI) standards, and the Securities Board of Exchange of India has mandated the top 500 companies publish a Business Responsibility report.

ESG INTEGRATION AT QUANTUM ADVISORS

At Quantum Advisors, ESG investing is considered a risk-mitigation technique, and we have a dedicated ESG research team. An in-house ESG scoring model has been developed based on qualitative and quantitative analyses of the companies. We also meet each company's management and its chief sustainability officer to gather deeper insights into its practices.

Our research process places a great emphasis on corporate governance. In addition to the GRI framework, we assess 240 metrics based on company disclosures. We also investigate whether the companies have documented specific policies regarding ESG issues and how detailed the policies are (e.g., a privacy policy, a prevention against sexual harassment policy, a vendor management policy, and an occupational health and safety policy, among others).

A summary of our ESG evaluation metrics along with the weightings for each category is given in **Figure 1**.

If we find that potential risks to a company's performance are quantifiable, then we adjust future growth rates or attach costs to these probable risks. If the potential risks are not quantifiable, especially regarding the timeline of the event occurring, we adjust the price multiples for the company. We may choose not to invest in a company if it violates regulations and follows unethical governance practices.

FIGURE 1: QUANTUM ADVISORS' ESG EVALUATION METRICS

	Corporate Governance	Environmental	Social
WEIGHTING	**50%**	**25%**	**25%**
Key Issues	Board compensation structure	Energy consumption	Product stewardship
	Related party transactions	CO_2, NO_x, SO_x emissions	Health and safety
	Litigations	Hazardous waste and recycling	Land acquisitions
	Forensic accounting	Water consumption and recycling	Labor relations
	Audit report checks	Baseline water stress	Local community management
	Board committee structure	Biodiversity	Supply chain
	Minority shareholder treatment	Climate change	Sustainable sourcing
	...	...	Data privacy

KEY MATERIAL ESG ISSUES IN THE AGROCHEMICAL SECTOR

The agrochemical sector is about a $35 billion industry in India. The industry poses certain ESG issues such as product stewardship, water consumption and water stress, energy consumption, hazardous waste, product labeling, and lack of innovation.

AGROCHEMICAL SECTOR CASE STUDY

Product Stewardship

The toxicity levels of the agrochemicals are harmful, not only to the laborers in the manufacturing process but also to farmers, the soil, and the end consumers. The Central Insecticide Board of India has categorized agrochemical toxicity levels based on a labeling system—using red, yellow, blue, and green labels—where red is the most toxic and green is the least. Most of the red-labeled products are banned abroad but are being sold in India due to the lack of a strong regulatory environment.

In 2012, Company X made a decision to eliminate red-labeled products from its portfolio; in 2017, it also discontinued yellow-labeled products. At the other end of the spectrum, 14% of Company Y's top-selling products are derived from red- and yellow-labeled products.

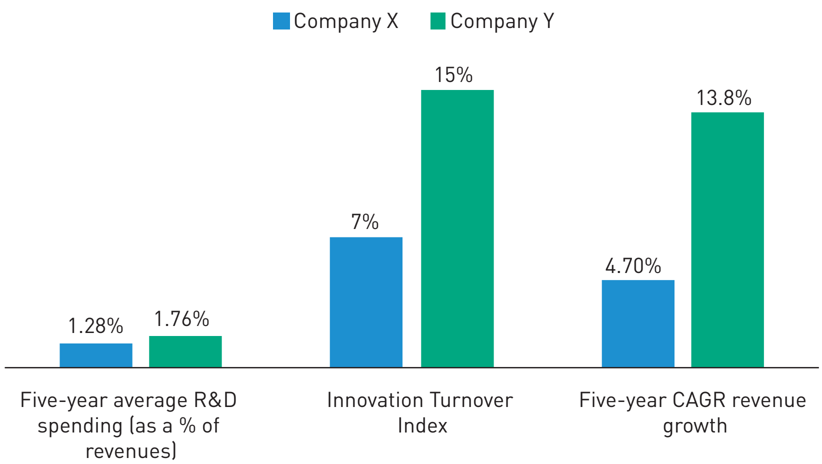
Impact on Valuation: Initially, Company X's phasing out of its toxic products negatively affected its revenues by 8%. But as the country's regulatory landscape evolves toward more stringent norms, Company X will be cushioned for regulatory changes and thus does not face potential future downsides. Company Y, however, may well face a similar impact on its revenues as was witnessed for Company X. The timeline of the scenario is uncertain, but when the regulatory shift occurs, it will happen in a gradual phase, with a time frame of 24 to 36 months. Company Y will have to increase its research and development (R&D) spending to safeguard itself from the market shift due to the new regulatory norms.

Research and Development

Companies with greater R&D spending are likely to perform better in the long run. Many companies measure their R&D performance through an indicator called the "Innovation Turnover Index" (revenues derived from new product launches in the past three years). Company Y spends the highest percentage of revenues on R&D in the Indian agrochemical industry (see **Figure 2**). The average industry R&D spending is 0.8% in India and 4.1% globally.

Impact on Valuation: As observed, a direct correlation is present between R&D spending and the revenue growth of the companies. We can assume a higher revenue growth rate for Company Y due to its greater R&D spending and a higher Innovation Turnover Index.

FIGURE 2: RESEARCH AND DEVELOPMENT DATA FOR COMPANY X AND COMPANY Y



Energy

Company X meets 50% of its energy requirements from renewable sources and has committed to be compliant to RE100 certification[1] in the next five years. Company Y is heavily dependent on coal (about 65%), and only 5% of its energy requirements are met through renewable sources.

Impact on Valuation: Company Y may be susceptible to potential carbon taxes and will need to increase its capital expenditures to reduce its dependency on coal and shift to cleaner energy sources. For Company Y to undergo a change in its fuel consumption mix, costs per ton would increase substantially because the current cost of coal in India based on its calorific value is INR2.4 per million British thermal units (MBTU) compared to a calorific value of INR8/MBTU for natural gas.

Water

Agrochemical companies are highly dependent on water in their manufacturing processes. India's agrochemical companies consume approximately 110 million m^3 of water annually. Companies X and Y are both striving to become zero liquid discharge companies in all of their facilities and have achieved almost 50% of their targets.

Unfortunately, neither company has disclosed its water intensity (water consumption per ton of product manufactured). Thus, we have assessed the companies by measuring their water risk based on the water stress and the drought severity of their manufacturing locations. Our findings, based on data from the World Resources Institute, suggest that Company X's average baseline water stress and drought severity are 2.96 and 3.73 (out of 5), respectively, whereas Company Y's average baseline water stress and drought severity are 1.94 and 3.67 (out of 5), respectively.

Impact on Valuation: Both companies are engaged in a capital expenditure phase to enhance their water storage and recycling technologies. However, Company X may have to invest a greater amount of capital expenditure as a percentage of sales due to a higher drought severity score and high baseline water stress of its manufacturing plants.

Hazardous Waste

The regulatory landscape for disposal of hazardous waste and effluent treatments is quite stringent in India, and we do not believe that the Indian agrochemical industry will undergo shutdowns (as seen in China). Both companies have installed in-house effluent treatment plants and dispose of their wastes through government-authorized agencies.

Impact on Valuation: We do not see any negative impact on the companies because they are compliant with the regulatory norms.

[1] A global, collaborative initiative led by The Climate Group in partnership with CDP (formerly the Carbon Disclosure Project) where businesses commit to using 100% renewable power.

Product Labeling

In India, almost 25% of the total amount of agrochemicals sold are counterfeit products. The quality and the efficacy of these counterfeit products differ from the original products, which can lead to reputational damages for the companies. Agrochemical companies need to add barcodes or other identifying technologies to their product packaging, to allow end-use consumers to check for authenticity. Also, because India is a multilingual country, the companies will have to publish the usage instructions in multiple languages.

Impact on Valuation: The companies will have to incur a small expenditure to improve their backend systems and provide for all their products a unique labeling system that is user friendly and interactive. If the sales of counterfeit products are reduced, the industry's revenues could potentially grow by up to 33%.

CONCLUSION

Both companies follow strong corporate governance standards. However, we find that Company X's disclosures are of a superior quality relative to Company Y. Also, Company X has absorbed the impacts of possible future regulatory changes. If Company X increases its R&D spending, it is likely to experience higher growth in the future.

RBC GLOBAL ASSET MANAGEMENT

CASE STUDY: FUNDAMENTAL MATERIAL ESG SCENARIO ANALYSIS

Ben Yeoh

Rather than having separate environmental, social, and governance (ESG) analysts, our Global Equities team's portfolio managers perform and integrate ESG analysis to allow us to better fundamentally value and assess stocks, completely integrate ESG information into our investment process, and meaningfully engage with the companies in which we are invested. We also use multiple sources of ESG information as it represents a plethora of ESG-related opinions that require interpreting, and portfolio managers are best placed to filter this advice and ascertain how it relates to a company's business model and valuation. (In our experience, the ratings of two major ESG research providers only correlate just over half of the time and proxy voting agencies occasionally take opposing views on proxy votes.)

We start with a fundamental analysis to identify any material positive or negative ESG factors. We embed that assessment into an analysis of the competitive position and the sustainability of the business, which we then put into our valuation models. We invest only in companies that perform strongly in all four areas of our model: business model; market share opportunity; end-market growth; and management and ESG.

Our Global Equities team identified several ESG risks (contingent liabilities) and opportunities (contingent assets) for UnitedHealth (UNH), a leading healthcare insurer and healthcare cost management and IT provider managing 5% of US healthcare spending.

RISKS

As custodians of the personal and medical details of millions of people, UNH needs to keep these data secure: false savings here can have long-term consequences, including regulatory risks, political risks, and the potential impairment of the company's social contract with customers and wider society.

We challenged management on the risk of privacy data breaches, asking how that risk is being managed and what policies are in place to mitigate that risk. Management acknowledged that information about their data security was not available on their website, but several management members reassured us about the quality of the policies, training, and general operation management of data handling and security that are in place. Nevertheless, we still modeled a discounted cash flow (DCF) valuation scenario looking at the possible impact of privacy data breaches.

We learned that UNH had a historic stock option accounting problem (backdated without disclosure to lower the strike prices for its CEO at the time), which came to light in 2006. However, we noted that many other companies, such as Apple, had similar stock option accounting problems in the late 1990s to mid-2000s. We also discovered that in UNH's case it led to the start of a complete turnaround in the company's corporate governance policies and practices, and determined that the current compensation structure was fair and, importantly for us, included a return on capital/equity component.

Our conversations with UNH gave credence to the recent positive reports from two proxy voting agencies regarding the company's governance practices; there do not appear to be remaining accounting or management problems that had been indicated in earlier analysis.

OPPORTUNITIES

We viewed UNH's Optum data analytics business, which allows it to create cheaper, better healthcare options for businesses, governments, and patients, as a strong competitive advantage and an ESG contingent asset. For instance, it identified 150 diabetic patients not taking their medication properly, 123 of whom were in Texas, which enabled its client to implement location-specific measures utilizing preventive healthcare techniques. Using Optum's data analytics, the state of Maryland discovered clusters of patients with asthma in certain streets and buildings, and found that those buildings correlated with cockroach infestations, allowing it to successfully prosecute deficient landlords and ultimately raise living standards for tenants.

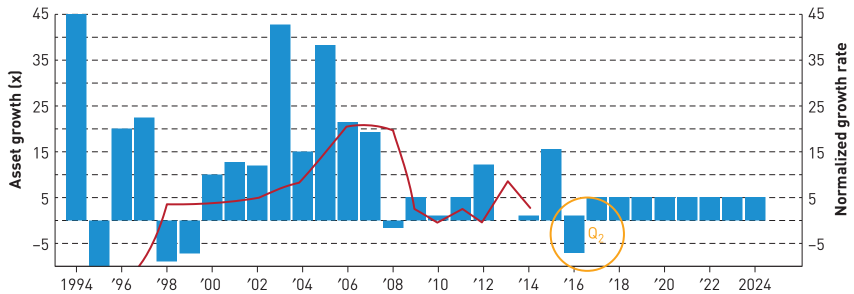
IMPACT ON ANALYSIS

We assessed the materiality of all of this information and assigned a rating for the four components of the company's strengths (business model; market share opportunity; end-market growth; and management and ESG). We then performed a DCF scenario analysis embedding the material ESG risks and opportunities (**Figure 1**). We prefer DCF and explicit model scenarios for sales, margins, and asset turns because we see them as a more accurate method of modeling than an adjustment to a discount rate or terminal value. We also perform sum-of-the-parts and standard financial ratio assessments.

The analysis was peer reviewed within our team, and the assumptions were stress-tested, challenged, and refined before the rating and valuation were confirmed. In our peer review, assumptions are flexed in real time to see how further valuation scenarios change. These include increasing EBIT margins and sales growth for the upside scenario, and for the downside scenario normalizing sales to a lower growth rate (3%) and looking at the sales impact over more than one year.

FIGURE 1: DCF SCENARIO ANALYSIS

Base-case DCF scenario (a cash flow return on investment framework)	44% target company **share price** upside
ESG asset scenario (upside scenario): value generated from contingent assets through the use of big data analytics. Assumptions: Sales increased by 1–2% in years 5–10, but with similar EBIT margins and asset turns to the base case. Cost of capital remains the same.	+12 percentage point
ESG liability scenario (downside scenario): assuming a data breach occurs that impacts the business (sales, margins, asset growth) for a year before recovery.	–17 percentage point



Assumptions: Approximate 7% impact to sales in the year of data breach, with a 3% impact to EBIT margins, recovering in future years back to 5% sales growth, but on EBIT margins 1-2% lower than the base-case forecast. Cost of capital remains the same.

SANTANDER ASSET MANAGEMENT

ESG EQUITY ANALYSIS CASE STUDY

Luzia Hirata

Santander Asset Management has developed a proprietary environmental, social, and governance (ESG) methodology to inform and support our investment decisions regarding Brazilian companies that present leading and integrated sustainability business strategies and are therefore developing sustainable competitive advantages. Our equity research team assesses companies according to this methodology and evaluates companies that are considered financially attractive and are potential candidates for our ESG portfolio. The fundamental belief of our investment philosophy is that companies that operate under a triple bottom-line approach may offer superior financial performance in the long term. This means that companies with ESG performance goals incorporated into their corporate strategies are expected to be the best performers in the long term.

The research team takes advantage of an internally built historical database and an external database of companies (Bloomberg database). Our in-house ESG methodology assesses the performance of companies in each sector using the following six factors:

1. product responsibility;
2. management and transparency;
3. corporate governance;
4. environment;
5. stakeholders relationship; and
6. risk management.

All issues analyzed are based on five principles: materiality, practices, value chain, technology and information, and product responsibility. Only the company's publicly available information is used to complete our ESG questionnaire.

As a result of this assessment, each company is scored according to its ESG performance. We use an ESG score to apply a discount (maximum 10%) or a premium (maximum 5%) on the target price. This process allows us to integrate ESG scoring to the target price, resulting in an ESG target price. **Figure 1** provides an example of this assessment.

The ESG target price assessment can be applied to all stocks and is used for all funds under management. Santander Asset Management manages a dedicated fund, called the Ethical Fund, which invests in listed Brazilian companies with leading and integrated sustainability business strategies that are thus capable of developing sustainable competitive advantages. Companies assessed as attractive by our equity research team qualify for the Ethical Fund portfolio.

Because of our product responsibility dimension, companies that have operations in the alcoholic beverages, tobacco, gambling, nuclear power, pornography, or defense sectors are not automatically excluded from the investment universe. An essential criterion

FIGURE 1: EXAMPLE OF ESG PERFORMANCE ASSESSMENT

COMPANY	MARKET CAPITALIZATION (USD, MILLIONS)	LAST PRICE (BRL)	TARGET	UPSIDE (%)	ESG PREMIUM/ DISCOUNT (%)	ESG TARGET (BRL)
SECTOR						
A	1.936	18.95	21.80	15	2.39	22.32
B	1.048	12.44	13.00	5	−7.67	12.00
C	6.239	11.90	15.00	26	−0.34	14.95
D	574	14.20	20.80	46	−3.91	19.99

Abbreviation: BRL, Brazilian real.

evaluates if the company's product or activity is harmful to human health. This analysis is based on the volume/revenues of the products in these sectors.

In summary, a comprehensive questionnaire created by the Santander Asset Management in-house ESG research team constitutes the main information source for each company evaluated. A company's public reports and meetings with corporate executives, government agency representatives, and stakeholders are additional information sources. Any complaint by any stakeholder (such as nongovernmental organizations or social movements) is taken into account in our ESG analysis and also discussed and validated by our Deliberative Board.

SBI FUNDS MANAGEMENT PVT. LTD., INDIA

GANESHA ECOSPHERE LIMITED: AN ESG THEMATIC INVESTMENT THAT WORKED FOR THE SBI MUTUAL FUND

Ajit Dange, CFA

SBI Mutual Fund analyzed Ganesha Ecosphere Limited (GEL) during the early part of 2015 when the stock was just coming out of the relative obscurity generally faced by small-capitalization companies, and its trading volumes were improving to a few million rupees per day. It had also just crossed the INR2 billion market capitalization mark, which meant it landed on our radar as an actionable idea.

GEL recycles polyethylene terephthalate (PET) into recycled polyester staple fiber (RPSF), which finds application in clothing, technical textile, fiberfill, automotive accessories, and so forth. The manufacturing of polyester staple fiber (PSF) requires ethylene (a derivative of crude oil) as its basic raw material. PET itself is made from crude oil, and the recycling of PET to make PSF and polyester staple yarn (PSY) typically extends the useful economic life of PET by a few more years (from a typical shelf life of 12 months for a PET bottle) by creating more durable products such as clothes, blankets, and fiberfill for pillows and toys. Using recycled PET to produce PSF/PSY instead of using crude oil reportedly saves 3.8 barrels of crude oil per ton of PET recycled, reduces the amount of greenhouse gases generated during the manufacturing process, and conserves over 300 watt-hours of energy per plastic bottle recycled.

GEL collects the PET waste at its 20-plus collection centers across India and uses its network of more than 200 vendors to convert the PET waste to RPSF, PSY, and texturized/twisted yarn at its four processing units in northern India. The collected waste PET bottles are compressed, shipped to manufacturing facilities, sorted to remove non-PET stuffs, cleaned, chipped into small flakes, and converted into RPSF through high-speed extruders in a nonchemical process. The products (fiber/yarn) manufactured by GEL find application in manufactured textiles (e.g., t-shirts, body warmers), functional textiles (e.g., nonwoven air filter fabric, geo textiles, carpets, car upholstery) and filling (for pillows, duvets, toys, etc.).

Air/water pollution, water conservation, and treatment of urban waste have emerged as major challenges facing urban India. Convinced that environmental, social, and governance (ESG)–compliant businesses generate superior long-term returns, we were looking to incorporate these themes on the mitigation of environmental challenges into our analyses when we came across GEL as an investment idea. Other companies in this space with these underlying themes include VA Tech Wabag Ltd. and Thermax Limited.

GEL's governance factor score was decent for this small-scale company, which operates in an unprofessional environment dominated by unorganized players such as scrap dealers and scrap traders. GEL scored over 75% in our ESG-scoring model, placing it in our topmost rating category of "A."

GEL scored high on social parameters. GEL generates indirect employment for scores of scrap scavengers and rag pickers, mostly women, who collect the PET waste for the scrap dealers. The scrap dealers sell the waste to scrap traders who, in turn, supply color-segregated and compressed bales of PET bottles to recyclers such as GEL. Because most of the process from PET bottle collection to baling is manual, and the process of converting the materials into PSF is very labor intensive, recyclers such as GEL employ many unskilled laborers. The scrap traders require the efforts of 10 workers to produce one ton of baled PET bottles. The process involves sorting (which typically employs female workers) and baling (pressing the scrap into tight bundles), which normally requires male workers. The economic activity undertaken by GEL thus provides livelihoods for people from the economically weaker part of society, and predominantly to women, the weakest.

The company scored well on environmental footprints, as it is engaged in the recycling of PET, which otherwise takes more than 100 years to decompose in a landfill. The company's activities save a large landmass (that would have been required otherwise for landfills) and eliminates carbon dioxide (CO_2). **Figure 1** provides data on these savings.

The company's historical financial performance was good, with a healthy revenue growth along with profitability and high return ratios. The company's revenue and profit after tax (PAT) grew at a compound annual growth rate (CAGR) of 29% during the past seven years, with a consistently high return on equity of over 15%. **Figure 2** provides the summary financial data of the company as of April 2015, when we first invested in the company.

Although it was evident from the historical financial data that GEL's earnings growth was slowing because its growing size limited the PET bottle collection growth, the benefit of operating leverage was already used up, and falling crude oil prices created headwinds for the end-product pricing, the valuation was very comfortable at nine times one-year-forward earnings. In addition, we anticipated that the valuation multiples of the stock would be re-rated upward due to GEL's presence in the sustainable investment space, which we believed to be the future of investment. Thus, we bought over 7% of the company's outstanding equity for eight mutual fund portfolios. Our holdings of the company's equity went up to 7.4% in March 2017, before being reduced to 4.7%.

FIGURE 1: GEL'S ENVIRONMENTAL FOOTPRINT SAVINGS

	2016–17	2015–16	2014–15	2013–14	2012–13
Bottles consumed (billions)	4.52	4.43	3.76	3.35	2.42
Landfill space saved (cubic yards)	602,313	589,802	500,923	445,771	322,353
CO_2 elimination (tons)	122,090	119,554	101,538	90,359	65,342

FIGURE 2: GEL'S FINANCIAL DATA, 2007–2014

FINANCIAL DATA (AMOUNTS IN MILLION INR)	2013–14	2012–13	2011–12	2010–11	2009–10	2008–09	2007–08
Net sales	4987.9	4350.5	3852.3	2913.0	1989.0	1353.7	1054.2
EBITDA	563.0	481.9	433.8	363.0	243.0	173.1	123.5
EBITDA margin (%)	11.3	11.1	11.3	12.5	12.2	12.8	11.7
PAT	245.4	241.2	206.9	180.2	90.0	43.4	37.5
PAT margin (%)	4.9	5.5	5.4	6.2	4.5	3.2	3.6
EPS	16.7	15.5	14.1	13.0	8.5	4.4	3.6
ROE (%)	20.36	23.37	25.11	30.62	22.34	15.72	16.78
ROCE (%)	11.88	19.29	17.84	18.80	16.50	12.20	11.70

Abbreviations: EBITDA, earnings before interest, taxes, depreciation, and amortization; EPS, earnings per share; PAT, profit after tax; ROCE, return on capital employed; ROE, return on equity.

GEL's profit margins did suffer as crude oil prices fell sharply during 2014–2015, thereby eroding the pricing pressure of the company's end product as substitutes produced from crude oil derivatives became cheaper. However, the company could cushion a large part of the pricing pressure though its strong bargaining power with the supply chain, tighter cost control, and migration up the value chain. The company could bargain with scrap traders to revise the cost of material supplied downward. It improved the cost economics through tighter cost control and a move up in the value chain wherein it could reduce the discount of its products produced through the recycling route to those produced from virgin material from 15% to 5%. Through these measures, it grew its revenues and PAT at 10% CAGR for the past three financial years (**Figure 3**).

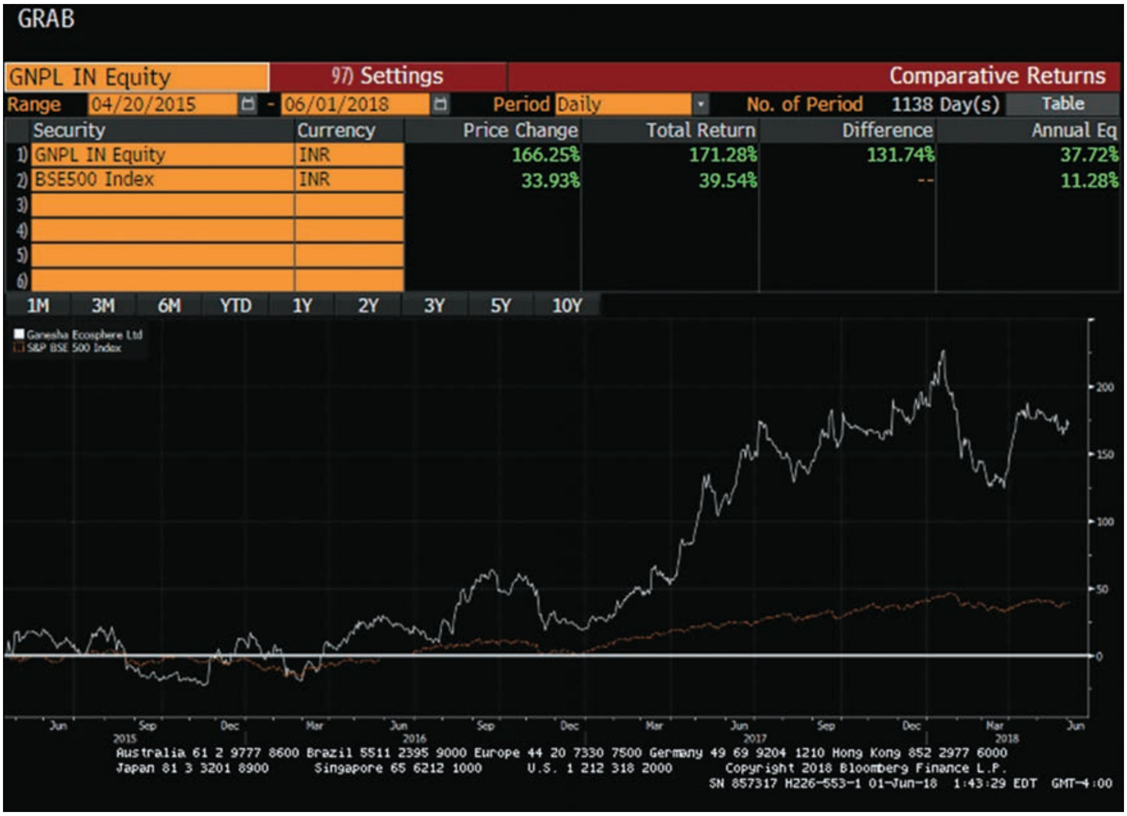
The stock generated an excess return of 131% over our holding period (**Figure 4**).

We are happy to note that the majority of the stock's return comes from the positive valuation re-rating experienced by the company, from a lowly one-year forward-earnings multiple of 9 times to 19 times. We were expecting this re-rating because we anticipated that an increased awareness of the importance of ESG challenges would attract the attention of more investors to companies that are engaged in environmental mitigation and social challenges. It was a very happy investment outcome for us.

FIGURE 3: GEL'S FINANCIAL DATA, 2014–2017

FINANCIAL DATA (AMOUNTS IN MILLION INR)	2016-17	2015-16	2014-15
Net sales	6725.2	6464.9	6219.5
EBITDA	815.2	752.9	646.8
EBITDA margin (%)	12.1	11.6	10.4
PAT	299.4	248.6	230.7
PAT margin (%)	4.5	3.8	3.7
EPS	15.6	12.8	13.4
ROE (%)	13.00	11.63	13.92
ROCE (%)	16.05	14.95	12.01

FIGURE 4: GEL'S (GNPL) PRICE CHART AND COMPARATIVE RETURNS



FIXED-INCOME CASE STUDIES: CORPORATE BONDS

BRECKINRIDGE CAPITAL ADVISORS

INTEGRATING ESG FACTORS INTO CORPORATE FIXED-INCOME INVESTMENTS

Robert Fernandez, CFA

Breckinridge Capital Advisors is a separate-account, investment-grade fixed-income manager based in Boston with over $36 billion in assets under management.[1] We serve institutional as well as individual clients by offering taxable and tax-efficient US dollar–dominated bond strategies. Our primary objectives for our clients are to: (1) preserve capital while building a reliable source of income, and (2) take advantage of opportunities to improve total return.

Breckinridge seeks to be vigilant in an ever-changing investment landscape. This attentiveness extends to credit risk, as we are committed to carrying out rigorous fundamental research on our borrowers. For investment-grade companies, environmental, social, and governance (ESG) risks may be low-probability but high-impact factors, as illustrated by the governance failures during the financial crisis and by other headlines stemming from corporate environmental or social controversies.

Therefore, we strongly believe that material ESG issues, when poorly managed, can manifest themselves as a credit risk. With this in mind, in 2011 we integrated an analysis of ESG issues into our fundamental credit-research process for corporations as well as for US municipalities.

THE BRECKINRIDGE ESG INTEGRATION PROCESS

When analyzing a corporate bond for investment, Breckinridge analysts first evaluate an issuer's business profile, market position, and competitive profile, as well as fundamental credit measures (such as margins, leverage, and cash flow). The analysis then turns to an evaluation of management and sector-specific material ESG indicators, such as carbon emissions, workplace injury rates, and the composition of the board of directors. Further, important takeaways from any engagement calls with the issuing company are integrated into the analysis. The research is captured in an overall credit recommendation that includes an internal rating, a sustainability rating, and the analyst's bond valuation view. The recommendation is distributed to the investment team and helps to drive security selection (**Figure 1**).

Our ESG analysis consists of a quantitative score and qualitative-based research. The quantitative score is derived from a proprietary framework that aggregates metrics from ESG research providers as well as from other third-party sources. Our corporate analysts also perform a qualitative assessment by reviewing a company's ESG policies and targets, which may be outlined in its corporate sustainability report or on its website, and consider information learned from the engagement call. The analyst evaluates both the score and qualitative research when assigning a sustainability rating for the company. This measure of an issuer's ESG risk profile may affect the analyst's overall internal rating. Specifically, the analyst may upgrade the internal rating to reflect a corporation's low

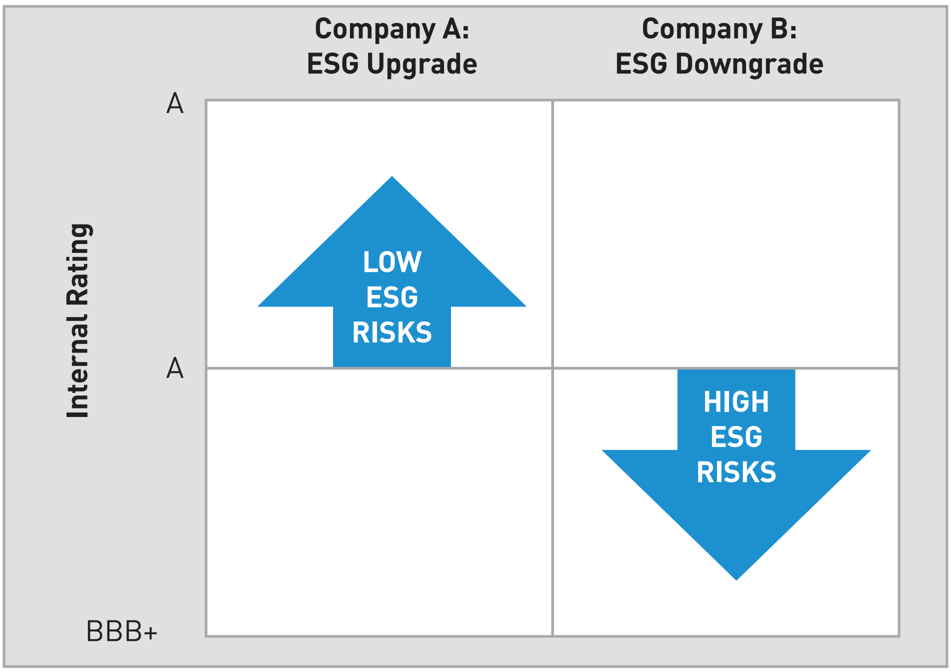
[1] As of 30 June 2018.

FIGURE 1: HOW ESG IS INTEGRATED INTO BRECKINRIDGE'S CREDIT RESEARCH PROCESS

ESG risks or downgrade the rating if the ESG risks are considered high or poorly managed (**Figure 2**). The final internal rating guides our valuation and trading decisions.

Importantly, Breckinridge's ESG research emphasizes criteria that are material to the financial performance of each industry and company. Data show that the most effective ESG assessments target material ESG issues that can significantly impact core business drivers for a given company or sector. Firms with stronger performance on material ESG issues tend to outperform their peers, according to a 2015 academic study.[2] To help determine materiality, analysts consider the standards developed by the Sustainability Accounting Standards Board, an independent, private-sector standards-setting organization.

FIGURE 2: CREDIT UPGRADE/DOWNGRADE FOR ESG RISKS



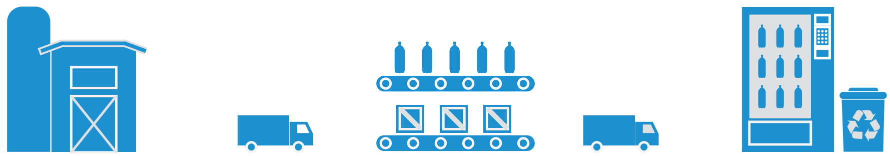
[2] "Corporate Sustainability: First Evidence on Materiality" by Harvard Business School researchers Mozaffar Khan, George Serafeim, and Aaron Yoon, 2015.

ANALYZING A SOFT DRINK COMPANY

To illustrate the Breckinridge ESG research process, we highlight how a corporate credit analyst may evaluate Beverage Brands, a manufacturer of packaged soft drinks.[3] **Figure 3** summarizes the analyst's research on the company's ESG performance across the value chain, from how it works with its suppliers to its own operations and the quality and use of its products.

FIGURE 3: BEVERAGE BRANDS' STRENGTHS AND CHALLENGES UNCOVERED THROUGH ESG RESEARCH

Beverage Brands



	Supply Chain (Upstream)	Company Operations (Manufacturing)	Use and Disposal (Downstream)
E	**Strength:** Collaboration with suppliers to improve water efficiency by 15% in high-risk areas	**Strength:** Aligned greenhouse gas emissions reduction goal with Science Based Target Initiative*	**Challenge:** Weak disclosure on progress being made to reduce packaging waste
S	**Strength:** Comprehensive human rights and supplier code-of-conduct protocols	**Challenge:** Certain talent retention and recruitment strategies trail best practices	**Challenge:** Products are primarily sugary drinks, despite introduction of healthier brands
G	**Strength:** Robust antibribery policies governing interactions with suppliers	**Strength:** Board of directors formally oversees sustainability initiatives	**Strength:** Rigorous, year-round stakeholder engagement includes consumer groups

Notes: Gray boxes denote material sector issues.

* The Science Based Targets Initiative is a collaboration between CDP, World Resources Institute, the World Wide Fund for Nature, and the United Nations Global Compact. To date, 417 companies have committed to science-based targets that align with the emissions reductions necessary to maintain global temperature increase below two degrees Celsius per the Paris Agreement.

[3] Beverage Brands is a fictional name used to maintain anonymity, but the example is of an actual company.

The research identifies several strengths and challenges, some of which may be material from a financial perspective. For example, because water is a key input for the ingredients used in the beverage products, efforts to ensure a steady supply of water would be considered both an ESG strength and a credit strength. Furthermore, water management is a material issue for the sector, because a lack of water can impact crop yields and prices, increasing the cost of goods sold.

The analyst weighs the strengths and challenges, and compares the performance of Beverage Brands to its industry peers. The mosaic of information as provided in Figure 3 depicts a company with what we believe to be a strong ESG profile, reflecting the various initiatives management has put in place to address Beverage Brands' ESG issues, including those that are considered material to the company and sector. A sustainability rating is assigned commensurate with Beverage Brands' solid ESG performance, which is also incorporated into its internal rating.

When appropriate, Breckinridge analysts may adjust their financial models to account for an ESG consideration. In the case of Beverage Brands, the analyst's projections reflect the company's push into healthier noncarbonated drinks in response to consumer demand trends.

CONCLUSION

As an investment-grade fixed-income manager, Breckinridge's ESG analysis integration was a natural evolution of our credit research process. We look at ESG as another tool in the credit research toolbox, and use it to gain a better understanding of the quality and character of a corporate bond issuer. In the end, we view ESG integration as providing a broader risk assessment and simply as a means to prudent investing.

HERMES INVESTMENT MANAGEMENT

CREDIT PERSPECTIVES: ESG INTEGRATION IN PRACTICE—PETRÓLEOS MEXICANOS

Mitch Reznick, CFA, and Audra Stundziaite

A plethora of academic and financial studies shows a relationship between environmental, social, and governance (ESG) risk and financial outcomes.[1] Well-governed companies with minimal or positive impacts on society and the environment tend to have lower costs of capital than their less-sustainable peers.[2] This has an important implication for credit investors: companies with poor ESG characteristics tend to have a higher cost of capital because they are exposed to more risks stemming from externalities that undermine corporate financial performance (e.g., fines for not complying with environmental and safety regulations).

In addition to analyzing and pricing operating and financial risks, the Hermes Investment Management Credit team also considers ESG factors when making investment decisions (see **Figure 1**). To make the best-informed ESG decisions, Hermes Credit relies on several inputs:

- First, from a more general perspective, the Credit team (along with the rest of Hermes) relies on the Responsibility team for firm policies, approaches, and investment tools.
- When focusing on an investment at a company-specific level, the team reviews Hermes's proprietary measures of ESG risk, that is, its quantitative ESG (QESG) score. This QESG score represents a good snapshot of the company's overall ESG performance.
- The QESG score is supported by the company information provided by Hermes's engagement team, Hermes Equity Ownership Services (EOS), because the dialogue with the company provides the context for the QESG score. For example, is the company on the right trajectory or is it more on a negative path?

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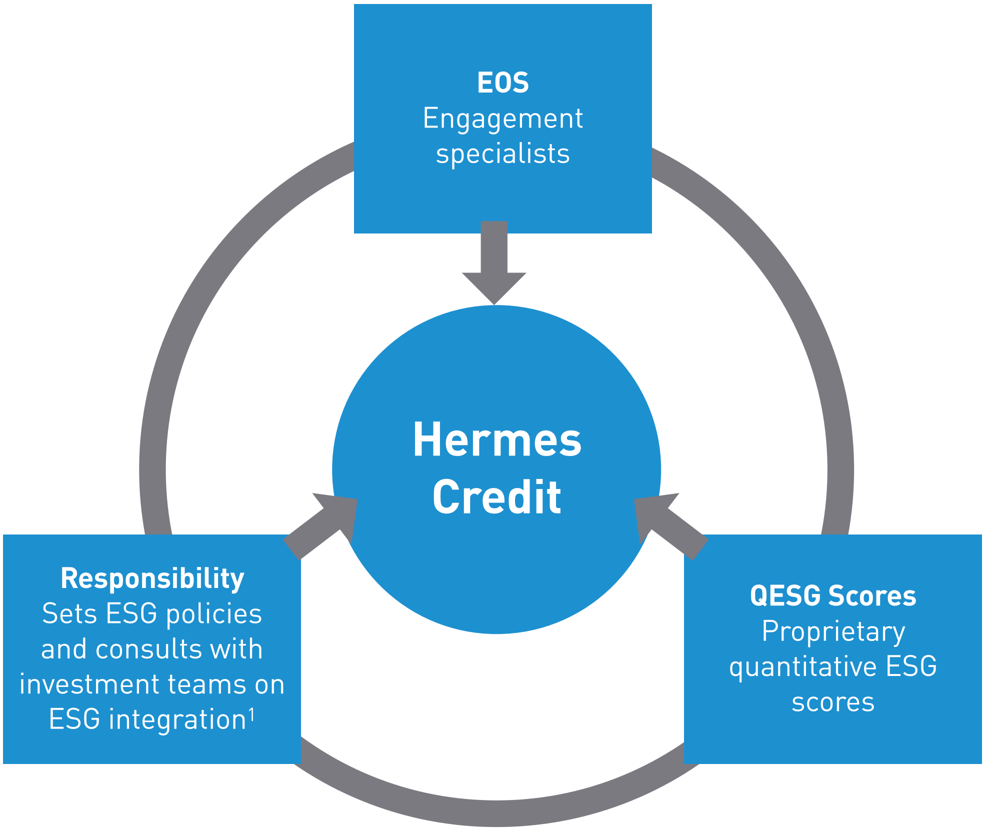
[1] See, for example, Rob Bauer and Daniel Hann, *Corporate Environmental Management and Credit Risk* (ECCE Working Paper, University Maastricht, The European Centre for Corporate Engagement, 2010); Allen Goss and Gordon S. Roberts, "The Impact of Corporate Social Responsibility on the Cost of Bank Loans," *Journal of Banking and Finance*, 35 (2011), 1794–1810; Najah Attig, Sadok El Ghoul, Omrane Guedhami, and Jungwon Suh, "Corporate Social Responsibility and Credit Ratings," *Journal of Business Ethics*, 117 (2013), 679–94; Sudheer Chava, "Environmental Externalities and Cost of Capital," *Management Science*, 60(9) (2014), 2223–47; Pornsit Jiraporn, Napatsorn Jiraporn, Adisak Boeprasert, and Kiyoung Chang, "Does Corporate Social Responsibility (CSR) Improve Credit Ratings? Evidence from Geographic Identification." *Financial Management*, 43(3) (2014), 505–31.

[2] Gordon L. Clark, Andreas Feiner, and Michael Viehs. *From the Stockholder to the Stakeholder* (Research Paper, University of Oxford and Arabesque Partners, 2015).

FIGURE 1: HERMES CREDIT'S INVESTMENT APPROACH



Source: Hermes Credit.

- Mapping out credit spreads versus their implied spread levels from the QESG scores allows us to see where any anomalies exist. In some cases, there may not be a trade to make because the credit risk dominates the outright spread level compared to the QESG score. That said, in some cases, if we think that the ESG behaviors are likely to improve because of conversations we have had with the company, it may be a signal to add risk in that particular name. In addition, if we have to choose between two companies and they are like-for-like in terms of credit risk and in credit spread, then the QESG score could signal which name we would prefer to add to the portfolios.

With all this information, the ESG contribution to the investment decision is made in a more real-time and more dynamic manner than, for example, simply relying on scores alone. More importantly, because we engage as an investor, companies are more likely to be responsive.

ESG INTEGRATION IN PRACTICE: THE CASE OF PETRÓLEOS MEXICANOS

Petróleos Mexicanos (Pemex) is a Mexican state-owned petroleum company. Founded in 1938, it is the eighth largest oil producer in the world, with production of approximately two million barrels of oil a day and revenue of about US$62 billion. Although Pemex is wholly owned by the Mexican state, the company has a strong presence in international debt capital markets on which it relies to finance its operations, with around US$87 billion of debt outstanding.

In February 2017, Hermes Credit invested in Pemex's new, euro-denominated issue to increase our exposure to the energy sector at an attractive relative value for a higher-quality, investment-grade energy credit. An in-depth analysis of the company's credit gave us a better understanding of the company's oil reserves, production levels, and recent operational initiatives, as well as the implications of Mexico's energy reforms.

During our analysis, however, ESG factors emerged as recurring themes in the credit discussion: the company's labor safety track record was below the industry average and the company had experienced frequent oil spills and leaks in the past. Spills and leaks could result in fines and production downtime, hurting the company's cash flow profile. For example, BP plc had to pay a US$13.8 billion fine after its Deepwater Horizon well blowout in the Gulf of Mexico. Employee injuries could also result in fines.

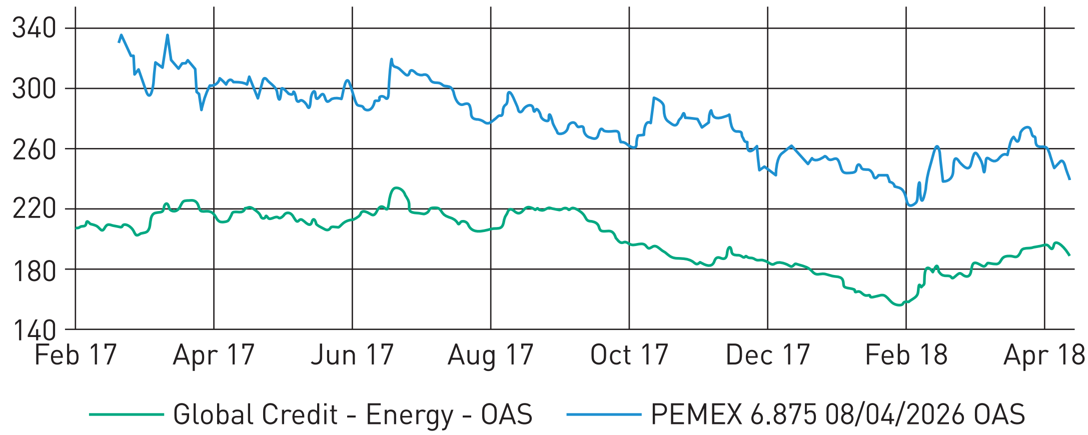
After the initial credit committee analysis, we assigned an ESG score of 4 (below average on a scale of 1 to 5, with 1 being the best) to Pemex and decided to address our concerns through an ESG-focused engagement with the company. We kept the bonds acquired through the new issue process, but we did not add more exposure to the credit until we could speak to the company about our ESG concerns, despite relatively attractive bond valuations.

During our initial engagement call in May 2017, the Pemex sustainability and investor relations teams addressed some of our concerns. The company commented that it is very committed to improving labor safety and environmental management through such initiatives as a zero-tolerance campaign regarding safety, as well as a commitment to reducing carbon emissions by 25% by 2021. We discussed how the company plans to achieve this emissions target, and the teams described initiatives to reduce flaring, implement the cogeneration of energy in various industrial facilities, and initiate energy efficiency improvements in refineries.

The Pemex management also highlighted that a newly established oil and gas safety agency in Mexico is aiming to bring to Mexico all the best international practices, such as adoption of and compliance with international technical standards. We expect Mexico's new regulatory framework, along with the independent external health and safety regulations, to have a positive impact on the company, as it will be more exposed to best practices used by competitors and partners.

In November 2017, we upgraded Pemex's ESG score to 3 (from 4) to reflect the company's improvement in the following ESG factors: (1) improvement in worker safety (injury frequency per million man-hours worked declined 35% year over year [y/y] in the third quarter of 2017); and (2) progress in reducing environmental waste and emissions (water reuse increased 66% y/y, while sulfur oxide emissions declined 45% y/y). After the score

FIGURE 2: PEMEX VERSUS GLOBAL INVESTMENT GRADE ENERGY INDEX



Source: Barclays Live - Chart.

upgrade, we have added to our Pemex bond position because we felt more comfortable about the company's ability to manage ESG risks, assuming that the credit profile remains stable and that valuations are adequate.

Through 2017, Pemex bonds tightened around 80 basis points, thus outperforming the Global Investment Grade Energy Index by some 45 basis points (see **Figure 2**). Note the following important dates related to the Pemex investment.

Important Dates Related to the Pemex Investment

- February 2017: Addition to the portfolios via new issue in order to add exposure to energy.
- April 2017: Initiation, ESG score 4 (on a scale of 1 to 5 with 5 being the worst).
- May 2017: Commencement of engagement with company's Safety and Environment team.
- November 2017: Upgrade ESG score to 3 (from 4) to reflect
  - improvement in worker safety (injury frequency per million man-hours worked declined 35% y/y in Q3 2017); and
  - progress in reducing environmental waste and emissions (water reuse increased 66% y/y; sulfur oxide emissions decreased 45% y/y).
- May 2018: Company updates regarding ESG include
  - new compliance program; and
  - reduced government ability to influence the makeup of the company's board.

INSIGHT INVESTMENT

HOW TO INVEST RESPONSIBLY IN CORPORATE DEBT

Joshua Kendall

Some investors use the terms "responsible investment" and "ESG" (referring to environmental, social, and governance factors) interchangeably. At Insight Investment, we believe that responsible investment refers to a much broader approach than simply one that focuses on ESG issues—though ESG factors have a key role to play.

We believe a responsible approach to investing in corporate debt depends on the effective management of the risks and opportunities presented by long-term value drivers, including ESG issues. Below, we outline how such a strategy works in practice. We believe the full integration of ESG risk factors within investment analysis and proactive engagement on material issues are crucial aspects of this strategy.

INTEGRATING ESG FACTORS WITHIN INVESTMENT ANALYSIS

The first step in establishing a responsible investment approach is to ensure the investment process takes into account all material risks, including ESG factors. At Insight, default risk is the prism through which our corporate bond analysts consider every issue, and ESG risk scores are a necessary element in assigning a credit rating that indicates the relative risk of default loss. Insight's credit analysis team is charged with determining the materiality of issues on our risk checklist (see **Figure 1**).

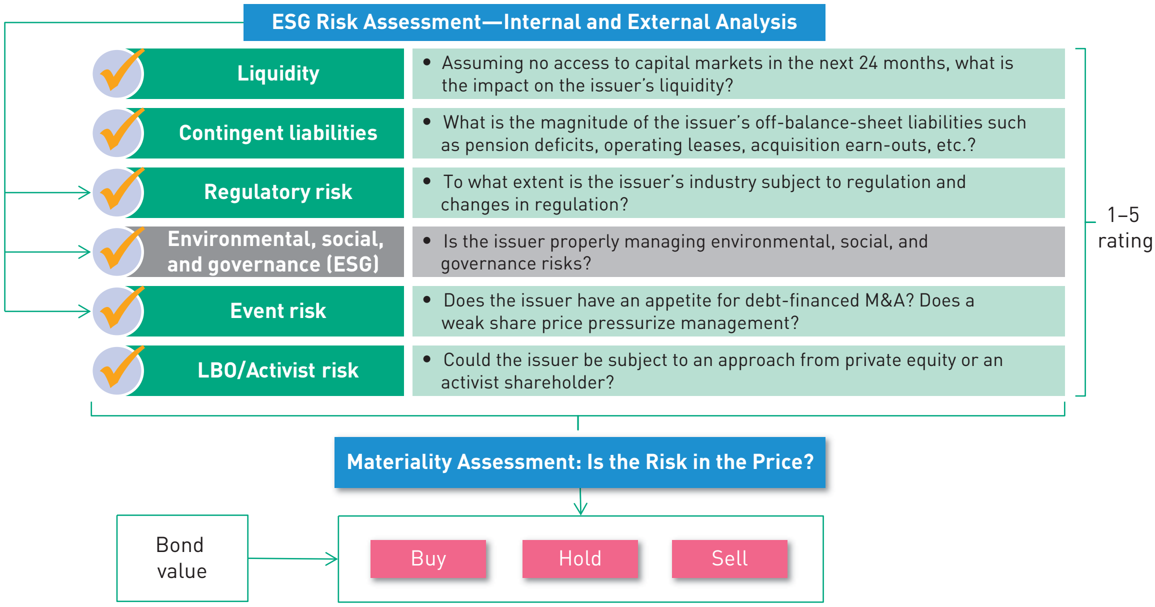
By combining ESG risk screening and financial analysis in our extended credit risk appraisal process, we bring together an assessment of the financial risks associated with a company's performance with a clearly defined set of key business risks as a part of the mainstream investment process.

Doing this matters. In 2017, one of our analysts identified material risks at a global retailer and recommended avoiding a new issue from the company. Within months, significant accounting irregularities emerged, the company was downgraded, and the investment swiftly lost approximately half its value.

IDENTIFYING ESG RISKS

We transpose third-party ESG ratings into the five-point risk scale that we use to assess the significance of nonfinancial risk factors. Our ESG assessment focuses on the material risks in each sector or business. For example, we consider carbon emissions and health and

FIGURE 1: INSIGHT INVESTMENT'S RISK CHECKLIST



Source: Insight Investment. For illustrative purposes only.

safety as important risks for companies operating in the mining sector, but we see these as generally of lower importance for financial services companies. The exception is with corporate governance, where we consider the risks an important part of our evaluation for every type of issuer and credit quality. **Figure 2** illustrates the range of ESG risk issues and the scores we use.

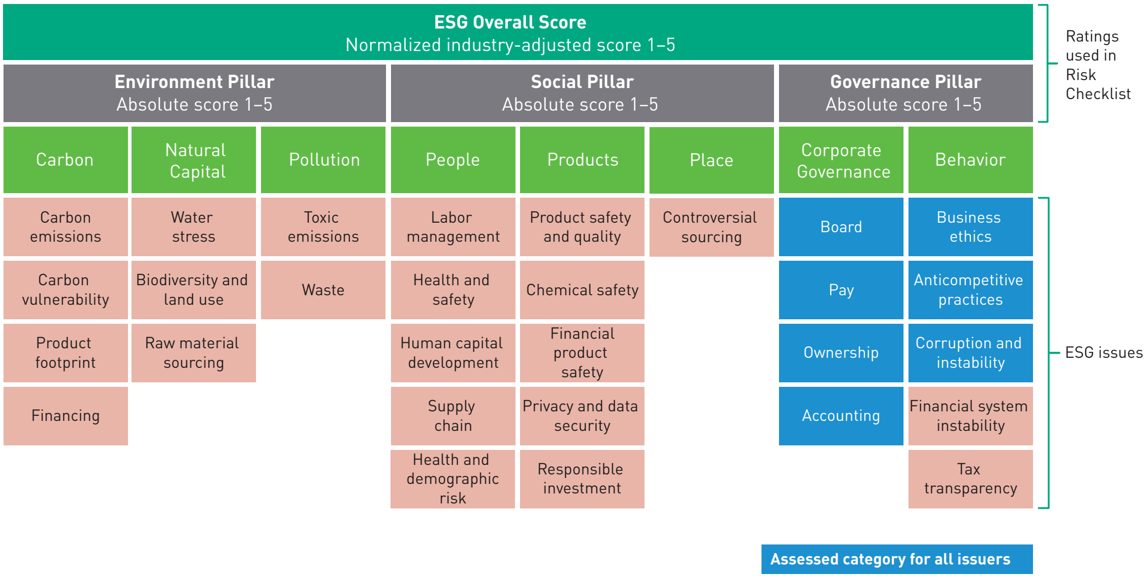
FILLING THE GAP

Data from third-party providers are important, but not enough. For many smaller issuers—especially emerging-market and high-yield companies—the availability of relevant nonfinancial data often lags behind that available for larger issuers.

Insight, therefore, follows a process to generate ESG ratings for those companies for which we cannot source independent ESG analysis from our market data providers.

1. Insight credit analysts identify companies with no ESG ratings but where the company is, or may be, issuing bonds that may be suitable for Insight's credit portfolios.
2. Insight credit analysts work with the Insight ESG analyst to develop a custom ESG self-assessment tool that reflects the sector-specific risk issues relevant to the issuer.
3. Company management is contacted to complete the self-assessment.
4. Insight generates an ESG scorecard based on the self-assessment response.
5. Insight credit analysts follow up with any risk issues identified.

FIGURE 2: INSIGHT INVESTMENT'S ESG RATINGS FRAMEWORK



Source: Insight Investment and MSCI Inc. For illustrative purposes only. Based on MSCI ESG ratings framework.

EXAMPLES OF ANALYST RECOMMENDATIONS INFLUENCED BY ESG FACTORS

Our analysts' views on ESG factors have directly affected their investment recommendations, as demonstrated by these two recent examples. Note that low ESG scores do not automatically result in an exclusion or sell decision.

Example: Long Position

European property company:

- improving governance outlook
- successful engagement with company on ESG issues

Analyst recommendation: Overweight exposure in active portfolios.

Example: Short Position

US technology company:

- low ESG ratings, especially for governance
- faces industry headwinds
- slow to respond to emerging trends

Analyst recommendation: Sell via credit default swaps; not suitable for holding to maturity.

ENGAGEMENT: A KEY ELEMENT OF A RESPONSIBLE APPROACH TO CREDIT

If ESG, strategic, and financial risks are identified, our analysts are expected to engage in a dialogue with company management. Material governance issues are regularly discussed, and material environmental and social issues are covered when relevant, as we consider ESG risks alongside other factors when assessing a company's financial strength, strategic direction, and overall quality of management, and the market valuation of its securities. We also monitor changes—particularly downgrades—to key risk scores each quarter.

Insight's credit analysts meet with all companies before investing in any bonds or loans the companies have issued or are about to issue. Company meetings are undertaken by our in-house analysts because we consider engagement to have material financial implications, and we believe that those implications are best understood within the context of the wider investment process.

Escalating engagement activities occur on a case-by-case basis. From a risk perspective, if we are not satisfied with a company's management of risk (including ESG-related risks), we are prepared to sell holdings or move to an underweight position. In some portfolios, this will not be possible because of mandated restrictions. In such situations, we discuss potential investment actions with clients (which may include taking no action, selling holdings, or continuing to monitor).

Engagement can have a clear impact on an investment. We extensively consulted with a major listed company in 2017 to improve its disclosures in its accounts. It agreed and committed to improve its disclosures in the future, and we subsequently invested in that company's issue.

CONCLUSION

We believe a responsible approach to investing in corporate debt is to integrate ESG risk factors within the investment analysis to ensure that all material risk factors are taken into account. To do this effectively, proprietary research is often needed, especially in areas of the market not covered by third-party data providers.

Integrating ESG risk factors can do more than simply lead to exclusions from the investment universe. It can provide more information on the risks within a portfolio and prompt effective engagement to help manage such risks or even improve the prospects for potential investments.

Ultimately, we believe following such an approach supports long-term investment outcomes and aligns our interests with those of our clients, as well as the wider society.

MAN GLG

CREDIT RISK CASE STUDY: AGROKOR

Danilo Rippa

Agrokor is a Croatian holding company whose main business is food retailing. At its peak in 2017, it comprised 143 companies with 57,000 employees and was the largest privately owned company in Croatia and in all of the western Balkans.

The company was founded as a flower grower in 1976 by Ivica Todorić. Agrokor rapidly expanded over the next 40 years until it became insolvent in 2017. The company's downfall was accelerated by its 2014 purchase of Mercator, a retailer from Slovenia, in a debt-financed acquisition that significantly impacted its financial flexibility going forward. At the time, this consequence was not completely apparent, because Moody's Investors Service affirmed Agrokor's B2 rating post the acquisition.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE FACTORS THAT DROVE THE INVESTMENT DECISION

Man GLG's discretionary credit funds were either outright short or had underweighted Agrokor risk. Our negative view was reached after our bottom-up credit research found inconsistencies between Agrokor's financial presentations and its detailed financial accounts and accompanying footnotes. For example, despite the company highlighting stable-to-deleveraging credit metrics and positive free cash flow, the audited financial statements revealed a business that was free cash flow negative with net debt increasing beyond what could be explained by payments for acquisitions. These discrepancies raised the question of which set of numbers the market could trust and what level of corporate governance would allow two separate sets of financials to reach the market. In addition, the company's long history of growth by acquisition made us uncomfortable because the company kept changing its reporting perimeter, thereby, in our opinion, obfuscating the ability to reconcile financial statements with prior-period reports and contributing to the use on the presentations of pro forma figures instead of those from the audited financial statements. Additionally, our discretionary fixed-income funds generally view serial acquirers with some skepticism given the significant execution risks associated with integrating acquired companies.

Governance is one of the most important factors to evaluate when investing in fixed-income securities. Bondholders are looking to be repaid in full, and poor governance can easily jeopardize a company's financial health, precipitating a rapid decline in the market price of the bonds and potentially impacting the final maturity and recovery value of the notes.

Governance is also notoriously hard to score on an absolute basis or to model into traditional forward-looking credit metrics. We tend to use a red-flag system where bond issuers that are flagged with poor governance are avoided. Rather than completely score every company we analyze across the full suite of environmental, social, and governance (ESG) metrics, we flag companies that exhibit a potential ESG concern for further investigation to determine how severe the downside risk could be. Given that many of our funds can take short risk exposures, our investigation centers on whether or not the concern is reflected in the bond's price or if it could send the price significantly lower. Agrokor's history of serial acquisitions involving limited industrial logic, combined with the poor accounting transparency, raised a red flag for us.

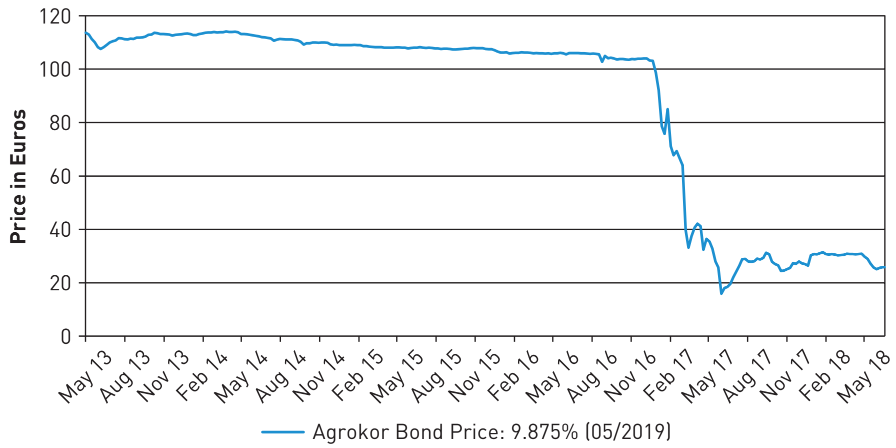
MARKET IMPLICATIONS

On 2 January 2017, Moody's downgraded Agrokor's rating to B3 from B2, reflecting the view that the company would not be able to restore its credit ratios in line with the requirements necessary to maintain a B2 rating. Moody's also made comments regarding the company's poor financial transparency. Following this downgrade, the company announced that it had pulled the proposed syndication of a term loan as a result of poor pricing terms. This news sent Agrokor's bonds down about 5 to 10 points, eventually finding a floor at around €86.

Despite Agrokor saying that it didn't need any additional financing, its debt continued to drop on rumors of unpaid electrical and supplier bills and rental payments (**Figure 1**). In mid-February 2017, Agrokor management attempted to calm investors' fears by saying that the company was in a position to sell some of its most valuable assets.

On 17 March 2017, as discussions of an Agrokor debt restructuring picked up, Bloomberg reported that Yuri Soloviev, first deputy president and chair of the Management

FIGURE 1: AGROKOR BOND (9.875% OF 05/19) PRICE CHART (AGROK-XS0776111188)



Source: Bloomberg.

Board of VTB Bank (one of Agrokor's largest creditors), commented that Agrokor had been reporting irregularities "over a fairly long period of time."

At this point, things deteriorated rapidly for the company. The Croatian government eventually stepped in to effectively take control of Agrokor, and PricewaterhouseCoopers LLP was ordered to do a full audit, the results of which were announced in a press conference and reported by Reuters. At the press conference in October 2017, Ante Ramljak, the government-appointed Extraordinary Commissioner for Agrokor, revealed that Agrokor had misstated its financial statements by billions of kuna.

KEY TAKEAWAYS

The Agrokor case illustrates the importance of using ESG analysis in fixed-income investing. Environmental and social issues generally are seen as having a less quantifiable and immediate effect on a company's profitability and can be more difficult to include in traditional credit analysis. Governance issues, however, can manifest in the form of poor merger-and-acquisition decisions or questionable accounting practices, which have an immediate impact on the creditworthiness of an issuer. For Agrokor, it was less the change in specific traditional credit metrics that gave us pause and more the overall governance and strategic issues with the company. If the company had been clear concerning the strategic rationale of its expansion and had been consistent in its financial projections, we potentially could have become comfortable with the company's bonds at the right price. However, when a company's financial information and accounting practices are called into question, it makes it difficult to be comfortable with an investment. Situations like this remind bondholders of the tremendous downside that can arise when a company's governance is called into question.

PIMCO

INTEGRATING ESG IN CORPORATE CREDIT RESEARCH

Del Anderson, CFA

PIMCO's environmental, social, and governance (ESG) process for corporate credit emphasizes rigorous analysis of secular trends that are at the core of both global sustainability and long-term asset returns. In recent years, PIMCO has developed a platform that supports ESG-focused investment solutions and has enhanced its credit research process to incorporate a robust ESG assessment that complements the traditional ratings assigned by PIMCO's team of more than 60 credit research analysts.

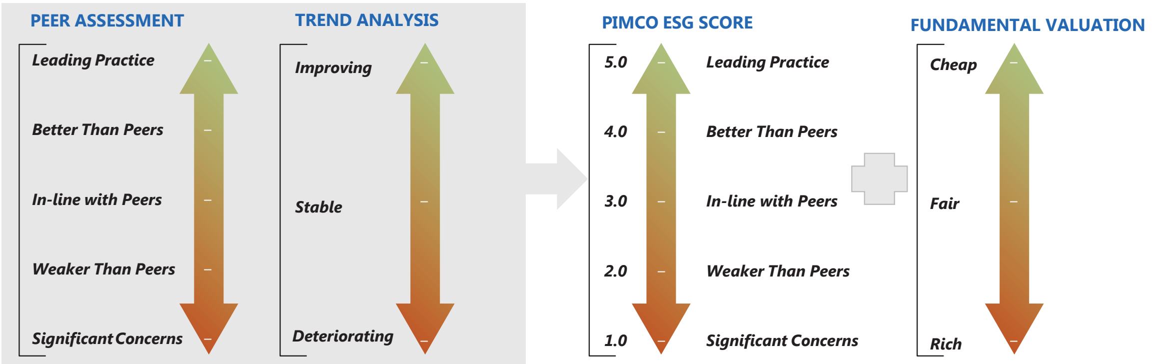
Using industry-specific ESG frameworks, PIMCO analysts review their companies' ESG performance based on information that may be available in public filings and recent ESG news and controversies, and through regular engagement with company management teams to assign ESG scores. Direct bondholder engagement is critical to understanding the risk and reward profile of the issuer and ultimately making an investment decision. Our analysts dedicate a significant portion of their time meeting with senior management of issuers. They discuss strictly financial matters as well as issues that may relate to responsible business practices, such as how business strategy addresses climate change risks. Information from this engagement process often affects an issuer's ESG score, raising or lowering it.

PIMCO's resulting ESG assessments are proprietary and distinct from those provided by ESG rating providers, with scores that distinguish "Leading Practice" issuers from those that raise "Significant Concerns" (see **Figure 1**). PIMCO's credit analysts further undertake an assessment of the "ESG Trend" to determine whether the company is improving or deteriorating.

PIMCO ESG RESEARCH IN PRACTICE: GLOBAL COMMERCIAL BANKS

The approach outlined above can be illustrated by focusing on how PIMCO analyzes ESG criteria for global commercial banks. Many investors feel the banking industry's reputation has been tarnished by high-profile breakdowns in governance and breaches of public trust. At PIMCO, we conduct a forward-looking ESG assessment to identify banks that performed well through the financial crisis, or banks that have revamped their management teams and governance processes. We view the much stronger regulatory framework and elevated stature of risk management as significant credit positives. Although many of

FIGURE 1: THE PIMCO ESG SCORING SYSTEM



Source: PIMCO. For illustrative purposes only.

the changes have been mandated by regulators, leading banks have fully internalized the new rules and have invested heavily in redefining their culture and the conduct of their employees.

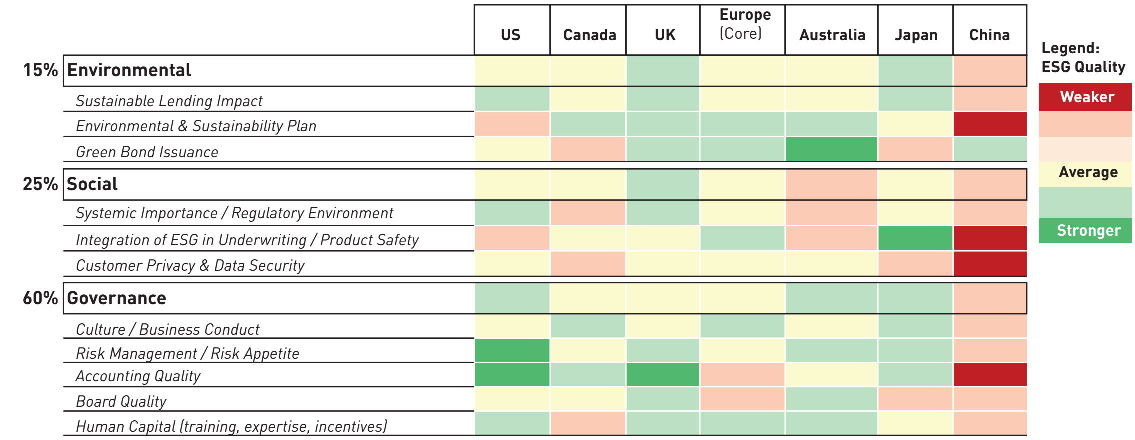
Comparing Global Banks across Material ESG Factors

PIMCO's ESG assessment for banks includes 11 material factors, including "Sustainable Lending," "Systemic Importance/Regulatory Environment," and "Culture/Business Conduct." Together, these factors comprise PIMCO's overall ESG score, which has a greater weighting on governance (60%) and social (25%) factors than on environmental (15%) issues. **Figure 2** shows a summary that provides portfolio managers with high-level insights into the key ESG strengths and weaknesses of major banking systems.

Environmental (15% of PIMCO ESG Score)

- **Sustainable lending impact** is broader than simply looking at the percentage of loans issued to industries with negative environmental impacts. We also look at underwriting trends, including whether the bank is reducing lending to the coal sector and expanding lending for renewables, and whether the bank is involved in controversial projects.
- The **environmental and sustainability plan** assessment includes a discussion of credit risk to the loan portfolio from climate change. The highest-scoring banks have disclosed detailed sustainability targets and made public commitments to reduce greenhouse gas emissions. Extra credit is provided for banks that have explicitly mapped their revenues to sustainable development goals.
- **Green bond issuance** gives credit to banks that have been active in issuing "green bonds" (instruments that fund projects with positive environmental benefits)—either as a part of their own funding or on behalf of clients.

FIGURE 2: ESG HEATMAP FOR MAJOR BANKS BY REGION



Source: PIMCO analysis as of 30 June 2018. Major banks include global and domestically systemically important banks in each region. Percentages (15%, 25%, 60%) represent the relative weighting of each ESG pillar in the overall ESG score.

Social (25% of PIMCO ESG Score)

- **Systemic importance and regulatory environment.** In the postcrisis regulatory environment, the largest banks often offer the greatest protections to creditors due to tighter regulatory scrutiny and higher capital and liquidity standards, even in the context of potential "bail-in" for creditors in a resolution. Systemic importance is a negative factor only when a bank's business activities create negative social externalities.
- **Integration of ESG in underwriting and product safety** assesses a bank's commitment to providing financing to underserved market segments in a safe and sound manner (e.g., without exposing itself to higher losses or potential regulatory fines).
- **Customer privacy and data security** is at present a subjective measure, given that few banks provide usable reporting. We reserve our highest scores for companies that have communicated strategic investments in data security and have had no public data security breaches.

Governance (60% of PIMCO ESG Score)

- **Culture and business conduct** represents a forward-looking view of the bank's internal business culture and ethical performance. We incorporate quantitative measures (such as the volume and severity of legal and regulatory settlements) along with more forward-looking inputs (such as the company's reputation in the marketplace and recent controversies).
- **Risk management and risk appetite** represents our view of bank management's willingness to embrace risk as well as the company's capacity to manage those risks over the business cycle. We consider how management balances short-term return

targets against long-term solvency, how the company's loan portfolio and loss rates have performed over business cycles, the level of its mergers and acquisitions appetite, and whether management has set and met achievable targets.

- **Accounting quality** assesses whether the bank's disclosures are credible. We avoid banks and banking systems that delay the recognition of bad debts for years, or "optimize" risk-weighted assets to report higher capital ratios and/or to enable higher payouts.
- **Board quality** assesses the bank's board leadership, diversity, expertise, and track record of replacing underperforming directors. Possible negative qualities include having a combined CEO/chairperson role, receiving ongoing regulatory citations, or having an inconsistent strategic focus.
- **Human capital** assesses the quality of the nonexecutive employee base by determining how well the company attracts and retains top candidates and provides excellent training, ethics, and advancement opportunities.

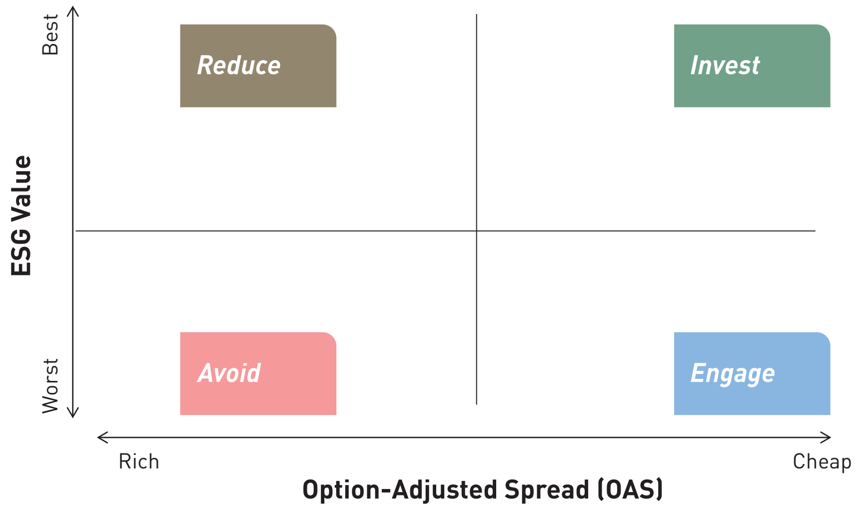
Integration into Portfolio Management

PIMCO's credit analysts have reviewed the ESG performance of over 2,200 parent issuers to date, with ESG scores highlighted in research notes alongside PIMCO credit ratings. Analysts' views include narrative and rationales for material ESG factors that have the potential to impact investment performance.

Over time, these assessments have been relevant in shaping investments in our credit portfolios. For example, a portfolio manager may decide to switch between two similarly rated bank bonds trading at comparable spread levels based on their relative ESG scores and trajectory. **Figure 3** illustrates the four valuation quadrants used for analyzing potential bank investments:

1. **Invest** in banks trading at attractive valuations and with strong ESG profiles (e.g., national champion banks that have resolved legacy litigation).
2. **Engage** with banks trading inexpensively but that have weaker ESG profiles (e.g., banks with a strong long-term track record that are working to recover from recent risk or reputational controversies).
3. **Reduce** exposures to banks trading at unattractive valuations despite strong ESG profiles (e.g., banks whose spread levels already reflect an expectation of pristine credit and ESG performance).
4. **Sell/avoid** companies with unattractive valuations and weak ESG profiles (e.g., banks with persistent regulatory citations and/or strategic challenges; management teams taking underwriting shortcuts or excessive capital payouts to maximize short-term equity returns).

FIGURE 3: ESG RELATIVE VALUATION



Source: PIMCO. For illustrative purposes only.

ROBECO

ALTICE: AN ESG CREDIT CASE STUDY

Jankees Ruizeveld

A corporate bondholder's primary focus is on the issuer's ability to repay debt. The key focus of credit analysis is therefore the cash-generating capacity of the company and the quality of the cash flows. The Robeco credit analysts perform this analysis—for every company—by looking at five factors: the company's business position, corporate strategy, financial profile, corporate structure, and environmental, social, and governance (ESG) profile (sustainability factors; see **Figure 1**). These five factors are obviously not standalone indicators but are often intertwined; for instance, a change in ownership can affect a company's financial position, and an international expansion strategy may introduce country-specific risks into the business position.

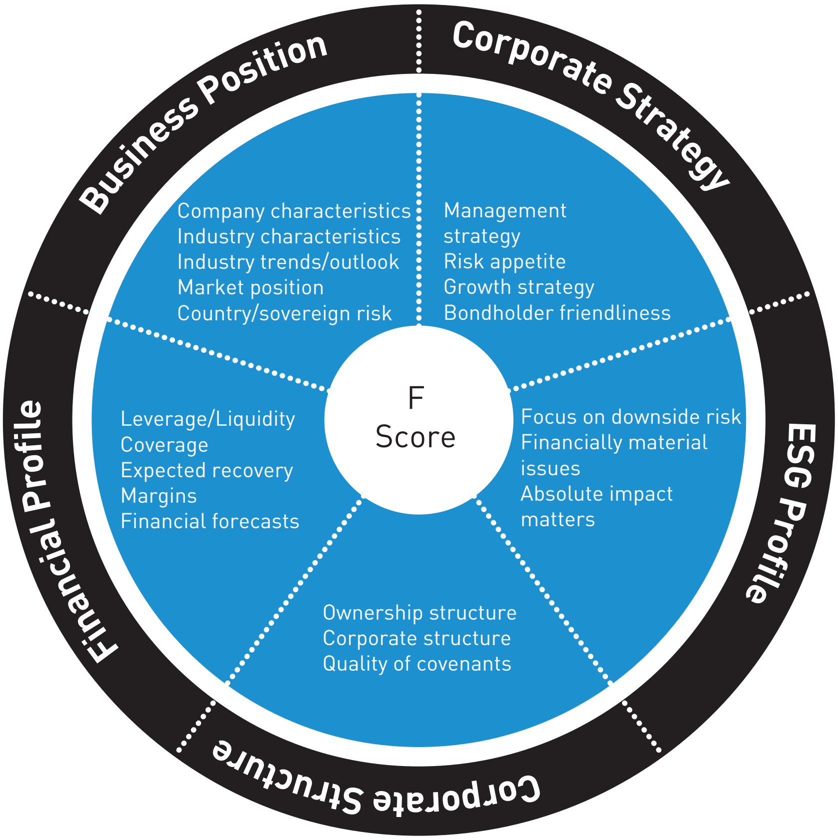
Based on these five factors, the credit analysts assign fundamental (F) scores to all companies under coverage. These fundamental scores—from −3 (very weak) to +3 (very strong)—express the overall fundamental view on the company given its credit ratings.

RANGE OF SOURCES OF ESG INFORMATION

The analysts consider the impact of key sustainability factors on the credit fundamentals of the issuer. These key ESG factors differ per sector. For example, for the automotive sector, criteria include product quality and emission reduction. For the food and beverage sector, factors such as sustainable sourcing of raw materials and responsible marketing are more important. To form an opinion on how companies are positioned on these factors, the analysts use multiple sources. An important input is the annual Corporate Sustainability Assessment of RobecoSAM (Robeco's sister company that specializes in sustainability investing). This assessment contains detailed information on companies' ESG characteristics. We also use specialized external research from third-party providers such as Glass, Lewis & Co. (governance, voting) and Sustainalytics. ESG insights are further strengthened through cooperation with Robeco's Governance & Active ownership team.

Higher risk associated with ESG can result in a lower F score for an issuer. The five factors on which the F score is based do not have a fixed weight; their relative importance differs per sector and per company. An analyst, for example, can have a very constructive view on a company's business position and strategy. However, if leverage is high while the company is heavily free-cash-flow negative, the weak financial position on its own has a very negative impact on the F score.

FIGURE 1: THE FIVE PILLARS OF CREDIT ANALYSIS

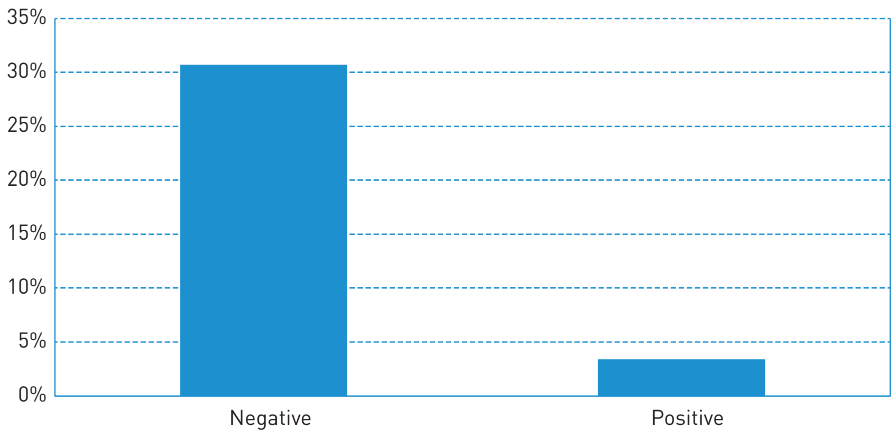


Source: Robeco.

ESG IMPACT IN APPROXIMATELY 36% OF THE COMPANY PROFILES

Looking at the companies currently covered by the credit research team, we find that in 36% of cases, ESG factors have a material impact on the assessment of the fundamental position. In the majority of those cases—32% to be precise—the impact is negative (**Figure 2**). In analyzing and investing in corporate bonds, the focus is tilted toward detecting downside credit risks. This makes sense, as risk is asymmetrical for credit investors. A good risk management system at a bank, for instance, does not necessarily translate to a strong improvement in credit quality, but a weak risk management system may lead to a total collapse of the bank.

FIGURE 2: CONTRIBUTION OF ESG FACTORS TO FUNDAMENTAL VIEW



Source: Robeco. Data as of September 2017.

A lower F score means that the risk of the company is perceived to be higher than that of comparable companies in the same rating segment. Thus, we demand higher spreads for names with lower F scores to compensate for the additional risks that become apparent from our analysis.

EXAMPLE: ALTICE LUXEMBOURG S.A.

Altice Luxembourg S.A., a Luxembourg-based, Dutch-listed, and predominately French telecom operator, is an example of a company for which we have reduced the F score based on ESG factors.

One major concern is the firm's poorly designed corporate governance framework. Through a network of subsidiaries, Altice offers telecom services, such as cable TV, fixed line and mobile networks, and broadband, in many countries worldwide. The firm introduced a dual-share class structure—which deviates from the one-share, one-vote principle—and makes it possible for Patrick Drahi, founder and head of the company, to control the company via a 60.4% ownership of the voting shares. As president of the board, Drahi has the option to veto any board decisions and make binding nominations for executive directors (currently, the board has too few independent board members). This subpar governance structure raises the credit risk from a bondholder perspective and is the main reason sustainability factors contribute negatively to our fundamental view on Altice. In addition, Drahi would benefit excessively from a rising share price, as he would receive €1 billion of additional shares in the company if the share price were to triple from a predetermined point and over a certain period of time.

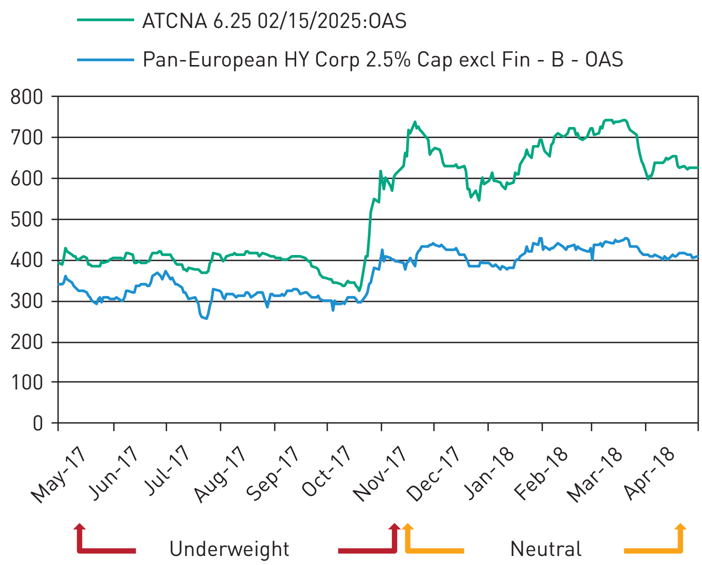
Another Altice governance issue is intragroup transactions concerning content rights, which may be beneficial for tax purposes but have a side effect of substantially increasing the leverage capacity of a subsidiary.

Robeco engaged with Altice (starting in 2015) on good governance for several years, even attending its annual general meeting. The engagement was subsequently closed, however, as there was no progress.

As stated, we demand higher spreads for issuers with lower F scores to compensate for the additional ESG risks that have become apparent from our analysis. Prior to November 2017, we believed these corporate governance risks were not reflected in the spreads of Altice bonds.

After the company reported disappointing financial numbers in November 2017, the investment community's trust in Drahi faded. The company was not able to sustain its virtuous circle of increasing debt, takeovers, and cost cutting as the market lost its faith in the execution of these plans. As a consequence, the Altice bond spreads widened significantly (**Figure 3**). The company has since changed its focus (reducing complexity, selling noncore assets, and focusing on deleveraging), *and* the bond spreads began to reflect the higher corporate risk. Thus, we revised our view on the valuation of Altice bonds and added them to the relevant portfolios.

FIGURE 3: SPREAD GRAPH OF ALTICE LUXEMBOURG S.A. VERSUS ITS BENCHMARK



UBS ASSET MANAGEMENT

BEYOND RATINGS: SUSTAINABILITY INTEGRATION IN FIXED INCOME

Christopher Greenwald and Francis Condon

One of the challenges cited for the integration of sustainability into fixed-income strategies is the inconsistency in the environmental, social, and governance (ESG) data and ratings for sovereign versus corporate issuers. At UBS Asset Management (UBS-AM), we believe this difference can be overcome through a consistent approach to integration, one that moves beyond data and scores and focuses on the impact of sustainability on the fundamental financial assessment.

FIXED INCOME AND THE LIMITATIONS OF ESG RATINGS

Significant differences exist between the sustainability ratings and data of sovereign and corporate issuers, which reflect fundamental differences in the nature of the entities themselves. Corporate issuers' sustainability ratings generally reflect the key performance indicators and metrics reported by companies in their public disclosures, while ratings on sovereigns are composed of national and international socioeconomic statistical data that reflect the overall state of the entity's environment, economy, and society. These differences in sustainability ratings pose challenges for sustainability themed fixed-income strategies, primarily because the integration of sustainability generally occurs at the level of sustainability ratings. We believe this represents a misunderstanding of the limitations of sustainability ratings and their place in the integration of sustainability into fixed income in general.

First, sustainability ratings reflect historical performance metrics rather than forward-looking analysis; the latter is essential for investment recommendations in active asset management. Undoubtedly, the data sets from large ESG data providers are invaluable for the finance industry, given the challenges of collecting and providing consistent information. However, ratings based on such data are, by their very nature, backward looking and based on reported information and events in the public domain. They reflect what *has* happened rather than what *might* happen in the future.

Second, in our view, sustainability ratings generally capture a wide range of topics, making them too broad to be immediately applicable to the investment process. Furthermore, sustainability ratings generally fail to reflect the differences between fixed income and equity in terms of materiality. Fixed-income investors are more concerned with downside risk arising from sustainability, whereas equity investors tend to focus on upside growth potential.

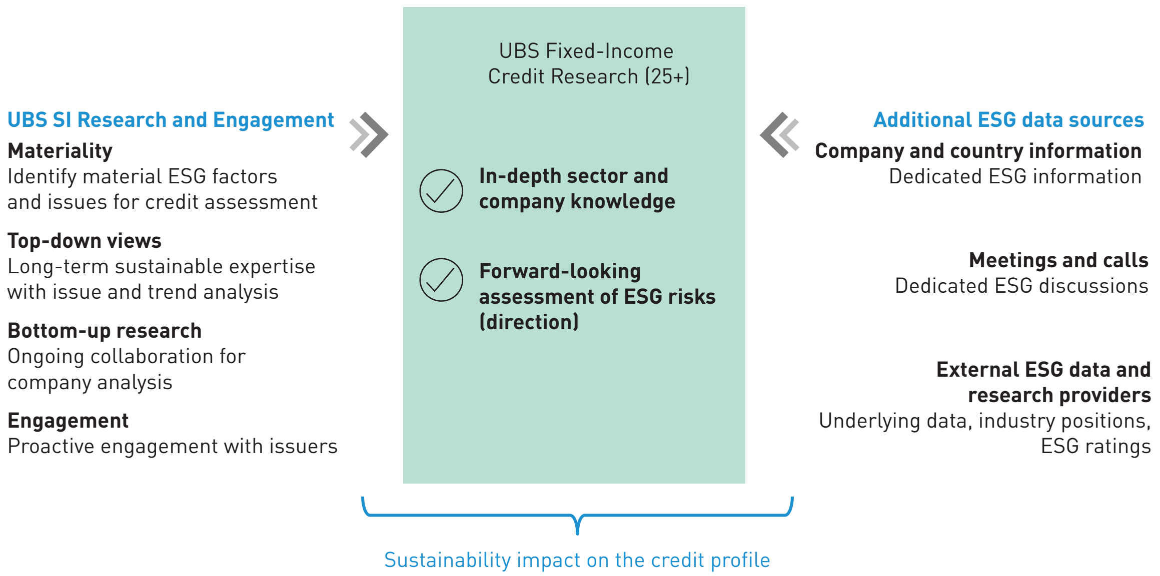
Third, sustainability ratings are, by definition, independent from the actual financial analysis of the issuers themselves. Inherently, third-party sustainability rating agencies work independently of the investment process, and their analyses are not directly applied to the fundamental credit assessment. Although sustainability ratings provide an important information starting point, for the rating to be truly meaningful, credit analysts and portfolio managers need to apply those ratings to the fundamental financial credit assessment.

UBS-AM'S PROPRIETARY CREDIT ASSESSMENT: MATERIALITY ANALYSIS FOR SUSTAINABILITY INTEGRATION (SI) INTO FIXED INCOME

At UBS-AM, we are of the view that ESG integration is strongest when credit analysts integrate the data into their own investment recommendations. Our credit analysts sit at the center of ESG integration in fixed income because we believe that by doing so they are best placed to utilize their in-depth knowledge of issuers, and their experience in fundamental analysis, to provide the context in which to consider sustainability issues. Crucially, UBS-AM credit analysts make forward-looking judgments in applying the sustainability issues to the projections that make up their credit recommendations. This judgment applies as much to ESG issues as it does to financial factors, and as such, it distinguishes the integration done by the credit analysts from ESG data gathering or scoring.

The integration process begins with UBS-AM's materiality analysis, developed by our sustainable investment research team in collaboration with our credit analysts (see **Figure 1**). The frameworks for identifying the most material issues from a credit perspective are

FIGURE 1: UBS-AM'S INTEGRATED APPROACH TO CREDIT RESEARCH



based on the recommendations of the Sustainability Accounting Standards Board, the weighting methodologies of various data providers, and discussion with individual credit analysts.

Based on the most material sustainability issues from a credit perspective, the credit analysts then assess a set of key ESG strengths and weaknesses for each issuer. Crucially, the credit analysts focus their research and analysis on whether—and to what extent—the most material sustainability issues impact the fundamental creditworthiness and risk profile of the issuer. They also look at recent controversies for an additional check on management's abilities, and for potential future liabilities. This helps to identify possible material impacts on creditworthiness.

The credit analysts determine whether the scale of any ESG issues is enough to impact the credit assessment. They then provide an explicit assessment score for each issuer along with an analysis of whether (and to what extent) sustainability factors have an impact on the fundamental credit recommendation. The key test of this assessment is whether the scale of the ESG risks is significant enough to become one of the key considerations in the development of the issuer's creditworthiness going forward, as well as the extent to which the ESG analysis leads to a change in credit opinion.

CASE STUDY A: CORPORATE HIGH-YIELD ISSUER

This North American high yield issuer is a private correctional/detention center operator for the US Federal Bureau of Prisons (BOP). The private prison industry fulfils a critical need for the US government, given the significant overcrowding at BOP facilities. However, studies indicate that private contract prisons incur more safety and security incidents per capita than comparable government-operated institutions, and require additional oversight. In terms of these highly sensitive human rights issues, the issuer is facing substantial criticism related to serious allegations of human rights abuse and neglect of inmates in its facilities, including the provision of inadequate health care, use of solitary confinement, and incidence of physical assaults. As a result, it faces a number of lawsuits and allegations. Given the high sensitivity of its core business activities and evident weakness in managing material risks, we see the investment risk skewed very much to the downside. The ESG analysis is weak and has a negative impact on the overall credit assessment of this issuer.[1]

CASE STUDY B: INVESTMENT-GRADE SOVEREIGN ISSUER

This European sovereign issuer demonstrates a relatively stable political environment, with high trust in government and institutional effectiveness and low levels of corruption. It has a high social welfare framework and strong social performance on metrics such as investments in education and strong health care benefits. The country also demonstrates

[1] *Sources*: Company annual disclosures, corporate sustainability reporting, independent new sources, and controversy analysis.

high levels of renewable energy use and recycling, and has a long-term outlook for sustainable sourcing of energy in the future. The strong performance on sustainability metrics strengthens the view of the long-term creditworthiness, resulting in a positive assessment of the impact of sustainability on the longer-term credit risk and fundamental credit assessment.[2]

CONCLUSION

Although the data are fundamentally different, the analysts apply the same approach of assessing the impact of these data on their fundamental credit assessment. This allows for consistent sustainability ratings by the credit analysts, reflecting a common approach to integration for both sovereign debt and corporate bond issuers that can be applied across a diverse range of positions in our credit portfolios.

[2] *Sources*: United Nations data, economic and environmental statistics, social metrics, and rankings.

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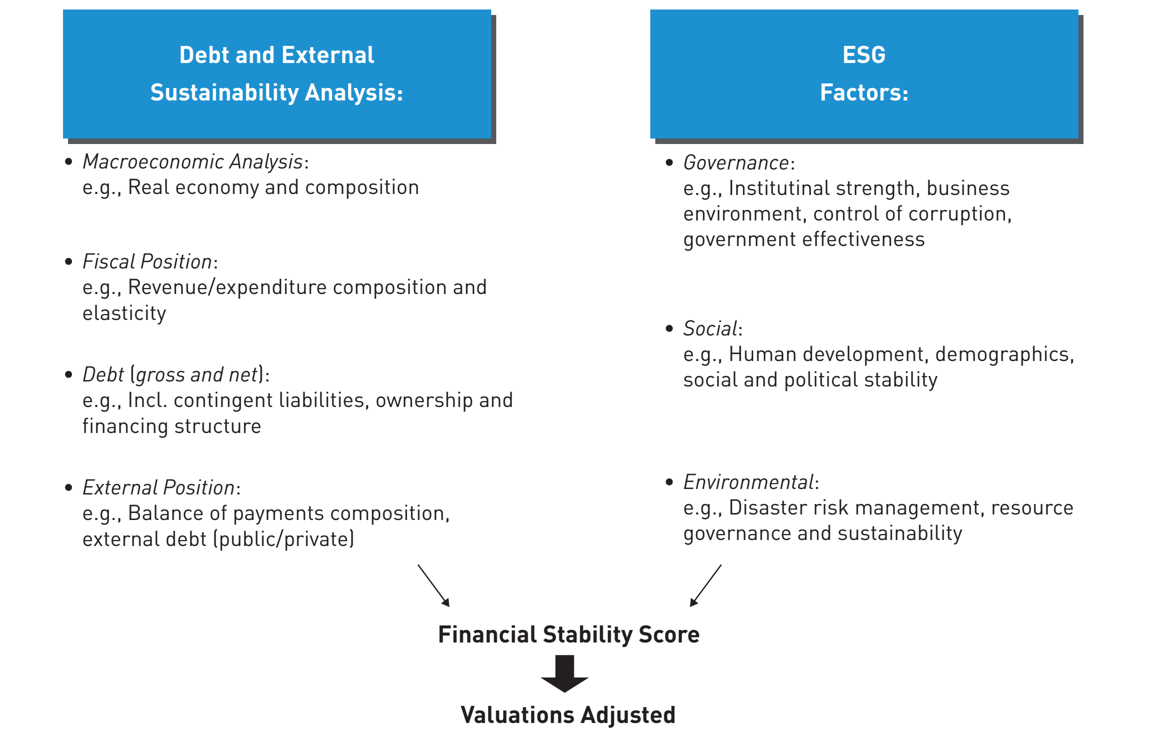
FIXED-INCOME CASE STUDIES: SOVEREIGN DEBT

INTEGRATION OF ESG FACTORS INTO SOVEREIGN BONDS: A CASE STUDY OF RUSSIA

Claudia Gollmeier, CFA, CIPM

Colchester Global Investors is a sovereign bond and currency manager. The factors that underpin its investment process are wide ranging, incorporating valuations and macroeconomic and financial analysis, alongside environmental, social, and governance (ESG) factors, as shown in **Figure 1**. Since the inception of the firm in 1999, responsible investing has been an integral part of the investment process, to better assess risk and generate sustainable, long-term returns.

FIGURE 1: COLCHESTER GLOBAL INVESTORS ESG INTEGRATION PROCESS



COLCHESTER GLOBAL INVESTORS ESG INTEGRATION FOR SOVEREIGNS

The integration of ESG factors is a holistic approach to investing and involves an enhanced analysis of sovereigns to better assess their ESG-related risks and opportunities. Colchester assigns a Financial Stability Score (FSS) to a country based on the overall balance sheet strength and ESG factors. The FSS ranges from +4 to –4 for those countries and currencies deemed to make it into the opportunity set and will lead to exclusion for those rankings below –4. However, the FSS is determined after a review of the ESG factors, and a strong sovereign balance sheet might be heavily penalized due to weak ESG factors. The following case study demonstrates how a country with a strong balance sheet can be significantly negatively affected by ESG factors.

CASE STUDY FOR ESG INTEGRATION: RUSSIA

At the time of this writing, Russian 10-year government bonds offered an attractive real yield[1] of around 3% with a ruble undervaluation of over 10% versus the US dollar in purchasing power parity.[2] This valuation needs to be considered in conjunction with a thorough balance sheet analysis and ESG factors to ascertain the underlying investment risk.

Figure 2 shows a sample of economic variables that would generally be considered in the analysis; it would appear to show Russia having a strong balance sheet. Economic growth is positive again since 2017, and inflation has fallen significantly from double digits to below 3%. Fiscal accounts are almost balanced, a primary surplus is expected by 2018, and gross government debt is low—below 20% of gross domestic product (GDP). Historically, oil revenues constituted around 50% of federal revenues but fell to around 40%. This narrow economic base is a vulnerability to the economy, as are the current economic sanctions.[3] Conversely, the external position looks strong, with a rising current account surplus, low external debt, and high foreign currency reserves of almost 23% of GDP at the end of 2017. In conclusion, the balance sheet looks strong.

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[1] Real yields are defined as the yield on a government bond minus Colchester's forecast of the next two years' consumer price inflation.

[2] Colchester calculates purchasing power parity by using country consumer and producer price indices, and foreign exchange rates.

[3] Sanctions were imposed in the aftermath of Russia's military intervention in Ukraine, which led to a plunge of net foreign direct investment by two-thirds during 2014.

FIGURE 2: A SNAPSHOT OF RUSSIA'S BALANCE SHEET

ECONOMIC INDICATORS & FORECASTS (% OF GDP UNLESS STATED)

	2013	2014	2015	2016	2017	2018F
Real GDP growth (%yoy)	1.8	0.7	−2.5	−0.2	1.5	1.7
Inflation EoP (%yoy)	6.5	11.4	12.9	5.4	2.5	3.5
Federal Govt Revenue	18.3	18.3	16.4	15.6	16.2	15.5
of which oil-related	9.3	9.5	7.1	5.6	5.8	5.9
General Fiscal Balance	−1.2	−1.1	−3.4	−3.7	−1.5	0.0
primary balance	−0.8	−0.7	−3.1	−3.2	−0.9	0.4
General Gross Govt Debt	12.7	15.6	15.9	15.7	17.4	18.7
Current Account	1.5	2.8	5.0	2.0	2.6	4.5
External Debt	32.7	29.1	38.0	40.0	34.3	31.0
Fx Reserves	20.5	15.9	22.7	24.0	22.7	24.0

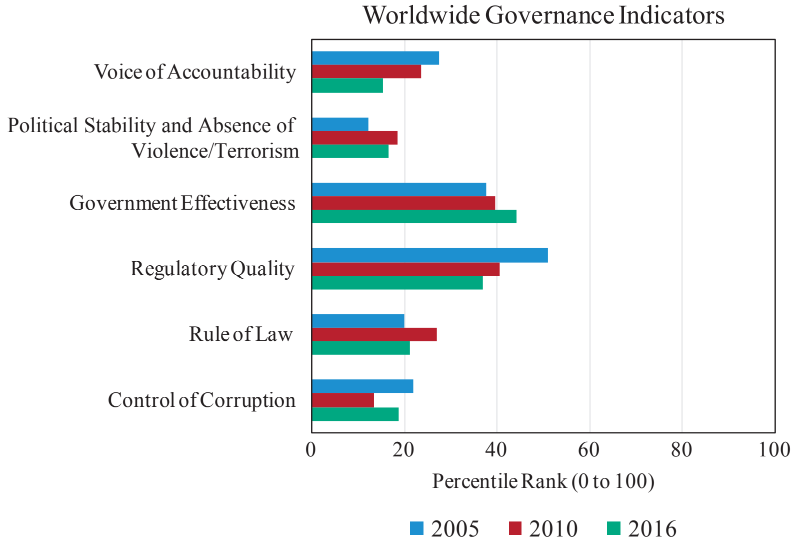
Source: IMF, CBR, Colchester Global Investors.
Abbreviations: FX, foreign exchange.

Russia's Balance Sheet Is Strong but It Faces Weak Governance

Although Russia's balance sheet is strong, its governance factors rank very low according to the World Bank's Worldwide Governance Indicators. The governance factor ("G") strongly influences the "S" (social) and "E" (environmental) factors as it (the government) sets the policies for environmental and social matters, and, in turn, influences the country's long-term sustainable economic growth.

Figure 3 displays the six governance indicators, of which all are low (and most have not improved over time). The low and deteriorating scoring on the government indicator is not surprising, given the authoritarian government. Similarly, the rankings for rule of law and control of corruption remain relatively low and unchanged over time. This does not bode well for foreign direct investment inflows in the absence of clearly defined property rights, international sanctions, and hence, long-term economic growth. These factors

FIGURE 3: RUSSIA'S WORLDWIDE GOVERNANCE INDICATORS[4]



Source: World Bank, Worldwide Governance Indicators (www.govindicators.org).

significantly weigh negatively on Russia's FSS and will be considered in conjunction with the social and environmental data discussed below.

Russia's Human Development Index Ranks Highly but Life Expectancy Is Lagging

Russia's Human Development Index (HDI) is high and has improved over time, according to United Nations' data, while its life expectancy index lags behind all other subcomponents (**Figure 4**, Chart 1). This is also evident when comparing Russia to its regional peers (**Figure 4**, Chart 2). Reasons for the low life expectancy might be linked to empirical results from the Organisation for Economic Co-operation and Development (OECD), which suggest that life expectancy does not only depend on the health system and that higher national income and health spending are also main drivers. Findings are that a

[4] The Worldwide Governance Indicators are a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen, and expert survey respondents in industrial and developing countries (Worldwide Governance Indicators: 0 = weak level of governance; 100 = high level of governance).

FIGURE 4: RUSSIA'S HUMAN DEVELOPMENT INDEX AND LIFE EXPECTANCY

Chart 1: Russia's Human Development Index[5] Components

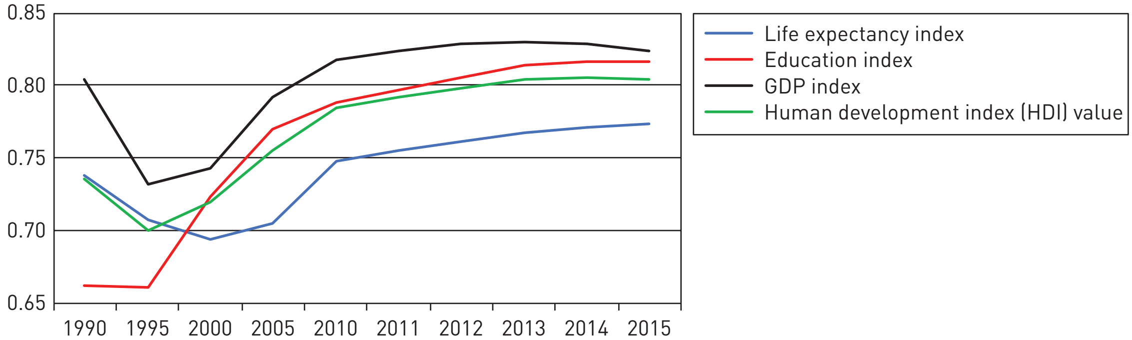
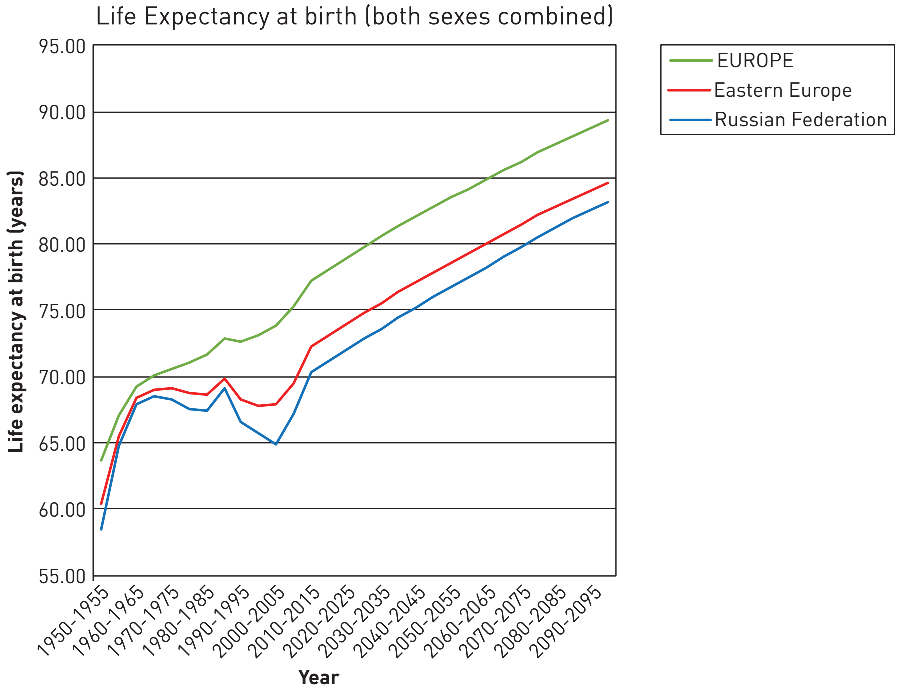


Chart 2: Russia's Low Life Expectancy



Sources: United Nations, Colchester.

[5] HDI considers three basic aspects of human development—leading a long and healthy life, being knowledgeable, and enjoying a decent standard of living.

10% increase in health spending per capita (in real terms) is attributable to a 3.5-month increase in life expectancy.[6]

In the case of Russia, as a very high human development country,[7] its expenditure of 35.7% of GDP is relatively low compared to the OECD-27 average of 45.6% of GDP, and the European Union-28 average of 47% of GDP as of 2015 (**Figure 5**, Chart 1). The expenditure breakdown shows further that other countries spend more on social protection, education, and health. In contrast, Russia appears to have a higher focus on defense spending. The future consequences of Russia's low levels of health spending, coupled with an unfavorable demographics profile, might impact life expectancy more negatively (**Figure 5**, Chart 2). This, in turn, will reduce the overall future workforce, which will lead to lower productivity and future economic growth, and may likely impact sovereign creditworthiness negatively in the longer term. Again, the social aspect, while it does not have an imminent economic impact, will be unfavorable in the long term with regard to the FSS.

Russia's Resource-Rich Economy Ranks Low on Its Management

A review of environmental factors includes environmental disaster risk management, sustainability, and resource governance to lessen the environmental impact. In the case of Russia, resource governance is of primary importance because of the contribution of oil, gas, and mineral extraction to the country's balance sheet.

The Resource Governance Index (RGI) produced by the National Resource Governance Institute "assesses policies and practices that authorities employ to govern their countries' oil, gas and mining industries."[8] Russia's vast oil and gas resources allowed it to establish two sovereign wealth funds. The Reserve Fund was intended to top up the federal budget during falling oil prices, and the National Wealth Fund was dedicated to supporting Russia's pension system long term. Unfortunately, as oil prices fell and deficits rose, the authorities drew on the Reserve Fund in 2015 and used the National Wealth Fund for economic stimulus purposes, instead of using these reserves for economic diversification efforts, future generations, and/or rainy-day savings. The Reserve Fund was almost depleted at the end of 2017, and the authorities decided to merge it with the National Wealth Fund. This highlights how natural resource revenue management impacts a country's balance sheet. The RGI puts Russia at the bottom of its "weak" category (**Figure 6**).

[6] Health at a Glance 2017, OECD Indicators.

[7] High human development country, according to the Human Development Index.

[8] https://resourcegovernance.org/sites/default/files/documents/2017-resource-governance-index.pdf, p. 7

FIGURE 5: RUSSIA'S EXPENDITURE BREAKDOWN AND HEALTH SPENDING

Chart 1: Russia's Expenditure Breakdown for 2015 (% of GDP)

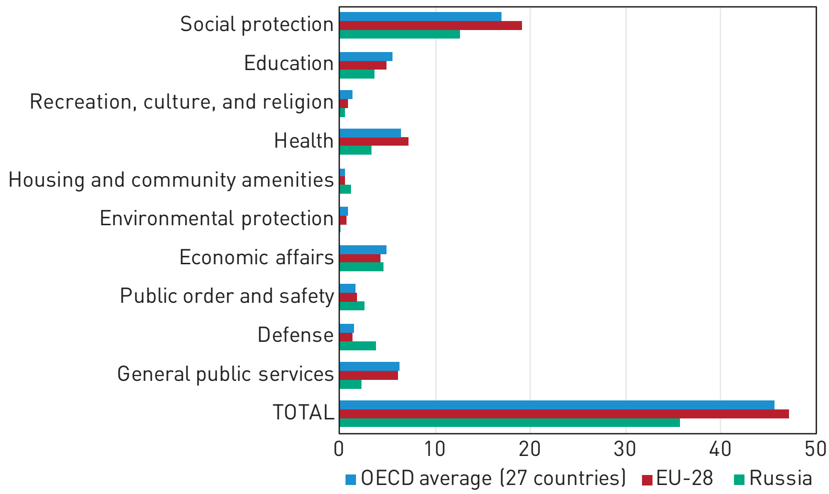
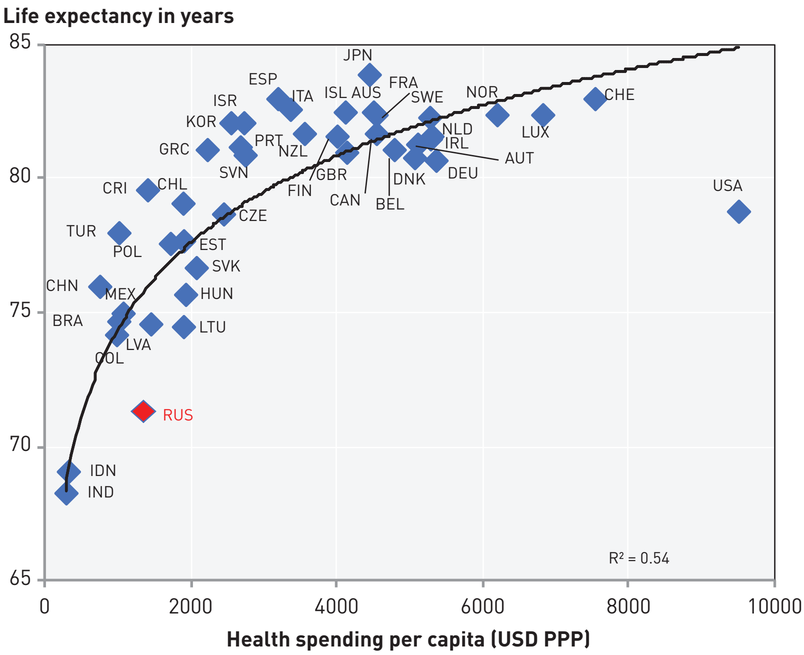
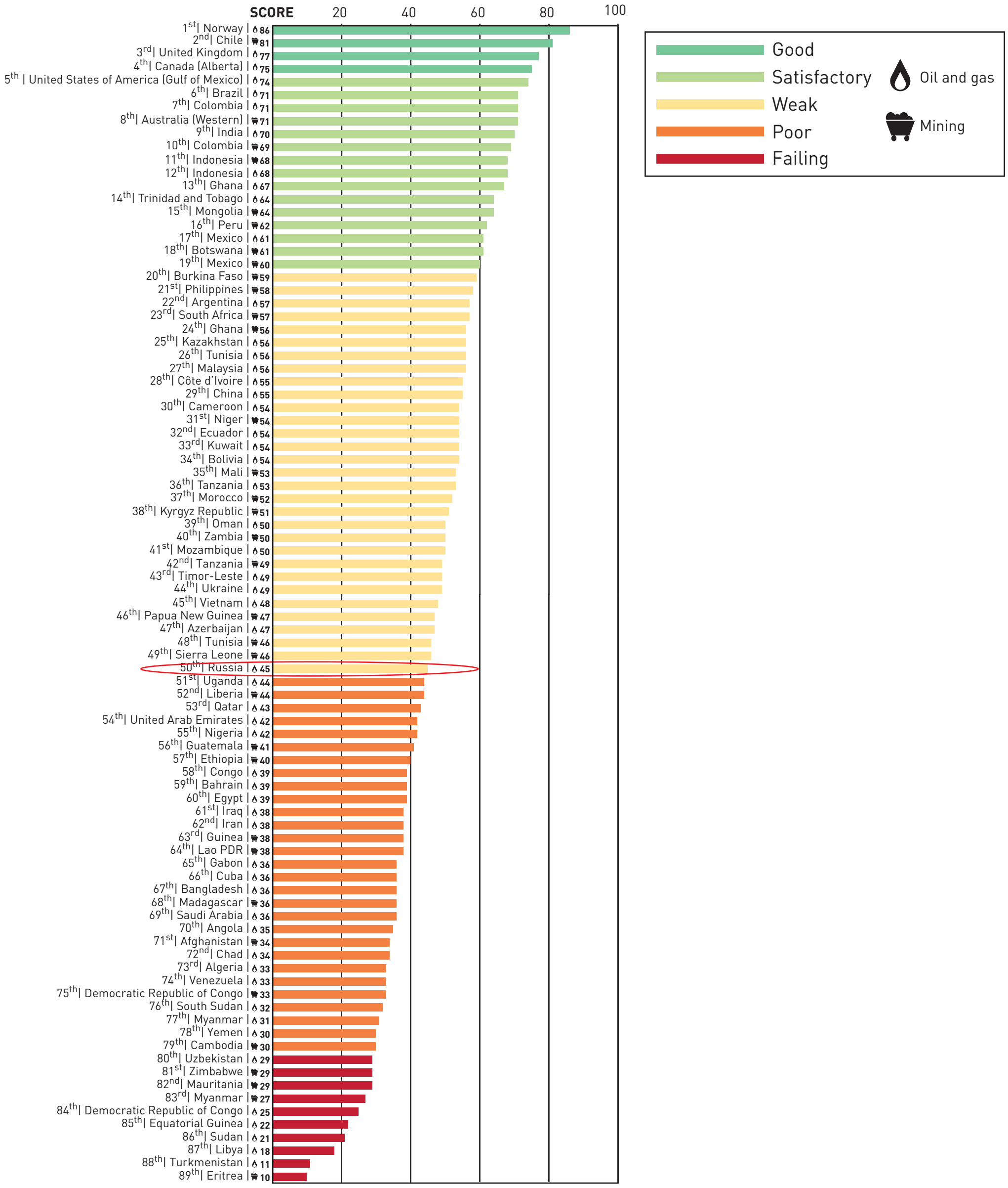


Chart 2: Russia's Low Health Spending



Sources: OECD Health Statistics 2017, World Bank, OECD, Federal Treasury of the Russian Federation, Eurostat, Colchester.

FIGURE 6: RUSSIA'S RESOURCE GOVERNANCE INDEX



Source: National Resource Governance Institute (score: 0 = weakest level of governance; 100 = highest level of governance).

What Is Russia's Financial Stability Score?

The analysis provided above indicates a solid balance sheet for Russia—low debt levels and relatively solid fiscal and external positions, combined with an attractive real yield of the sovereign debt, all of which would suggest an attractive investment proposition. However, Russia's weak ESG factors led to a significant downward adjustment of the real yields and currency valuation via the FSS.

Colchester's holistic approach to the integration of ESG factors via a detailed analysis of the balance sheet and ESG factors, as demonstrated in the case study of Russia, attributes an FSS of –4 (the lowest score) for Russia's bonds and currency.

HOW DOES OUR FINANCIAL STABILITY SCORE AFFECT OUR INVESTMENT DECISIONS?

Following our assessment of real yield and real exchange valuations, the FSS is applied prior to the portfolio construction process. Were there two countries with equal real yields, the one with the higher FSS would be favored, as it is reasonable to assume that a country with higher standards on all or some factors would have a better return outcome.

Colchester believes that countries with better ESG standards tend to produce better economic growth, more stable balance sheets, and better long-term and sustainable financial outcomes.

FUTUREGROWTH ASSET MANAGEMENT (PTY) LTD.

RESPONSIBLE INVESTING IN DEBT CAPITAL MARKETS: UNPACKING GOVERNANCE FOR STATE-OWNED ENTITIES

Futuregrowth's Credit Team

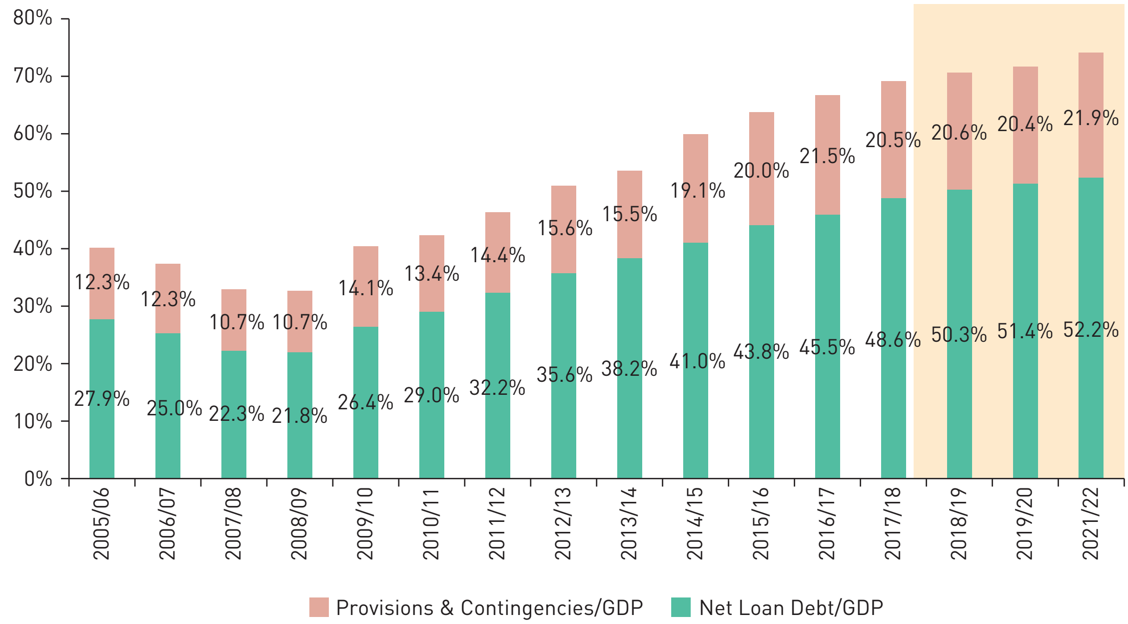
Futuregrowth Asset Management has been a substantial funder of national development through its investment in the debt issued by many of South Africa's state-owned enterprises (SOEs). SOEs, by their very nature as publicly funded entities, are not subject to the same market discipline or shareholder oversight as other entities. Recent corporate failures (African Bank Limited, Steinhoff International Holdings NV), as well as serious allegations of malfeasance at certain SOEs (as revealed by South Africa's Public Protector), have demonstrated the need for appropriate and strong governance checks and balances—applied equally to both public and private companies. In addition, the assessments of S&P Global Ratings (a subsidiary of Standard & Poor's Financial Services LLC) and Fitch Ratings Ltd., which place South Africa's sovereign debt at one level above a rating of junk, have raised concerns that the government debt guarantees to SOEs (which totaled ZAR467 billion at the end of March 2017) pose significant risks to South Africa's deficit and economic and ratings outlook (see **Figure 1**).

At the end of August 2016, Futuregrowth made a public statement that it would suspend lending to some South African SOEs until an in-depth governance due diligence could be concluded. Following the lending suspension, we initiated a self-imposed embargo on the listed instruments of the six SOEs until we better understood the governance at these entities and were able to formulate a forward-looking investment view. We have subsequently lifted our lending suspension on the Land and Agricultural Development Bank of South Africa (Land Bank), the Industrial Development Corporation of South Africa Limited (IDC), the Development Bank of Southern Africa (DBSA), and the South African National Roads Agency SOC Ltd. (SANRAL) (conditional) upon finalizing our reviews. Although the yields in the named SOEs did not materially increase, we noted that certain SOEs had difficulty accessing the local capital markets following our suspension.

INCORPORATING CORPORATE GOVERNANCE INTO CREDIT ANALYSIS

Futuregrowth worked with the six largest SOEs in South Africa (Land Bank, DBSA, IDC, SANRAL, Transnet SOC Ltd., and Eskom Holdings SOC Ltd.) to conduct a detailed governance due diligence for each entity. We recognize that good governance is a key factor in ensuring that public entities (mostly funded with public money) are sustainably managed for the long-term and are able to deliver on their developmental mandates.

FIGURE 1: SOVEREIGN DEBT AND CONTINGENT LIABILITIES



Source: National Treasury.

During the governance due diligence process, we assessed various criteria through a combination of:

- conducting onsite due diligence, including meeting with key members of the board and management to verify processes; and
- reviewing board minutes, policies, charters, terms of reference, and other documentation to assess evidence of good governance in action.

We found that at present, the governance reporting is remarkably vague and should be vastly improved so that investors can make informed decisions and allocate capital to sustainable, well-managed entities.

Futuregrowth's due diligence process highlighted certain flaws in the markets and our approach to understanding SOE governance, and showed the need for our analytical approach to evolve to consider these aspects more explicitly. Corporate governance of SOEs is better understood as a "web" of oversight by various stakeholders (e.g., shareholders, directors, employees, regulators, suppliers, financiers, auditors, and corporate secretaries) as well as a range of policies, practices, protections, and disclosures. We realized that a central focus on the board of directors in our governance reviews was not appropriate because the governance of SOEs also relies on parliament and the executive authority (i.e., the ministry responsible for that SOE).

Some of the key learnings outlined below, arising from extending our focus to "beyond the board of directors" to the legislative governance framework in which each

SOE operates, meant that we also considered the layer of governance that exists between the board and its executive authority. One key challenge in looking beyond the board of directors to the overarching legislative framework is the concern of instances where the law is inconsistent with governance recommendations (which are voluntary by nature). In our view, the board of directors of the SOEs is best placed to advocate for a stronger alignment of its enabling legislation with corporate governance best practice.

GOVERNANCE IMPROVEMENTS: LAND BANK

Futuregrowth identified many areas for improvement across the SOEs we analyzed. We share here some of these governance recommendations and improvements with regard to Land Bank, the first SOE we cleared following the lending suspension. Our engagement with Land Bank was fruitful and positive. In the months since the completion of our due diligence, Land Bank has been able to access the capital markets successfully, raising longer-term funding at lower interest rates and in greater amounts than they were previously able to (**Figure 2**).

Some outcomes of the governance negotiations included improvements to board decision-making structures and processes, and changes to legal agreements.

In principle, we agreed with Land Bank with regard to the inclusion of specific legal protections in any future bilateral loan agreements, and possible changes to its Domestic

FIGURE 2: LAND BANK PRICING AND ISSUANCE TRENDS

	LAND BANK							
	MARCH 2017		**AUGUST 2017**			**MARCH 2018**		
	3-YEAR	**5-YEAR**	**1-YEAR**	**3-YEAR**	**5-YEAR**	**1-YEAR**	**3-YEAR**	**5-YEAR**
VOLUMES								
Target issuance size	ZAR750 m		ZAR750 m–ZAR1 bn			ZAR1.5 bn–ZAR2 bn		
Number of participating bids	11	9	12	22	33	9	6	12
Bids received (ZAR, m)	553	283	1,199	1,337	2,553	1,138	614	1,270
Bids allocated (ZAR, m)	523	233	331	243	426	500	245	1,270
Bid cover (×)	1.06	1.21	3.62	5.50	5.99	2.28	2.51	1.00
SPREADS								
Pricing guidance (bps)	180-195	270-285	120-130	165-175	240-255	90-120	130-150	190-230
Clearing spread (bps)	190	285	115	155	255	110	149	215

Source: Futuregrowth; bank auction outcomes.

Abbreviations: bn, billions; bps, basis points; m, millions.

Medium Term Note Program documentation. A key focus of these protections is to maintain the stability of the relationship with the current Executive Authority.

INCREASED PUBLIC DISCLOSURE AND TRANSPARENCY

As part of our engagement with Land Bank, we have agreed with the board and management that they will undertake regular public reporting on key matters in a bid to facilitate monitoring and transparency (see **Figures 3** and **4**). We recognize that governance is a dynamic process, the monitoring of which requires ongoing vigilance and engagement with management and shareholders. To this end, we have agreed with the other SOEs that they will also undertake regular public reporting on similar key matters (see Figures 3 and 4).

KEY LEARNINGS

We have identified some key learnings and broad categories for governance improvements that asset managers could apply when assessing SOEs and listed corporate entities that access funding through the capital markets.

The "Who" Matters

An organization can have all the trappings of governance (e.g., a board, committees, and policies), but if it has corrupt or ill-intentioned shareholders or leaders, then the corporate policies and practices are at risk. Improving governance means improving the selection and appointment process for individuals on company boards and board subcommittees, and for executive management positions.

In the case of SOEs, attention to the "who" also implies improving the selection process of shareholder representatives (e.g., the ministers and their advisers). Thus, one has to look at the nomination and appointment processes for board and executive management members.

- Does the candidate vetting process incorporate detailed fit-and-proper background and other probity checks?
- Are candidates vetted for personal or political connections or conflicts?

Board of Directors and Board Committees

The composition of the board must be appropriate.

- Are the quorum requirements and voting thresholds sufficient?
- How are conflicts of interest dealt with? Are members recused appropriately?
- Are the disclosure and management of conflicts appropriate and adequate?

Governance Policies

Organizations should have governance policies that cover their major business areas (e.g., procurement, lending) as well as key risk areas (e.g., dealing with politically exposed

FIGURE 3: OUTCOMES OF GOVERNANCE NEGOTIATIONS (PART 1)

OUTCOMES	LAND BANK		DBSA		IDC		SANRAL	
	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?
AMENDMENTS TO LEGAL DOCUMENTATION								
DMTN amendment to protect the stability of the relationship with the shareholding ministry	☒	☑	☒	☒	☒	☒	☒	☒
BOARD STRUCTURE AND COMPOSITION								
Appropriate board size	☑	n/a	☑	n/a	☑	n/a	☒	☒
Balanced and appropriate mix of skills on the board and subcommittees	☑	n/a	☑	n/a	☑	n/a	☒	☒
Sufficient members on the ARC (including people with specific auditing skills)	☑	n/a	☑	n/a	☑	n/a	☒	☒
Staggering of director terms	☒	☑	☒	☒	☒	☒	☒	☒
A nominations committee	☒	☒	☑	n/a	☑	n/a	☒	☒
BOARD DECISION MAKING								
Appropriate quorum and voting thresholds for board and subcommittees	☒	☑	☒	☒	☒	☑	☑	n/a
Regular public reporting on changes to key policies, terms of reference for board and subcommittees	☒	☑	☒	☑	☒	☑	☒	☑
Regular public reporting of all conflicts of interest of board members and management	☒	☑	☑	n/a	☒	☑	☒	☒
Annual disclosure of the number and quantum of deals approved at the various credit and investment committees	☒	☑	☑	☑	☒	☑	n/a	n/a

FIGURE 4: OUTCOMES OF GOVERNANCE NEGOTIATIONS (PART 2)

OUTCOMES	LAND BANK		DBSA		IDC		SANRAL	
	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?	DID THEY ALREADY HAVE THIS?	DID THEY AGREE TO IMPLEMENT THIS?
Limitations to the delegated authority of particular credit, investment, and procurement committees	☒	☑	☒	☑	☒	☑	☒	☑
Timely and public reporting (via the website, Integrated Annual Report, and SENS) of all changes to the board and subcommittees terms of reference, mandate, and authority levels	☒	☑	☒	☑	☒	☑	☒	☑
CONFLICT MANAGEMENT								
A conflicts-of-interest policy that prevents current directors (directly or indirectly via their investments or projects) from transacting from the SOE	☒	☑	☒	☑	☑	☑	n/a	n/a
An appropriate PEP policy	☑	n/a	☑	n/a	☒	☑	☒	☑
Disclosure of all transactions with PEPs in the Annual Integrated Report and/or website	☒	n/a	☒	☑	☒	☑	☒	☑
A cooling-off period restricting former directors from conducting business with the SOE	☒	☒	☒	☒	☒	☑	☒	☑
GOVERNANCE REVIEWS								
Third-party governance assessments, the results of which are made public	n/a	n/a	☒	☑	☒	☑	☒	☑
RELATIONSHIP WITH EXECUTIVE AUTHORITY								
Public reporting of KPIs, shareholder compact, and targets	☒	☑	☒	☑	☒	☑	☑	n/a

Source: Futuregrowth.

persons [PEPs], conflicts of interest). The details of these policies should be investigated for suitability.

- Can a single board member or executive alone approve a high Rand-value Rand transaction?
- Under what circumstances can the company do business with a PEP?
- How are transactions with PEPs reported, managed, and disclosed?

Disclosure and Reporting

The SOEs and corporate entities that raise capital on the Johannesburg Stock Exchange (JSE) limited stock exchange (a public capital market) are bound by the South African JSE Debt Listings Requirements (DLR). The disclosure and reporting requirements detailed in the DLR are weak and need to be improved (e.g., these could include all changes to the board and subcommittees, conflicts and PEPs, loans and procurement).

- Disclosure on the Stock Exchange News Service at the time of the event:
  - all board and subcommittee member changes and reasons (including new appointments);
  - details of resumé and experience;
  - any identified conflicts; and
  - results of probity checks.
- Current and previous director and executive dealings with the company.
- Annual disclosure (website, integrated annual report):
  - board and subcommittees: nomination and appointment processes and who the decision makers are; and
  - charter, terms of reference, mandate, quorum, decision-making requirements and authority levels and changes.
- Conflicts of interest policy and PEP policy:
  - application thereof, deviations, remedial action, and any changes.
- Lending:
  - loans made to PEPs, directors, and management.
- Procurement:
  - contracts concluded with PEPs, directors, and management.

Conclusion

Being a responsible investor implies that Futuregrowth makes decisions to allocate capital to those sectors and entities that adopt transparent, sustainable policies and practices. We recognize that good governance is a key factor to ensure that public entities—mostly funded with public money—are sustainably managed for the long term and are able to deliver on their developmental mandates. Through this case study, we demonstrated how we assess SOEs, illustrated the impact of poor governance in terms of the future outlook for those SOEs, strove to raise awareness about these issues, and highlighted the questions investors should be consistently asking of all entities that access funding in the public capital markets.

PIMCO

INTEGRATING ESG FACTORS INTO SOVEREIGN CREDIT RESEARCH

Lupin Rahman

Traditional sovereign credit analysis focuses on financial and macroeconomic variables that materially impact a country's probability of default and the expected loss if a default does occur. Today, it is increasingly apparent that a government's ability and willingness to meet its financial obligations are also influenced by politics, governance, social considerations, natural disasters, and the longer-term impact of environmental factors. The recent example of South Africa highlights how integrating environmental, social, and governance (ESG) factors into traditional sovereign credit analysis can inform investment decisions and potentially help investors safeguard portfolios from large downside risks.

PIMCO'S APPROACH TO ESG

ESG has been an integral part of PIMCO's sovereign ratings analysis since 2011 when we explicitly incorporated ESG factors into our sovereign ratings model. These ratings are complemented by a standalone ESG scoring framework and country-specific scenario analysis that incorporate ESG risks.

PIMCO's proprietary sovereign ratings model starts with an in-depth, bottom-up country analysis. This analysis is based on five-year macroeconomic forecasts and specific quantitative ESG indicators, and considers both near- and long-term drivers of credit risk. ESG variables have a combined weight of approximately 25% in the model. Within ESG, governance ("G") variables dominate, given that they are a leading indicator of sovereign risk. Social ("S") factors, such as health and education, are less directly significant but tend to be highly correlated with initial conditions such as gross domestic product (GDP) per capita, which, in turn, is highly correlated with sovereign risk. Finally, we have found that environmental ("E") variables on average are the least correlated with three- to five-year sovereign risk, with the exception of specific incidents (e.g., hurricanes, earthquakes, floods, nuclear fallouts).

We then explicitly score all sovereigns on each ESG component (see **Figure 1**). Each component is weighted equally and the quantitative score is supplemented with qualitative assessments. This allows us to take account of important ESG indicators. For example, progress toward the use of renewable energy or an increase in social tensions may not necessarily have an immediate impact on sovereign risk but are nonetheless important for long-term sustainability.

FIGURE 1: VARIABLES INCLUDED IN PIMCO'S ESG SOVEREIGN SCORE

E (ENVIRONMENTAL)	S (SOCIAL)	G (GOVERNANCE)
■ Greenhouse gas emissions per capita ■ The Yale Environmental Performance Index ■ Fossil fuel usage ■ Renewable energy ■ GDP per unit of energy	■ Life expectancy ■ Mortality rate ■ Gender equality ■ Gini coefficient (indicates wealth distribution) ■ Health score ■ Av years of education ■ Av years of higher education and training ■ Labor market indicators ■ Corruption indicators	■ Political stability ■ Voice and accountability ■ Rule of law ■ Control of corruption ■ Government effectiveness ■ Regulatory quality

Source: PIMCO.

Finally, our country-specific scenario analysis assesses long-term trends and tail risks. We analyze long-term debt sustainability, resource depletion scenarios, natural disaster scenarios, political regime change, and contingency risks, incorporating both macroeconomic and ESG factors. Our country-specific scenario analysis helps enable us to identify which sovereigns are prone to left-tail risks, which have contingency plans in place, and which risks are material for investing. We believe it also gives us a better handle on latent risks, many of which tend to be associated with ESG variables.

ENGAGEMENT WITH SOVEREIGN ISSUERS

In-country engagement is a critical component of our sovereign credit analysis and for assessing a government's track record on ESG objectives. During our visits, we generally meet with senior government officials and politicians, focusing on the details of our credit assessment, which range from the composition of the budget and the management of foreign exchange reserves and monetary policy to progress on key development and environmental goals. We also generally meet with local business people, banks, consultants, trade unions, journalists, nongovernmental organizations, and members of civil society to get a broad, holistic sense of developments in the country. The discussions tend to be two-way interactions: the government updates us on its progress and plans, and our analysts and portfolio managers relay our concerns, assessments, and expectations to the officials.

COUNTRY EXAMPLE: SOUTH AFRICA, 2015–2017

Developments in South Africa over the period 2015–2017 reflect how integrating ESG into sovereign risk assessment can be used to potentially improve portfolio returns and shield portfolios from large downside risks.

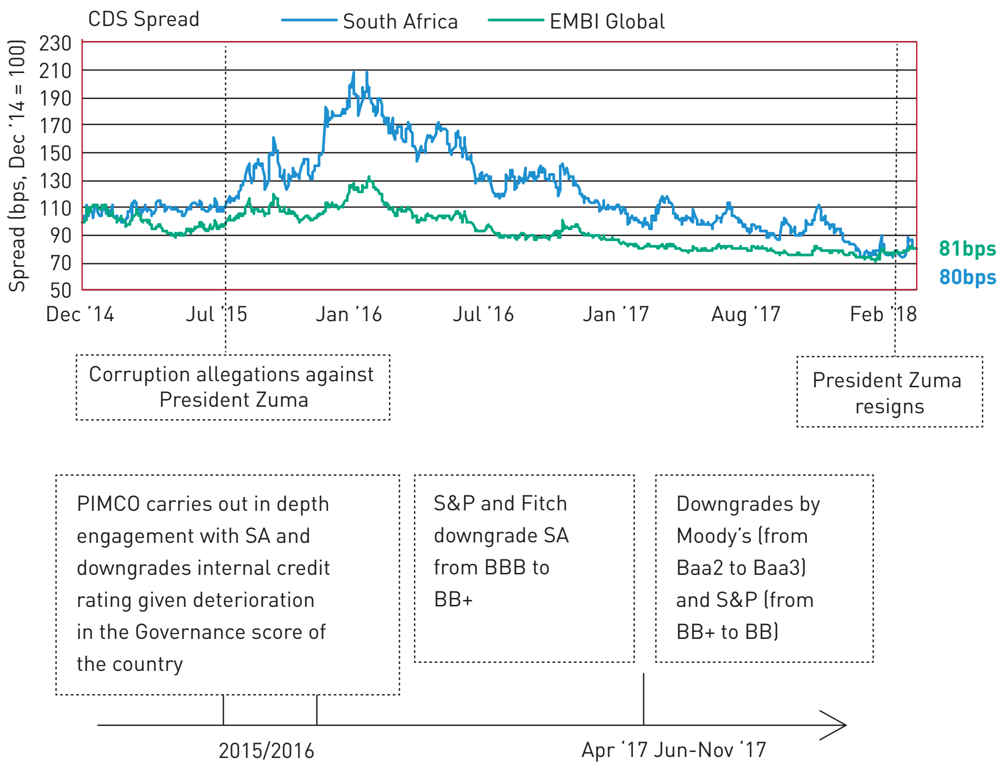
In July 2015, allegations of corruption emerged with regard to former South African President Jacob Zuma. Criticism focused on a nuclear energy agreement between South Africa and Russia, which was believed to be engineered for President Zuma's personal gain to the detriment of Eskom Holdings SOC Ltd., a South African electricity public utility. President Zuma was also accused of having a corrupt relationship with the Guptas, a prominent South African business family. A power struggle within the African National Congress (ANC) followed, resulting in a weakening of South Africa's institutional framework, with frequent changes of finance ministers, fiscal slippage, and political turbulence.

When the allegations first surfaced, we initiated a reassessment of South Africa's political and governance risks, and a senior PIMCO team made a due-diligence trip to the country. The objective was to understand the economic and institutional impact as well as the social consequences of the graft (e.g., the diversion of fiscal resources away from health and education). Following in-depth discussions with the government and a detailed analysis, we downgraded our internal credit rating for South Africa, several quarters before the major rating agencies did (see **Figure 2**). The weight of the governance indicators in our sovereign ratings, our assessment of the impact of weaker institutions on economic growth, and South Africa's debt burden, and our engagement with senior government officials were key drivers of this decision.

Our downgrade led us to reevaluate our portfolio exposure to South African sovereign and quasi-sovereign risk, and led us to make a call to reduce exposure across PIMCO accounts. Due to the integration of ESG factors in our standard sovereign risk framework, we were able to identify problems early and reduce exposure when the markets were still pricing in a favorable scenario for South Africa. Over time, as the extent of the corruption became known, the markets and the rating agencies caught up with our assessment.

From 2015–2017, we remained engaged with the government and key stakeholders in South Africa. This enabled us to better understand the political dynamics and relay investors' concerns directly to the key decision makers. Specifically, we emphasized the need for improved transparency and governance both within the government and in state-owned enterprises—especially in public procurement processes. As global macroeconomic conditions improved, the markets started to reprice South Africa positively, but our negative view on governance and transparency led us to remain cautious, particularly as there was a good chance that President Zuma's policies would continue if his ex-wife, Nkosazana Dlamini-Zuma, won the leadership of the ANC. With the election of President Cyril

FIGURE 2: TIMELINE OF SOUTH AFRICA'S SPREADS AND PIMCO'S SOVEREIGN CREDIT ASSESSMENT



Source: PIMCO.

Note: The sample is for illustrative purposes only. Past performance is not a guarantee or a reliable indicator of future results.

Abbreviations: bps, basis points; CDS, credit default swap; EMBI Global, Emerging Markets Bond Index Global; SA, South Africa.

Ramaphosa as leader of the ANC in December 2017 and the exit of President Zuma from politics in February 2018, we are monitoring the new government's progress in correcting management gaps in the state-owned enterprise sector and advancing reforms to improve governance and transparency. The change in management at Eskom and the procedures being put in place to reduce corruption are promising signs that South Africa is finally on the long road to recovery.

ROBECO

TROUBLES IN TURKEY

Max Schieler and Paul Murray-John

Environmental, social, and governance (ESG) criteria factor into our investment process via the RobecoSAM Country Sustainability Ranking framework. This ranking evaluates 65 countries—among which 45 are emerging markets—on a broad range of ESG factors that we consider to be relevant from an investor's perspective. Ranking data are available for all countries with a functioning bond market. They include ESG data that one would likely expect such as policies on greenhouse gas emissions, human rights, and corruption, but also include nontraditional angles such as investments in innovation, labor market unrest, or an aging policy.

In selecting the data, we closely cooperate with RobecoSAM (Robeco's sister company that specializes in sustainability investing). Together, we have constructed the ranking and selected the 17 factors and more than 200 data series from which the ranking is built. In the ESG profile of a country, we emphasize what we find relevant for investment decisions and try to identify risks of outsized market losses. Therefore, we add data on items such as government stability, regulatory quality, and energy dependence, and avoid overemphasizing factors such as access to electricity (on which nearly all the countries in our universe score above 90%). This bottom-up selection process puts more emphasis on social and governance data, simply because we find these data the most relevant for the investment process.

The output of the ESG analysis is a score for each country in the investment universe. This makes it possible to rank countries and to see how their scores evolve over time. Changes in the scores and the resulting rank act as a flag for developments that could be relevant. For example, Turkey's score has been red flagged over the past few years.

WEAKENING PUBLIC GOVERNANCE

Turkey's governance performance and institutional framework have clearly been affected by disruptive politics and President Erdogan's tightening power grip. Instability and unrest have been exacerbated by many factors, including an increasingly authoritarian policy course, the massive inflow of Syrian refugees, terrorist attacks, Islamic State threats, and the alleged end of the peace process with the Kurdistan Workers' Party. These developments have also led to a deep divide between the pro- and antigovernment groups that has manifested in all spheres of economic, political, and social life—a chasm that is on course to widen with time.

The aftereffects of the failed coup in July 2016 are aggravating the already delicate political situation. President Erdogan has responded to the failed coup by intensifying his long-running purges of police, military, education, business, and political sympathizers (such as the Gülen movement), leaving practically no segment of the public or private sphere untouched. Since the coup, the country has been in a state of emergency, in spite of initial promises to end this within months. The crackdown will further weaken the country's institutions, and its effects are already visible.

The EU Progress Reports of the past few years have noted a relapse in important areas such as fundamental civil rights, democracy, press freedom, and rule of law in Turkey. The AKP (Justice and Development Party) has also renewed its push for a presidential system that would involve a transfer from executive powers to the president. Moreover, President Erdogan has confirmed that he will ask parliament to consider reintroducing the death penalty as punishment for the plotters behind the failed coup—a step that would be virtually tantamount to ceding the country's EU membership ambitions.

PERSISTENT GAPS IN TURKEY'S ESG PROFILE

In our Country Sustainability Ranking, we emphasize governance factors. These factors tend to be key drivers of business performance, economic success, and social cohesion. This makes the clampdown of Turkey's institutions all the more tragic. The solidity of the governance framework already lags behind all Organisation for Economic Co-operation and Development (OECD) countries in terms of perceived quality and will now fall further behind its peers. True, some progress has been made in the social area, such as a reduction in absolute poverty and improvements in education. However, average household disposable income per capita is still slightly below 50% of the OECD average, working conditions are below OECD standards, and income inequality remains high compared with OECD peers.

On the social side, gender disparities are pronounced, with low female representation in parliament and large gender pay gaps. Turkey's record on environmental, energy, and urbanization issues also compares rather poorly with other OECD countries. Air and water quality are far below OECD averages, and greenhouse gas emissions per capita—although still fairly low—are rising rapidly. Competition for water across sectors will grow further as a result of ongoing urbanization and the increased irrigation needed for agricultural expansion. However, positive trends are also visible. Public awareness of environmental and climate change issues appears to be rising, and public expenditures in some of these areas have been increasing in recent years. Moreover, Turkey is more or less in line with EU environmental legislation. But, as is the case with many other emerging economies, enforcement is a major weakness because environmental protection is still widely perceived as an obstacle to economic development.

Because of these reasons, as of October 2017, Turkey's rank is 55 out of 65 countries we monitor in the RobecoSAM Country Sustainability Ranking—among the bottom 10 performers. This represents a slide of five spots from September 2013. Currently, there is no indication of a turn for the better but rather the risk of further erosion of Turkey's sustainability profile.

PORTFOLIO IMPACT FOR ROBECO EMERGING DEBT

The decline in the Turkish ESG profile has changed our attitude toward investing in the country. The deterioration in the ESG score is not a one-off event; it fits within a negative trend. For other countries that have experienced a similar decline in the past (e.g., Brazil), this weakness served as a valuable warning signal.

In addition to its weakening ESG profile, Turkey suffers from ongoing weakness in the country's current account, a stubbornly high inflation rate, and increased difficulties attracting foreign direct investment. In our opinion, the change in the risk profile of the country has not been fully reflected in the valuation of the currency against its peers. We have reduced investments in the Turkish lira on several occasions in 2016 and 2017—it has been the worst performing currency in the emerging local debt index, depreciating 33% versus the US dollar since January 2016.

FIXED-INCOME CASE STUDIES: MUNICIPAL BONDS

SAGE ADVISORY SERVICES, LTD. CO.

THE CHALLENGES WITH AND LESSONS FROM INTEGRATING ESG ISSUES INTO MUNICIPAL BONDS

Nicholas Erickson, CFA

For those looking for investment opportunities stemming from environmental, social, or governance (ESG) factors, there is no better place to start than municipal bonds. After all, municipalities have been issuing social-impact bonds for decades to support essential community services, such as public schools, hospitals, affordable housing, and infrastructure projects. Over the last five years or so, there has been an increase in projects focused on having a greater environmental impact, specifically in mass transit, clean energy, pollution reduction, and resource preservation, to name a few.

What has not been available until recently is the ability to target municipal bonds that may offer the greatest impact on the communities they serve. ESG data, used to identify investment risks and opportunities that are considered highly likely to affect corporate performance and investment performance, are widely available for both equity and fixed income securities. Within the municipal bond market, the single greatest challenge is the breadth and depth of the issuer pool. With more than 72,000 unique issuers and 950,000 municipal bond issues, an issue-by-issue ESG evaluation is nearly impossible, and currently, no data providers are willing to tackle the issue. To address this challenge, Sage Advisory Services partnered with a respected global sustainable data research firm to craft a robust framework that allows for the evaluation and scoring of municipal debt through the important lens of ESG.

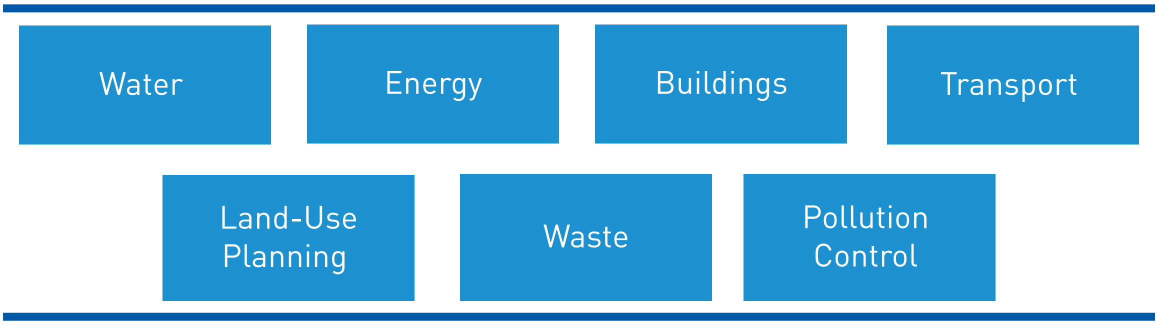
SAGE'S ESG TAX-EXEMPT FRAMEWORK

Environmental Framework Factors

Our Environmental Framework is structured around the Green Bond Principles[1] of 2016 and uses the offering statement to determine the use of proceeds and the environmental impact of projects. If the project falls within one of the project categories identified in **Figure 1** and is viewed to be a high- to medium-impact project, it is chosen for further evaluation, while low-impact projects are excluded from our investable universe. Examples of high- to medium-intensity impact projects include clean energy projects (wind/solar), clean mass transit projects (electric rail, public transit), or water conservation projects.

[1] The International Capital Market Association's voluntary process guidelines that recommend transparency and disclosure and promote integrity in the green bond market.

FIGURE 1: ENVIRONMENTAL PROJECT CATEGORIES FOR MUNICIPAL BONDS



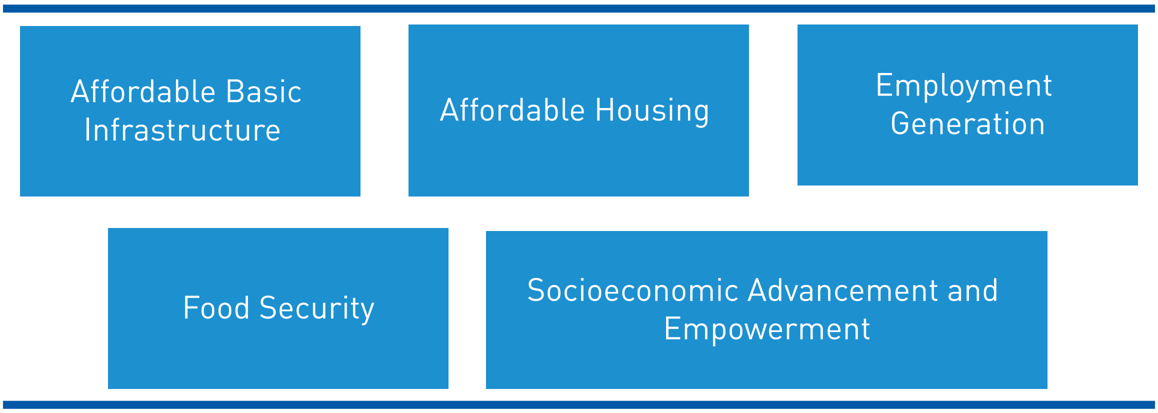
The high- to medium-impact projects are then reviewed further to determine whether they undergo ongoing third-party verification at the request of the issuer.

Social Framework Factors

Similar to our Environmental Framework, our Social Framework looks at the use of proceeds and the intensity of impact the funding is intended to have on the local community. First, projects are evaluated to determine if they fall under one of the approved project categories and are tiered based on their expected societal impact. Projects that have a high- to medium-impact are evaluated for the potential intensity of this impact, while low-impact projects are excluded.

Next, we consider the underlying community being served by the project, with an eye toward targeting disadvantaged individuals and communities (**Figure 2**). Demographic and economic data are compared to national average thresholds to determine the intensity of societal impact. An example of this would entail the evaluation of a municipal issue for the construction of a public elementary school. If the percentage of school-aged children living in poverty within that school district is greater than the national average, the project is determined to have a greater impact intensity on the underlying community.

FIGURE 2: SOCIAL PROJECT CATEGORIES FOR MUNICIPAL BONDS



Governance Framework Factors

Our Governance Framework evaluates general obligation issues by looking at the fiscal health and underlying demographic and economic makeup of the issuing city or county. When making this evaluation, Sage incorporates a critical analysis of the issues related to public pension obligations. We examine the pension plan's current funded status, annual required contribution rate, and the discount rate of the city's or county's pension plan, and compare them to generally accepted thresholds. If the current funded status is at or above the threshold, the annual required contribution is at or above the threshold, and the discount rate is at or below the required threshold, the bond issue will be further evaluated. If the issue fails on any of these three metrics, it will be excluded from Sage's investment universe.

For cities and counties that pass the first part of the framework evaluation, their underlying communities are further evaluated based on two other metrics—their respective constituencies' poverty rates and their median household income. If the poverty rate is greater and median household income is lower than the national average, the bond issue will be included in our investable universe.

All five metrics must be met for a municipal issue to pass through the Governance Framework.

MUNICIPAL ISSUE SCORING AND SUSTAINABLE DEVELOPMENT GOAL MAPPING

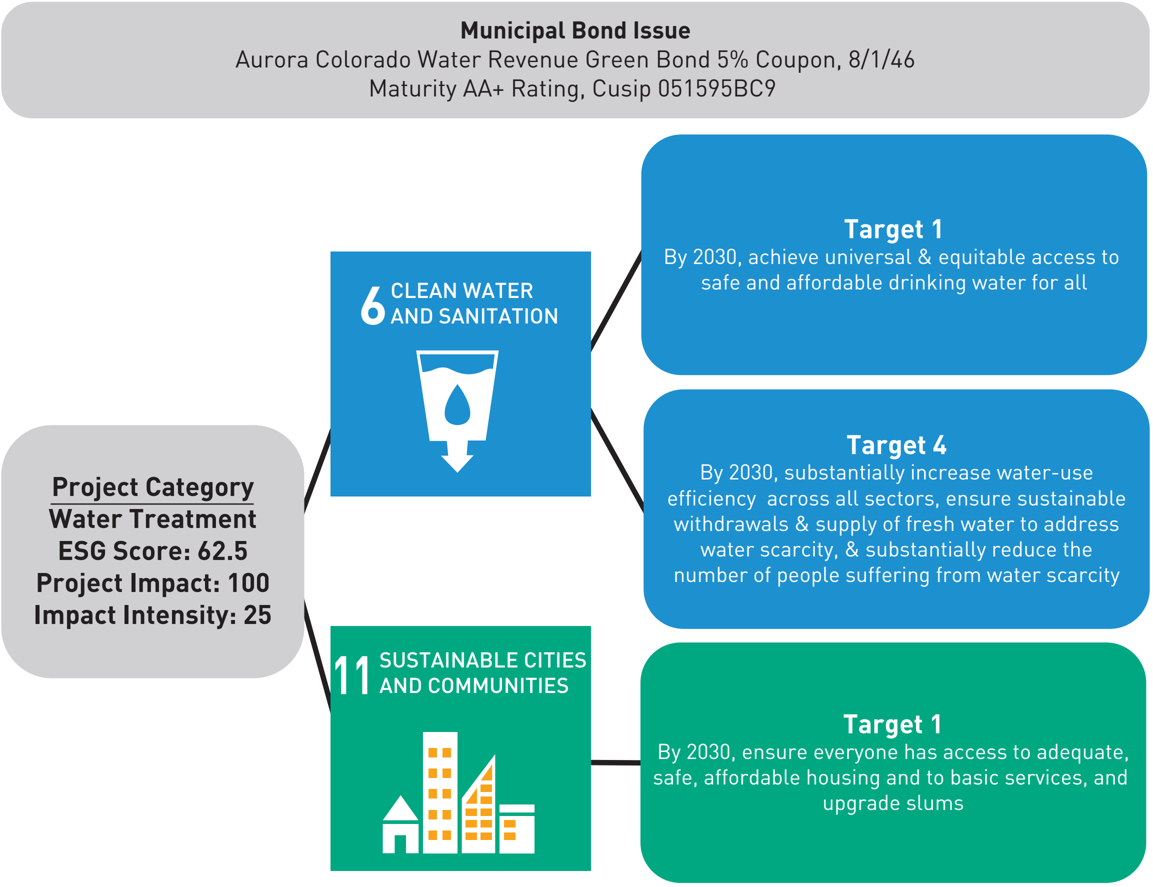
Municipal security issues that undergo this comprehensive framework assessment process are then scored on a scale of zero to 100, depending on the impact level of the project and the intensity of that impact. Our security selection process is constrained and may only include municipal issues that have a minimum score of 50, with medium to high impact based on our ESG Framework factors. Next, each security is mapped at the project category level to any Sustainable Development Goal(s) and underlying targets with which the project shows clear alignment.

Once a security has been reviewed, selected, and identified for inclusion within a client portfolio, it is then combined with other securities to create the overall investment portfolio. The overall portfolio is then evaluated in terms of its fundamental financial risk characteristics (i.e., credit quality, maturity, effective duration, and call features). In addition, the portfolio is evaluated in terms of its overall ESG risk characteristics (i.e., ESG factor scores relative to its historical trends, the level of anticipated community impacts, and finally, the expected community impact intensity accruing from the projects represented within the portfolio).

SAGE'S ESG TAX-EXEMPT FRAMEWORK IN ACTION

To illustrate this process of security identification, classification, and Sustainable Development Goals mapping, we offer the following analysis of the Aurora, Colorado, Water Revenue bond (5%, 8/1/2046) currently rated AA+ (**Figure 3**). Proceeds of the bond

FIGURE 3: ENVIRONMENTAL FRAMEWORK ANALYSIS AND SDG MAPPING OF THE AURORA WATER REVENUE BOND



issuance are being used to fund the Prairie Waters Project, which is designed to provide a sustainable long-term water supply under drought conditions to Aurora's growing population. Among other benefits, Prairie Waters uses riverbank filtration, a cost-effective natural pretreatment process. The project has resulted in more efficient utilization of water supplies and has increased the availability of water by 20%.

Falling under the Environmental Framework, the project is classified as a water treatment project, focusing on the development, manufacture, and/or installation of technologies and systems (hardware or software) that increase the efficiency of wastewater processing systems and/or improve access to potable water. Based on the use of the proceeds, the project would have an impact of high and a score of 100. Because the project's use of proceeds is fully dedicated to the eligible project but the issuer has not had an independent third party evaluate the ESG characteristics of the project, the impact intensity of the project would be rated a medium and assigned an impact intensity score of 25. Combining these two metrics generates an overall score of 62.5 and an overall impact level of medium.

INTEGRATING THE ESG TAX-EXEMPT FRAMEWORK INTO CREDIT ANALYSIS

By adding the ESG analysis to a typical credit analysis, we can obtain a more complete picture of not only the current health of the municipal issuer but also any future potential complications. When droughts occur in areas where water treatment systems are not efficient and cost effective, municipalities will typically need to institute water use restrictions. By restricting the population's water use, the utility is, in effect, restricting its own source of revenue. When combining reduced revenue with higher costs and project budgets modeled on higher revenue targets, these municipalities' finances can be stressed, thus leading to a deterioration of their underlying credit characteristics.

With Aurora's water system set up for increased water use efficiency in times of drought, it should be better equipped to weather a drought, both from a financial and a water use standpoint. This is also reflected in the outlooks provided by the credit-rating agencies. Upon affirming the issue's AA+ rating, Fitch Ratings Inc. noted that the Aurora water system had "strong financial, resource planning; [their] comprehensive long-term financial, capital, and water supply planning practices have positioned operations well and provide a strong enhancement to credit quality."

Overall, factoring in the ESG analysis when doing a full credit analysis not only helps the investor identify potential areas of hardship that a municipal issuer might go through, but it can also help highlight municipal issuers that have a longer-term, more stable credit profile.

FIXED-INCOME CASE STUDIES: STRUCTURED CREDIT

ANGEL OAK CAPITAL ADVISORS, LLC

ASSESSING ESG FACTORS IN STRUCTURED SECURITIES

Linda H. Singer, Robert McDonough, Liang "Leo" Guo, and Ethan Reback

The issuance of green asset-backed securities (ABS) almost quadrupled from $8.6 billion in 2016 to $36 billion in 2017,[1] but significant challenges remain in quantifying the environmental, social, and governance (ESG) factors in a portfolio comprising more traditionally structured securities. Angel Oak Capital Advisors, LLC (AOCA) is an investment management firm with a focus on structured securities, including residential and commercial mortgage-backed securities (RMBS and CMBS), collateralized loan obligations (CLOs), and collateralized debt obligations (CDOs). In addition, AOCA has direct experience with seven RMBS and one CDO backed by US community-bank debt. AOCA is in the process of developing an internal ESG scoring methodology for ABS. This case study summarizes the challenges that have been identified as well as the progress made in implementing the methodology.

Publicly traded equity and debt securities are typically issued by a single entity that provides the basis for standardized, formulaic ratings of its ESG performance, both historically and versus its industry peers. Securitized instruments consist of pools of assets where both the issuer/sponsor of the security (Issuer) and the issuer of the underlying assets (Asset Issuer) are often private. **Figure 1** details the components of a representative AOCA portfolio.

ANALYZING AND INTEGRATING ESG FACTORS IN STRUCTURED CREDIT PORTFOLIOS

Historically, AOCA has conducted rigorous due diligence on all potential asset purchases, focusing on determining the financial risk/return characteristics of the instruments. This assessment includes a review of performance and risk metrics (e.g., earnings, nonperforming loans, loss reserves, and capital adequacy) for each issuing institution, indicating the probability of default for each instrument. AOCA's rationale for including ESG factors in the investment process includes studies indicating that institutions with high ESG scores are:

- **more competitive**, thereby generating abnormal returns, leading to higher profitability and dividend payments;

[1] Dennis Badlyans. 2018. "Green Bond Issuance Doubled in 2017." https://seekingalpha.com/article/4157445-green-bond-issuance-doubled-2017

FIGURE 1: REPRESENTATIVE STRUCTURED CREDIT PORTFOLIO HOLDINGS AS OF 30 MAY 2018

	NUMBER OF SECURITIES/ CUSIPS*	NUMBER OF ISSUERS	NUMBER OF TRUSTEES	NUMBER OF UNDERLYING ASSETS	AVG. NUMBER OF UNDERLYING ASSETS PER CUSIP	COLLATERAL POOL DESCRIPTION
ABS	28	21	8	N/A**	N/A**	Static pool of similar receivables from a single creditor or aggregated creditors including auto/ credit cards/student loans
Agency CMBS	22	5	4	1,290	58	Static pool of primarily multifamily commercial mortgages
CLO	58	38	6	16,691	287	Actively managed pools of public & private corporate loans
CMBS	99	30	6	4,111	42	Static pool of either a single asset or conduit deal containing a pool of commercial real estate properties where the top 10 loans typically comprise 40–55% of the notional
Nonagency RMBS	707	97	9	1.83 million	2,563	Static pool of residential mortgages
Grand Total	931	205	15**	2.07 million		

* Corporates, derivatives, and cash excluded from fund portfolio holdings.
** Number of ABS underlying receivables ranged from 6k to 78k for Auto ABS and up to 82k for Credit Card ABS.
*** 15 unique Trustees across 931 CUSIPs.

- **better at managing company-specific business and operational risks**, lowering the probability of suffering incidents that can negatively impact their share price; and
- **less exposed to systemic risk factors**, lowering their expected cost of capital.[2]

[2] Guido Giese. 2018. "Has ESG Affected Stock Performance?" https://www.msci.com/www/blog-posts/has-esg-affected-stock/0794561659

Portfolio managers will provide an assessment of the impact of ESG scores on the investment selection process once internal ESG metrics are established by investment product. The ESG scores for each portfolio will be tracked and reported to relevant stakeholders. Portfolio managers will be responsible for ensuring that each fund's ESG scores trend higher than the initial baseline.

METHODOLOGY AND CHALLENGES TO CALCULATING ESG SCORES

ABS are issued through structured credit special-purpose vehicles (SPVs). SPVs create debt and equity tranches whose value derives from the income generated by the asset pool underlying the SPV. Although deal structures vary, they typically involve multiple banks, broker/dealers, and SPVs having the roles of trustees, collateral managers, issuers, servicers, and depositors (Transaction Parties). ESG assessments can be conducted at two levels—Transaction Parties and Asset Issuers—and on the underlying assets of the SPV. AOCA's goal is to develop an internal methodology that will be utilized to monitor its portfolios until an industry-accepted methodology becomes available.

Transaction Party Level

AOCA has experienced several challenges in collecting data for ESG assessments and implementing ESG practices at the Transaction Party level:

1. Although the US Treasury now requires trustees to verify the identities of beneficial owners of their clients' SPVs,[3] this information is not public.
2. Holders of the debt securities (creditors) issued by SPVs do not have an ownership interest in the SPV, which results in one less data point for AOCA to evaluate because proxy votes aren't relevant.
3. As detailed in Figure 1, the number of Transaction Parties is small compared with the number of Asset Issuers. Securities with underlying assets from aggregated creditors would have different evaluation criteria from those with assets of a single creditor.

Despite these challenges, AOCA continues to engage with the industry to develop a methodology that assigns a weighted ESG score to Transaction Parties and Asset Issuers.

Underlying Asset Level

Vendor databases maintain cash flow data for structured securities and store details on the underlying assets as provided by the trustee and/or collateral manager, although not all data items are populated and/or available for download. In addition to cash flow

[3] One World Identity. 2018. "FinCEN Clarifies Customer Due Diligence Rules as May Compliance Deadline Looms." https://oneworldidentity.com/fincen-clarifies-customer-due-diligence-rules-may-compliance-deadline-looms/

information, the databases may include the Committee on Uniform Security Identification Procedures (CUSIP) numbers, International Securities Identification Numbers, and LoanX IDs (a unique identifier applied to syndicated loans), industry codes, credit ratings, and other descriptors (see **Figure 2**). ESG scores are more likely to be available at the underlying asset level when the Asset Issuers are publicly held companies. Even when the relevant information is available in a database, it is not always in a readable format that can be easily extracted. For example, underlying asset schedules had to be downloaded individually to perform a more detailed analysis of a sample of 26 CLOs, of which 84% of the Asset Issuers were able to be mapped to equity tickers, which are more likely to have an ESG score.

Additional information related to the underlying assets (such as commercial tenants, geographical locations, income, and industry concentrations) can be manually extracted from prospectuses and other offering documents. Formats vary and because many of the Transaction Parties are frequently private funds and/or SPVs, the prospectus and/or offering memorandum are often the only source for factors that would facilitate the calculation of ESG scores. The creation of common naming conventions would facilitate the capture of ESG-relevant factors using optical character recognition software. Ideally, ESG-related factors such as Leadership in Energy and Environmental Design certification, ESG-positive industries, and corporate board diversity could be added to existing portfolio concentration tables as additional reference material. The ESG value of these data would then be assigned to each underlying asset's contributed balance as a percentage of the total SPV notional to develop a weighted-average ESG factor for the SPV.

FIGURE 2: COMPARISON OF AVAILABLE INFORMATION FOR CLOS FROM TWO DATABASES

	DATABASE A		DATABASE B	
	SPV CUSIP	UNDERLYING ASSET CUSIP	SPV CUSIP	UNDERLYING ASSET CUSIP
Underlying Asset Count	94%	N/A	100%	N/A
CUSIP	100%	81% (+3% Invalid)	N/A	89%
Industry	N/A	81%	N/A	91%
Domestic vs. International	2% Domestic	77% Domestic	N/A	94% Domestic
Published ESG Score	0%	15%	0%	0%
Issuer	100%	81%	100%	100%
Trustee	100%	N/A	100%	N/A
Lead/Collateral Manager	100%	N/A	100%	N/A

PROPOSED METHODOLOGY TO INCORPORATE ESG FACTORS

AOCA has recently begun to collect potential ESG assessment factors as part of its due diligence process when investing in community-bank subordinated debt. These investments are held in portfolios managed by AOCA; some have been included in CDO securitizations. Portfolio managers conduct phone interviews with senior management at the issuing banks and often schedule onsite meetings when feasible. These interactions provide an opportunity to identify ESG factors such as:

- Community Development Entity certification, allowing participation in New Market Tax Credit programs that provide loans to immigrant and disadvantaged communities;
- Community Development Financial Institution (CDFI) designation, recognizing banks that specialize in serving economically distressed communities;
- loans to industries (e.g., solar energy, low-income housing, and waste management/recycling) that have positive environmental and societal benefits;
- Small Business Administration (SBA) 7(a) loans to local companies that support job creation;
- directors or associates who serve on the boards of nonprofit organizations; and
- activities that satisfy Community Reinvestment Act (CRA) requirements:
    - affordable housing loans to low-to-moderate income borrowers,
    - loans to businesses in economically distressed areas,
    - lending to support natural disaster recovery efforts,
    - student lending programs, and
    - lending to support nonprofits, foundations, and government agencies.

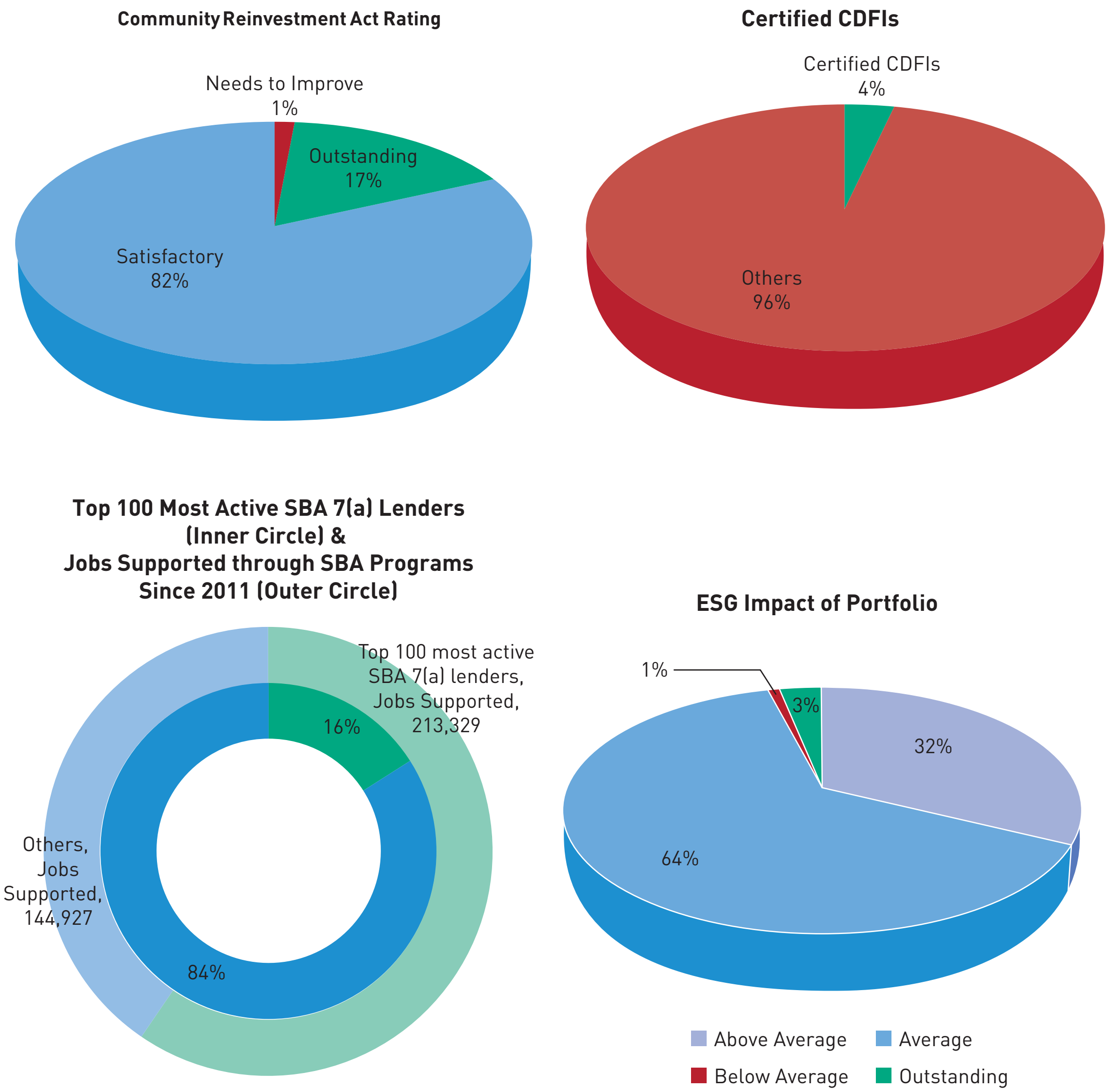
These factors are aligned with the United Nations' Sustainable Development Goals as shown in **Figure 3**.

AOCA has begun capturing these data in its due diligence questionnaire, which will be used to gauge the ESG factors in community-bank subordinated debt instruments. These investments frequently become collateral in bank subordinated debt CDO securitizations, and their ESG factors can be used to create an asset-weighted average ESG score for the CDO. Although these ESG scores can be used by potential investors to evaluate CDOs, the ability to compare scores across different sponsors will ultimately require some degree of industry standardization. **Figure 4** details factors impacting ESG associated with representative community-bank subordinated debt held in portfolios managed by AOCA by percentage of notional. Utilizing the CRA, CDFI, and SBA data as factors to create an ESG score for the portfolio resulted in a baseline of 35% positive impact for the holdings.

FIGURE 3: SAMPLE CDO ESG FACTORS MAPPED TO THE UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS	Community Reinvestment Act Rating	Community Development Financial Institutions	Small Business Administration 7(a) Lender	Commercial & Consumer Loan Composite	Diversity of Board & Officers
1	✓	✓			
2	✓	✓			
3	✓				
4	✓			✓	
5					✓
6				✓	
7			✓	✓	
8	✓	✓	✓		
9	✓	✓		✓	
10					
11	✓	✓			
12				✓	
13	✓			✓	
14				✓	
15	✓				
16					
17					

FIGURE 4: FACTORS THAT IMPACT ESG FOR COMMUNITY-BANK SUBORDINATED DEBT



OPPORTUNITIES FOR ENHANCED ESG ASSESSMENTS

The following points would facilitate evaluation of ESG factors as investors conduct due diligence on potential investment decisions for structured financial instruments (particularly CDOs):

- market consensus on ESG factor weights for Transaction Parties and Asset Issuers by product;
- standardization of ESG factor reporting by Issuers in offering memorandums/prospectuses, including data on nonindividual SPV beneficial owners and nonpublic Issuers;
- coordination among database administrators to publish ESG-related factors;
- implementation of an ESG factor rating system for CDO transactions; and
- incorporation of ESG data associated with equity securities of the issuing bank into the CDO rating.

Other firms can use a similar methodology for structured securities, but until the industry agrees to a standard methodology for each product to ensure comparability across individual firms' ESG metrics, investors can compare AOCA's ESG impact only to its own historical record.

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