Understanding ESG Integration and ESG Reporting Quality for Hong Kong

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Understanding ESG Integration for Hong Kong: Theory and Practice

1. ESG Overview

1.1 Understanding ESG

The term "ESG" stands for Environmental, Social and Governance. ESG is a relatively new concept and became prominence in 2006 with the launch of the UN PRI (Principles for Responsible Investment) by UNEP Finance Initiative and the UN Global Compact. However, the idea of ESG was first formally developed in December 2004 when the U.N. Global Compact produced a report entitled *Who Cares Wins*. The report argues that the financial industry should integrate "environmental, social and governance (ESG) aspects in asset management, securities brokerage services and the associated buy-side and sell-side research functions" (p.1). Such ESG integration can lead to more resilient investment markets and contribute to the sustainable development of societies.

In other words, ESG can be defined as an evaluation framework which prescribes a set of environmental, social and governance factors in the investment decision-making process to evaluate companies and institutions for the purpose of "sustainable investing". ESG integration sets boundary for the factors related to E, S, and G used in the investment process. However, the actual list of factors, the depth of measures, and the weighting of each factor may vary. In addition, the goals and expectation of ESG integration differ somewhat among ESG advocates. At one end of the ESG adoption spectrum, users are willing to pursue maximum societal impact on sustainability (i.e., social returns) and accept financial returns trade-off if necessary. At the other end, ESG users demand better and more resilient financial performance as a condition before ESG integration is considered. Such a demand for better financial returns and totally ignoring the social return aspects of ESG integration remains the main obstacle for ESG integration in Hong Kong and Mainland China.

1.2 ESG Integration: the Past, Current Practice, and Future Development

The Past

The concept of ESG was first developed in December 2004 under the report *Who Cares Wins* published by the U.N. Global Compact and subsequently became popular after the launch of UN PRI (Principles for Responsible Investment) in 2006. However, an earlier form of responsible investment called SRI (Socially Responsible Investment) has been around for over ninety years which aims to achieve corporate social responsibility (CSR) objectives through financial investments.

Nevertheless, SRI and ESG frameworks are different in several aspects. First, the investment focus of SRI and ESG is very different. The foundation of SRI approach is based on ethical principles such as religious, cultural and organization value. On the other hand, ESG focuses on return employing ESG criteria to incorporate long-term sustainability factors in the investment decision process. Second, because of its narrowly defined investment focus, SRI adopts negative investment screens by removing investment choices that do not meet the designated SRI values. On the contrary, ESG integration employs positive screens by assigning scores through ESG factors for investment choices to prioritize investment opportunities. In other words, SRI takes an exclusion approach while ESG uses an inclusion model. Third, as SRI is governed by broad principles and has no definite selection criteria, leading to a very different set of investment choices, depending on the exclusion criteria. Therefore, each SRI portfolio can be very different and difficult to compare performances due to their different risk-return characteristics. In contrast, ESG portfolio must follow a similar set of E, S and G factors in the evaluation process. Nevertheless, while the ESG investment priorities are universal and clear, the emphasis of E, S, and G factors and weighting for each category may vary among different investors.

The evolution from SRI to ESG reflects the journey of an organization in embracing sustainable investments. Since ESG activities are financial costly and require firm-wide participation. In fact, ESG efforts can only be initiated and implemented through the support of top management. It is important that top management should recognize the value of social returns and is willing to pay for it, to a certain extent, by accepting the probability of receiving a lower financial return. From a philosophical perspective, top management should treasure the value of the combined social returns and financial returns as equal to the utility generated solely by financial returns.

Current Practice and Future Development

Applying ESG screens to select investments has become a popular approach among asset managers to achieve sustainable investment goals. Asset managers use different commercial ESG data or construct their own through proprietary research to generate ESG screens. Among the E, S, and G aspects, the G factor has received the largest among of research so far and integrating governance research into investment decisions has reached a mature stage. On the other hand, integrating E factors into the investment process is becoming important but still very industry specific and at its early stage, particularly in Hong Kong and Mainland China. Finally, S factors receive less attention and are more difficult to measure. In short, the finance community such as asset managers and analysts are expected to increase their effort in employing ESG screens for investment decisions.

Current academic and industry research provide little guidance on the risk positioning of ESG investment as an asset class. ESG portfolio advocates currently emphasize to existence of social return and seek acceptable financial return. In the future, a better methodological framework to integrate social returns and financial returns is needed so that we can fairly and comprehensively evaluate their risk-return characteristics as an asset class. We strongly believe that ESG funds and ESG portfolios should not be measured purely by financial performance, but acknowledge that even though social return is subjective, it remains important for ESG Investments. For future ESG development, large-scale research to profile ESG preferences of investors according to their underlying utility function is needed to form a scientific database to construct benchmarks related to ESG investments.

In conclusion, ESG investment is the process by which investment decisions are underpinned by a variety of positive screens to guide the investment process through sustainable attributes. The main challenge is to develop a comprehensive rating system to evaluate the ESG performance of a firm. A quantifiable but composite measure which integrates social returns with financial returns to form a single indicator for the decision making is needed in order to measure ESG performance in more scientific manner.

1.3 Overall Observations of the ESG Integration: The Case of Hong Kong

1.3.1 Various Concerns Related to ESG Integrations

Comparing the E, S, and G factors, G is being considered the most by buy-side professionals. For E, some clients would give some considerations. However, S is mostly not in the picture at all. ESG cannot be integrated in a uniform fashion across all 3 issues (i.e., E, S, G). Sector-specific consideration must be given to each firm and emphasis would be different among E, S, and G factors. ESG integration for developed markets is different from that of Hong Kong and Mainland. In Europe, the public’s interest on ESG drives the regulators to implement ESG guidelines for asset management, which force the asset managers to work with asset owners together to formulate ESG integration in investments. For equity, ESG enhances upside potential. For fixed income, ESG provides downside protection. In majority of asset owners is affected by peer pressure to consider ESG and only a small percentage of them engages ESG due to genuine concern.

1.3.2 Key Findings

PolyU CESEF Center and The Friends of the Earth (HK) conducted a joint project in 2019 to evaluate the challenges of ESG integration in Hong Kong through focus groups. Table 1 lists the frequency counts for key drivers and barriers of performing ESG integration. Based on the CFAI survey questionnaire, we construct seven drivers and nine barriers for the participants to choose from. Then each participant was required to explain in more detail why certain drivers and barriers are selected.

Drivers

"Risk management" is named as the main motivation to integrate ESG issues by 26 out of 46 (56.52%) participants. "Client demand" is the second most popular reason cited by participants (20 out of 46 or 43.48%). "Regulation" is cited by 19 out of 46 (41.3%) participants as the main driver, making them as the third most popular reason for integrating ESG issues into investment decisions.

a) Risk Management

We further explore why risk management is perceived as the main motivation. For large firms, risk management is a key issue as ESG risks are critical for large firms, leading to a higher priority from the top management. In addition, more mature ESG stakeholders including asset owners, asset managers and listed firms tend to have more restrictive and prudent approach towards risk management at corporate level. Therefore, managing ESG risks is natural under such a corporate culture. In terms of asset management, clients of mature-stage ESG stakeholders regard ESG risks as an important aspect of investment approach, leading to the conclusion that risk management is the main motivator for ESG integration.

b) Client Demand

Client demand is perceived as the second driver. Reasons behind appear to be diversified. As for the mature-stage ESG stakeholders, they already have existing clients who prefer ESG integration as important mandate in the investment policy statement. So, client demand is regarded as one of the top drivers. For listed firms, high-end consumer products and European/North American clients of industry goods have already integrated high ESG standard in their products/services. For this segment, ESG expectation is an integral part of overall product quality for a while. Due to supply chain expectation for ESG performance, there appears to have a comprehensive approach in place for practicing ESG.

In terms of inducing further client demand, there exists some industry practices of preparing in-house ESG scores for clients' portfolios so that the clients can understand the ESG performance of their investments in conjunction with the financial returns. In addition, education seminars are provided for the clients to know more about ESG issues in order to create awareness. Such effort seems to create some clients' demand. Another approach is more top-down by executive-led decisions to integrate ESG in investment decision for clients. Such an approach can be efficient but also may create possible frictions among buy-side managers when their investment decision processes generate products and choices that do not synchronize with the ESG mandate.

c) Regulation

Regulation is cited as another important factor to drive ESG integration. We observe that a larger percentage of participants citing regulation as a main driver comes from smaller firms (most of them are early-stage ESG stakeholders). Owing to limited resources and the nature of their clientele, regulation becomes the main driving force of practicing ESG. However, the overall opinion is not quite positive about this factor as participants regard regulation as an obligation for compliance instead of a motivation to integrate ESG factors in investments and their business practices.

Other drivers

Another diver receiving more attention is “generating alpha”. There is a minority view that research indicates a possibility of alpha generation by ESG screens. We understand that most of the current research concludes that ESG portfolios lead to lower return relative to the non-ESG counterpart. However, if the benchmark is an appropriate ESG index, the conclusion could be very different. There is some consensus on requiring social returns as a necessary component to measure the overall performance of ESG portfolios.

Another main driver is “senior management buy-in”. For large listed firms, this reason appears to be important to drive ESG effort. Sometimes, the business model requires the ESG reputation and other times consumers demand ESG standard for products. Large companies need to watch over the whole supply chain on ESG compliance in order to avoid public relation troubles or possible litigation. For some firms, ESG is being integrated from the very beginning of the business process such as using green finance to support infrastructure activities.

Barriers

21 out of 46 (45.65%) rank “Limited understanding of the ESG issues and/or ESG integration” as number 1 barrier. 19 out of 46 (41.3%) name “Lack of comparable and historical ESG data” as the second barrier. 18 out of 46 (39.13%) report that the third main barrier is “Concerns about negative returns, tracking error and underperforming a benchmark”.

a) Limited Understanding of the ESG issues and/or ESG Integration

Owing to a lack of quality disclosure, it is extremely difficult for asset managers to implement meaningful ESG screens. This is particularly true for early-stage ESG stakeholders who have limited exposure and industry experience. As it is very labor intensive to conduct ESG research manually, most asset managers can only conduct subjective evaluation focusing on selective elements that are critical. Many participants regard lack of understanding and poor financial performance are the main reasons that individual clients do not care about ESG integration. Of course, disclosure and poor information quality on ESG materials are other reasons that lead to the limited understanding. Therefore, many asset owners and managers are relatively confused about how to evaluate the ESG aspects of investments, leading to a slow adoption of ESG integration. Inertia of organizational culture in resisting changes makes it even more difficult to change the investment process of asset managers to integrate ESG.

Media awareness in Asia does exist but it is still at the beginning stage. Asset managers and owners see difficulty in measuring how ESG performance can be translated into firm value. Risk mitigation and long-term sustainability are viewed as key benefit for ESG integration. More research and evidence are needed to substantiate this claim. Consequently, a scientific approach to ESG integration is still far away. For asset owners who have no clue on the meaning and implications of ESG screen, education and training can be important. For mature-stage ESG stakeholders, this is less an issue due to the sophistication of their clientele and investment process. In addition, large asset managers can help to improve ESG awareness and then performance of listed firms proactively through shareholder activism through proxies and letters to company boards on ESG issues.

b) Lack of Comparable and Historical ESG Data

For mature-stage ESG stakeholders who have existing clients demanding ESG integration, lack of comparable and historical ESG data to generate reasonable benchmarks for analysis become an important issue, making this concern as the second barrier in our survey. For pension and public institutions, challenges for ESG integration include lack of comparable ESG data and products to choose from. Participants choosing this barrier are more mature and sophisticated in terms of their ESG understanding and experience. This segment in general does not choose low client demand as a barrier, suggesting that they have some demand for ESG integration. Instead, they regard that benchmarking and stronger evidence for ESG benefits are needed to push forward for more ESG integration.

c) Concerns about Negative Returns, Tracking Error and Underperforming a Benchmark

It is commonly agreed among most ESG stakeholders that performance of the so-called ESG or environmental-focus investment products currently existed is relatively poor in terms of financial return. Indeed, casual observation suggests that earlier ESG investment vehicles in Hong Kong seem to demonstrate poor investment return. Such a performance deters further participation from investors. On the other hand, due to the lack of interest in adopting ETFs as an investment tool in Hong Kong (e.g., the top 5 ETFs capture 95% of the trading among all ETFs), launching an ESG ETF may not be a good solution to stimulate more investment participations for ESG integration. Finally, concerns about negative returns in terms of business profit and market valuation are always an issue in pursuing any cost-related activities including ESG initiatives.

1.3.3 Conclusion and the Way Forward

Owing to Asian culture and emphasis on financial return only, intermediaries and asset managers feel that it is difficult to push ESG integration. Some participants feel that the regulators should step up their efforts in simplifying the ESG information reported by the listed firms to make it more transparent and user-friendly for investors. The barriers reflect the mirror image of the drivers. For firms that cannot pursue ESG in a more positive manner, they suffer from the lack of support related to the drivers mentioned. Client demand and senior management buy-in are in fact the needed drivers to pursue ESG. Without them, companies cannot be successful in ESG performance.

The current ESG data is a result of regulation and a large pool of ESG consultants pursuing the ESG reporting which may vary in quality in a substantial manner. For example, a conglomerate that cover various industry sectors may find it difficult to comply with a strong regulation that have industry-specific ESG standard. In addition, a blanket regulation with detail and strict requirement may cause more trouble by increasing the quantity (instead of quality) of the ESG reports. Therefore, it may not be wise to solely reply on stronger regulation to enhance quality information disclosure of ESG. Finally, the quality of ESG consultant may be an issue that drives the high percentage of noise in the ESG reports. We need a better system to enhance data quality instead of quantity in ESG reporting. The issue of materiality is related to the unique condition and characteristics of the firm. Purely enforcing a stronger regulation without understanding the specific materiality issue related to the firm can be problematic. One possible idea is to persuade the company board to adopt a certain ESG issues as a mandate so that company can pursue material issue that matters the most.

Direct engagement with company's board can be an effective way to enhance discussion about long-term, material issues over which the board has oversight. As more board directors become more accustomed to engage with investors in this way, board engagement remains a meaningful part of investment stewardship and ESG research process. To better understand the concerns and seek possible solutions, we divide our concluding observations by the stage (i.e., mature and early) of ESG stakeholders[1]:

[1] While we do not have a scientific definition of early-stage and mature-stage ESG stakeholders, we can observe that in general early-stage ESG stakeholders (including asset owners, buy-side, and listed firms) are smaller in asset size, subject to stronger limitation in resources, lower level of understanding and enthusiasm from top management towards ESG integration. On the

The ESG Landscape for More Mature ESG Stakeholders

The top three choices of ESG drivers (namely, risk management, client demand, and regulation), reflect the importance and role of the driving forces behind these factors. For more mature asset management managers, asset owners, and listed firms, corporate governance practice and management buy-ins lead to the emphasis of risk management based on ESG channels. As long-term risk mitigation is commonly regarded as an obvious benefit of E, S, and G factors, we conclude that risk management is the driver of ESG integration for those market participants who have passed the initial hurdle of understanding the ESG issues. In fact, this more mature segment should have already enjoyed some client demand and see it as a driver as well.

For this segment, the corresponding top barrier of ESG integration is a lack of comparable and historical ESG data. Since this more mature segment has already been practicing ESG integration, their main challenge is to find ways to do a good job in ESG analysis. Unfortunately, the existing universe of ESG performance data including the ESG scores and ESG reports at firm level is still at a developing stage, especially for Hong Kong and Mainland. Therefore, we see great opportunity for data venders and research institutions, which are interested in strengthening the ESG data quality, and then investment products and service solutions in this region.

The ESG Landscape for Early-stage ESG Stakeholders

For early-stage ESG market participants, regulation is named as a top driver. However, this driver may imply a sense of compliance as a driving force. Many stakeholders of this segment may be affiliated with small institutions and resources are tight in general. In addition, they suffer from a more passive top management, board and clients who do not see significant value

other hand, mature-stage ESG stakeholders belong to larger firms, exhibit more resources to embrace ESG activities, and demonstrate stronger commitment from top management towards ESG integration.

from ESG integration but as an expense item. Consequently, this early-stage segment would name limited understanding of ESG issues and concerns about poor financial returns as top barriers. Of course, for this segment, due to limited resources (or lack of understanding), stakeholders cannot (or do not know how to) conduct in-house ESG analysis for their own use. Therefore, it heavily relies on third party investment products and consultants to engage ESG issues. It is NOT a level-playing field between ESG data/services providers and the client firms. The additional difficulty of understanding certain ESG information (due to the technical nature of E factors) makes it extremely challenging for this segment to even validate what the ESG consultants have done for them. The knowledge gap between the ESG services providers and the clients lead to the current problem of lacking a check-and-balance for these ESG activities.

The Way Forward

We believe that ESG integration is an important channel to achieve sustainability for the society as a whole. Through ESG investments, corporations will take sustainability issues more seriously and investors and stakeholders can vote with their feet. The power of finance should play a vital role in enhancing sustainability through ESG integration. Like any product market development, it takes time to make information more assessable and economically affordable to all stakeholders. ESG information is of no exception. In order for us to improve ESG performance of Hong Kong and Mainland China, we have to achieve the following milestones:

Improve Quality of ESG Information

Sustainability Accounting Standards Board (SASB) estimates that 70% of the ESG data are noise. We need to recognize the respective roles of risk management, client demand and regulation as drivers to different stage of ESG stakeholders. At the same time, we need to understand the corresponding barriers to these two segments. Using this matching information, the regulators and stakeholders should stay within their boundary and utilize their strengths and advantages to improve the quality of ESG disclosures.

Produce Various ESG Performance Benchmarks and KPIs

Currently, it is difficult for clients to evaluate ESG service providers and asset managers in a fair manner due to a lack of comprehensive ESG performance benchmarks and KPIs based on the ESG preference of the clients and stakeholders (mandate). We need more comprehensive benchmark to evaluate different ESG strategies to meet the different needs of clients as ESG preferences vary among them.

Enhancing the Scope and Depth of ESG Products and Services

Upon the availability of better information disclosures and benchmarks, the last ingredient will be the launch of more comprehensive ESG product choices that can meet the clients' needs with various ESG preference. ESG preference is a net outcome of various factors including personal (corporate) characteristics, internal constraints of resources, external constraints related to regulation and social expectation, and risk-return expectation. To better match with the ESG profile of the clients, more ESG products choices and solutions aiming to match these preferences are needed.

Table 1.1: Summary Statistics for Drivers and Barriers of ESG Integration

Q1. Which are the main drivers to integrate ESG issues into investment decisions? Please select up to two options from the list below.

Drivers	**FG1**	**FG2**	**FG3**	**FG4**	**Total**	**%**
No. of Participants	**13**	**12**	**11**	**10**	**46**	
a) Risk management	9	4	6	7	26	56.52%
b) Generate alpha	4	5	0	2	11	23.91%
c) Regulation	4	5	6	4	19	41.30%
d) Fiduciary responsibility	3	1	4	3	11	23.91%
e) Client demand	7	10	1	2	20	43.48%
f) Incentives	0	1	0	2	3	6.52%
g) Senior management buy-in	0	2	5	2	9	19.57%
h) Others	1	0	0	2	3	6.52%

Q2. Which of the following are the main barriers to integrate ESG issues into investment decisions? Please select up to three options from the list below.

Barriers	**FG1**	**FG2**	**FG3**	**FG4**	**Total**	**%**
No. of Participants	**13**	**12**	**11**	**10**	**46**	
a) Low client demand	1	4	6	1	12	26.09%
b) Lack of company culture to support ESG integration	2	4	6	3	15	32.61%
c) Too much non-material information being disclosed	2	1	1	1	5	10.87%
d) Lack of comparable and historical ESG data	8	4	1	6	19	41.30%
e) Limited amount of ESG research from sell-side and brokers	0	3	0	0	3	6.52%
f) Limited understanding of the ESG issues and integration	7	6	5	3	21	45.65%
g) Concerns about negative returns, tracking error and underperforming a benchmark	4	5	5	4	18	39.13%
h) No evidence of the investment benefits of ESG investing	2	6	1	5	14	30.43%
i) ESG issues are rarely material	0	0	0	0	0	0.00%
j) Others	1	2	3	1	7	15.22%
k) Not sure	1	0	0	1	2	4.35%

2. ESG Integration and Performance Evaluation: Industry Practice

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The following section is a direct extract from p. 9 in *Guidance and Case Studies for ESG Integration: Equities and Fixed Income* published by the CFA Institute (2018).

2.1 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 Principles by PRI (Principles for Responsible Investment)

The following section is a direct extract from pp. 5-8 in *Guidance and Case Studies for ESG Integration: Equities and Fixed Income* published by the CFA Institute (2018).

Overview

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.

Figure 2.1 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.

ESG Integration Framework

Research: The Inner Circle

Qualitative Analysis include Company questionnaires, Red-flag indicators, Watch lists, Internal ESG research, SWOT analysis**,** Materiality framework**,** ESG-integrated research note**,** Centralized research dashboard**,** ESG agenda at (committee) meetings.

Active Ownership includes voting **and i**ndividual/collaborative engagement

Security Level: The Middle Circle

Security Valuation—Equities include Forecasted financials, Valuation-model variables, Valuation multiples**,** Forecasted financial ratios **and** Security sensitivity/scenario analysis

Security Valuation—Fixed Income includes Credit analysis **(**Internal credit assessments**, F**orecasted financials and ratios **and** Relative ranking), Relative value analysis/spread analysis**,** Duration analysis **and** Security sensitivity/scenario.

Portfolio Level: The Outer Circle

Risk Management include ESG and financial risk exposures and limits, Value-at-risk analysis **and** Portfolio scenario analysis.

Portfolio Construction includes ESG profile (versus benchmark), Portfolio weightings **and** Portfolio scenario analysis.

Asset Allocation includes Strategic asset allocation**,** Tactical asset allocation **and** Portfolio scenario analysis.

The following section is a direct extract from pp. 69-72, 75, 79-82 in *ESG Integration in the Americans* published by the CFA Institute (2018).

2.1 Definitional Issues

Practitioners agree that there is still too much confusion around language and terms such as “SRI,” “ESG,” and “impact investing,” which are all seen as synonyms by many.

How is ESG Integrated?

Workshop participants noted that the frequency of ESG integration depends greatly on the sector or industry of a company. Corporate governance tends to be integrated in the investment process more routinely, but environmental and social factors depend on sec- tors. For example, the mining industry or oil and gas industry will garner far more consideration of environmental factors than will the banking industry. Social factors are more likely to be considered in the retail and apparel industries than in software. A number of participants also noted that there are not always processes in place for systematically incorporating ESG factors in these sectors, noting that integration is often done on a case- by-case basis as ESG issues come up and may not be done uniformly for all companies in a given sector.

Materiality

The issue of ESG materiality came up in many conversations. People noted that as a first step in the ESG integration process, materiality needs to be defined. One participant emphasized that for some ESG factors to be material, they must be clearly linked to cash flow and risk.

E Versus S Versus G

Asset owners have largely been incorporating governance factors into the investment process for years. They believe that environmental and social importance is dependent on the sector. Environmental factors are most important; social factors are deemed important on a case-by-case basis.

Investment managers have also had years of experience in incorporating governance into the investment process, and most have established methods for doing so that usually include a mixture of data from governance data providers and in-house expertise.

The feedback at the workshops suggests that the order of materiality is governance, then environmental, then social. The order depends on whether you are an asset owner or investment manager, and it can change based on if you are integrating with the views of investing in the long term or short term.

What is the Goal of ESG Integration?

There is no consensus on the exact value or goal of ESG integration. Many investors likely use it for some combination of risk assessment, alpha generation, fundamental analysis, or impact investing.

Investment Practices of Local Practitioners: Equities and Fixed Income

Overview

Although fewer fixed-income practitioners are performing ESG integration techniques in the United States than their equity counterparts, the sophistication of the ESG integration practices performed by fixed-income practitioners is similar to those performed by equity practitioners (see Table 2.2). Fixed-income practitioners are integrating ESG factors into both credit analysis and portfolio construction techniques. Corporate bond investors favor fundamental credit analysis, possibly due to borrowing practices from their equity colleagues who also favor fundamental equity analysis. Sovereign debt investors like to integrate ESG factors into their credit analysis but are equally fond of integrating ESG factors into their portfolio construction techniques.

Figure 2.2: How Frequently Do You [The Survey Respondent] Factor in Material ESG Issues when Adjusting Your Valuation Models/ Tools?

	EQUITY INVESTMENTS	FIXED-INCOME INVESTMENTS
Governance	32%	33%
Environmental	22%	20%
Social	21%	22%

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

Source from: CFA Institute, and PRI, 2018, "ESG Integration in the Americans", p. 79.

Equities

Practitioners in the United States are deploying advanced integration practices in their equity investments. However, most practitioners are still developing their processes to integrate ESG factors into their fundamental analysis and portfolio construction process. Proprietary ESG scores and dashboards tend to be the norm for practitioners who perform ESG integration. Less so are research sheets with ESG scores and commentary and standard agenda items on

ESG risks in regular portfolio reviews. These tools and practices are popular choices for practitioners to feed ESG factors into their buy/sell/hold and overweight/under- weight/neutral decisions. Practitioners will use them to identify whether the ESG risk is large enough to avoid investment or to cause them to divest. They will also analyze the ESG performance over time to understand whether it will create company value or destroy company value. Another approach by practitioners is to analyze a company's ESG score and its relative value versus its sector peers to find out if all risk factors are priced in. This can lead to a qualitative investment decision based on the unpriced ESG risk.

Those who integrate ESG factors into their fundamental analysis use a range of techniques. A popular method is adjustments to the risk premia and discount rate, especially for ESG factors that are hard to quantify—factors such as corruption, shareholder rights, quality of management, and litigation risk—for investments that may require a higher margin of safety. Another valuation tool adjustment is integrating ESG factors into price multiples to calculate the target price of a company, such as price-to-earnings multiples that will be multiplied with earnings per share.

Adjustments to forecasted financials are less popular but still used. Some examples are adjustments to revenue or cost growth rates, one-off cost or capital expenditure charges, and changes to operating margins.

Other advanced practices used by US practitioners to understand the impact of ESG factors on valuations are sensitivity analysis and scenario analysis. Practitioners will create a base-case valuation and then adjust line items, discount rates, and terminal values to reflect the ESG risk level of a company. They may adjust these variables one-by-one or create ESG scenarios to also understand the impact of ESG factors on a company valuation.

Some US practitioners are integrating ESG factors into their portfolio construction processes. ESG data, scores, and analysis are adjusting company, sector, and/or country weightings of portfolios. Practitioners are also adjusting expected returns for ESG risks, which in turn adjust portfolio weightings.

Finally, practitioners are adjusting portfolio risk budgets for ESG risk. The adjustments to portfolio risk budgets for ESG risk can allow practitioners to invest in companies that previously pushed the portfolio risk levels over their mandated risk limits. Equally, it can prevent practitioners from investing in companies that kept the portfolio risk levels below their mandated risk limits.

Fixed Income

Fixed-income practitioners in the United States who apply ESG integration practices to their fixed-income analysis are demonstrating leading practice. They deploy advanced techniques to understand and embed material ESG factors into their analysis and process.

Corporate bond investors and sovereign debt investors use multiple tools and practices to identify, analyze, and monitor ESG factors so that they can integrate them into their buy/sell/hold or overweight/underweight/neutral decisions. Popular tools and practices deployed by both investors include:

- proprietary ESG scores;
- “red-flag” indicators;
- centralized research databases;
- quarterly watch lists of high-ESG-risk issuers;
- credit research reports with ESG scores and commentary;
- standard agenda in credit meetings and/or committees; and
- qualitative assessment of ESG risks at the portfolio and sector levels.

Less common tools and practices include:

- inclusion of ESG scores into trading platforms; and

- the analysis of ESG features in indentures and covenants.

Corporate bond investors who work with equity investors will often use their tools and practices. They will share materiality/sustainability frameworks, which list the material ESG risks per sector, to guide them on potential hidden risks and opportunities in their holdings, portfolio, and investment universe. Sovereign debt investors and/or their dedicated ESG team will develop sovereign frameworks/country matrices that will feature the material ESG risks per country.

Sovereign debt investors are integrating ESG factors into their credit analysis and portfolio construction techniques, whereas corporate bond investors favor credit analysis. Both are feeding ESG scores into their internal credit assessments and adjusting their opinions of company outlooks. This is a common approach for integrating ESG factors into the creditworthiness of issuers.

Practitioners are also referring to ESG scores alongside their internal credit assessments. They will judge whether investing in an issuer with a positive ESG score and a negative credit rating could create value and whether investing in an issuer with a negative ESG score and a positive credit rating could destroy value.

Other approaches are relative ranking and relative value/spread analysis. Practitioners who integrate these into their relative ranking process will factor ESG scores and analysis into issuer rankings among their peers. This can have a direct impact on the practitioner's outlook of an issuer. With spread/yield analysis, a practitioner will assess whether the relative value/spread analysis of an issuer compensates for the level of ESG risk of an issuer. If the credit spread of a corporate bond has not priced in the ESG performance of a company, this may offer an attractive investment or a poor investment. For example, a practitioner may believe that a company that performs well from an ESG perspective may see its bond spreads tighten over time if ESG risk is not priced in. On the other hand, they may believe that a company that performs poorly from an ESG perspective may see its bond spreads widen over time if ESG risk is not priced in.

In addition, several sovereign debt investors are integrating ESG factors into their portfolio weightings. Sovereign credit analysis involves the evaluation of a number of governance and social issues as well as a few environmental issues (especially with resource- dependent countries). The final assessment can have an influence on the weighting of countries in the portfolio and result in complete restriction from investment.

2.2 Research Cases

The following section is based on the section titled "Research Cases" on pp. 64-66 and 50-51, in *Guidance and Case Studies for ESG Integration: Equities and Fixed Income* published by the CFA Institute (2018). We have re-written this section to make it more concise.

Manulife Asset Management

How the "G" Factor Affects the Equity Valuation Model: A North American Software Company Case Study

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.

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.

The Goldman Sachs Group, Inc.

Navigating 21st-Century Business Risks and Opportunity

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 operation- ally 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 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 dis- closure, large companies based in Europe remain exposed to environmental catastrophes or governance scandals.

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.

3. ESG Standard, Reporting Framework and ESG Performance of Hong Kong Listed Firms[2]

3.1 Different Reporting Guidelines/Frameworks

Global Reporting Initiative (GRI) established the world's first comprehensive corporate sustainability reporting framework in late 90s. Up to now, more than 93% of the world largest 250 companies adopt GRI standard for their ESG disclosure. GRI takes a very liberal view in determining materiality. GRI developed a methodology to guide stakeholder engagement. Stakeholders include board of directors, employees, shareholders, management, regulators, suppliers, vendors, NGOs, and so on. These stakeholders played a role to provide their view on the materiality issues of the companies. The GRI Standard requires a materiality matrix (with input provided by the stakeholders) in order to determine the impacts on ESG issues.

The Sustainability Accounting Standards Board (SASB) was found in 2011. Unlike GRI, SASB does not believe in stakeholder engagement. They believe that different industries have their own specifications that need to be used. Thus, materiality issues should be synchronized with the special characteristics within each industry. SASB takes reference on the court cases on particular industries to develop its industrial ESG concerns. Currently, 77 industries have been identified in developing the criteria. Furthermore, SASB emphasizes on the potential financial impact of different ESG risks. Nevertheless, they have yet developed an evaluation system in converting these potential risks into dollar value.

Hong Kong Stock Exchange (HKEx) issued their reporting guideline under their listing rules Appendix 27. The guideline was drafted based on GRI standard with a more lenient approach. It also adopts the stakeholder engagement process of GRI with certain aspects and KPIs as mandatory requirement on disclosure. In other words, listed firms are required to

[2] We thank Hauman Yeung (Director of Corporate Advisory, Ascent Partners) in contributing to this section in providing the research analysis and part of the writings.

disclose certain aspects following the HKEx requirement even some reporting outcomes of the stakeholder engagement can be immaterial. In addition, HKEx has also added intellectual property and patent as concerned issues in the requirement, which are not mentioned in GRI.

Task Force on Climate-related Financial Disclosures (TCFD) was founded in 2015 by the United Nation Financial Stability Board and produced a report "*Recommendations of the Task Force on Climate-related Financial Disclosures*" in 2017. The TCFD report emphasizes that in most G20 jurisdictions, companies with public debt and equity should have a legal liability to disclose information that may have material climate impact on their P&L statements.

Carbon Disclosure Project (CDP) does not only focus on corporation, but also includes investors, government body, states, cities, and regions in their reporting targets. Their primary goal is to help different institution to manage and mitigate their environmental impact, to reduce their greenhouse gas emission, and to safeguard natural resources including fresh water, forest and farmland. **CDP** is the only standard that performs both reporting function and scoring function. They work closely with the target institution to fill in checklist provided in order to generate a report and score.

ISO14000, developed by the International Organization for Standardization (ISO) for organization is a series of environmental management standards. The ISO14000 standards provide a guideline for organizations to improve their environmental management efforts. While it is not a reporting system, the ISO14000 provides a useful guideline for compliance officer in auditing the firms. However, it mainly deals with manufacturing firms.

Figure 3.1: Comparison of Different Standards

	GRI	SASB	HKEx
Have clear reporting standard	Yes	Yes	Yes
Stakeholder engagement	Yes	No	Yes
Sector specific	Up to now, GRI has developed only 9 specific sectors with unique requirement on their reporting	Developed 77 sectors with specific sector requirement	Yes, It emphasizes the importance of sector specific but do not provide any guideline on this requirement
Concern on climate related finance figures	GRI regards non-financial disclosure as their core reporting substance, but it does not factor in climate related financial impact	The guideline provides a tool for asset owner and asset manager on how to evaluate the company, but no guidance on estimating impact in dollar value	No
Need to disclose concrete figures that can be comparable in every aspect	Have clear quantitative requirement, but subject to interpretation with huge grey areas, not easy to make comparison in a uniform manner	Have clear quantitative requirement, but subject to interpretation with huge grey areas, not easy to make comparison in a uniform manner	Have clear quantitative requirement, but subject to interpretation with huge grey areas, not easy to make comparison in a uniform manner

	TCFD	CDP	ISO 14000
Have clear reporting standard	A methodology for companies to estimate their climate related issues in concrete finance figures, but do not have a clear reporting format and do not involve many social aspects	A fill in the blank reporting format and CDP provides scoring with its own unique system.	No, it is not a reporting system but a guideline for compliance officer to conduct audit
Stakeholder engagement	No	No. Basically it is a fill in format that do not concern stakeholder engagement	No, it is a detail guideline that needs to be followed word by word. No judgement on materiality of the company
Sector specific	No	No	No, but ISO mainly deals with manufacturing only
Concern on climate related finance figure	This is the main purpose of the TCFD, their standard is to calculate the climate related issues in dollar value and integrate it into financial reports	No. They do mention climate related financial impact, but do not provide methodology to translate the climate related data to financial impacts	No
Have clear figure that can be comparable in every aspect	Yes	Yes	Yes

3.2 Current Regulatory Framework on Sustainability and ESG reporting in Hong Kong

Overview

ESG or sustainability reporting is a listing rule requirement at HKEx. Two Appendices govern the ESG guidance. The first one is the Corporate Governance Code and Corporate Governance Report in Appendix 14 of the Main Board Listing Rules. It is designed to provide benchmarks and best practice guidance for good corporate governance. The Code emphasizes on the importance of an effective board. The success of a firm is believed to depend on a quality board with directors who are competent, well-qualified, committed with diverse backgrounds. Next, Appendix 27 *of the Consolidated Main Board Listing Rules* titled Environmental, Social and Governance Reporting Guide describes the guidance for E and S, while G is being referred back to Appendix 14.

The following section is a direct extract from Environmental, Social and Governance Reporting Guide in Appendix 27 of the *Consolidated Main Board Listing Rules* published by the HKEx.

Environment, Social and Governance Reporting Guide

According to the HKEx, a firm must report on the "comply or explain" provisions of this Guide. This Guide comprises two levels of disclosure obligations: (a) "comply or explain" provisions; and (b) recommended disclosures. If the issuer does not report on one or more of these provisions, it must provide reasons in its ESG report. The issuer is encouraged, but not required, to report on the recommended disclosures of this Guide. For guidance on the "comply or explain" approach, issuers may refer to the "What is "comply or explain"?" section of the

Corporate Governance Code and Corporate Governance Report ("Corporate Governance Code") in Appendix 14 of the Main Board Listing Rules.

An issuer must disclose ESG information on an annual basis and regarding the same period covered in its annual report. An ESG report may be presented as information in the issuer's annual report, in a separate report, or on the issuer's website. Regardless of the format adopted, the ESG report should be published on the Exchange's website and the issuer's website. Where not presented in the issuer's annual report, the issuer should publish this information as close as possible to, and in any event no later than three months after, the publication of the issuer's annual report.

Overall Approach

The Guide is organized into two ESG subject areas ("Subject Areas"): Environmental (Subject Area A) and Social (Subject Area B). Corporate governance is addressed separately in the Corporate Governance Code.

Each Subject Area has various aspects ("Aspects"). Each Aspect sets out general disclosures ("General Disclosures") and key performance indicators ("KPIs") for issuers to report on in order to demonstrate how they have performed.

In addition to the "comply or explain" matters set out in this Guide, the Exchange encourages an issuer to identify and disclose additional ESG issues and KPIs, including recommended disclosures, that reflect the issuer's significant environmental and social impacts; or substantially influence the assessments and decisions of stakeholders. In assessing these matters, the issuer should engage stakeholders on an ongoing basis in order to understand their views and better meet their expectations.

The Guide is not comprehensive and the issuer may refer to existing international ESG reporting guidance for its relevant industry or sector. The issuer may adopt international ESG reporting guidance so long as it includes comparable disclosure provisions to the “comply or explain” provisions set out in this Guide. The issuer may also consider obtaining assurance on its ESG report.

ESG Strategy and Reporting

The board has overall responsibility for an issuer’s ESG strategy and reporting.

In line with the Corporate Governance Code, the board is responsible for evaluating and determining the issuer’s ESG-related risks, and ensuring that appropriate and effective ESG risk management and internal control systems are in place. Management should provide a confirmation to the board on the effectiveness of these systems.

The ESG report should state the issuer’s ESG management approach, strategy, priorities and objectives and explain how they relate to its business. It would be useful to discuss the issuer’s management, measurement and monitoring system employed to implement its ESG strategy. An ESG report should also state which entities in the issuer’s group and/ or which operations have been included in the report. If there is a change in the scope, the issuer should explain the difference and reason for the change.

Reporting Principle

The following Reporting Principles underpin the preparation of an ESG report, informing the content of the report and how information is presented: 1) Materiality is the threshold at which ESG issues become sufficiently important to investors and other stakeholders that they should be reported. 2) Quantitative: KPIs need to be measurable. Targets can be set to reduce a particular impact. In this way the effectiveness of ESG policies and management systems can be evaluated and validated. Quantitative information should be accompanied by a narrative, explaining its purpose, impacts, and giving comparative data where appropriate. 3) Balance:

The ESG report should provide an unbiased picture of the issuer's performance. The report should avoid selections, omissions, or presentation formats that may inappropriately influence a decision or judgment by the report reader. 4) Consistency: The issuer should use consistent methodologies to allow for meaningful comparisons of ESG data over time. The issuer should disclose in the ESG report any changes to the methods used or any other relevant factors affecting a meaningful comparison.

Complementing ESG Discussions in the Business Review Section of the Directors' Report

Pursuant to paragraph 28(2)(d) of Appendix 16 of the Main Board Listing Rules, an issuer's directors' report for a financial year must contain a business review in accordance with Schedule 5 to the Companies Ordinance. The business review must include, to the extent necessary for an understanding of the development, performance or position of the issuer's business: (i) a discussion of the issuer's environmental policies and performance; (ii) a discussion of the issuer's compliance with the relevant laws and regulations that have a significant impact on the issuer; and (iii) an account of the issuer's key relationships with its employees, customers and suppliers and others that have a significant impact on the issuer and on which the issuer's success depends.

The Guide should complement the content requirements of the directors' report, as it calls for issuers to disclose information in respect of specific ESG areas.

3.3 Findings on Hong Kong firms' ESG reporting quality

3.3.1 Background

The development of environmental, social and governance (ESG) information can be date from 2000, when Global Reporting Initiatives issued reporting standard for private and listed companies initiatively. In the years after, numerous exchanges worldwide have issued their official requirements or standards on ESG obligations disclosure for listed companies. As of 2014, less than one third of stock exchanges issued the ESG reporting guidance. The scope of company involves to report ESG information rapidly increased, the international and local standards and frameworks for ESG reports significantly emerged as well.

Hong Kong Exchanges and Clearing ("HKEx") published the first ESG guide in August 2012, which covers four subject's aspect and now is incorporated into the Listing Rules of the HKEx. On December 21th 2015, HKEx issued the conclusion of Exchange to Strengthen ESG Guide in its Listing Rules in order to encourage the listed companies to publish ESG report with requested key performance indicators ("KPIs") annually from the financial years commencing on or after 1 January 2016. It was a milestone that listed companies should issue their ESG reports independently or combined with their financial annual report. Besides, the Consistency reporting principle require listed companies disclosing any change of methods and meaningful comparisons of ESG data over time, which is a greater challenge faced by listed companies. Listed companies should issue ESG report no later than three months after the financial annual report issued. With this requirement, the time limit of ESG report submission has shortened, listed companies face increasing challenges of CSR management and take up their responsibilities by disclosing the increased efforts they have made to the community, environment and society.

A supplementary document updated the "Frequently Asked Questions Series 18, 2012" was published in November 2018 to further help issuers to understand and comply with the Listing Rules, particularly in situations not explicitly set out in the Listing Rules or where further clarification may be desirable.

However, in the practical view, the quality and accuracy of the ESG reports issued in the consecutive two years are not as expected. The global head of enterprise data content, Brad Foster and the global head of equity data at Bloomberg, David Tabit, published an article on The Asset ESG Forum, claimed that the different data points reported in the same sector lead to the inconsistency of ESG data. Another common defect is that some ESG information disclosed is only partially measured and not representative. For instance, the should report the emissions of entire business, while some firms may only report the emissions for their headquarters. (Foster, B. & Tabit, D., 2019)

KPMG also pointed out only 37% of executives have considered ESG issues into their business strategy planning as the majority of companies do not have the ESG integrated with central corporate thinking. (KPMG, 2019) Moreover, EY noticed that 92% of respondents expected the CEOs should issue the corresponding strategy each year for long-term and the board should review it as only 20% of issuers have affirmed they have specific ESG strategy (EYGM, 2018).

Despite from reviews from other third parties, HKEx noticed this lack of accuracy existed as well. Among the 400 sample companies HKEX was looking into, 38% of them complied with all 11 aspects. On 27th October 2017, HKEx indicated the ESG reports issued by listed companies need to be improved in five aspects, such as the vague disclosure on stakeholder engagements and materiality assessments, lack of involvement of board's considerations in ESG and lack details of policy disclosures, etc.

The above reviews done by various parties have mainly adopted the box checking methodology, see only if they've made disclosure on certain aspect/KPIs or not. None of the review have drilled into the quality or the authenticity of a particular aspect/KPI. Up to now, we are still interrupted in the midst of judging the quality of the ESG report of Hong Kong by the result of the HKEx review.

On December 18, 2019, HKEx announced the conclusion of the public consultation for the new ESG guide. The HKEx made certain modifications to the existing guideline which will take effect on July 1, 2020. Main changes include:

- Introducing mandatory disclosure requirements to include:
    - a board statement setting out the board's consideration of ESG matters;
    - application of Reporting Principles "materiality", "quantitative" and "consistency"; and
    - explanation of reporting boundaries of ESG reports;
- Requiring disclosure of significant climate-related issues which have impacted and may impact the issuer;
- Amending the "Environmental" key performance indicators (KPIs) to require disclosure of relevant targets;
- Upgrading the disclosure obligation of all "Social" KPIs to "comply or explain"; and
- Shortening the deadline for publication of ESG reports to within five months after the financial year-end.

However, as this new guideline will not be implemented until July 2020, our current research will use the existing guideline as the framework for evaluation. In addition, the improved guideline has minor changes and have little effect to the outcome of our analysis because the new guideline will only amplify the misunderstanding and mistakes found in the reports. Therefore, our finding in this section will be a conservative picture of the problems existed in the ESG reporting of Hong Kong listed firms.

3.3.2 Concerns about ESG reporting issues in existed reports:

Research Methodology:

We implemented Simple Random Sampling method to choose sample companies. Companies in middle and small cap categories in selective ESG sensitive industries listed in the HKEx have an equal chance of getting selected for our sample, leading to a total of 181 ESG reports being examined. Using the HKEx Guidelines as the comparison framework, we examined the ESG reports of 181 listed firms (163 reports for 2018 and 18 reports for 2016/17). Based on the types of the misinformation, we classify the misinformation into five categories of concerns.

Table 3.1: Company Size of Sample Companies

Company Size	Small-cap Companies	Mid-cap Companies	Large-cap Companies
Number	104	17	60

Table 3.2: Number of Listed Companies Samples Based in

Company Base	Hong Kong	China	Others
Number	107	65	9

Review Criteria:

Our criteria for ESG report screening is the current ESG disclosure regime in Hong Kong, HKEx ESG Reporting Guide (“Appendix 27”), which was published on August 2012 and updated on 16th November 2018. This ESG guide include two general aspects, environmental and social, and three sub-aspects accordingly.

The Hong Kong Stock Exchange (HKEX) issued a guidance material on ESG-related listing rules in November 2018, including the “How to prepare an ESG report?” The document aligned Appendix 27 disclosures with disclosure recommendations from the Task Force on Climate-related Financial Disclosures (TCFD). No changes have been made to Appendix 27. HKEX highlights that companies may refer to TCFD Recommendations for guidance on identifying potential financial impacts of climate-related risks and opportunities when disclosing KPIs related to climate change.

Apart from the above updates, HKEX has also issued a consultation paper to review the ESG guide. One more aspect on climate-related issue and four more KPIs under different aspects have recommended to be added to the guide. Besides the climate-related KPI added, two more KPIs that elaborate more clearly on the meaning of supply chain will be added. The revised listing rule is expected to be implemented on the financial year 2020. Our research hasn’t factored in all those future changes.

Table 3.3: Review Criteria – HKEx ESG Reporting Guide

ESG Aspect A: Environmental		Aspect B3: Development and Training	2 KPIs
Aspect A1: Emissions	6 KPIs	Aspect B4: Labour Standards	2 KPIs
Aspect A2: Use of Resources	5 KPIs	ESG Subject Aspect 2: Operating Practices	
Aspect A3: Environment and Natural Resources	1 KPIs	Aspect B5: Supply Chain Management	2 KPIs
ESG Aspect B: Social		Aspect B6: Product Responsibility	5 KPIs
ESG Subject Aspect 1: Employment and Labour Practices		Aspect B7: Anti-corruption	2 KPIs
Aspect B1: Employment	2 KPIs	ESG Subject Aspect 3: Community	
Aspect B2: Health and Safety	2 KPIs	Aspect B8: Community Investment	2 KPIs

Industry Category:

For data collection and analysis, we classify the sample companies by three-sector-model in economics namely primary, secondary and tertiary. The portion of the companies under these three sectors that we've chosen are roughly match with the same classification of all the Hong Kong listed companies. Under each sector, we also subdivided it into two to three different industries to observe their differences. The number of companies in the three sectors: primary (extraction and agriculture), secondary (manufacturing), and tertiary (services) are 27, 70 and 84 respectively.

The industry is classified according to the Hong Kong's economic structure and HKEx listed company industry distribution feature. At this stage, we classify the industries into Energy/ Energy Related (15) and Mining (15) under the primary industry, Manufacturing (24) and Construction (46) under the secondary industry, Service (32) and Financial (52) under the tertiary industry. The four leading industries in Hong Kong, including financial services, tourism, trading and logistics, and professional and producer services, are the driving force of economic growth. According to statistics data disclosed in May 2019, these four key industries contribute 60.3% of Hong Kong's Gross Domestic Product, Financial Services and Professional Services occupied 31.4% of GDP (Hong Kong Census and Statistics Department, 2019). With noticed the significance of this sector, we listed this sector of Financial out as a separate item in this level.

Energy/ Energy Related, Mining, Manufacturing and Construction industries are usually considered as the industries with high intensity of pollution emitted, and with strict monitoring system in emissions as well. Therefore, we took these industries into secondary category in order to analyze their performance in ESG reporting. Conglomerate companies have combinations of multiple business entities in different industries, for this reason that we take this industry as an independent category, and we only chose the company has apparent main business aim to clearly illustrate the result.

Types of Concerns:

1. Concerns about Misunderstanding of Stakeholder Engagement

Stakeholder engagement is a key part of ESG in the world recognized standard GRI. Companies engage their stakeholders through different channels to find out what environmental and social matters they concern most. Companies also need to engage stakeholders that regard what aspect will have major impact to the future development of the company. Under the HKEx guideline, the rationale of stakeholder engagement is to engage different stake holder groups. Identify the materiality of the aspects and the potential risk of the company by different communication channels. Through engagement process, the company should able to set up future policy to mitigate risk and address the concern of stakeholders.

2. Concerns about Environmental Data Collection

Environmental KPIs is the most important substances of ESG report which has direct and huge impact on climate change. A lot of organizations including United Nations have tried hard to identity climate-related financial risk and report such risks in form of financial disclosures. Correct understanding of environmental KPIs and data integrity are a pre-requisite for a good ESG report.

a. Wrong units used for presenting Environmental KPIs.
b. Fail to report GHG Emissions in an appropriate manner (e.g. skipping the process of separating the GHG Emissions into 3 scopes (Scope 1, Scope 2 and Scope 3) and calculate the intensity accordingly.
c. Fail to report the intensity of Environmental KPIs.

3. Concerns about Environmental Data Calculations

Some figures reported were obviously problematic. They may report a large number far beyond the industrial average or even higher than the maximum limitation of the government regulation. Some of the data are overly small when compare to other companies in similar business and scale. This may due to the problems appeared in data collection and calculation process. Some companies gave obvious wrong statement on their environmental performance.

a. Calculation problems about NOx and SOx Emissions
b. Calculation problems in Water Resource Usage
c. Calculation problems of Particulate Matter Emissions
d. Calculation problems of Chemical Oxygen Demand

4. Concerns about Misunderstandings in Social Aspects

There are eight social aspects listed in the HKEx guidelines that cover many social issues in the ESG report. These social aspects have their sustainability rationale behind their narratives. Numerous reports misinterpret the meaning behind these aspects (e.g., mainland companies have a different cultural background and therefore a different definition of diversity, anti-discrimination, etc.). Some reports mix up the meaning of product quality and supply chain.

Supply chains fall outside of a company's core operations. However, it is very important in ESG analysis as they expose the company to uncontrollable risks include human rights, labor welfare, discriminations and diversity, corruption, environmental depletion, pollution and abuses of indigenous people. Fail to manage supply chain's ESG risk properly can harm the company's reputation, operations and financial performance. To manage the supply chain risk, company should evaluate their potential risks by monitoring the environmental and social performance of their material, product, and service suppliers.

5. Concerns about Misalignment between HKEx Guidelines and Content

The HKEx ESG Reporting Guide was launched in 2012 and became mandatory requirement in 2016. The GRI standard has been considered as reference reporting framework used by different Exchange and Regulators. These standards navigate the listed companies to report with logical sequence for easy understanding by the ESG report readers. At present, the aspects and KPIs under general disclosure are mandatory elements of ESG report. Listed companies should follow the HKEx guideline to prepare the ESG report. However, misalignment occurs due to inconsistence of format, missing aspects or KPIs, and no quantitative data reported.

3.3.3 Research Findings on Misinformation related to ESG Reports for Hong Kong Listed Firms

Overall Findings

Using the HKEx Guidelines as the comparison framework, we examined the ESG reports of 181 firms (163 reports for 2018 and 18 reports for 2016/17). Based on the types of the misinformation, we classify the misinformation into five categories of concerns.

As we reviewing the ESG report samples, we noticed that the format of report, number of conceptual problems and KPI calculation problems occurred frequently in several industries. Therefore, we assume that the frequency and type of problems change from industries with certain characteristics. We classified our sample companies into primary (extraction and agriculture), secondary (manufacturing), and tertiary (services) industries according to the three-sector model. The second-tier industries are Energy/ Energy Related), Mining, Manufacturing, Construction, Service (excluding financial service), Financials and Conglomerates. The findings are listed below.

Table 3.4 shows the frequency counts of ESG reporting concerns by industry and Figure 3.1 lists similar statistics in a pie chart format. Obviously, concern about environmental data calculation shows the highest counts as total (n=481) and on per-firm basis (n=2.66 per-firm). Overall speaking a total of 815 concerns is found for 181 firms. In other words, each firm demonstrates 4.5 concerns in the sample. This finding indicates a serious problem of ESG misinformation existed in our sample firms.

Figures 3.2- 3.6 show the breakdown of concerns by industry sector, concern types in total and per 100 firms. These figures echo the same seriousness of misinformation in our sample. In short, more extensive research and analysis are needed to better understand the characteristics of misinformation and the concentration of misinformation by firm types.

Table 3.4: Frequency Counts of ESG Reporting Concerns by Industry

Industry/Concern	Concerns about Misunderstanding of Stakeholder Engagement	Concerns about Environmental Data Collection	Concerns about Environmental Data Calculations	Concerns about Misunderstandings in Social Aspects	Concerns about Misalignment between HKEx Guidelines and Content	Sub-Total
Primary: Energy and Mining (n=27)						
Energy (n=12)	4	1	33	7	1	
Mining (n=15)	11	5	50	14	0	
Sub-total	15	6	83	21	1	125
Concern/Per Firm	0.56	0.22	3.07	0.78	0.04	4.63
Secondary: Construction and Manufacturing (n=70)						
Construction (n=24)	17	2	75	29	1	
Manufacturing (n=46)	27	25	152	35	4	
Sub-total	44	27	227	64	5	367
Concern/Per Firm	0.63	0.39	3.24	0.91	0.07	5.24
Tertiary: Services (n=84)						
Financials (n=32)	20	0	48	28	3	
Services (n=52)	32	11	123	53	4	
Sub-total	52	11	171	81	7	322
Concern/Per Firm	0.62	0.13	2.04	0.96	0.08	3.83
Total	111	44	481	166	13	815
Concern/Per Firm	0.61	0.24	2.66	0.92	0.07	4.50
Grand Total (n=181)	815					

Figure 3.2: Sample Size Breakdown by Industry (n=181)

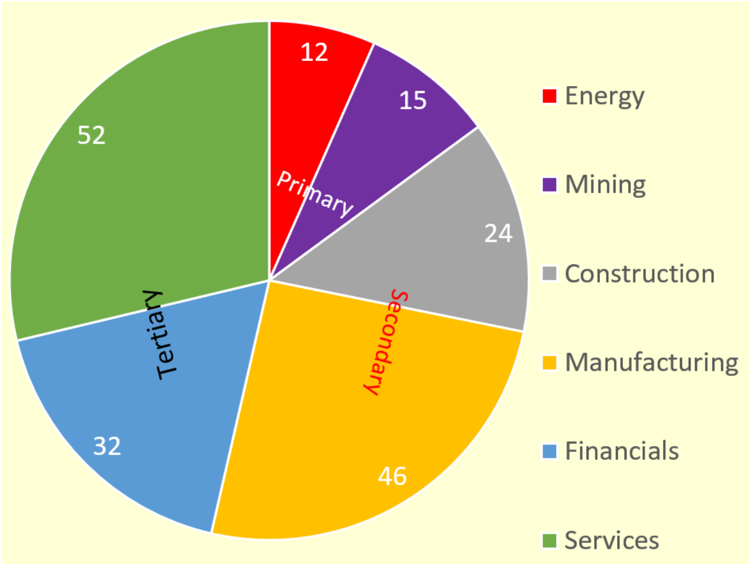

Figure 3.3: Frequency Count of Concerns Per 100 Firms by Industry Sector

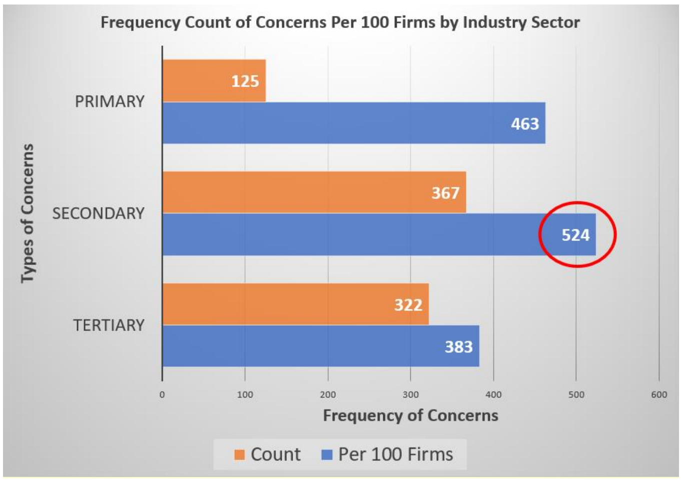

Figure 3.4: Frequency Count by Concern Types

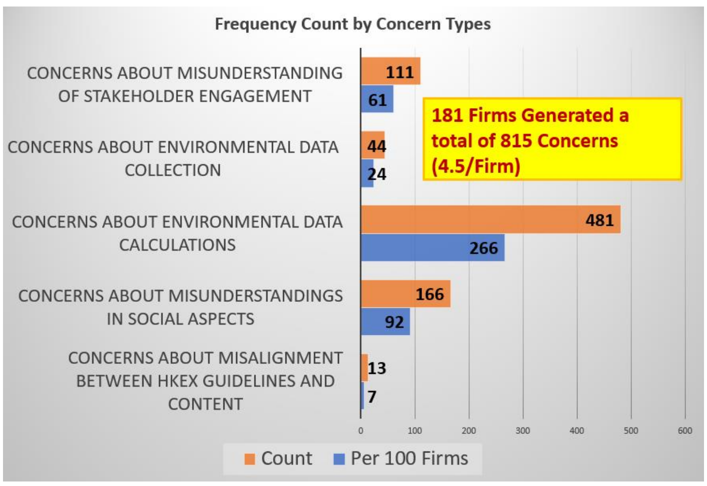

Figure 3.5: Frequency Count of Concern Types Per 100 Firms by Industry Sector

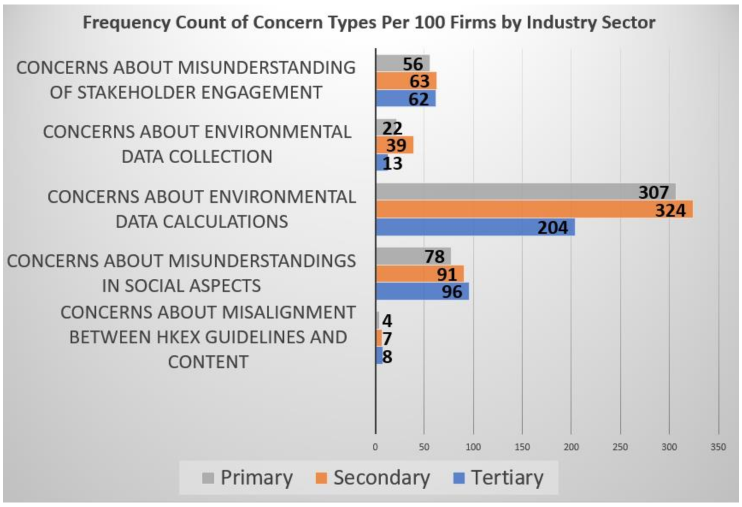

Figure 3.6: The Average of Concerns Detected in Different Industries

Industry	Average of Concerns about Misunderstanding related to Stakeholder Engagement	Average of Concerns about Environmental Data collection and missing on certain disclosures	Average of Concerns related to Environmental Data calculations	Average of Concerns about Misunderstandings in Social Aspect	Average of Concerns about Misalignment between the HKEx Guidelines and the Reporting Content
Energy	1.00	1.00	2.75	1.00	1.00
Mining	1.00	1.25	3.57	1.40	0.00
Primary: Extraction	**1.00**	**1.20**	**3.19**	**1.24**	**1.00**
Construction	1.00	1.00	3.26	1.71	1.00
Manufacturing	1.13	1.79	3.30	1.35	1.00
Secondary: Manufacturing and Construction	**1.07**	**1.69**	**3.29**	**1.49**	**1.00**
Financials	1.00	0.00	1.92	2.00	1.50
Services	1.07	1.10	2.80	1.56	1.00
Tertiary: Services	**1.04**	**1.10**	**2.48**	**1.69**	**1.17**
Grand Total	**1.05**	**1.42**	**2.93**	**1.54**	**1.08**

Secondary Industries Tend to Have Higher Possibility Reporting Problems in Environmental Aspects

The secondary industry has by far the highest number and average of reporting errors in Environmental Aspect, which were summarized as "Concerns related to Environmental Data and Measures" and "Concerns about Environmental Data Processing", the number of problems on average are 3.29 and 1.69 respectively. Especially for the "Concerns related to Environmental Data and Measures", with the deviation of 0.36, higher than other industries significantly. Also, in second cluster, Mining industry and Manufacturing industry are probably having more Environmental related concerns on average. However, with the environmental screening system to evaluate the performance and potential impacts of environmental emissions, the manufacturing industry issuers normally perform better in ESG reporting than average in terms of disclosure degree of KPIs and the relevant description accordingly, which increases the possibility of calculation mistakes.

Manufacturing Industries have considered more problems in Stakeholder Engagement and Materiality Assessment

According to our statistics, the average of Concerns about Misunderstanding related to Stakeholder Engagement in manufacturing industry is 1.13, while the average of this type of problems is 1.05, deviation is 0.17, which is still in an acceptable range.

Financial Related Industries have Undesirable Performance in Social Aspect.

The average in this industry is 2.00 while the average of the average of this problem in ESG reports is only 1.54. They tend to lack of fully understanding of the concept of Supply Chain Management, ignore the significance of Product Responsibility.

Limitation of Research

Since we do not get the source data, our analysis can be a guessing game, specially for our second concern. We also acknowledge that our findings are subject to human errors in the evaluation process.

Preliminary Check on ESG Data Coverage of our 181 Firms from Sustainalytics and MSCI

It appears that both data providers do not cover ESG scoring for firms with a market cap less than HKD 2Bil. Out of 181 firms, Sustainalytics covers only 58 with an average score of 50.3 (out of 100) while MSCI covers only 53 firms with an average score of 3.9 (out of 10). For the sub-sample with ESG scores, no obvious relationship between the ESG score and firm size. In other words, larger firms do not necessary get a higher score. No. of Total Concerns has the most significant correlation across different ESG Scores (ranged from -0.2 to -0.4). In other words, when the number of Concerns experienced in a firm increases, the ESG performance of the firm decreases (# Concerns ↑ => ESG ↓). In addition, the Concern 2 (Environmental Data and Measures) has a significant and negative correlation with ESG Score. It means that when the number of Concern 2 increases, the ESG performance of that firm deteriorates (# Concern 2 ↑ => ESG ↓).

Table 3.5: ESG scores of our sample firms by Sustainalytics and MSCI

Industry/ ESG Scores	Sustainalytics ESG Score (n=58)		MSCI ESG (Wt Avg) Score (n=53)	
Primary: Energy and Mining (N=27); Company with Sustainalytics Score (s1=5), Company with MSCI Score (s2=4)				
Energy (N=12; s1=1; s2=1)	57.0 (n=5)		2.3 (n=4)	
Mining (N=15; s1=4; s2=3)	46.3 (n=5)		2.8 (n=4)	
Industry Average		48.4 (n=5)		2.7 (n=4)
Secondary: Construction and Manufacturing (N=70); Company with Sustainalytics Score (s1=21), Company with MSCI Score (s2=18)				
Construction (N=24; s1=3; s2=3)	48.7 (n=21)		2.3 (n=18)	
Manufacturing (N=46; s1=18; s2=15)	49.4 (n=21)		3.9 (n=18)	
Industry Average		49.3 (n=21)		3.7 (n=18)
Tertiary: Services (N=84); Company with Sustainalytics Score (s1=32), Company with MSCI Score (s2=31)				
Financials (N=32; s1=10; s2=10)	49.6 (n=32)		3.6 (n=31)	
Services (N=52; s1=22; s2=21)	52.0 (n=32)		4.4 (n=31)	
Industry Average		51.2 (n=32)		4.1 (n=31)
Total Average (N=181; s1=58; s2=53)		50.3 (n=58)		3.9 (n=53)

3.3.4 Conclusion and What is Next?

1) **Misinformation Varies Among Industries**

   Industry variation in misinformation intensity does exist. It is not clear whether the variation is due to firm size or nature of business. Additional quantitative analysis using a multiple regression format to control for firm level characteristics is needed to identify sources of misinformation.

2) **Setting Up a Feedback System to Report Misinformation**

   Is it possible to establish feedback system to reflect the misinformation to respective firm for improvement? If so, how should such a system be established in a sustainable and efficient manner?

3) **Each Firm Focuses on Materiality Issues Unique to Its Circumstances**

   Given that firms are expected to continue to improve the quality of their ESG data disclosure, what can top management and board do so that firms can better focus on materiality issues unique to their firms to make an impact?

The Way Forward

We believe that ESG integration is an important channel to achieve sustainability for the society as a whole. Through ESG investments, corporations will take sustainability issues more seriously and investors and stakeholders can vote with their feet. ***The power of finance*** should play a vital role in enhancing sustainability through ESG integration. To do so, we have to achieve the following milestones:

1) **Improve Quality of ESG Information**

SASB estimates that 70% of the ESG data are noise. We need to recognize the respective roles of risk management, client demand and regulation as drivers to different stage of ESG stakeholders (Mature-stage and Early-stage). At the same time, we need to understand the corresponding barriers to these two segments. Using this matching information, the regulators and stakeholders should stay within their boundary and utilize their strengths and advantages to improve the quality of ESG disclosures.

2) Produce Various ESG Performance Benchmarks and KPIs

Currently, it is difficult for clients to evaluate ESG service providers and asset managers in a far manner due to a lack of comprehensive ESG performance benchmarks and KPIs based on the ESG preference of the clients and stakeholders (mandate). We need more comprehensive benchmark to evaluate different ESG strategies to meet the different needs of clients as ESG preferences vary among them.

3) Enhancing the Scope and Depth of ESG Products and Services

Upon the availability of better information disclosures and benchmarks, the last ingredient will be the launch of more comprehensive ESG product choices that can meet the clients' needs with various ESG preference. ***ESG preference is a net outcome of various factors including personal (corporate) characteristics, internal constraints of resources, external constraints related to regulation and social expectation, and risk-return expectation***. To better match with the ESG profile of the clients, more ESG products choices and solutions aiming to match these preferences are needed.

4) Recommendations on Reporting Standard to be Industry-based

HKEx ESG reporting guideline is mandatory requirement with 11 aspects include the board's consideration of ESG issues, environmental and social aspects as the general disclosure. Another most trusted and widely used standard of ESG reporting is GRI Sustainability Reporting Standards (GRI Standards), which enable organizations to measure and understand their most critical impacts on the environment, society and the economy. Even though GRI standard is in common use among Asia, it is voluntary based and comparatively non-binding. Both of these standard need Stakeholder Engagement, but they didn't provide an effective way to enable companies communicate their long-term missions and strategies with stakeholders in different industries with clear structures and efficient approach.

We encourage firms in Hong Kong take Sustainability Accounting Standards Board (SASB) as reference, the SASB aims at meeting the need for industry-specific reporting process, it is available for 79 industries to identify their material sustainability issues to better-structured of their ESG report. Also, SASB develops the fundamentally material sustainability information to investors in mandatory fillings of financial disclosures.

5) Company's Board should Engage in ESG Matters

Company's board should fully-engage in ESG issues and ESG reporting process, including the ESG governance, identification of ESG risks and performance, and related supervising systems. Every ESG issuers should establish ESG committee to in charge of ESG issues, an independent non-executive director is recommended as supervisor or executive in this group. The firm should set out the internal control regulations with different roles and responsibilities for the chairman, board, that independent non-executive director and the committee. With effective board oversight and awareness of ESG governance, a company can hold a stronger foundation in long term on both ESG and their business development process.

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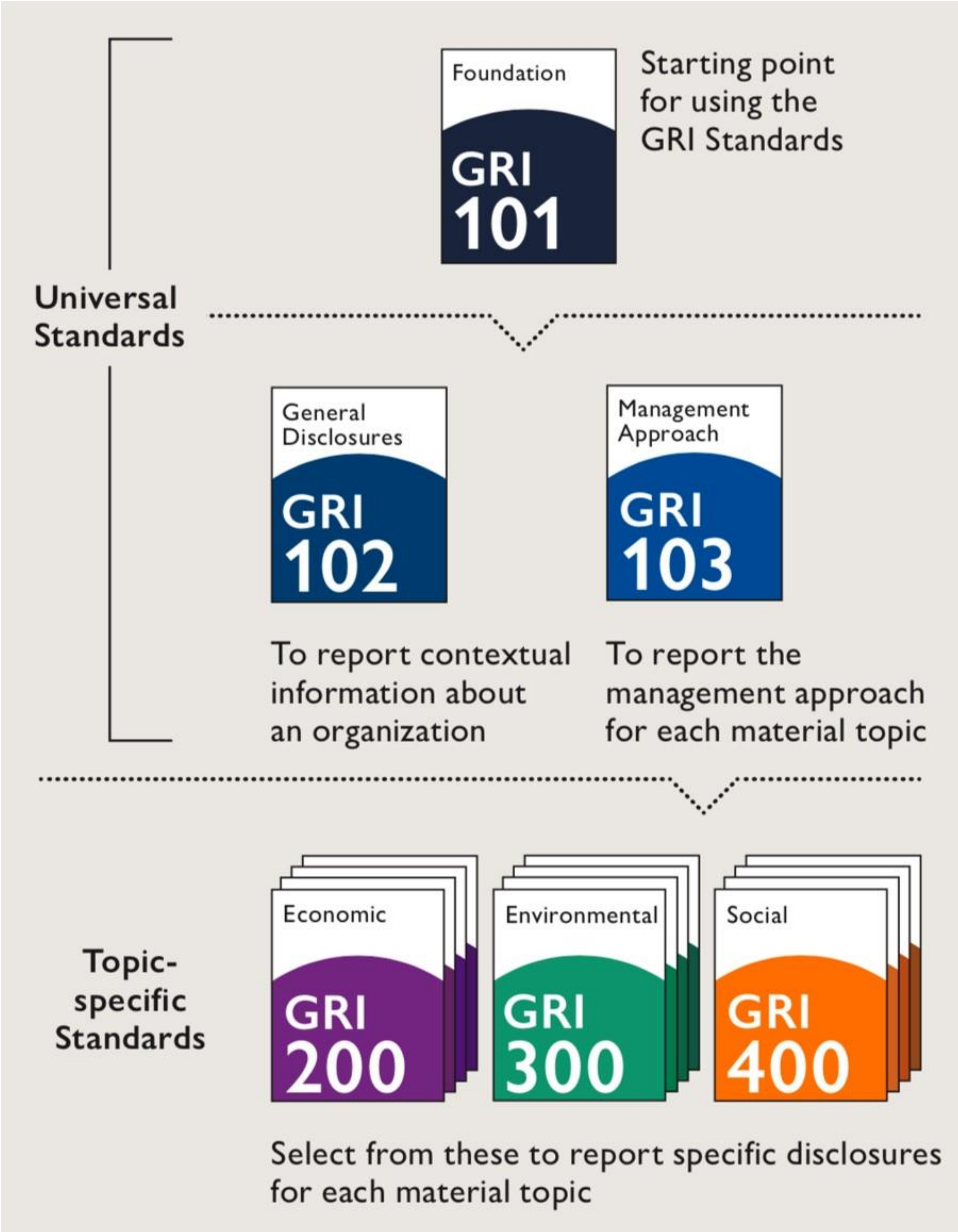
Appendix 1: Overview of the Set of GRI Standards



Source from: GRI 2018: GRI 101 Foundation 2016. Downloaded at: https://www.globalreporting.org/standards/gri-standards-download-center/

Environmental Standards

GRI 301	Materials 2016
GRI 302	Energy 2016
GRI 303	Water and Effluents 2018
GRI 304	Biodiversity 2016
GRI 305	Emissions 2016
GRI 306	Effluents and Waste 2016
GRI 307	Environmental Compliance 2016
GRI 308	Supplier Environmental Assessment 2016

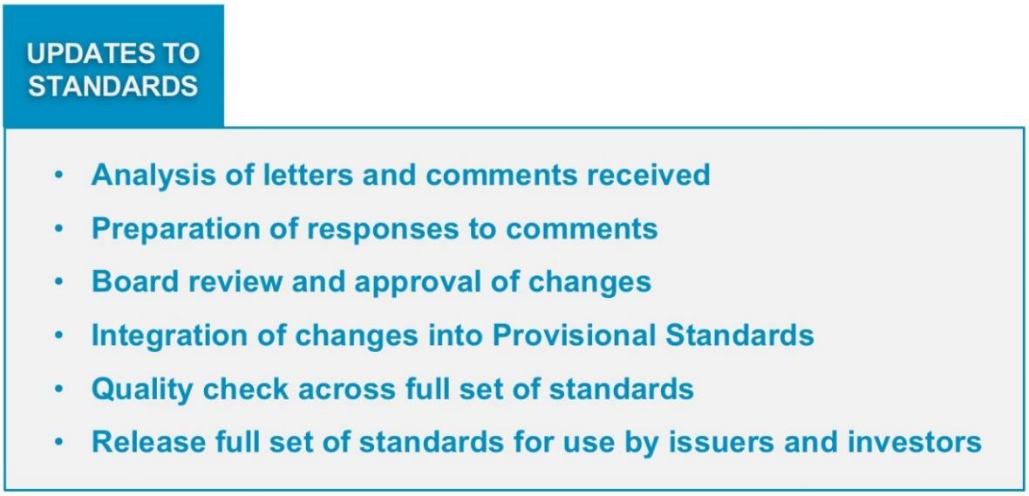
Social Standards

GRI 401	Employment 2016 (containing Standard Interpretation 1)
GRI 402	Labor/Management Relations 2016
GRI 403	Occupational Health and Safety 2018
GRI 404	Training and Education 2016
GRI 405	Diversity and Equal Opportunity 2016
GRI 406	Non-discrimination 2016
GRI 407	Freedom of Association and Collective Bargaining 2016
GRI 408	Child Labor 2016
GRI 409	Forced or Compulsory Labor 2016
GRI 410	Security Practices 2016
GRI 411	Rights of Indigenous Peoples 2016
GRI 412	Human Rights Assessment 2016
GRI 413	Local Communities 2016
GRI 414	Supplier Social Assessment 2016
GRI 415	Public Policy 2016
GRI 416	Customer Health and Safety 2016
GRI 417	Marketing and Labeling 2016
GRI 418	Customer Privacy 2016
GRI 419	Socioeconomic Compliance 2016

Appendix 2a: SASB's Standard Setting Process

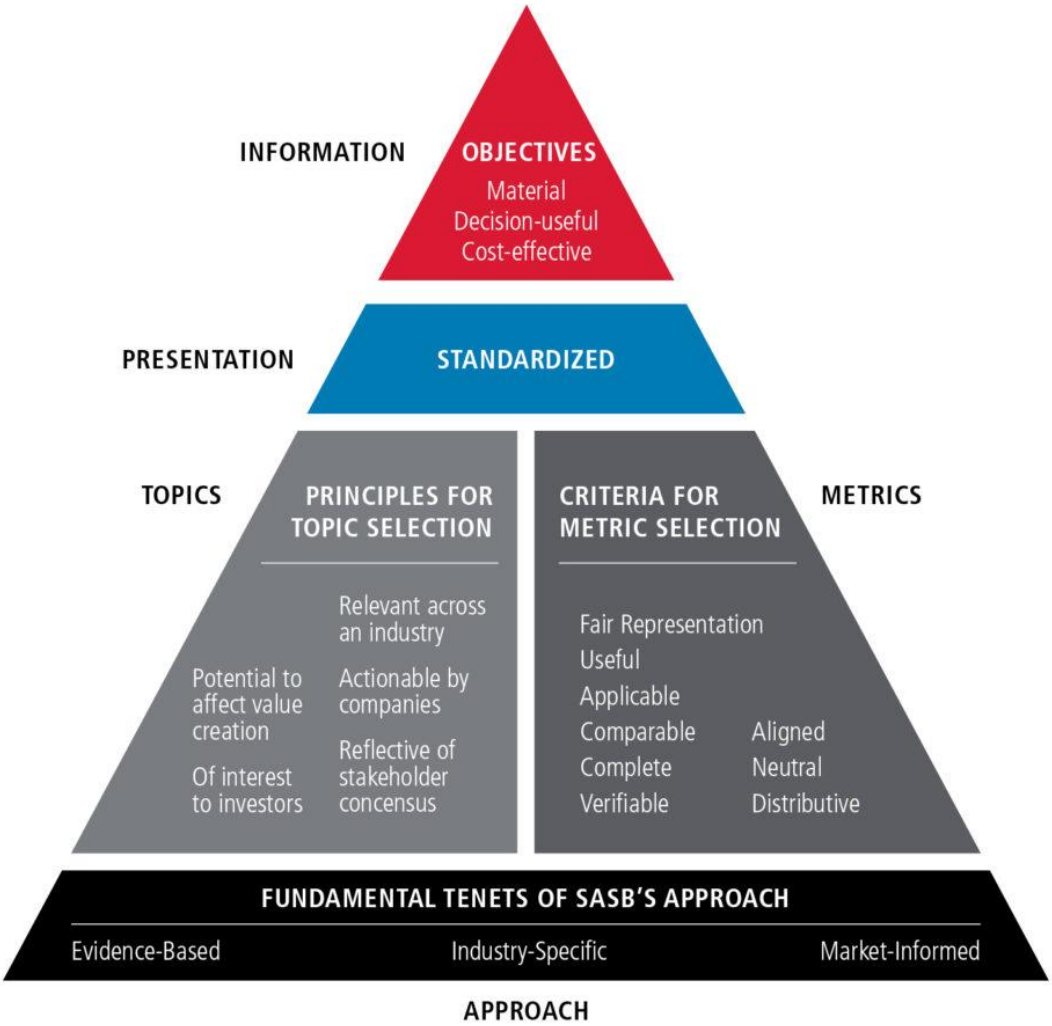
Source from: SASB 2018: The Standard Setting Process. https://www.sasb.org/standards-setting-process/

Appendix 2b: SASB's Updates to Standards



Source from: SASB 2018: The Standard Setting Process. https://www.sasb.org/standards-setting-process/

Appendix 2c: SASB's Conceptual Framework



Source from: SASB 2018: Conceptual Framework. https://www.sasb.org/standards-setting-process/conceptual-framework/

Appendix 2d: SASB's Materially Map

■ Likely has material impact
□ Likely does not have material impact

Industry	Page	Envi-ronment	Social capital	Human capital	Business model & innovation	Leadership & governance
Advertising & Marketing	20		■	■		
Aerospace & Defense	22	■	■		■	■
Agricultural Products	26	■	■	■	■	■
Air Freight & Logistics	33	■		■		■
Airlines	36	■		■		■
Alcoholic Beverages	39	■	■		■	■
Apparel, Accessories & Footwear	43		■			■
Appliance Manufacturing	46		■		■	
Asset Management & Custody Activities	48		■	■	■	■
Auto Parts	52	■	■		■	■
Automobiles	55	■	■	■	■	■
Biofuels	58	■			■	■
Biotechnology	62	■	■	■	■	■
Building Products & Furnishings	67	■	■		■	■
Cable & Satellite	70	■	■			■
Car Rental & Leasing	73		■		■	
Casinos & Gaming	75	■	■	■		■
Chemicals	79	■			■	■
Coal Operations	83	■	■	■		■
Commercial Banks	89		■		■	■
Construction Materials	93	■		■	■	■
Consumer Finance	97		■			■
Containers & Packaging	100	■	■		■	■
Cruise Lines	104	■	■	■		■
Drug Retailers & Convenience Stores	108	■	■			■
E-Commerce	111	■	■	■		
Education	114		■			
Electric Utilities	116	■	■	■	■	■
Electrical & Electronic Equipment	122	■	■		■	■
Electronic Manufacturing Svcs. & Original Design Mfg.	125	■		■	■	■
Engineering & Construction Services	129	■	■	■	■	■
Food Retailers & Distributors	132	■	■	■		■
Forestry & Logging	138	■	■		■	
Fuel Cells & Industrial Batteries	141	■		■	■	■
Gas Utilities	144				■	■

■ Likely has material impact
□ Likely does not have material impact

Industry	Page	Envi-ronment	Social capital	Human capital	Business model & innovation	Leadership & governance
Hardware	147		■	■	■	■
Health Care Delivery	150	■	■	■		■
Health Care Distributors	155	■	■		■	■
Home Builders	158	■		■	■	
Hotels & Lodging	163	■		■		
Household & Personal Products	166	■			■	■
Industrial Machinery & Goods	169	■		■	■	■
Insurance	172	■	■		■	■
Internet Media & Services	175	■	■	■		■
Investment Banking & Brokerage	178		■	■	■	■
Iron & Steel Producers	182	■		■		■
Leisure Facilities	186	■	■			
Managed Care	189	■	■		■	■
Marine Transportation	193	■				■
Meat, Poultry & Dairy	197	■	■	■	■	■
Media Production & Distribution	202		■			■
Medical Equipment & Supplies	205	■	■		■	■
Metals & Mining	209	■	■	■		■
Mortgage Finance	215	■	■		■	■
Multiline and Specialty Retailers & Distributors	218	■	■	■		■
Non-Alcoholic Beverages	221	■	■		■	■
Oil & Gas Exploration & Production	225	■	■			■
Oil & Gas Midstream	231	■				■
Oil & Gas Refining & Marketing	235	■			■	■
Oil & Gas Services	239	■				■
Pharmaceuticals	242	■	■	■	■	■
Processed Foods	247	■	■		■	■
Professional Services	252		■	■		
Pulp & Paper Products	254	■				■
Rail Transportation	257	■				■
Real Estate Owners, Developers & Investment Trusts	259	■			■	
Real Estate Services	262				■	■
Restaurants	264	■	■	■		■
Road Transportation	268	■		■		■
Security & Commodity Exchanges	271		■			■
Semiconductors	274	■		■	■	■
Software & IT Services	278	■	■	■		■
Solar Energy	283	■			■	■
Telecommunications	287	■	■		■	■
Tobacco	291		■			
Toys & Sporting Goods	293		■			■
Waste Management	295	■		■	■	
Water Utilities	299	■	■		■	■
Wind Energy	303			■	■	■

Source from: SASB 2018: SASB Industry Standards: A Field Guide, p.18-19. Downloaded at: http://library.sasb.org/wp-content/uploads/2017/01/SASB_FieldGuide-011917-spreads.pdf

Appendix 2e: SASB's Sustainability Framework

Source from: SASB 2018: Materially Map. https://www.sasb.org/standards-overview/materiality-map/

Appendix 2f: SASB's List of Industries in the Engagement Guide

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EXCERPT

Source from: SASB 2018: Engagement Guide. https://library.sasb.org/engagement-guide-preview/

Appendix 3: FTSE ESG Indicators

FTSE ESG Indicator Table – High Level Summary

	Strategy and Practice	Quantitive, Sector Specific and Performance
Climate Change	GHG* emissions and energy reduction Collaborative initiatives Board oversight Short-term quantitative targets Long-term quantitative targets Adaptation to physical impacts Quantified progress against targets Financial quantification of costs and R&D Independent verification of GHG or energy Intensity of GHG emissions reported	Targets to reduce fleet GHG emissions Progress against targets on product GHG GHG emissions per unit of revenue GHG emissions per MWh produced Coal reserves per unit revenue Total energy consumption Disclosure of oil and gas reserves Fleet fuel efficiency by country/region
Water Use	Policy commitment to address water use Risk assessment in water stressed regions Actions taken to reduce water use Quantified progress against targets Independent verification Collaboration with others on efficient water usage	Total water usage Percentage of water recycled Quantified water usage targets
Biodiversity	Policy commitment on biodiversity Commitment to net positive biodiversity impact Biodiversity targets Assessment of biodiversity risks Biodiverse habitats near operations, or restored Biodiversity Action Plans (BAPs) and audits Participation in biodiversity certification schemes	Commitment to rehabilitation of mining sites Round Table for Sustainable Palm Oil (RSPO) Percentage certifications for palm oil Percentage certifications for forest products Percentage certifications for responsible/sustainable seafood
Pollution & Resources	Policy to reduce pollution, waste, resources Targets to reduce pollution, waste, resources Progress on targets for pollution, waste and resources Quantified water discharge and resource use Independent verification Financial quantification of costs and R&D Life cycle assessments and industrial ecology	NOx and SOx emissions Volatile Organic Compounds Recycled and non-recycled waste Cost of environmental fines and penalties Percentage of sites covered by ISO14001 or EMAS*
Environmental Supply Chain	Policy addresses energy use and GHG emissions Policy addresses water use and biodiversity Policy addresses environmental issues and pollution Policy addresses waste and resources Risk assessment and due diligence Monitoring including audits and results Communication and training of suppliers Encourage suppliers to reduce and report	Property portfolio policy on environmental issues Property portfolio targets on GHG, energy, water use Certification to a building management standard "Green leases" for tenants of property portfolio Building management systems, smart meters, biodiversity Aggregate GHG emissions on properties Aggregate energy data on properties Aggregate water usage data on properties
Health & Safety	Policy addresses health & safety and contractors Commitment to continuous improvement Targets to reduce incidents Board oversight and presence of H&S Committee Address global health (HIV/AIDS, malaria, TB) Performance and progress against targets Risk assessment and due diligence Employee involvement in improvements Performance monitoring and management Incidents investigated, reported and action taken Independent verification Programme for a global health issue	Policy and procedures for unplanned plant shut-downs Policy and procedures for radiation incidents and events Policy and procedures for radiation hazard assessment Policy and procedures for radiation to employees and community Policy and procedures radioactive waste Work-related fatalities over 3 years per 1000 employees Percentage of sites with OSHAS* 18001 certification Number of staff trained on health and safety standards Lost time incident rate over last 3 years Number of unplanned plant shut downs over 3 years Number of incidents on IAEA INES* event scale Total weight/volume of radioactive waste over 3 years Radiation exposure for community and employees over 3 years
Labour Standards	Policy addresses core ILO* conventions Policy addresses non-discriminiation Policy addresses working hours and living wage Commitment to frameworks on labour standards Policy on under-privileged and youth unemployment Policy translated and communicated Risk assessment and due diligence Actions to address labour issues and improve diversity Incidents of non-compliance and action taken	Black Economic Empowerment Full time staff voluntary turnover rates Percentage of employees that are contractors or temporary Amount of time spent on employee development training

*GHG Greenhouse Gasses; EMAS Eco-Management and Audit Scheme; OSHAS Occupational Health and Safety Advisory Services; IAEA International Atomic Energy Agency; INES International Nuclear and Radiological Event Scale; ILO International Labour Organisation

	Strategy and Practice	Quantitive, Sector Specific and Performance
Human Rights & Community Indicators	Support for international standards UN Guiding Principles on Business and Human Rights Children's Rights and the Business Principles Commitment to local employment Impact assessment on new and existing operations Stakeholder engagement consultations and reports Grievance mechanisms in place Disclosure of human rights incidents and actions Participation in external schemes Output of community investments quantified	Policy addresses freedom of expression Policy addresses data privacy Policy/Principle/Code on indigenous rights Policy addresses security guard issues Donations/community investments made to not-for-profit organisations
Customer Responsibility	Responsible advertising and marketing Policy on negative impact on customers Membership of industry initiatives or use of Codes Guidelines and training Vulnerable groups or their issues recognised Initiatives to protect vulnerable groups Research and development	Responsible selling for client-facing sales staff Access to medicine strategy and programmes Access to nutrition strategy and programmes Adoption and adherence to WHO* Code on Infant Formula Non-compliance and corrective action on BMS* marketing Verification and reporting on marketing of BMS
Social Supply Chain	Policy addresses the core ILO Conventions Policy addresses working hours and living wage Policy addresses health and safety Policy translated and communicated Risk assessment on new and existing suppliers Results of supplier monitoring/auditing Policy integrated into buyer training and purchasing Capacity building in suppliers Member of recognised supply chain initiative	Property policy on social issues and community engagement Property accessibility: disabled persons, also public transport Signatory and reporting to UN PRI* ESG integration into investment, and long term investment Engagement with companies in portfolio on ESG issues Signatory and reporting to Principles for Responsible Insurance ESG integration into insurance process Signatory to UN SSEI (Sustainable Stock Exchange Initiative) Support ESG products, and guidance for issuers on ESG disclosure Member of and reporting to the Equator Principles ESG integrated into lending policies and strategies Results of supplier monitoring/auditing and actions on non-compliance
Anti-Corruption	Policy addressing countering bribery Policy addressing anti-corruption Board oversight of anti-corruption policy Risk assessment of operations and intermediaries Due diligence of new business partners Whistle-blowing mechanism in place Communication and training Procedures for high risk operations	Political contributions made Number of staff dismissals due to non-compliance with anti-corruption policy Cost of fines, penalties, settlements in relation to corruption
Tax Transparency	Policy commitment to tax transparency Align tax payments with revenue generating activity Tax policy oversight by Board Public statements on tax transparency by CEO/CFO	Verification of tax data Disclosure of corporation tax paid globally
Risk Management	Code of Conduct Risk management framework Reference to external standards Board oversight over Code and risk management Whistle-blowing mechanism in place Non-compliance procedures and reporting Reviews of Code compliance against Code of Conduct Committee or senior executive responsible for risk Scenario planning and stress testing Response plans and emergency procedures	Legal and compliance leads have Board access Board oversees risk management Non executive board risk management expertise Repeated fines/settlements >$100m BIS* Tier 1 Capital Ratio BIS Core Tier 1 Capital Ratio Leverage Ratio (Tier 1 Capital to Total Exposures) Liquidity coverage Ratio (LCR) Provisions for fines and settlements in audited accounts
Corporate Governance	Separate chairman and CEO Details of Directors expertise and experience Commitment to diversity on the Board Board meeting frequency and attendance rate Committee and Charter for remuneration Remuneration has long-term mechanisms and ESG Disclosure fixed and variable remuneration Disclosure of fees paid to auditors Shareholder voting rights Provisions to protect minority shareholders Disclosure of voting results	Part of variable remuneration deferred for 3 years or more Claw-back or malus exists for remuneration Bonuses are capped at a particular % of salary Variable compensation considers performance relative to risk Percentage of Independent Directors on the board Percentage of women on the Board Number of days before AGM agenda published Maximum number of years for which executive remuneration is deferred Percentage executive remuneration deferred Percentage of executive salary to which bonuses are restricted Percentage of salary of other staff to which bonuses are restricted

*WHO World Health Organisation; BMS Breast Milk Substitutes; UN PRI United Nations Principles for Responsible Investment; BIS Bank for International Settlements

Appendix 4: MSCI ESG Research Methodology

3 Pillars	10 Themes	37 ESG Key Issues	
Environment	Climate Change	Carbon Emissions Product Carbon Footprint	Financing Environmental Impact Climate Change Vulnerability
	Natural Resources	Water Stress Biodiversity & Land Use	Raw Material Sourcing
	Pollution & Waste	Toxic Emissions & Waste Packaging Material & Waste	Electronic Waste
	Environmental Opportunities	Opportunities in Clean Tech Opportunities in Green Building	Opp's in Renewable Energy
Social	Human Capital	Labor Management Health & Safety	Human Capital Development Supply Chain Labor Standards
	Product Liability	Product Safety & Quality Chemical Safety Financial Product Safety	Privacy & Data Security Responsible Investment Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing	
	Social Opportunities	Access to Communications Access to Finance	Access to Health Care Opp's in Nutrition & Health
Governance	Corporate Governance	Board Pay	Ownership Accounting
	Corporate Behavior	Business Ethics Anti-Competitive Practices Tax Transparency	Corruption & Instability Financial System Instability

Appendix 5: Sustainalytics ESG Indicators

Theme	Topic	Category	Indicator Name
Governance	Business Ethics	Preparedness	Bribery & Corruption Policy
Governance	Business Ethics	Preparedness	Bribery & Corruption Programmes
Governance	Business Ethics	Preparedness	Whistleblower Programmes
Governance	Business Ethics	Preparedness	Global Compact Signatory
Governance	Business Ethics	Preparedness	PRI Signatory
Governance	Business Ethics	Preparedness	Responsible Investment Policy
Governance	Business Ethics	Preparedness	UNEPFI Signatory
Governance	Business Ethics	Preparedness	Green Building Memberships
Governance	Business Ethics	Preparedness	Equator Principles Signatory
Governance	Business Ethics	Preparedness	Responsible Investment Programme
Governance	Business Ethics	Disclosure	Tax Disclosure
Governance	Business Ethics	Preparedness	Money Laundering Policy
Governance	Business Ethics	Preparedness	Animal Testing Policy
Governance	Business Ethics	Preparedness	Animal Welfare Policy
Governance	Business Ethics	Preparedness	Policy on Emerging Technologies
Governance	Business Ethics	Preparedness	Clinical Trial Standards
Governance	Corporate Governance	Disclosure	ESG Reporting Standards
Governance	Corporate Governance	Disclosure	Verification of ESG Reporting
Governance	Corporate Governance	Preparedness	ESG Governance
Governance	Corporate Governance	Preparedness	ESG Performance Targets
Governance	Public Policy	Preparedness	Political Involvement Policy
Governance	Public Policy	Preparedness	Lobbying and Political Expenses
Governance	Public Policy	Disclosure	Transparency on Government Payments
Social	Employees	Preparedness	Freedom of Association Policy
Social	Employees	Preparedness	Working Conditions Policy
Social	Employees	Preparedness	Discrimination Policy
Social	Employees	Preparedness	Diversity Programmes
Social	Employees	Quantitative Performance	Collective Bargaining Agreements
Social	Employees	Quantitative Performance	Employee Turnover Rate
Social	Employees	Quantitative Performance	Percentage of Temporary Workers
Social	Employees	Quantitative Performance	Employee Training
Social	Employees	Preparedness	Health and Safety Management System
Social	Employees	Preparedness	HIV/Aids Programmes
Social	Employees	Preparedness	Health & Safety Certifications
Social	Employees	Quantitative Performance	LTIR Trend
Social	Employees	Quantitative Performance	Employee Fatality Rate
Social	Contractors & Supply Chain	Preparedness	Scope of Social Supplier Standards
Social	Contractors & Supply Chain	Preparedness	Quality of Social Supplier Standards
Social	Contractors & Supply Chain	Preparedness	EICC Signatory
Social	Contractors & Supply Chain	Preparedness	Conflict Minerals Policy
Social	Contractors & Supply Chain	Preparedness	Conflict Minerals Programmes
Social	Contractors & Supply Chain	Preparedness	Supply Chain Monitoring
Social	Contractors & Supply Chain	Preparedness	Supply Chain Management
Social	Contractors & Supply Chain	Preparedness	Social Supplier Certification
Social	Contractors & Supply Chain	Quantitative Performance	Fair Trade Products
Social	Customers	Preparedness	Responsible Marketing Policy
Social	Customers	Preparedness	Advertising Ethics Policy
Social	Customers	Preparedness	Data Privacy Policy

Theme	Topic	Category	Indicator Name
Social	Customers	Preparedness	Electromagnetic Safety Programmes
Social	Customers	Preparedness	Editorial Guidelines
Social	Customers	Preparedness	Conflict of Interest Policy
Social	Customers	Quantitative Performance	Service Delays
Social	Customers	Preparedness	Product Health Statement
Social	Customers	Preparedness	Occupier Satisfaction Surveys
Social	Customers	Preparedness	Customer Eco-Efficiency Programmes
Social	Customers	Preparedness	Drug Promotion Standards
Social	Customers	Preparedness	QMS Certifications
Social	Society & Community	Quantitative Performance	Activities in Sensitive Countries
Social	Society & Community	Preparedness	Human Rights Policy
Social	Society & Community	Preparedness	Community Involvement Programmes
Social	Society & Community	Preparedness	Financial Inclusion
Social	Society & Community	Preparedness	Access to Medicine Programme
Social	Society & Community	Preparedness	Neglected Diseases R&D
Social	Society & Community	Preparedness	Equitable Pricing and Availability
Social	Society & Community	Preparedness	Access to Health Care
Social	Society & Community	Preparedness	Indigenous Rights Policy
Social	Society & Community	Preparedness	Access to Basic Services
Social	Society & Community	Preparedness	Community Development Programmes
Social	Society & Community	Preparedness	Digital Divide Programmes
Social	Society & Community	Preparedness	Drug Donations Policy
Social	Society & Community	Quantitative Performance	Value of Drug Donations
Environment	Operations	Preparedness	Environmental Policy
Environment	Operations	Preparedness	Environmental Management System
Environment	Operations	Preparedness	Biodiversity Programmes
Environment	Operations	Preparedness	Site Closure & Rehabilitation
Environment	Operations	Disclosure	Oil Spill Disclosure & Performance
Environment	Operations	Preparedness	Mineral Waste Management
Environment	Operations	Quantitative Performance	Water Intensity
Environment	Operations	Quantitative Performance	Forest Certifications
Environment	Operations	Preparedness	EMS Certification
Environment	Operations	Preparedness	Emergency Response Programme
Environment	Operations	Preparedness	Hazardous Waste Management
Environment	Operations	Preparedness	Air Emissions Programmes
Environment	Operations	Preparedness	Water Management Programmes
Environment	Operations	Quantitative Performance	Environmental Fines & Penalties
Environment	Operations	Disclosure	CDP Participation
Environment	Operations	Disclosure	Scope of GHG Reporting
Environment	Operations	Preparedness	GHG Reduction Programme
Environment	Operations	Preparedness	Green Logistics Programmes
Environment	Operations	Preparedness	Renewable Energy Programmes
Environment	Operations	Quantitative Performance	Carbon Intensity
Environment	Operations	Quantitative Performance	Carbon Intensity Trend
Environment	Operations	Quantitative Performance	Renewable Energy Use
Environment	Contractors & Supply Chain	Preparedness	Green Procurement Policy
Environment	Contractors & Supply Chain	Preparedness	Supplier Environmental Programmes
Environment	Contractors & Supply Chain	Preparedness	Supplier Environmental Certifications

Theme	Topic	Category	Indicator Name
Environment	Contractors & Supply Chain	Preparedness	Sustainable Agriculture Programmes
Environment	Contractors & Supply Chain	Preparedness	Sustainable Aquaculture Programmes
Environment	Contractors & Supply Chain	Preparedness	Food & Beverage Sustainability Initiatives
Environment	Contractors & Supply Chain	Preparedness	Green Outsourced Logistics Programmes
Environment	Contractors & Supply Chain	Quantitative Performance	Recycled Material Use
Environment	Contractors & Supply Chain	Quantitative Performance	FSC Certified Sourcing
Environment	Contractors & Supply Chain	Preparedness	Sustainable Food Programmes
Environment	Contractors & Supply Chain	Preparedness	Food Retail Initiatives
Environment	Products & Services	Quantitative Performance	Sustainable Products & Services
Environment	Products & Services	Quantitative Performance	Fleet Emissions
Environment	Products & Services	Quantitative Performance	Fleet Emissions Trend
Environment	Products & Services	Quantitative Performance	Sustainable Mobility Products
Environment	Products & Services	Preparedness	Eco-Design
Environment	Products & Services	Preparedness	Product Stewardship Programmes
Environment	Products & Services	Quantitative Performance	Organic Products
Environment	Products & Services	Preparedness	GMO Policy
Environment	Products & Services	Preparedness	Credit & Loan Standards
Environment	Products & Services	Quantitative Performance	Responsible Asset Management
Environment	Products & Services	Preparedness	Real Estate LCA
Environment	Products & Services	Preparedness	Green Buildings Investments
Environment	Products & Services	Quantitative Performance	Share of Green Buildings
Environment	Products & Services	Quantitative Performance	Sustainable Financial Initiatives
Environment	Products & Services	Quantitative Performance	Hazardous Products
Environment	Products & Services	Quantitative Performance	Energy Mix
Governance	Corporate Governance	Disclosure	Remuneration Disclosure
Governance	Corporate Governance	Disclosure	Director Disclosure
Governance	Corporate Governance	Preparedness	Board Diversity
Governance	Corporate Governance	Preparedness	Board Leadership
Governance	Corporate Governance	Preparedness	Board Independence
Governance	Corporate Governance	Preparedness	Audit Committee Structure
Governance	Corporate Governance	Preparedness	Auditor Fees
Governance	Corporate Governance	Preparedness	Remuneration Committee Effectiveness