



A Comparative Study on ESG Scores across Rating Agencies: Cases in Hong Kong

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FOREWORD

This report explores the work of rating agencies around companies' Environmental, Social, and Governance (ESG) disclosures. The main takeaway is that rating agencies act as intermediaries, connecting investors with companies for market liquidity. In this way, they contribute to businesses prioritising ESG best practices where they need to attract capital. However, because of differences in rating methodologies, the same company's rating by different rating agencies can come up with significant differences.

Recognising that rating agencies use proprietary methodologies is important, and no two rating agencies are necessarily alike. As such, businesses need some insights to traverse the complexity of ESG ratings successfully, which is the purpose of this report. Painstaking data from companies covered by leading rating agencies were analysed to provide insights.

Our Institute seeks to promote a business environment that thrives on openness, accountability, and sustainable practices, including ESG disclosures and related best practices. I urge all businesses to seize the opportunities ESG integration provides for business sustainability and resilience and, where appropriate, for a rating to attract capital.

I want to thank the research team who worked on this report. They did a significant amount of work to analyse market data which undoubtedly contributed to understanding the rating process.



Ernest Lee FCG HKFCG(PE)

President

The Hong Kong Chartered Governance Institute

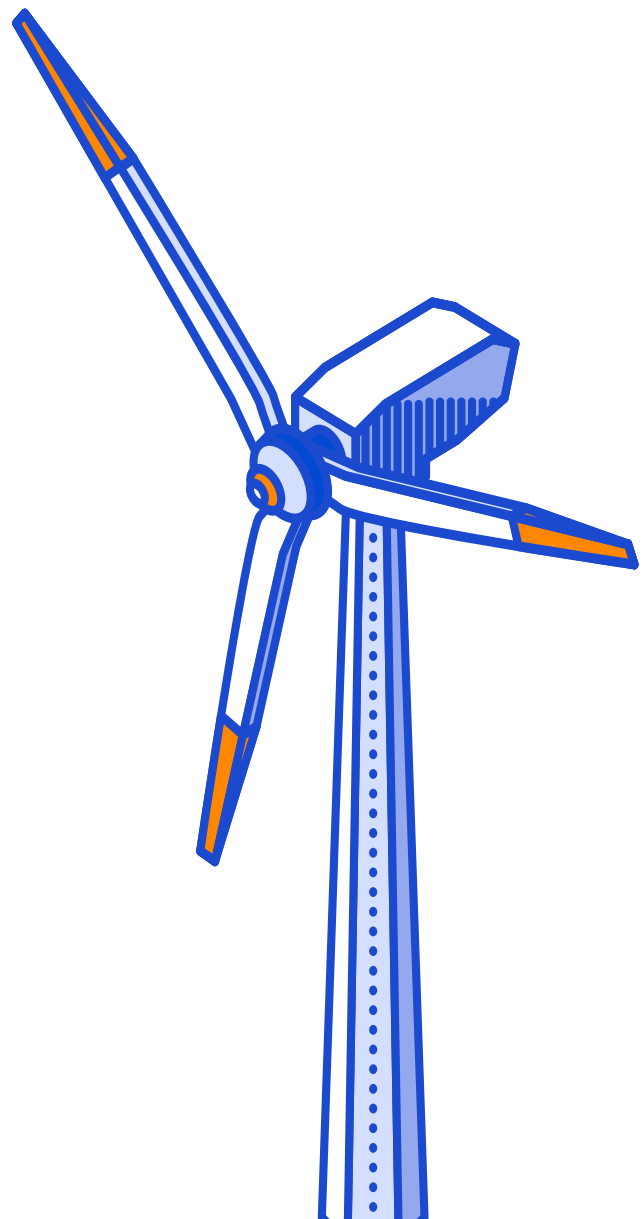
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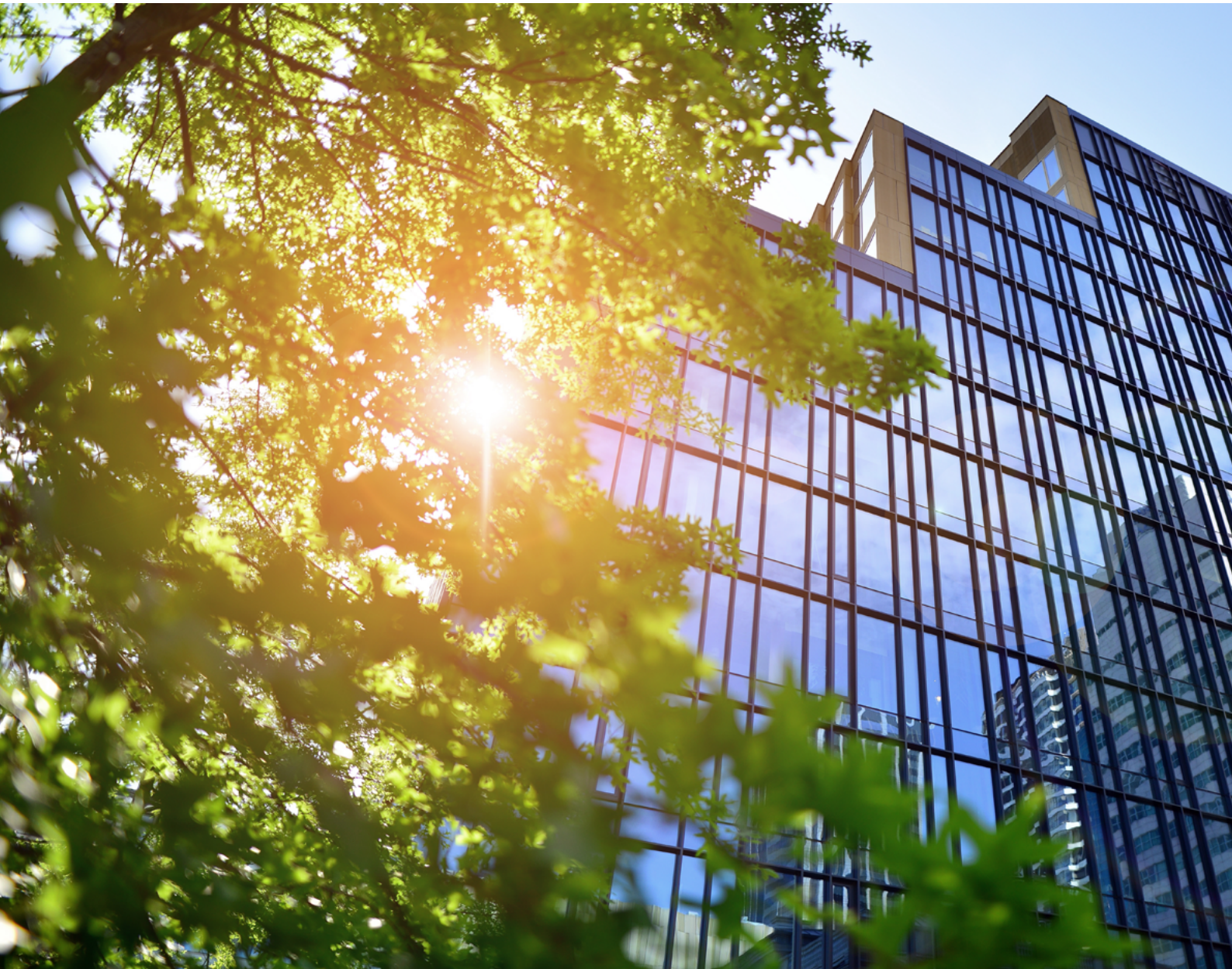
Companies should give their ESG disclosures top priority. This prioritisation will invariably also help businesses give importance to ESG best practices and business sustainability and resilience. In appropriate cases, it might also align with rating agencies' preferences and evaluation priorities to attract capital.

It is necessary to remember that rating agencies use proprietary methods, and in most cases, these are not readily apparent. The governance professionals should seek to facilitate engagement with rating agencies as relevant stakeholders, where appropriate. The caveat is that certain rating agencies do not wish to engage with companies but base their ratings on market data or other methodologies.

It is for the latter case that this report is especially significant. This report painstakingly identified, from data analysis, the rating of a number of companies rated by leading agencies. The study of the rating outcomes of these companies provides significant insights into rating methodologies. The fact remains that no two rating agencies offered the same ratings in these cases.

The key message is that companies should improve their overall ESG disclosures, which will increase investor and other relevant stakeholders' appeal and, to the extent appropriate, those of rating agencies.





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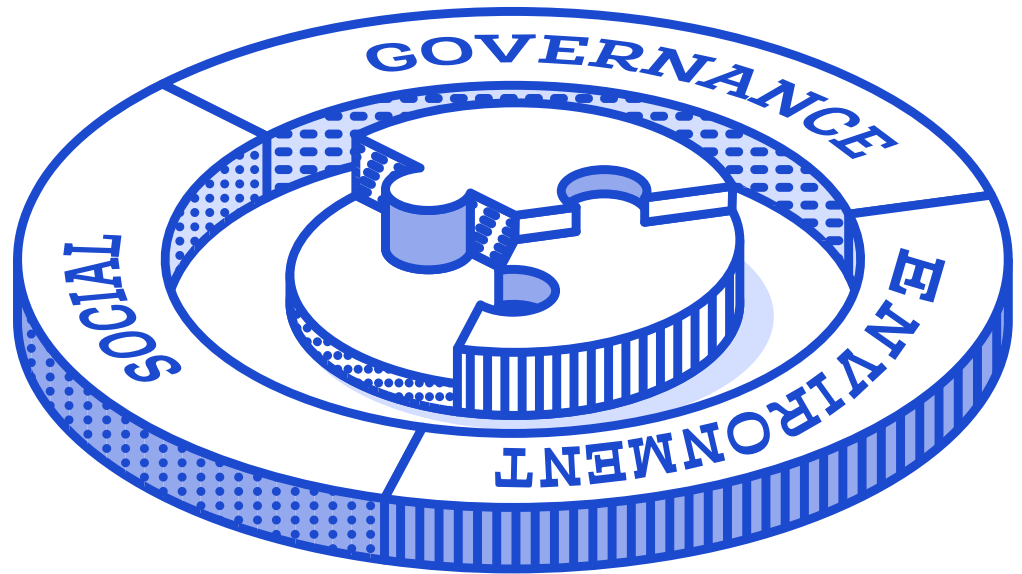


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INTRODUCTION

Rating agencies do not usually disclose all of the details of their rating ESG rating processes. It might be challenging for investors and businesses to comprehend how ratings are produced. This is, however, understandable because of the proprietary nature of rating methodologies, albeit rating agencies should consider providing guidance, where appropriate, to companies potentially seeking a rating.

ESG ratings frequently place a great deal of weight on data that businesses themselves disclose. This dependency prompts questions about the data's precision and dependability, as well as the possibility that companies may submit information when it will help them rank better. However, this is expected as a rating is often an analytical and not investigative process. Companies should be mindful not to engage in greenwashing or green-hushing to obtain better ESG ratings.

Rating agencies' use of different weightings and scoring methodologies to evaluate ESG performance might result in differences in rating outcomes. Comparisons can be difficult and have a major impact when other ESG variables are given different amounts of weight. Again, this is a commercial reality, and this reports hope to shed some insights.

Rating agencies could encounter conflicts of interest that affect their ratings. An instance of a potential conflict that can affect the ratings' independence and objectivity is if a rating organisation also offers advisory services to the businesses it evaluates. Rating agencies are, in most cases, mindful of the issue and, from the governance perspective, should have developed appropriate processes and procedures to manage conflicts. Companies should also seek to reduce conflicts to the extent possible.





The work of rating agencies has the potential to encourage ESG best practices:

- ESG ratings assist businesses in comprehending and addressing their ESG impacts and risks by drawing attention to and making them more visible. A greater emphasis on ESG risk mitigation and implementing best practices may result.
- ESG ratings play a crucial role in helping investors make investment decisions. When evaluating the long-term viability and risk profile of organisations, investors are increasingly considering ESG performance. High ESG ratings may pique investor and capital interest, while negative ratings may lead to divestment.
- Companies can compare their sustainability performance to that of their peers in the same industry and that of their rivals based on ESG ratings. Companies may be inspired to work towards higher ratings and improved ESG performance by the availability of comparable data.
- ESG ratings encourage communication and participation between businesses and their stakeholders, such as consumers, employees, investors, and communities. Lower ESG scores could prompt questions from interested parties, opening the door to talks regarding the company's sustainability practices and prospective growth opportunities.
- Companies are encouraged by ESG ratings to include sustainability factors in their company strategy. Companies must proactively create ESG goals and carry out projects that follow best practices to raise their ratings. Improved risk management, increased resilience to ESG problems, and long-term value creation are all possible outcomes of this integration.

Overall, ESG rating agencies should be considered pertinent stakeholders because of their impact on the investment environment and the value they add when evaluating a company's sustainability performance.

01. ESG DISCLOSURE AND RATINGS' IMPACT



Increasingly, companies realise the value of considering not only their short-term financial performance but also their ESG performance in response to the growing global focus on responsible investment, climate protection, and corporate social responsibility¹. This change indicates their dedication to long-term sustainability in selecting investment opportunities. International developments to create guidelines and standards for listed companies' ESG reporting have gained traction. Hong Kong has also demonstrated its commitment to leading change by developing its sustainability reporting programme. Notably, Hong Kong's ESG reports now include recommendations from the Task Force on Climate-Related Financial Disclosures (TCFD) on board oversight duties, climate change, and governance².

The Securities and Futures Commission (SFC) and the Hong Kong Stock Exchange (HKEX) have worked together to optimise ESG reporting. Hong Kong has adopted a disclosure regime, which sets it apart from the United States and Mainland China. A summary can be found in Appendix A.

Every listed company must produce an ESG report annually under the most recent Listing Rules for the Main Board and Growth Enterprise Market (GEM) Board in Hong Kong, which may be found in the ESG Reporting Guide³. The environmental and social components adhere to the 'comply or explain' principle⁴. However, the governance component is required to be mandatorily disclosed. Therefore, businesses are free to choose whether to reveal their



environmental and social impacts, but they must justify their choice if they decide not to do so. It is crucial to remember that the present ESG reporting rules only apply to publicly traded corporations, giving non-listed enterprises the freedom to choose whether or not to make their ESG reports available to the general public.

Hong Kong wants to encourage sustainable business practices while fostering accountability and transparency among listed companies from ESG reporting. The function of rating agencies in this process will be covered in more detail in the following sections, emphasising their advantageous effects on the financial ecosystem and society.

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- 1 Mahoney, P. G., & Mahoney, J. D. (2021). The New Separation of Ownership and Control: Institutional Investors and ESG. *Columbia Business Law Review*, 2021(2), 840-880.
 - 2 Ellie Pang, "What's next in ESG reporting?" (CGJ, Oct 2022). <https://cgj.hkcgj.org.hk/2022/10/whats-next-in-esg-reporting/>
 - 3 Ho, V. H., & Park, S. K. (2019). ESG Disclosure in Comparative Perspective: Optimizing Private Ordering in Public Reporting. *University of Pennsylvania Journal of International Law*, 41, 249.
 - 4 Appendix 16 of Main Board Listing Rules: Disclosure of Financial Information, Appendix 27 of Main Board Listing Rules, and Appendix 20 of GEM Listing Rules: ESG Reporting Guide.



02. ESG SCORES AND RATINGS

Several well-known financial data providers have created specialised indexes to measure an organisation's ESG performance in light of the expanding significance of measuring and visualising ESG performance. These indices facilitate investors' ability to understand and support their investment decision-making processes. The public can access popular ESG indexes through open-source access or licence purchases.

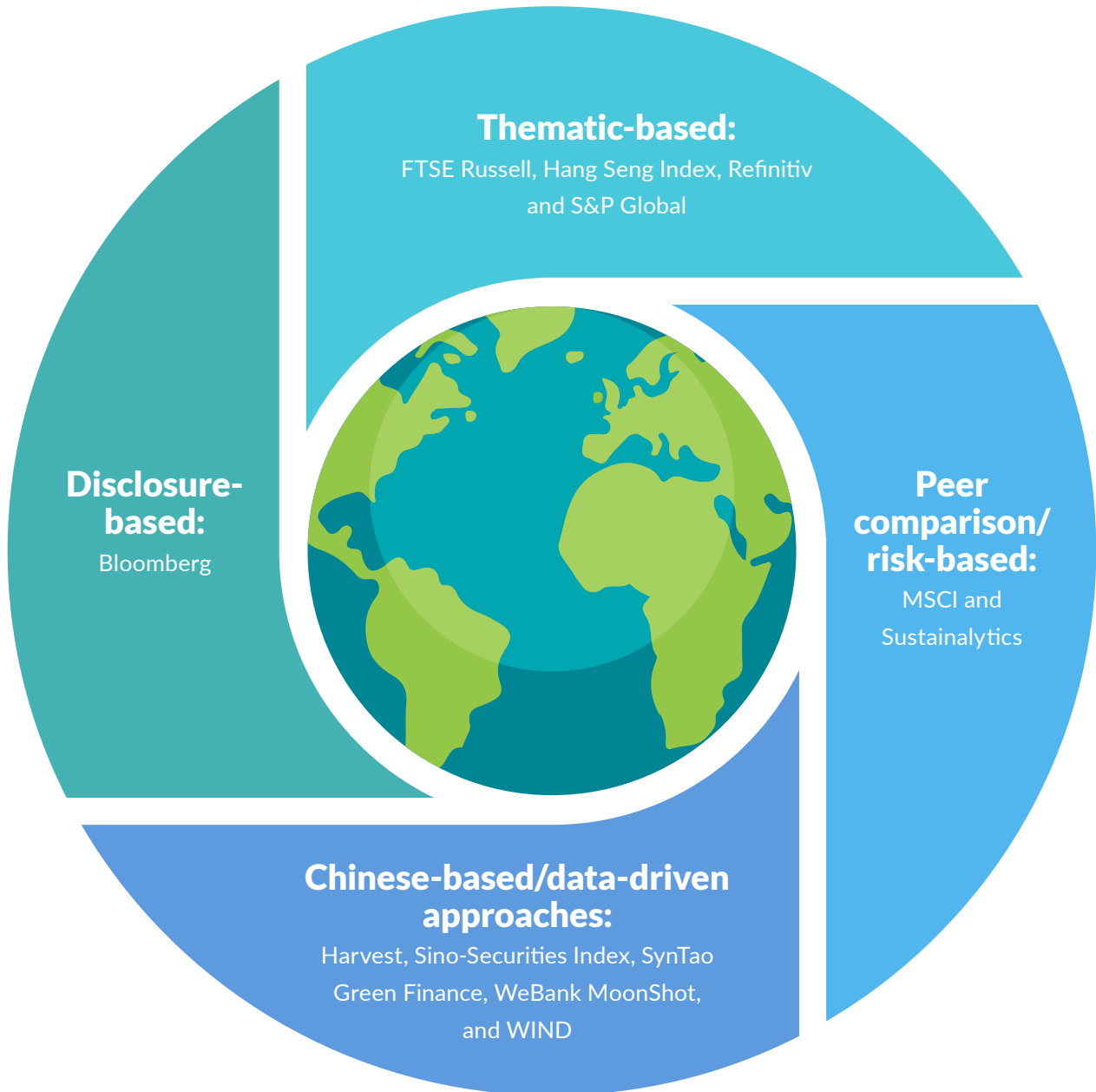
The following are some of these ESG rating agencies and their related methodologies. There is no intention to promote any ESG rating agency. They are referred to bring out the point that rating methodologies, as expected from commercial enterprises, differ. This will be apparent from reading the information in Table 1.

Table 1: ESG rating agencies' methodologies

- 01** **Bloomberg ESG Disclosure Score** evaluates businesses according to their thoroughness, adjusting for any "missing data" that may exist.
- 02** **FTSE Russell ESG Ratings** uses more than 300 indicators customised to each company's unique situation. FTSE Russell ratings evaluate how a company manages ESG problems.
- 03** **Hang Seng Index's ESG rating** was developed by HKQAA and is based on worldwide standards like ISO 26000 and the Global Reporting Initiative. It measures a company's sustainability risks and management maturity in seven important categories.
- 04** **Harvest ESG Scores** uses quantitative and data-driven methodologies to capture pertinent ESG concerns in China thoroughly. To ensure local adaptation, they make constant improvements to their strategy.
- 05** **MSCI ESG Scores** assigns companies ESG scores according to their capacity to manage those risks compared to comparable groups and their disclosure of industry-relevant ESG risk factors. They use machine learning, artificial intelligence, and natural language processing methods.
- 06** **Refinitiv's ESG Score** evaluates a company's relative performance in all ESG areas across ten major themes.
- 07** **S&P Global ESG Scores/RobecoSam** assesses businesses according to ESG parameters and assures an unbiased data collection procedure with its products.
- 08** **Sino-Securities Index ESG Rating** uses named entity recognition, semantic analysis, and natural language processing machine learning techniques to create a data integration module for this kind of data.
- 09** **Sustainalytics** (bought by Morningstar) assesses how well a company manages ESG risks unique to its sector. They consider quantitative and qualitative elements, including carbon intensity and participation in contentious events.
- 10** **SynTao Green Finance ESG Rating** uses cluster analysis to rate public firms based on their ESG scores. Each company's ESG score considers important aspects specific to its industry.
- 11** **WeBank MoonShot AI-ESG Rating** evaluates an enterprise's past, present, and future performance by integrating momentum and insight ratings.
- 12** **WIND ESG Ratings** adhere to global reporting standards from the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB), as well as Chinese market specifics, recommendations from national regulatory agencies, and best practices from publicly traded companies.

Source: ESG rating agencies published disclosures collated by the research team.

Each ESG rating agency uses different rating criteria, weightings, and priorities. Also, the topics they evaluate may differ. However, the methods used could be broadly categorised as follows:



The formulation and presentation of ESG performance outcomes, whether in terms of ratings or scores, also exhibit variations in measures, rating criteria, scoring, weighting, sources, and other factors used by various ESG rating agencies⁵.

A company could occasionally get conflicting ESG performance statistics from various ESG rating agencies. Understanding which metrics account for these differences and looking into the contributing elements behind them are crucial to reconcile the differences where companies are considering obtaining ESG ratings.

The association between various ESG performance results evaluated by accessible ESG rating agencies using samples of Hong Kong-listed corporations will therefore be examined in the following sections to determine the primary causes of these variances. We will also compare the inconsistencies in the various ESG performance findings with observations from several overlapping samples acquired from all accessible ESG rating agencies. In addition, a word-frequency text-mining technique will be used to identify the measures that ESG rating agencies prioritise, providing companies with a guide to improve their ESG disclosure and obtain higher ratings.

5 Capizzi, V., Gioia, E., Giudici, G., & Tenca, F. (2021). The Divergence of ESG Ratings: An Analysis of Italian Listed Companies. *Journal of Financial Management, Markets and Institutions*, 9(02), 2150006.



03. DATA GATHERING

We gathered ESG performance data from numerous sources for 2,592 companies listed on the Hong Kong Stock Exchange in 2022 (including 2,250 firms on the Main Board and 342 firms on the GEM Board) to get the required information. The information, which covers 2012 to 2022, was gathered mainly from the databases of Bloomberg, Thomson Reuters, and WIND.

The underlying information collected from these databases comes from some ESG rating agencies, including Bloomberg ESG Disclosure Score, China Alliance of Social Value Investment ESG Rating, FTSE Russell ESG Rating, Hang Seng Index-Company ESG Rating, Refinitiv ESG Scores, Sino-Securities Index ESG Grading, SynTao Green Finance ESG Rating, and WIND ESG Combined Score. This is the reason why these ESG rating agencies are showcased. There is no intention to promote these or any other ESG rating agencies, but simply because of the practicality of the data gathering process.

We chose 2021 ESG data to ensure a wider sample, as this year produced the most data. After reconciliation, we found 689 samples with at least one or more sets of ESG performance data with the ESG rating agencies.



04. DATA ANALYSIS

In general, the ESG performance scores/ratings of HK-listed firms by ESG rating agencies appeared to be generated from information publicly available by these listed companies. The sources of information include company websites, official media outlets, announcements, social responsibility reports, sustainable development reports, ESG reports, and annual reports. In some cases, interviews are conducted by ESG rating agencies with the listed companies. After incorporating this data into sub-measures for the environmental, social, and governance pillars, the ESG rating agencies use their techniques to create an overall score or rating.

A summary of the data formats and descriptions utilised by various ESG rating agencies can be seen in Table 2 (which contains some, but not all, the rating agencies under Table 1). The scoring systems vary across rating agencies, with some providing values on a scale of 0-100 or 0-10 (e.g., Bloomberg, FTSE Russell, and WIND), while others using ratings corresponding to bond credit ratings, such as grades on a scale of A+, A, ... , D (e.g., Hang Seng Index, Refinitiv). Only the Bloomberg ESG Disclosure Score, Refinitiv ESG Scores, and WIND ESG Combined Score provide sub-scores under the environmental, social, and governance categories.



Table 2: Format of ESG rating agencies' findings

	ESG Rating Provider	Abbr.	Data Descriptions	Sub-Score Availability
Values Format				
1	Bloomberg ESG Disclosure Score	Bloomberg	0-100	Yes
2	FTSE Russell ESG Rating	FTSE	0-5	No
3	WIND ESG Combined Score	WIND	0-10	Yes
Grades Format				
4	China Alliance of Social Value Investment ESG Rating	CASVI	A+, A, A-, B+, B, B-, C+, C, C-, D	No
5	Hang Seng Indexes-Company ESG Rating	HSI	AAA, AA+, AA, AA-, A+, A, A-, BBB+, BBB, BBB-, BB+, BB, BB-, B, C, D	No
6	Refinitiv ESG Scores	Refinitiv	A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-	Yes
7	Sino-Securities Index ESG Grading	SSI	AAA, AA, A, BBB, BB, B, CCC, CC, C	No
8	SynTao Green Finance ESG Rating	SynTao	AAA, AA, A, BBB, BB, B, CCC, CC, C, D	No

Source: ESG rating agencies published disclosures collated by the research team.

After data reconciliation, Figure 1 summarises the overall ESG performance findings of the 689 samples gathered from various data providers. With 444 observations, Bloomberg has the most ESG performance samples. SynTao, Refinitiv, FTSE, WIND and SSI follow with 395, 345, 243, 235, and 141 samples, respectively. The last observations are in HSI and CASVI ESG Rating, with 91 and 87

samples, respectively. According to various ranges, the distribution of the samples from Bloomberg, FTSE, Refinitiv, SSI, and WIND appears to be regularly distributed. Uneven distributions are indicated by the samples from SynTao being concentrated in the “B+” grade range, while those from CASVI and HSI are primarily in the A grade ranges.

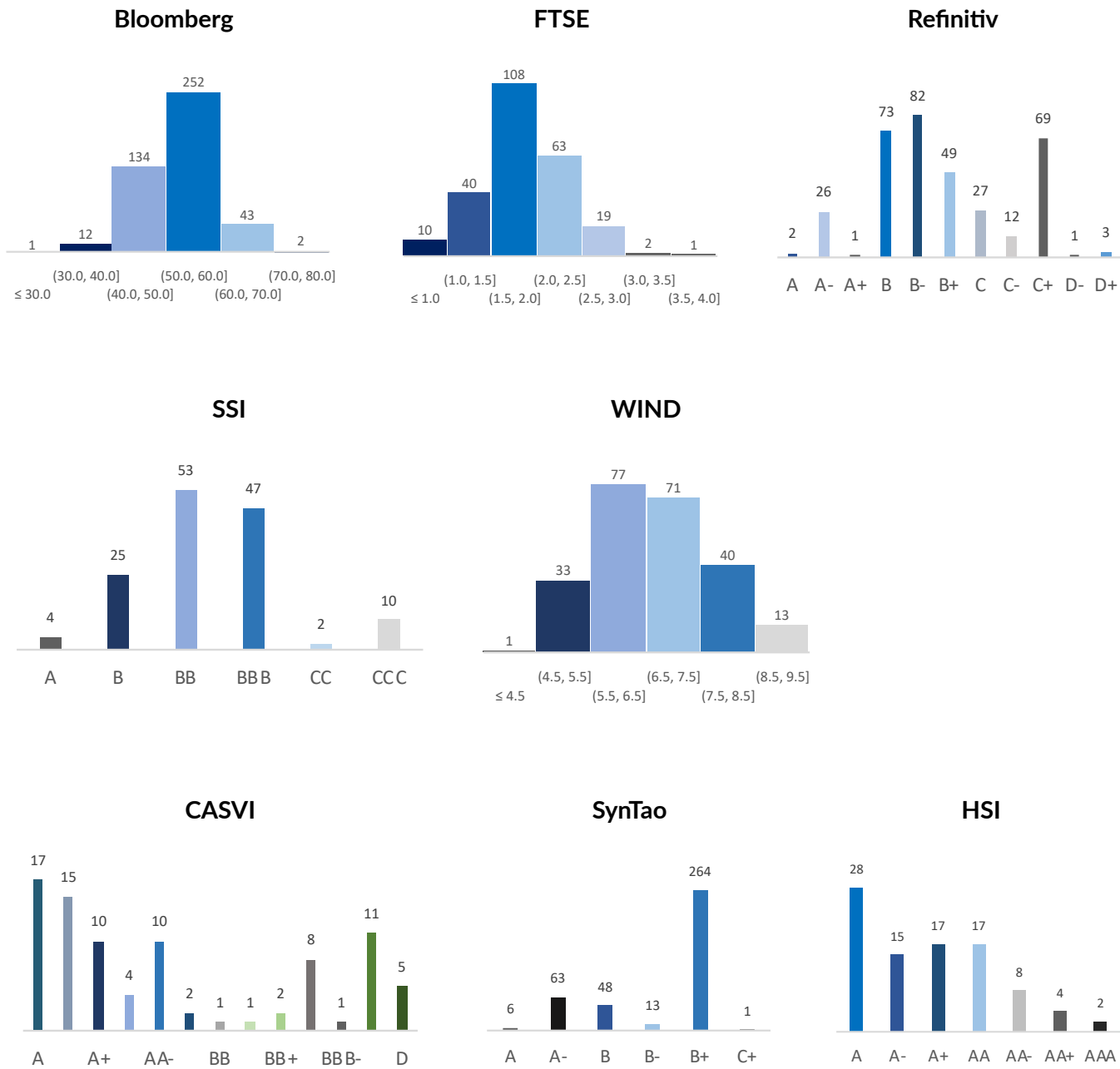


Figure 1: Number of different ESG performances tracked by different ESG rating agencies

05. CASE STUDY

Given that the ESG performance results provided by different ESG rating agencies are not consistent, as further illustrated in Appendix B, it is necessary to understand why different ESG rating agencies will give different evaluations toward the same company, which is conducive to helping enterprises consider their own ESG disclosures to obtain preferred outcomes in subsequent ESG engagements.

Of the 689 samples, seven companies received ESG evaluations from all eight ESG rating agencies. They will be used for comparison. The distribution of ESG performance results of these seven cases are shown in Figure 2. The higher the position, the higher the rating. The observation is that there are no two ESG rating agencies providing the same results.

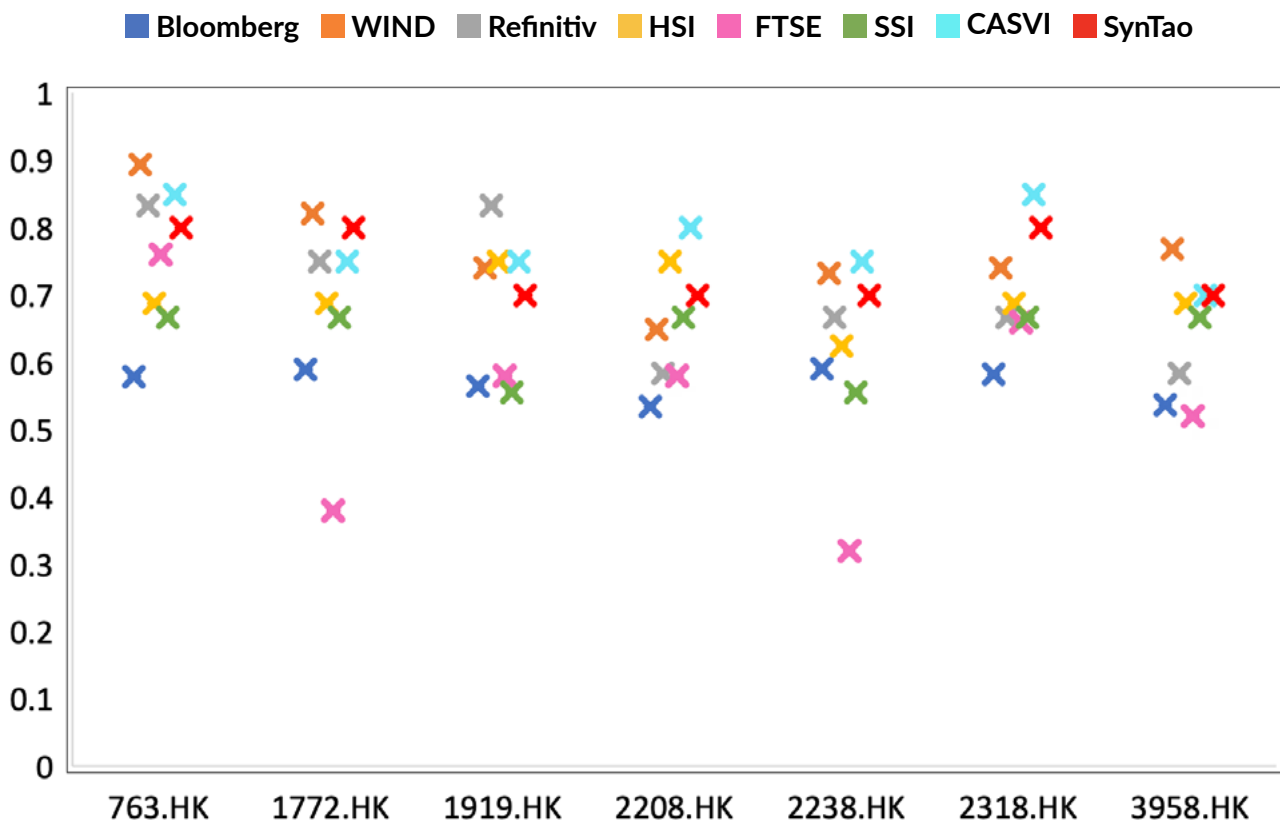


Figure 2: Comparison cases

To visualise the overlapping cases, the radar figures in Figure 3 are drawn to compare the ESG performance results of all eight ESG rating agencies.

In theory, if the methodologies of ESG rating agencies assess similar underlying subject matters, then the same company should have similar ESG performance results across the ESG rating agencies. Specifically, the eight vertices on the company's radar map (i.e., the eight ESG providers) should be scattered along the same line, forming a regular hexagon. However, none of these overlapping samples reflected this trend, which meant that there were significant differences in the ESG rating criteria of the underlying subject matter between them, leading to different evaluations among the companies.

To find out the reason behind this, the itemised scores also need to be compared to identify the hidden

divergences. However, according to Table 2, only three ESG rating agencies - Bloomberg, WIND and Refinitiv - each disclose their sub-scores regarding environmental score (E score), social score (S score) and governance score (G score), respectively. Therefore, 763.HK (ZTE Corporation) and 3958.HK (Orient Securities Company Limited), joint stock limited companies incorporated in Mainland China with limited liability, are specially selected for further comparison as the three vertices (i.e. Bloomberg, WIND and Refinitiv) on their radar figures are not evenly scattered along the same line. The legend reflected the divergences, which may contain information explaining the hidden reasons contributing to the overall ESG scores.

Table 3: Sub-Score comparison among Bloomberg, WIND and Refinitiv (2021)

Samples	Before Normalisation		After Normalisation	
	763.HK	3958.HK	763.HK	3958.HK
Bloomberg_ESG Disclosure Score	57.88	53.62	0.5788	0.5362
Bloomberg_E Score	47.30	44.85	0.4730	0.4485
Bloomberg_S Score	36.37	32.29	0.3637	0.3229
Bloomberg_G Score	89.86	83.59	0.8986	0.8359
WIND_ESG Score	8.94	7.69	0.8940	0.7690
WIND_E Score	6.07	7.52	0.6070	0.7520
WIND_S Score	9.58	5.82	0.9580	0.5820
WIND_G Score	7.90	7.61	0.7900	0.7610
Refinitiv_ESG Score	A-	B-	0.8330	0.5830
Refinitiv_E Score	A-	B	0.8330	0.6670
Refinitiv_S Score	A	B	0.9170	0.6670
Refinitiv_G Score	B+	C	0.7500	0.4170

From Table 3, the normalised results indicate that Bloomberg has marked the lowest on the Social score to 763.HK that could result in the least overall ESG score among Bloomberg, WIND and Refinitiv. Similarly, WIND gave higher Environmental and Governance scores of 3958.HK, resulting in a higher overall ESG score. Other pillars are more or less the same as each other.

By comparing the measurements of the three ESG rating agencies on the social and governance pillars, it is found that Bloomberg has some special measures under its social pillar, such as the number of employees unionised, fair remuneration policy, total corporate foundation, etc. In contrast, other ESG rating agencies have not yet considered them.

Similarly, WIND has specially incorporated the management element into the governance pillars and the pollution element into the environmental pillars. In contrast, other ESG rating agencies are less specific to include them either. After cross-checking the 2021 Sustainability/ESG reports provided by the listed companies 763.HK, it is confirmed that the above factors are not directly reflected or mentioned in their reports. However, the 2021 Sustainability Report of 3958.HK has specially mentioned the reduction of pollution and sustainable development management, which might add value to their ESG performance evaluation. It is possible that because of the absence or addition of these important indicators, the two companies received lower or higher ESG ratings, respectively.



06. DETERMINATES IN ESG RATINGS



ESG scores are largely dependent on measures and relative weights. Sometimes, the absence of even one measure can lead to a difference in overall ESG scores. The Listing Rules in Hong Kong have outlined some fundamental subject areas, aspects, general disclosures and key performance indicators (KPIs) for ESG reporting. But what metrics do ESG rating agencies look for or emphasise? This question means a lot to the companies intending to implement ESG disclosure or reporting because it can help companies understand the types of components that achieve higher scores on the ESG rating system, thus attracting more attention and interest from investors concerned about the company's ESG performance.

To identify similarities and differences among the measures among various ESG rating agencies, we first collected the measures from the user guides, rating description manuals and other publicly

available sources of all ESG rating agencies, including Bloomberg, Refinitiv, WIND, FTSE, Harvest, HSI, MSCI, SSI, S&P, SynTao, WeBank and CAVSI. Mostly, the ESG ratings will have at least three tiers of measures. The first tier consists of the environmental, social, and governance pillars. Starting from the second tier, their measures vary.

Appendix C takes Bloomberg, Refinitiv, HSI and WIND for comparison to see the divergences from tier 2 measures, which indicates the inconsistency of ESG measures, especially regarding the governance side. It's worth mentioning that most ESG rating agencies, even HSI's, the local ESG rating agency, don't fully cover the indicators provided by HKEX's Listing Rules ESG Guide, which means that if a Hong Kong-listed company want to get a higher score/rating on their ESG evaluations, it cannot just disclose what HKEX requires them to do, it also needs to make



some adjustments to their ESG reporting coverages and disclose relevant information according to the preferences of ESG rating agencies. To explore what most ESG rating agencies value more, it is needed to refer to the tier 3 measurements. However, the transparency of the third-tier covering decreases. Not all ESG rating agencies will disclose such information externally. Only Bloomberg, Refinitiv, MSCI, Harvest, and SynTao have disclosed detailed indicators in the tier 3 measures through special access or online resources. In this circumstance, we decided to use text mining techniques to capture the most frequently evaluated ESG measures across eight ESG rating agencies to give companies an idea of what efforts they could make to improve their ESG scores or ratings.

We used a word frequency analysis method to extract tier 3 metrics from all ESG rating agencies that we can

look for and tokenise each metric into single wordings (e.g. CO₂ emissions → CO₂ and emissions). Next, we counted the frequency of each word that appeared in various ESG rating agencies and excluded some meaningless words (e.g. to, and, for...). Appendix D1-D3 listed the top-15 measurements with examples out of 11 ESG rating agencies in the orders of environmental pillar, social pillar and governance pillar that most ESG rating agencies frequently adopt, and their absences are also presented to showcase the divergence of measures among different ESG rating agencies. Regarding the environmental pillar, the focus can be contracted on renewable energies, climate change protection, and pollution reduction. Regarding social pillar, product liabilities and employee care shall not be neglected. As for the governance pillar, the general matters in corporate governance and business ethics shall be emphasised.

07. CONCLUSIONS

Companies should give their ESG disclosures top priority. This prioritisation will invariably also help businesses give importance to ESG best practices and business sustainability and resilience. In appropriate cases, it might also align with rating agencies' preferences and evaluation priorities to attract capital.

It is necessary to remember that ESG rating agencies use proprietary methods, and in most cases, these are not readily apparent. The governance professionals should seek to facilitate engagement with rating agencies as relevant stakeholders, where appropriate. The caveat is that certain rating agencies do not wish to engage with companies but base their ratings on market data or other methodologies.

It is for the latter case that this report is especially significant. This report painstakingly identified, from data analysis, the rating of a number of companies

rated by leading agencies. The study of the rating outcomes of these companies provides significant insights into rating methodologies. The fact remains that no two rating agencies offered the same ratings in these cases.

In summary, adopting appropriate ESG disclosure practices that consider stakeholder expectations, including those of rating agencies, is important. Governance professionals can facilitate interaction with rating agencies and stakeholders. Companies should improve their overall ESG disclosures, which will increase investor appeal, especially where there are appropriate ratings. The technical insights from this report, based on significant resources to analysing, will assist companies in understanding there is no one size fit for rating.



APPENDIX A LATEST HONG KONG REGULATORY DOCUMENTS RELATIVE TO ESG REPORTING

Issuing Authority	Title of Relative Law/Rule/Policy	Summary	Important Provisions
2022-01-01: HKEX	Main Board Listing Rules_ Appendix 27_ Environmental, Social and Governance Reporting Guide GEM Listing Rules_ Appendix 20_ Environmental, Social and Governance Reporting Guide	The listing rules apply to the Main Board and GEM Board, providing the listed companies with a fundamental basis for ESG reporting in Hong Kong. They also lay the foundation of mandatory disclosure and comply with or explain doctrine.	Part B: Mandatory Disclosure Requirements Governance Structure 13. A statement from the Board containing the following elements: (i) a disclosure of the Board's oversight of ESG issues; (ii) the Board's ESG management approach and strategy, including the process used to evaluate, prioritise and manage material ESG-related issues (including risks to the issuer's businesses); and (iii) how the Board reviews progress made against ESG-related goals and targets with an explanation of how they relate to the issuer's businesses. Part C: " Comply or explain " Provisions A. Environmental : Aspects include Emissions, Use of Resources, The Environment and Natural Resources, and Climate Change. B. Social : Aspects include Employment, Health and Safety, Development and Training, Labour Standards, Supply Chain Management, Product Responsibility, Anti-corruption, and Community Investment.
2022-01-01: HKEX	Main Board Listing Rules_ Appendix 14_ Corporate Governance Code GEM Listing Rules_ Appendix 15 Corporate Governance Code	The listing rules emphasise that the responsibility for reporting ESG risk rests with the Board.	D.2 Risk management and internal control Principle The Board is responsible for evaluating and determining the nature and extent of the risks it is willing to take in achieving the issuer's strategic objectives and ensuring that the issuer establishes and maintains appropriate and effective risk management and internal control systems. Such risks would include, amongst others, material risks relating to ESG . The Board should oversee management in the design, implementation and monitoring of the risk management and internal control systems, and management should confirm to the Board the effectiveness of these systems.

2022-01-01: HKEX	Main Board Listing Rules_ Appendix 16_ Disclosure of Financial Information	The listing rule mentions again that issuers must generate ESG reports.	6.4 Issuers must publish ESG reports in accordance with Rule 13.91 and the ESG Reporting Guide contained in Appendix 27.
2020-03: HKEX	Leadership Role and Accountability in ESG-Guide for Board and Directors	This guide provides specific rules of roles and responsibilities on the Board in managing ESG issues.	<p>The role of the Board</p> <p>As the Board of directors, you should take leadership for and accountability in:</p> <ul style="list-style-type: none"> • Overseeing the assessment of your company's environmental and social impacts. • Understanding the potential impact and related risks of ESG issues on your company's operating model. • Aligning with what investors and regulators expect and require. • Enforcing a materiality assessment and reporting process to ensure actions are well followed through and implemented. • Promoting a culture from the top down to ensure ESG considerations are part of the business decision-making process.
2016-03-07: SFC	Principles of Responsible Ownership	These principles encourage the investors to build a sense of ownership and responsibility to care for ESG issues.	<p>Principle 2: investors should monitor and engage with their investee companies</p> <p>17. investors should encourage their investee companies to have policies on environmental, social and governance (ESG) issues and engage with investee companies on significant ESG issues that have the potential to impact the companies' goodwill, reputation and performance.</p>

APPENDIX B STATISTICAL ANALYSIS

(1) Normalisation

As different ESG rating agencies have different measuring systems, even if some data is presented in numerical form, its range and scoring length is not the same, and it isn't easy to compare whether the ESG performance result of a sample is the same among other ESG rating agencies. To make the ESG performance results consistent and facilitate further comparison, we normalised all ESG data within the eight rating agencies, adjusting the measurements at different scales to a common theoretical scale ranging from 0 to 1.

In particular, for grade-based ESG ratings (i.e. Refinitiv, HSI, CASVI, SynTao and SSI), the normalisation is conducted with the following formula:

$$\text{normalised_score}_U = \frac{1}{N} \cdot M$$

Where N is the number of score ranges of an ESG rating agencies. M represents the M -th score in ascending order in this evaluation criteria for company U . For example, Refinitiv ESG scores include 12 range scores from A+ to D-, so $N=12$. Given a company

U , its ESG score in Refinitiv is A, which is the 11th score, so we get $M=11$. Then, we can calculate its normalised score: $\frac{1}{12} \cdot 11=0.9167$.

For value-based ESG scores (i.e. Bloomberg, WIND and FTSE), we divide each company's scores by the highest value of a given rating agencies, thus normalising the original value to between 0 and 1. Table 4 presents the descriptive statistics of all the normalised ESG performance results of the eight ESG rating agencies. It can be seen that HSI gives the highest scores to the ESG performance of Hong Kong-listed companies, with an average of above 0.7552, while FTSE gives the lowest score at 0.3821. Other ESG rating agencies scored similarly, appearing to have concentrations of between 0.5 and 0.7, ranked by SynTao, CASVI, WIND, Refinitiv, SSI and Bloomberg. The results show that even after normalisation, distinct measuring methods among different ESG rating agencies lead to inconsistent scores, and Hong Kong-listed companies reflect this trend.

Table 4: Descriptive Statistics of Samples after Normalisation

ESG Rating Agencies	Obs	Mean	Std. Dev.	Min	Max
Bloomberg	444	0.5237	0.0635	0.28	0.73
WIND	235	0.6678	0.1068	0.42	0.93
Refinitiv	345	0.6037	0.1354	0.08	1.00
HSI	91	0.7552	0.0999	0.63	1.00
FTSE	243	0.3821	0.0985	0.12	0.76
SSI	141	0.5605	0.1160	0.22	0.78
CASVI	87	0.6741	0.1926	0.05	0.90
SynTao	395	0.6995	0.0705	0.40	0.90

Table 5: Descriptive Statistics of Companies in HSI and FTSE that Operate in Different Jurisdictions after Normalisation

ESG Rating Provider	Obs	Mean	Std. Dev.	Min	Max
HSI ESG					
Hong Kong	91	0.7552	0.0999	0.63	1.00
Mainland China	144	0.6128	0.0463	0.50	0.75
FTSE ESG					
Hong Kong	243	0.3821	0.0985	0.12	0.76
Mainland China	817	0.2668	0.1115	0.06	0.76
New York	6	0.3267	0.1395	0.14	0.52
Nasdaq	11	0.2273	0.0615	0.14	0.34
London	7	0.4343	0.0660	0.38	0.56
Singapore	2	0.3000	0.0283	0.28	0.32
Switzerland	9	0.2667	0.1105	0.16	0.50

It is worth mentioning that the ESG performance of the Hang Seng Index (HSI) only possesses 91 ESG performance ratings among all Hong Kong-listed companies, while its database does not disclose most other Hong Kong-listed companies. HSI only disclosed those 91 companies with A-level grades, which shall fall in the scope of “Responsive” to stakeholders’ needs and expectations.⁶ In particular, among the eight ESG rating agencies, HSI had the highest average ESG performance results after normalisation due to the majority of the disclosed samples falling within the A-level ratings. However, FTSE Russell (FTSE) has the lowest average ESG performance results after normalisation. The potential explanation for the lower rating could be that FTSE implements a more rigorous evaluation approach to evaluating the ESG performance of companies: a. FTSE utilises more than 300 indicators to measure ESG performance, it is relatively challenging for companies to cover all the indicators, resulting in lower scores;⁷ b. FTSE’s ESG framework is differentiated from other ESG rating agencies in that it is aligned with the United Nations

Sustainable Development Goals (SDGs), which may also contribute to divergences in ESG ratings.⁸

To make a vertical comparison of the HSI and FTSE’s ESG assessments in other jurisdictions, we compared their ESG performance results with those of jurisdictions outside Hong Kong. To have a consistent unit to measure ESG performance, the same methodology described above was also used to normalise the raw ESG data for the HSI and FTSE indexes to 0-1 so that each data point is consistent at the same level for comparison purposes. Table 5 shows that the ESG performance of Hong Kong-listed companies outperforms that of other jurisdictions.

6 Hang Seng Indexes Company Limited. HSI ESG Brochure. Retrieved from https://www.hsi.com.hk/static/uploads/contents/en/dl_centre/brochures/ESG_Brochure.pdf

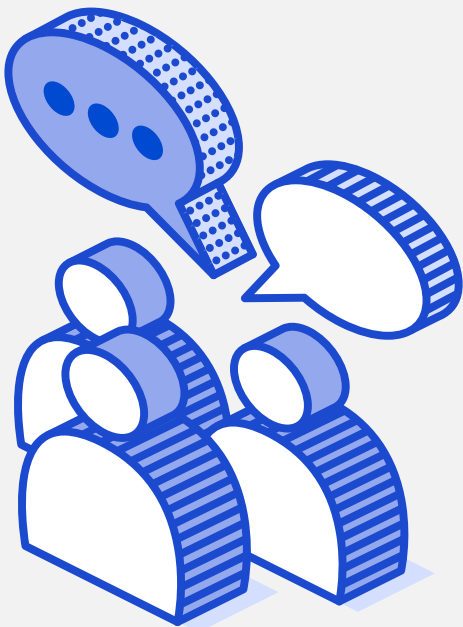
7 FTSE Russell. ESG Scores-Overview. Retrieved from <https://www.ftserussell.com/data/sustainability-and-esg-data/esg-ratings>

8 See note 7.

Since the FTSE ESG performance results are drawn from the WIND database of China-oriented companies, samples collected from other jurisdictions such as the US, UK, Singapore and Switzerland are mostly incorporated in Mainland China. As a result, the FTSE ESG data has very limited observational data and might with bias, with most of the samples coming from Mainland China.

Compared with companies currently listed in Hong Kong and other jurisdictions, the average ESG performance results of the HSI and FTSE in Mainland China are lower than that of Hong Kong. One possible reason for this is that Mainland China

still lacks a mandatory ESG disclosure system, and most companies do not pay enough attention to ESG disclosure, resulting in unsatisfactory ESG ratings compared to other jurisdictions. In contrast, the ESG performance results under FTSE and HSI in Hong Kong are considered satisfactory, possibly due to Hong Kong's adoption of a semi-mandatory disclosure system in ESG reporting, with mandatory disclosure regime in governance pillars and "comply-or-explain" regime in the environment and social pillars, which can increase the transparency of the ESG performance of each listed company with more ESG indicators and related themes being covered.



(2) Pearson's Correlation Analysis

To further explore the disparity in ESG ratings from different agencies, we extend the methods of Chatterji et al. (2016) and Berg et al. (2022) by conducting a correlation analysis among different raters.⁹ The Pearson's correlation analysis examines possible links between ESG performance results of Hong Kong-listed companies among various ESG rating agencies.

Table 6: Matrix of Correlation Analysis among all Normalised ESG Performance Results

	Bloomberg	WIND	Refinitiv	HSI	FTSE	SSI	CASVI	SynTao
Bloomberg	1.0000							
WIND	0.2313	1.0000						
Refinitiv	0.4401*	0.2563	1.0000					
HSI	0.1655	-0.3582	0.2483	1.0000				
FTSE	0.1424	0.3036	0.2312	0.2218	1.0000			
SSI	0.1543	0.2120	0.1573	0.3277	0.1013	1.0000		
CASVI	0.2801	0.2695	0.2502	0.3797	0.3476	0.2473	1.0000	
SynTao	0.3365*	0.3238*	0.3329*	0.4221*	0.2993*	0.1769	0.1093	1.0000

Note: * denotes the correlations significant at the 1% level after Bonferroni adjustment.

As shown in Table 6, the ESG performance results after normalisation in Bloomberg are positively correlated with those in Refinitiv and SynTao. In addition, SynTao is also positively correlated with WIND, Refinitiv, HSI and FTSE.

However, the remaining matrixes do not exhibit any statistically significant correlations in the analysis. Thus, Section 5 will implement an in-depth case study to find out why one company obtains different ESG performance indicators among different ESG rating agencies.

9 Chatterji, A. K., Durand, R., Levine, D. I., & Touboul, S. (2016). Do Ratings of Firms Converge? Implications for Managers, Investors and Strategy Researchers. *Strategic Management Journal*, 37(8), 1597-1614; Gibson Brandon, R., Krueger, P., & Schmidt, P. S. (2021). ESG Rating Disagreement and Stock Returns. *Financial Analysts Journal*, 77(4), 104-127; Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate Confusion: The Divergence of ESG Ratings. *Review of Finance*, 26(6), 1315-1344.

APPENDIX C TIER 2 MEASURES OF SELECTED ESG RATING AGENCIES

Providers	Environmental	Social	Governance
Bloomberg	Air Quality Climate Change Ecological & Biodiversity Impacts Energy Materials & Waste Supply Chain Water	Community & Customers Diversity Ethics & Compliance Health & Safety Human Capital Supply Chain	Audit Risk & Oversight Board Composition Compensation Diversity Independence Nominations & Governance Oversight Sustainability Governance Tenure
HSI	Land use and biodiversity Spills and sewage Operation toxic/non-toxic waste impact of products and services	Labour Practices Fair Operating Practices Community Involvement and Development Consumer Issues Human Rights	Business ethics Controversial investments
Refinitiv	Resource Use Emissions Environmental Innovation	Workforce Human Rights Community Product Responsibility	Management Shareholders CSR Strategy
WIND	Environment Management Energy & Climate Change Water Resource Raw materials and Waste Air Pollution Emissions Waste Water Biodiversity Green Construction Green Finance	Employment Occupational Health & Safety Development & Training Research & Innovation Supply Chain Product Quality Sustainable Product Customer Privacy Protection Community Access to Medical Care	Governance (ESG Governance, Business Continuity Management, Auditing, Ownership & Control, Directors, Supervisors & Senior Management) Ethics (Anti-bribery & Corruption Management, Anti-monopoly & Fair Competition Management)

APPENDIX D1 ENVIRONMENTAL MEASUREMENT FREQUENCY

Word Segmentation	Examples	Frequency	Bloomberg	Refinitiv	WIND	FTSE	Harvest	HSI	MSCI	SSI	S&P	SynTao	WeBank
emissions	Nitrogen Oxide Emissions	56	Yes	Yes	Yes	No	Yes	No	Yes	No	No	No	Yes
energy	Total Energy Consumption	25	Yes	Yes	Yes	No	No	No	Yes	No	No	Yes	No
waste	Hazardous Waste	25	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	No
policy	Water Policy	24	Yes	Yes	No	No	No	No	No	No	Yes	No	No
water	Total Water Withdrawal	24	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes
CO2	Direct CO2 Emissions	13	Yes	Yes	No	No	No	No	No	No	No	No	No
carbon	Carbon Per Unit of Production	10	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No
renewable	Renewable Energy Use	10	Yes	Yes	No	No	No	No	Yes	No	No	No	No
revenue	Total Energy Use/Million In Revenue	10	No	Yes	No	No	No	No	No	No	No	Yes	No
climate	Climate Change Opportunities Discussed	9	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	No
finances	Self-Reported Environmental Fines	6	Yes	Yes	No	No	No	No	No	No	No	No	No
supply	Environmental Supply Chain Monitoring	7	Yes	Yes	No	No	No	No	No	No	No	No	No
pollution	Risk Exposure Regarding Water Pollution	7	No	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes
initiatives	Waste Reduction Initiatives	6	Yes	Yes	No	No	No	No	No	No	No	No	No
biodiversity	Biodiversity Impact Reduction	6	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No

APPENDIX D2 SOCIAL MEASUREMENT FREQUENCY

Word Segmentation	Examples	Frequency	Bloomberg	Refinitiv	WIND	FTSE	Harvest	HSI	MSCI	SSI	S&P	SynTao	WeBank
revenue	Donations/ Million in Revenue	38	No	Yes	No	No	No	No	No	No	No	No	No
producer	Firearms Producer	34	No	Yes	No	No	No	No	No	No	No	No	No
policy	Policy Fair Trade	31	Yes	Yes	No	No	No	No	No	No	No	No	No
ownership	Oil and Gas Producer Ownership Percent	25	No	Yes	No	No	No	No	No	No	No	No	No
employees	Employees Health & Safety Team	23	Yes	Yes	No	No	No	No	No	No	No	Yes	No
safety	Health & Safety Training	23	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
health	Supply Chain Health & Safety Improvements	20	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No
oil	Oil and Gas Processing, Transportation and Distribution Ownership Percent	20	No	Yes	No	No	No	No	No	No	No	No	No
product	Healthy Food or Products	12	No	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes
retailer	Firearms Retailer	16	No	Yes	No	No	No	No	No	No	No	No	No
minorities	Ethnic Minorities Board Percentage	15	Yes	Yes	No	No	No	No	No	No	No	No	No
training	Training and Development Policy	15	Yes	Yes	Yes	No	No	No	No	No	No	No	No
management	Crisis Management Systems	14	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes	No
ethnic	White - Ethnic Minorities Board Percentage	13	No	Yes	No	No	No	No	No	No	No	No	No
human	Human Rights Policy	12	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	No	No

APPENDIX D3 GOVERNANCE MEASUREMENT FREQUENCY

Word Segmentation	Examples	Frequency	Bloomberg	Refinitiv	WIND	FTSE	Harvest	HSI	MSCI	SSI	S&P	SynTao	WeBank
board	Board Functions Policy	51	Yes	Yes	No	No	Yes	No	Yes	Yes	No	Yes	No
committee	Corporate Governance Board Committee	27	Yes	Yes	No	No	No	No	No	No	No	No	No
compensation	Compensation Board Committee	21	Yes	Yes	No	No	No	No	No	No	No	No	No
SDG	SDG 1 No Poverty	17	No	Yes	No	No	No	No	No	No	No	No	No
policy	Confidential Voting Policy	16	No	Yes	No	No	No	No	No	No	Yes	Yes	No
management	Anti-bribery & Corruption Management	13	No	No	Yes	Yes	No	No	No	No	Yes	No	Yes
audit	Internal Audit Department Reporting	12	Yes	Yes	No	No	No	No	No	No	No	No	No
executive	Compensation Committee Nonexecutive Members	11	Yes	Yes	No	No	Yes	No	No	No	No	No	No
nomination	Nomination Committee Independence	9	Yes	Yes	No	No	No	No	No	No	No	No	No
independence	Policy Board Independence	9	No	Yes	No	No	No	No	No	Yes	No	Yes	No
risk	Financial Stability and Systemic Risk	8	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes
directors	Limitations on Removal of Directors	7	Yes	Yes	Yes	No	No	No	No	No	No	No	No
attendance	Board Attendance	7	Yes	Yes	No	No	No	No	No	No	No	No	No
shareholder	Shareholders Approval Stock Compensation Plan	7	No	Yes	No	No	Yes	No	No	No	No	No	No
diversity	Policy Board Diversity	7	No	Yes	No	No	No	No	No	No	No	Yes	No

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