

STGF ESG Rating Data and Applications

SynTao Green Finance

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Finance for Good 投资美好



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CHAPTER

Company Overview



- 2009, the core team established and focused on the service for ESG investment and Green Finance
- 2011, served EU pension funds by ESG research and data, provided ESG policy advice to PBOC, CSRC, exchanges
- 2015, launched **the first ESG rating for listed companies and the first ESG database** in China
- 2019, launched **STGF ESG rating for bond issuers**, and enhanced the methodology **based on the joint-research with Moody's and Tsinghua University** in 2021
- 2021, as the only one from China, STGF ESG rating **landed on Bloomberg Terminal and served to international investors**
- 2021, launched Carbon and Climate Risk Model, and won **2022 IFF Green Finance Innovation Award**, and won **2023 Environmental Finance Award**
- 2023, the ESG rating and data was adopted by Galaxy Fund Research Center to evaluate ESG performance of mutual funds

- ✓ **Creditable**: providing ESG rating via Bloomberg Terminal, the only one from China
- ✓ **Professional**: the earliest-established China ESG vendor with 14 years experience
- ✓ **Well-recognized**: top international and domestic AM users
- ✓ **Collaborated**: Regulators, Associations, UNEP FI, PRB, PRI, IFC

ESG Data

- [illegible]

Research & Advisory

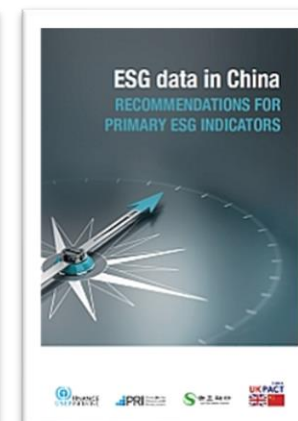
- **ESG research**
- **Disclosure advisory**
- **ESG policy advisory**
- Green finance framework
- Sustainable finance subject
- STGF training
- UNEP FI ESRA courses

Green Finance

- **Green Bonds Assurance**
- Impact and sustainable bonds design and assurance
- SDG bonds
- **Green Finance Policy Database**
- Green finance product innovation

China SIF

- **Initiated in 2012**
- The **most influential ESG forum** in China
- In-person attendance over 4,000; More than 300,000 professionals connected
- Annual conferences and seminars to **China SIF Week**



02

CHAPTER

STGF ESG Data



STGR ESG Database

- ESG rating and score
- ESG indicators and data points

ESG Risk Radar

- Controversies data
- Real-time monitoring



PANDA Platform

- Carbon emissions
- Climate Risk Analyzer

ESG Investment and Indices

- ESG Investment Strategy
- ESG Controversial Products
- ESG Indices

Green Asset Classification

- Green bond, green loan identification and classification

Disclosure Support

- SFDR/PAI, HK SFC



Buy-side

- ESG investment
- ESG risk mgmt.
- Disclosure

Bank

- ESG assessment
- ESG risk mgmt.
- Green finance

Insurer

- ESG investment
- Climate Risk
- Disclosure

Sell-side

- ESG research
- ESG risk mgmt.
- ESG rating

Academy

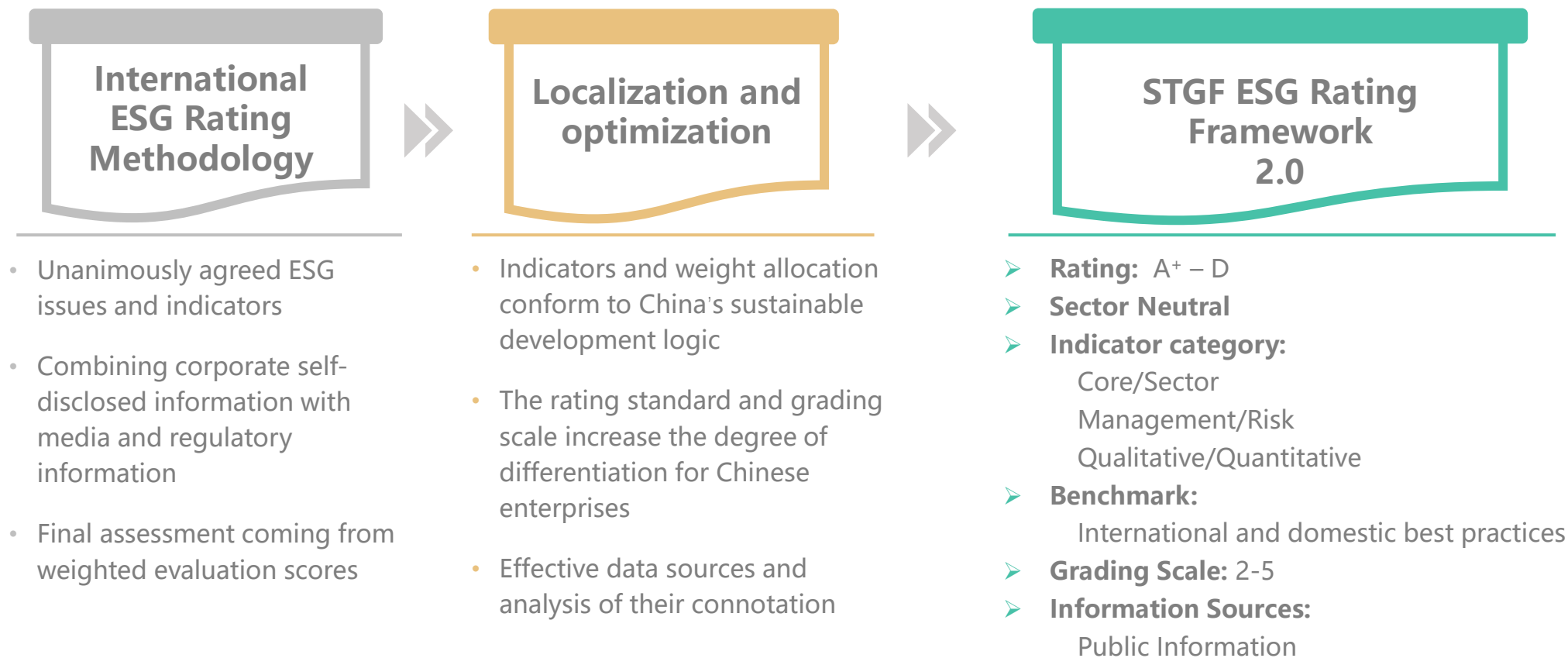
- ESG research
- Climate research

Corporate

- ESG rating
- ESG report
- ESG management



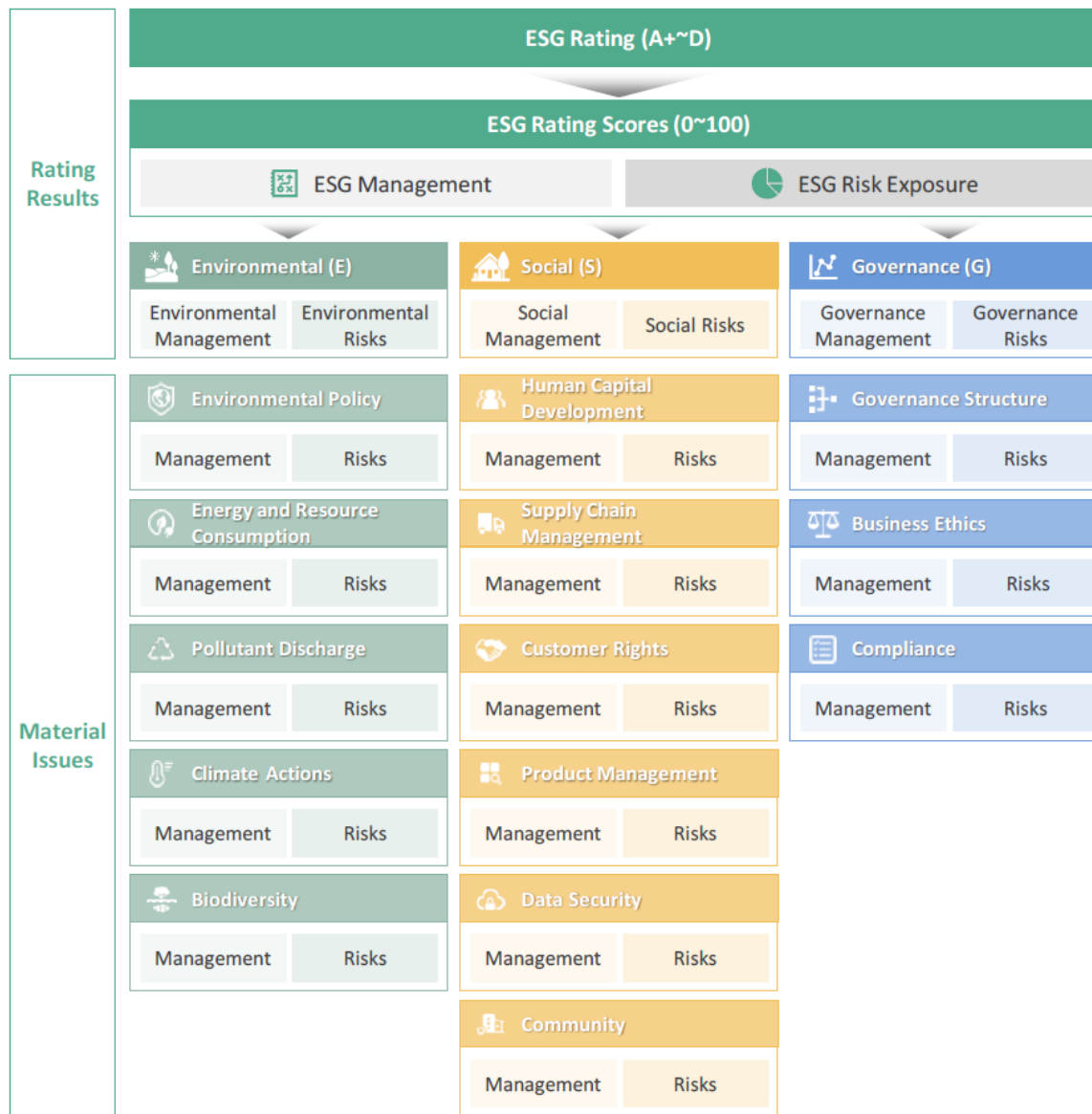
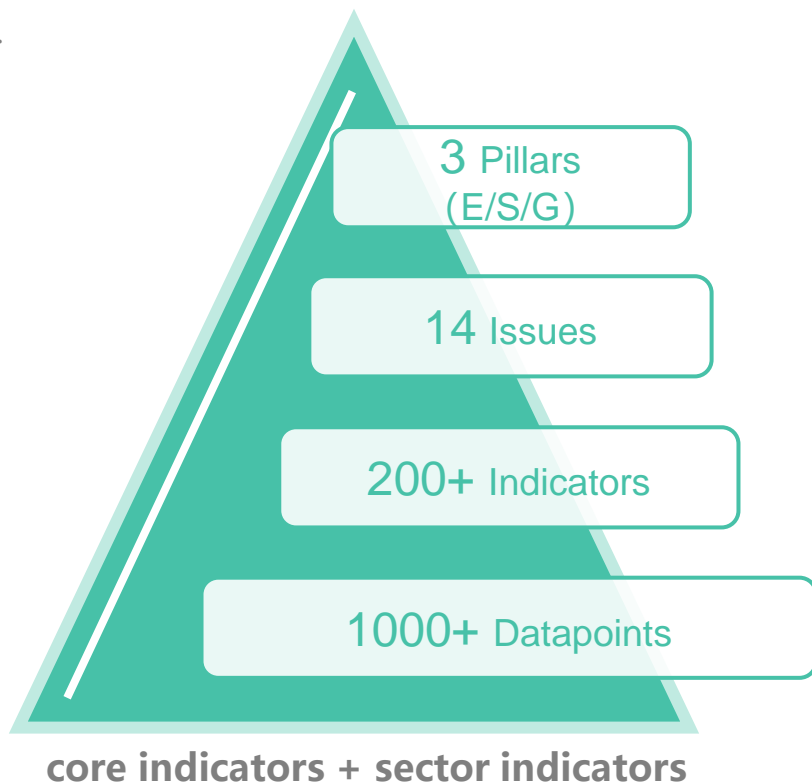
- STGF factors China's unique and practical situation into its self-developed ESG evaluation system based on international standards, aiming to fully and truly reflect the performance of Chinese companies in environmental, social and governance aspects, providing a more differentiated assessment result.

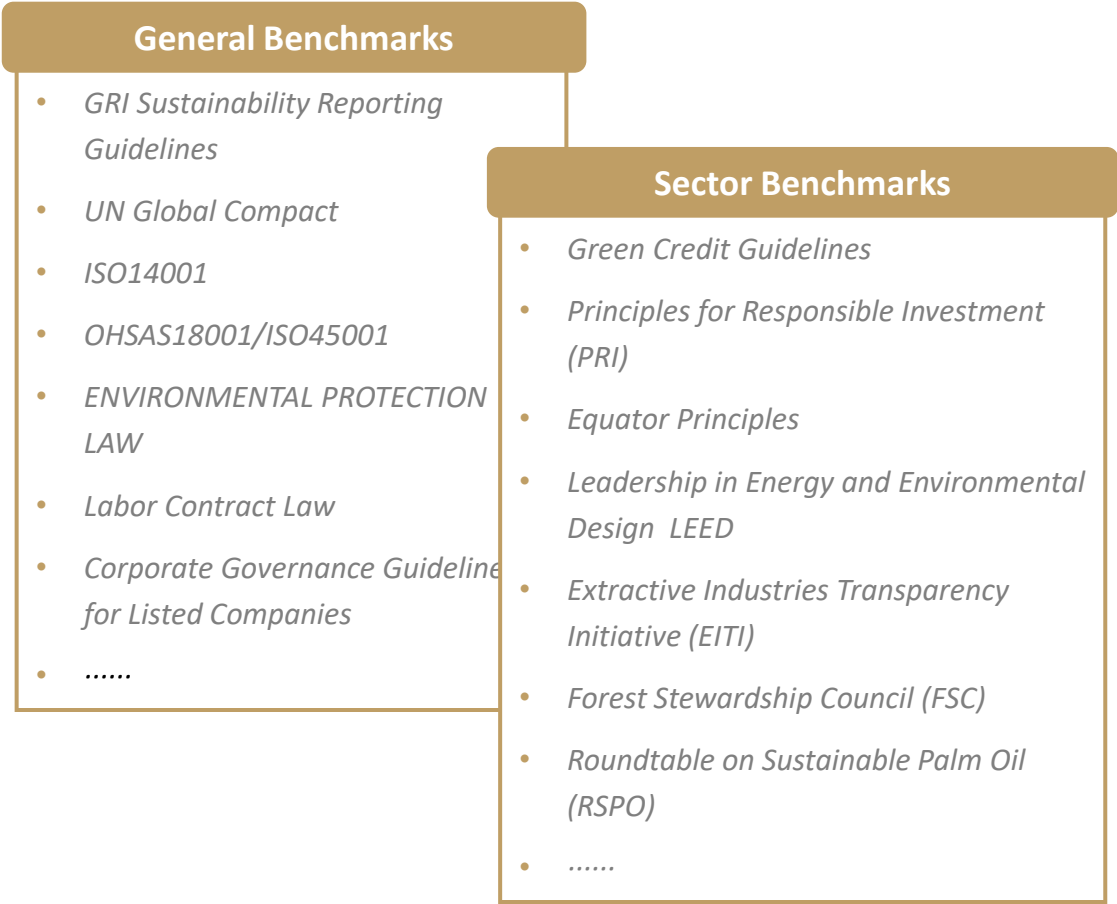




Major considerations:

- Maximum coverage of those most representative, collectable and material non-financial data
- Comply with international definition of ESG issues
- Policy disclosure requirements
- Industry characteristics
- Investors' concerns
- ...





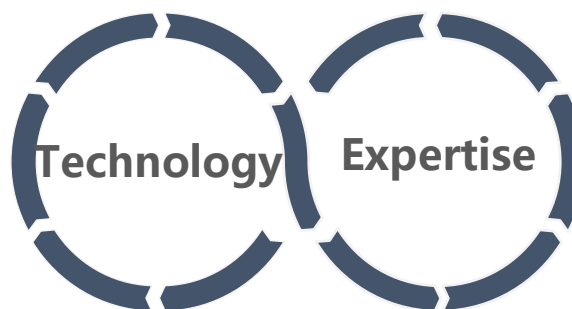
Example	Type	Category	Benchmark
Environmental Management System Certification	Core	E	ISO14000
Greenhouse Gas Emissions and Emission Mitigation	Core	E	GHG Protocol Accounting and Reporting Standards
Occupational Health and Safety	Core	E	OHSAS18001/ISO45001
ESG Information Disclosure	Core	G	GRI Sustainability Reporting Guidelines
Conflict Minerals	Sector-specific (Electronics Manufacturing)	G	Extractive Industries Transparency Initiative (EITI)
Responsible Investment	Sector-specific (Finance)	G	Principles for Responsible Investment (PRI)

- The alternative data is not such standardized therefore STGF is using a hybrid approach to fulfill data processing. STGF team expertise and know-how is the key to capture data driven by use case and enhance the data relevance.



Machine Learning

- Expertise-driven keyword library by machine learning
- Using AI for info collection, language processing, semantic analysis to expand sourcing scope, and improve frequency, accuracy, coverage



Analyst Insight

- Analyst review to ensure data quality and improve processing
- Analyst-judgement is the key to improve data precision and to convert info to insight

- STGF provide standard ESG data products and customized data products

ESG data Points

- ✓ All A-share companies **5000+**
- ✓ All active bond issuers **4500+**
- ✓ ADRs, and H-share in Stock-Connect
- ✓ High-quality and validated

ESG Controversies

- ✓ All A-share companies **5000+**
- ✓ All active bond issuers **4500+**
- ✓ ADRs, All H-share in Stock-Connect
- ✓ Daily update (business day)

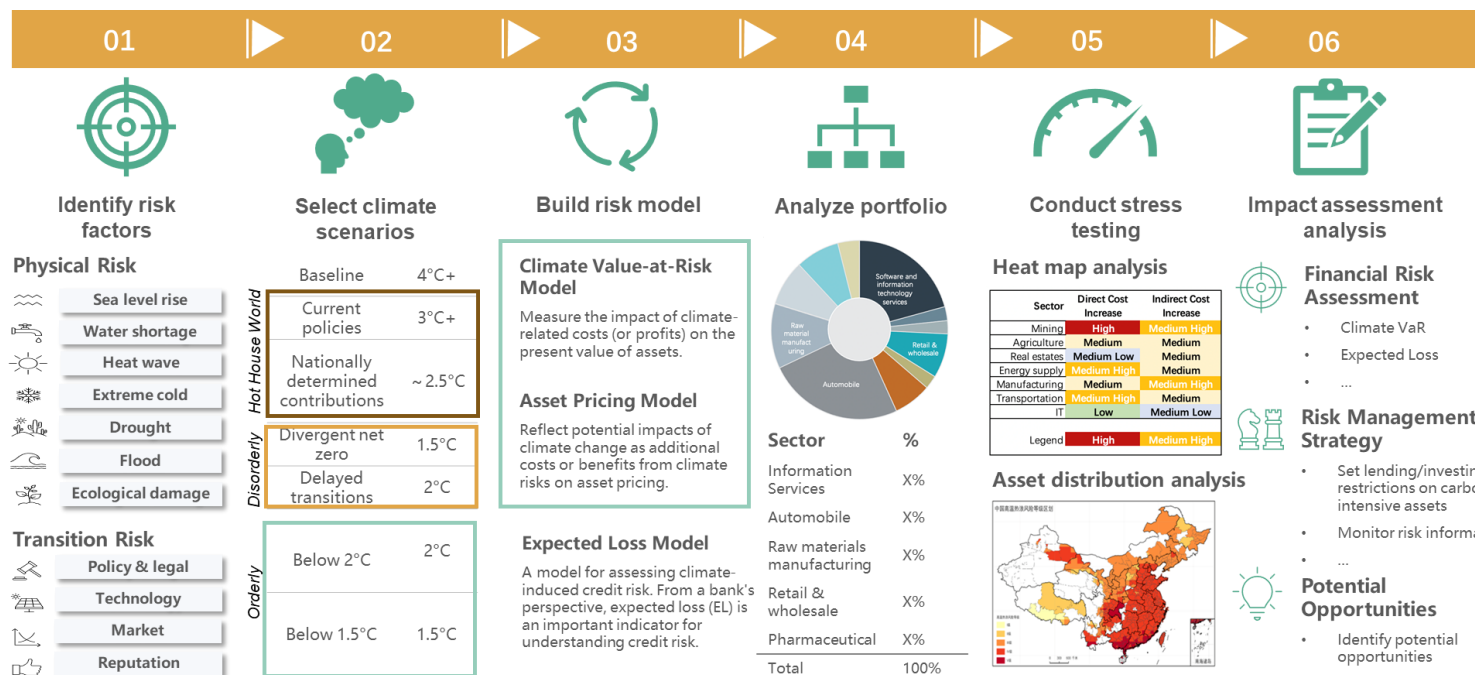
Carbon emissions

- ✓ All A-share companies **5000+**
- ✓ All active bond issuers **4500+**
- ✓ ADRs, All H-share in Stock-Connect
- ✓ All Taiwan listed firms

Climate Scenario Analysis

- ✓ All A-share companies **5000+**
- ✓ Cover all companies on-demand
- ✓ Physical risk analysis: 2020-2100
- ✓ Transitional risk analysis: 2020-2060

- Provide physical risk and transitional risk analysis by well-adopted scenarios
- Use cases: AM, banking, insurance
- Based on international and domestic scientific research, domestic energy policies
- 2022 IFF Green Finance Innovation Award, **2023 EF Sustainable Investment Award – ESG Data Provider**



南方基金 转型风险情景分析和压力测试

气候情景 基金代码 报告期

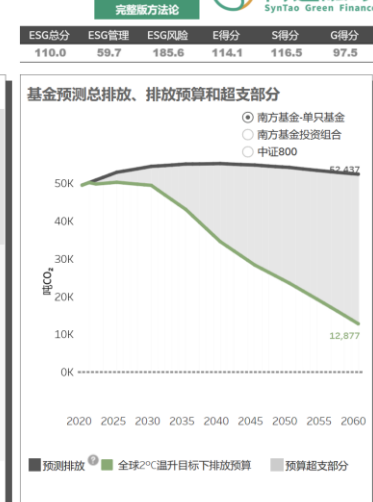
全球2°C升温目标 009318.OF 2022Q3

009318.OF 南方成长先锋A

基金明细	比例	CVaR	ITR	行业
600938.SH 中国海油	0.023%	0.01 ~ 0.01	2.51	采矿业-油气开采
603185.SH 上机数控	5.859%	0.01 ~ 0.01	2.21	制造业-其他
002466.SZ 天齐锂业	3.450%	0.00 ~ 0.00	2.30	制造业-有色金属
688598.SH 金博股份	1.131%	0.00 ~ 0.00	2.38	制造业-水泥建材
603799.SH 华友钴业	3.558%	0.00 ~ 0.00	2.31	制造业-有色金属
600499.SH 科达制造	4.767%	0.00 ~ 0.00	2.23	制造业-其他
601869.SH 长飞光纤	3.250%	0.00 ~ 0.00	2.23	制造业-其他
600522.SH 中天科技	5.818%	0.00 ~ 0.00	2.24	制造业-其他
601669.SH 中国电建	0.001%	0.00 ~ 0.00	2.29	建筑业
688799.SH 华纳药厂	0.001%	0.00 ~ 0.00	2.23	制造业-其他
000970.SZ 中科三环	2.206%	0.00 ~ 0.00	2.24	制造业-其他
688599.SH 天合光能	2.217%	0.00 ~ 0.00	2.26	制造业-其他
002384.SZ 东山精密	3.549%	0.00 ~ 0.00	2.25	制造业-其他
601012.SH 隆基绿能	7.349%	0.00 ~ 0.00	2.28	制造业-其他
301306.SZ 西测测试	0.002%	0.00 ~ 0.00	3.07	其他服务业
301238.SZ 瑞泰新材	0.002%	0.00 ~ 0.00	2.18	制造业-化工
688252.SH 天德钰	0.002%	0.00 ~ 0.00	5.47	其他服务业
688391.SH 钨钛科技	0.003%	0.00 ~ 0.00	2.48	其他服务业

基金层面加权CVaR 0.002 ~ 0.002

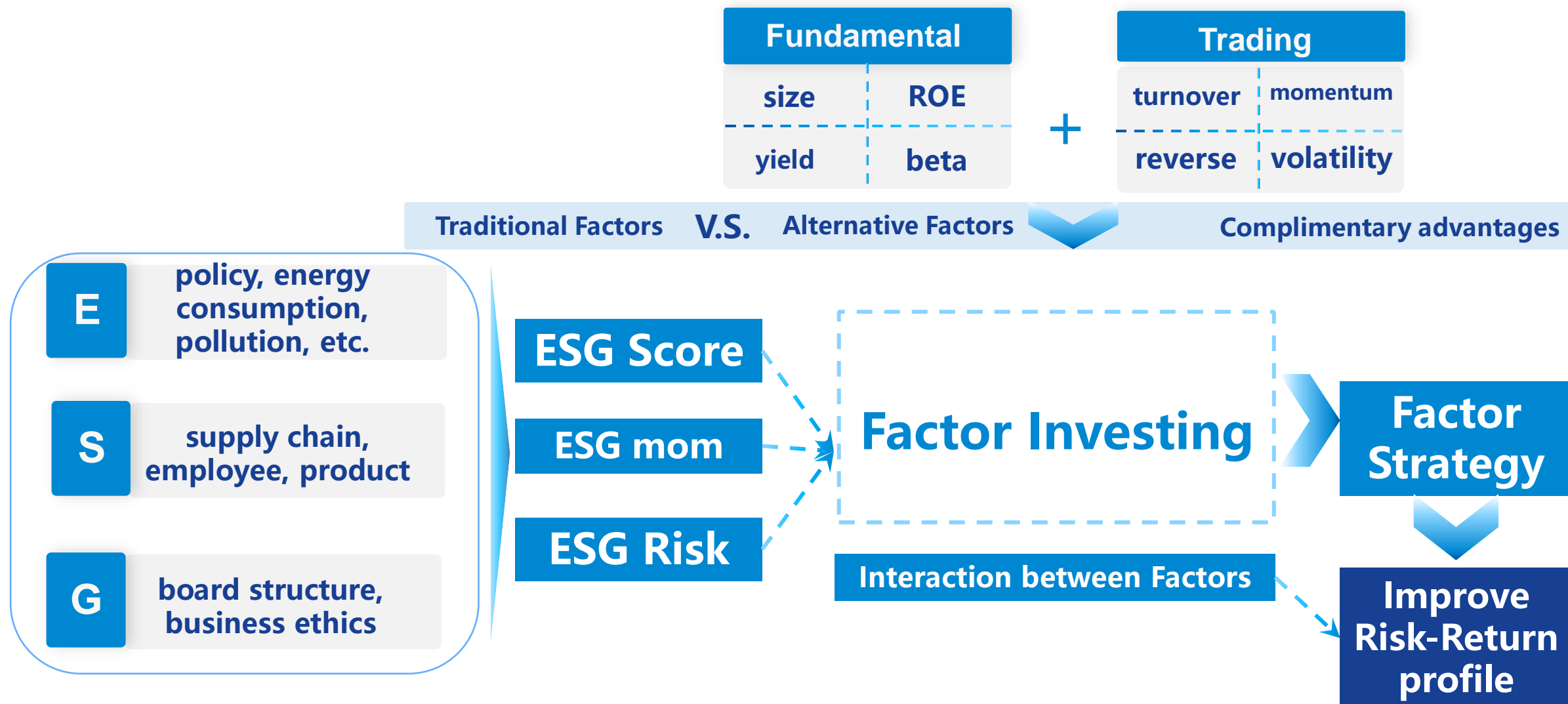
STGF情景分析模型 商道融绿

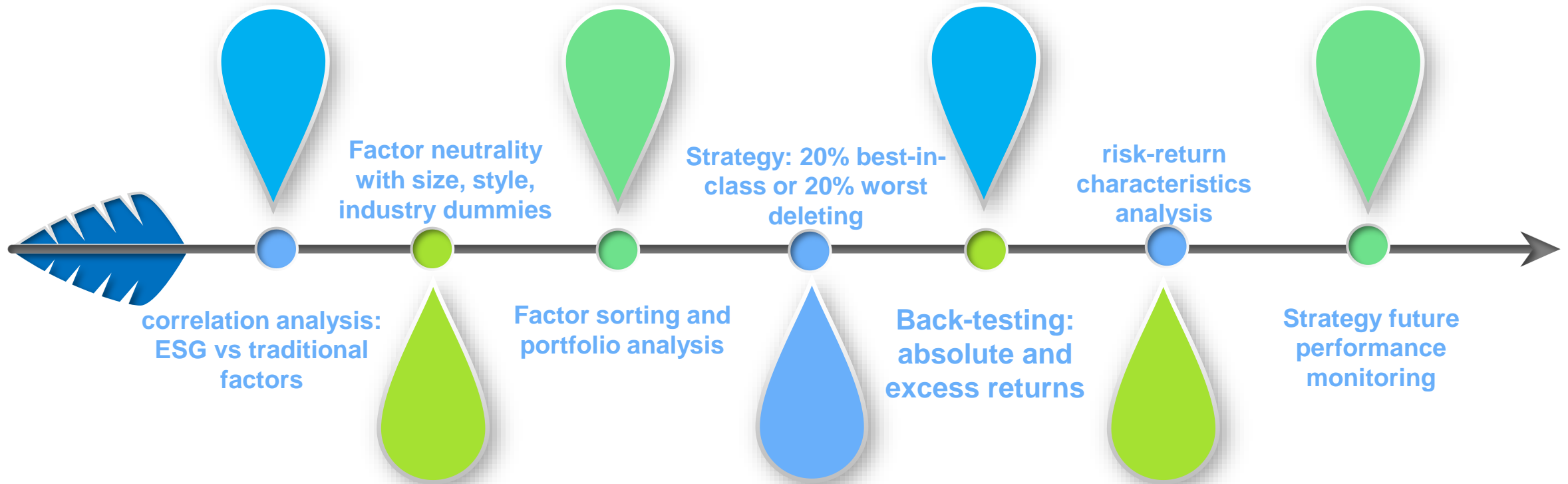


03

CHAPTER

ESG Data Applications



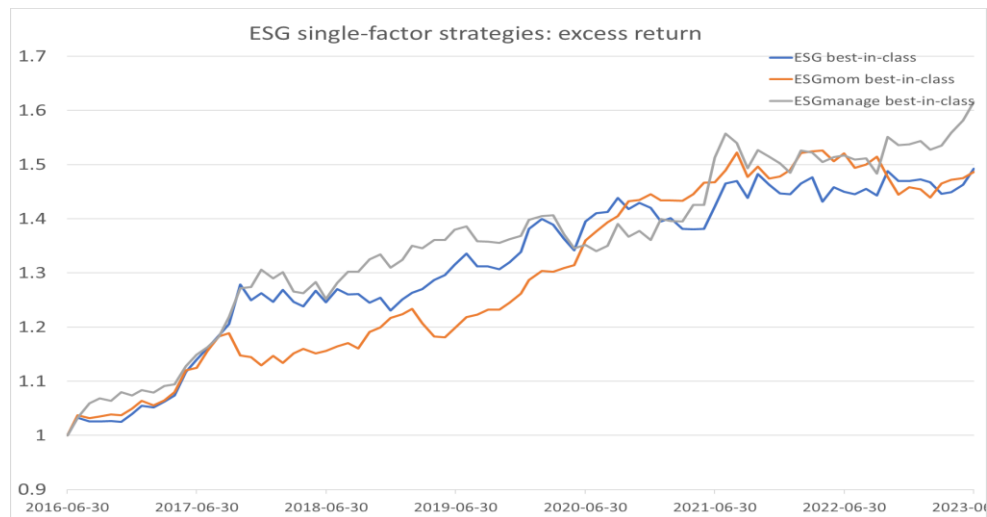
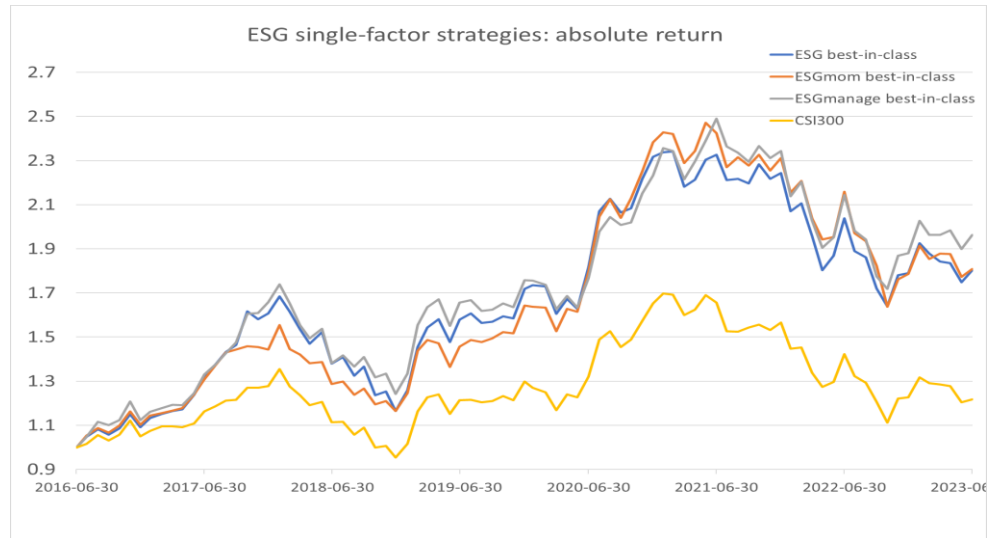


ESG single-factor strategies

- Between 2016.7 and 2023.6, companies with 20% highest ESG scores or with 20% biggest ESG score growth rates generate 5.9% or 5.8% annual excess return against CSI-300, respectively.
- Between 2016.7 and 2023.6, ESG tilting strategies generate about 3.5% annual excess returns against CSI-300 index;
- Companies with high ESG scores or high ESG growth rates have long-run excess returns against CSI-300.

	best-in-class			tilting			BM CSI300	best-in-class excess return		
	ESG	ESG mom	ESG manage	ESG	ESG mom	ESG manage		ESG	ESG mom	ESG manage
Annual Ret	8.79%	8.83%	10.11%	6.52%	6.06%	6.25%	2.86%	5.89%	5.83%	7.10%
Annual Vol	18.55%	17.76%	18.17%	17.06%	17.12%	16.99%	16.98%	5.80%	4.78%	5.97%
Down Vol	9.40%	9.97%	9.77%	9.36%	9.53%	9.43%	9.72%	2.58%	3.36%	3.02%
Sharpe	0.47	0.50	0.56	0.38	0.35	0.37	0.17	1.02	1.22	1.19
Sortino	0.94	0.89	1.03	0.70	0.64	0.66	0.29	2.28	1.74	2.35
Max DD	30.79%	33.79%	30.99%	42.82%	32.35%	30.06%	34.44%	4.13%	5.67%	4.76%
Calmar	0.29	0.26	0.33	0.15	0.19	0.21	0.08	1.43	1.03	1.49
excess ret>0								60.71%	72.62%	61.90%

Data source: SynTao Green Finance, Wind
Past performance is not indicative of future results.



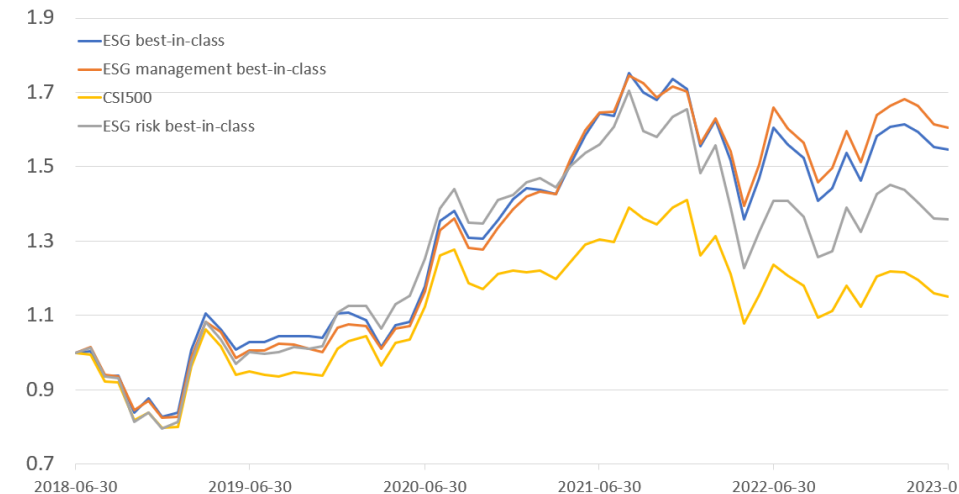
ESG single-factor strategies

- ESG best-in-class (top 20%) strategies within ZZ500 constituents generate 3.5%-6.7% annual excess returns against CSI-500 index, between 2018.7 and 2023.6.
- ESG tilting strategies generate 2.7%-3.1% annual excess returns against CSI-500 index .
- Companies with high ESG scores have long-run excess returns against CSI-500.

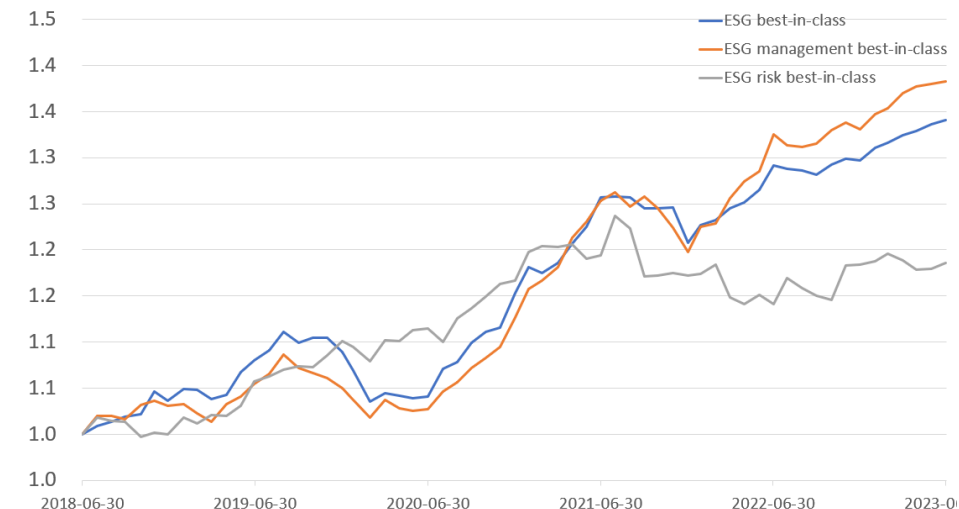
Factor	ESG		ESG management		ESG risk		excess return (best-in-class)			BM
	bestInClass	tilting	bestInClass	tilting	bestInClass	tilting	ESG	ESGmanage	ESGRisk	
Annual Ret	9.10%	5.95%	9.93%	5.79%	6.31%	5.54%	6.04%	6.69%	3.47%	2.83%
Annual Vol	20.09%	19.90%	19.33%	19.84%	20.73%	20.14%	4.34%	4.42%	4.72%	19.88%
Down Vol	11.31%	12.25%	10.56%	12.05%	13.66%	12.90%	3.51%	1.98%	3.37%	12.33%
Sharpe	0.45	0.30	0.51	0.29	0.30	0.28	1.39	1.51	0.74	0.14
Sortino	0.80	0.49	0.94	0.48	0.46	0.43	1.72	3.38	1.03	0.23
Max DD	22.50%	22.78%	20.14%	22.30%	27.93%	24.57%	6.84%	6.33%	7.79%	23.53%
Calmar	0.40	0.26	0.49	0.26	0.23	0.23	0.88	1.06	0.45	0.12
excess ret>0							71.67%	66.67%	60.00%	

Data source: SynTao Green Finance, Wind
Past performance is not indicative of future results.

ESG single-factor strategies: absolute returns



ESG single-factor strategies: excess returns





Mutual fund ESG evaluation

- About the calculation methodology of a fund's ESG score, we calculate the weighted average of ESG scores of the fund's holdings semi-annually, and weighting factors are market values of holding stocks. The equation is as follows:

$$fund\ ESG_t = \sum_{i=1}^n ESG_{i\ t} \times Weight_{i\ t}$$

where $ESG_{i\ t}$ is STGF ESG rating of stock i for period t, $Weight_{i\ t}$ is stock i's weight in the fund's portfolio for period t

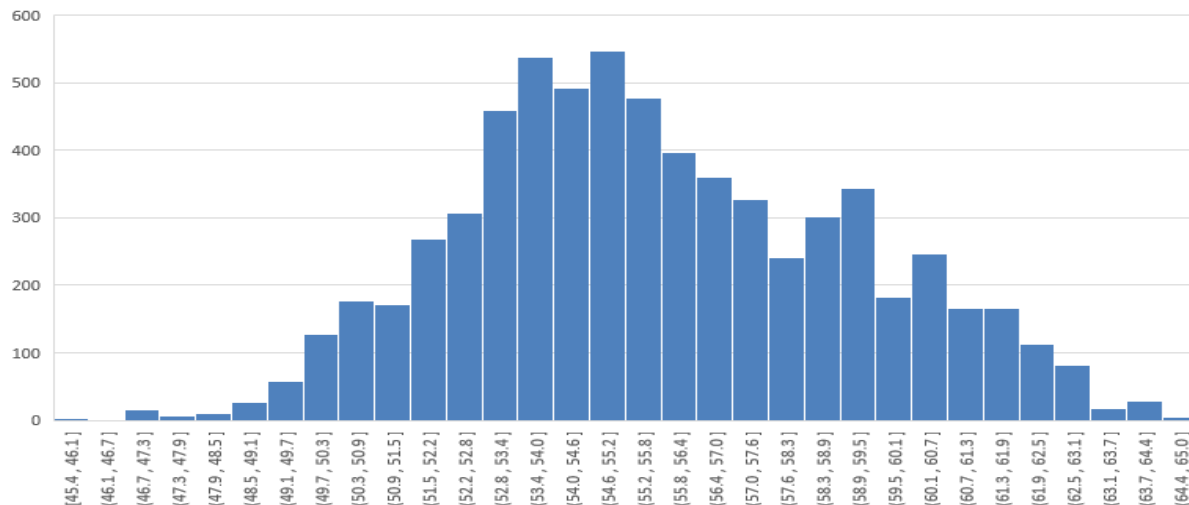
- We give a mutual fund a ESG score if our SynTaoGF's ratings cover more than 2/3 of the net asset value of a fund. The majority of evaluated funds are stock and hybrid funds.
- The updating frequency is semi-annual. At the end of every March and August, we update mutual funds' ESG scores according to complete holdings from their mid-year reports and annual reports.
- We now cover 6600+ equity and hybrid funds with 2022 annual reports.



Mutual fund ESG score distribution

- The exhibit below shows that the distribution of mutual fund ESG scores is close to normal distribution. The ESG scores of the majority of stock and hybrid funds locate between 50 and 60.
- The right table shows the distribution of mutual fund's ratings for 6 periods. We notice that the median ESG ratings improve with time.

Mutual Fund ESG score distribution (2022Q4)



ESG	mean	std	min	25%	median	75%	max	skew	kurt
2020Q2	50.68	2.32	43.53	48.96	50.40	51.95	63.31	1.01	2.52
2020Q4	50.92	2.24	42.27	49.33	50.84	52.28	63.13	0.67	2.27
2021Q2	53.26	2.61	44.42	51.36	53.27	54.93	65.92	0.50	1.48
2021Q4	52.64	2.45	44.20	50.82	52.41	54.28	65.75	0.61	1.24
2022Q2	56.01	3.31	46.64	53.60	55.80	58.24	70.75	0.32	0.04
2022Q4	55.76	3.30	45.45	53.43	55.34	58.20	64.78	0.22	-0.48
E	mean	std	min	25%	median	75%	max	skew	kurt
2020Q2	51.35	3.59	39.70	48.77	51.18	53.35	68.65	0.64	1.44
2020Q4	51.61	3.59	40.30	49.24	51.63	53.81	68.66	0.31	1.04
2021Q2	55.07	4.30	43.14	51.97	55.18	58.16	71.30	0.14	0.15
2021Q4	53.98	4.13	43.51	50.86	53.89	56.84	70.48	0.31	0.00
2022Q2	56.32	5.23	41.93	52.52	56.15	59.93	74.07	0.20	-0.10
2022Q4	55.53	5.18	40.19	51.76	55.11	59.14	70.26	0.16	-0.54
S	mean	std	min	25%	median	75%	max	skew	kurt
2020Q2	54.58	2.05	45.69	53.29	54.41	55.84	63.66	0.37	1.40
2020Q4	54.75	1.93	44.36	53.58	54.69	55.89	64.14	0.18	1.93
2021Q2	56.77	2.11	46.10	55.43	56.83	58.10	66.57	0.03	2.02
2021Q4	56.40	1.98	45.51	55.14	56.35	57.58	66.78	0.04	2.05
2022Q2	54.41	3.70	43.38	51.73	54.35	56.95	71.70	0.27	0.13
2022Q4	54.11	3.62	43.06	51.47	53.83	56.77	64.31	0.14	-0.47
G	mean	std	min	25%	median	75%	max	skew	kurt
2020Q2	45.75	2.13	40.12	44.44	45.50	46.67	60.29	1.34	3.67
2020Q4	46.03	2.05	39.35	44.78	45.90	46.96	57.53	0.85	2.87
2021Q2	47.26	2.23	40.59	45.89	47.13	48.39	60.12	0.88	2.70
2021Q4	46.96	2.07	39.86	45.64	46.81	48.19	60.21	0.76	2.48
2022Q2	57.45	2.12	51.66	56.07	57.18	58.51	67.24	1.01	2.29
2022Q4	57.69	2.27	51.69	56.10	57.38	58.91	66.79	0.83	1.27
ESG management	mean	std	min	25%	median	75%	max	skew	kurt
2020Q2	23.66	5.35	10.87	19.63	22.71	26.88	44.18	0.73	0.20
2020Q4	24.19	5.08	10.35	20.52	23.75	27.45	44.27	0.40	0.23
2021Q2	27.77	5.61	10.95	23.57	27.65	31.46	49.21	0.27	0.02
2021Q4	26.50	5.40	10.47	22.52	25.98	29.92	48.64	0.50	0.18
2022Q2	36.21	5.96	18.79	31.87	36.04	40.39	56.90	0.16	-0.21
2022Q4	35.64	6.27	16.88	31.24	34.95	40.24	53.26	0.23	-0.44
ESG risk	mean	std	min	25%	median	75%	max	skew	kurt
2020Q2	91.20	3.76	77.32	88.66	92.20	94.06	98.32	-0.75	-0.21
2020Q4	91.02	3.55	76.97	88.53	91.57	93.76	98.04	-0.56	-0.22
2021Q2	91.49	3.43	76.40	89.59	92.21	93.82	98.46	-0.94	0.96
2021Q4	91.86	3.44	74.23	89.94	92.69	94.26	98.57	-1.06	1.30
2022Q2	85.70	1.89	78.19	84.51	85.80	86.96	95.20	-0.18	0.62
2022Q4	85.93	1.99	76.34	84.80	86.20	87.26	90.41	-0.85	1.43

Data source: SynTao Green Finance, Wind



More Applications with ESG Data

- Factor-Investing with ESG ratings on CSI-300 and CSI-500 Constituents
- Sector-level ESG factor investing
- ESG performance, sector-level materiality, stock price transmission mechanism
- Carbon budgeting strategies: CSI-800 and CSI-1000
- Chinese mutual fund carbon footprint calculation
- ESG scores can be used to predict stock price reaction to ESG controversy events
- ESG controversy event-driven strategies
- Bond issuers' ESG scores and bond credit spreads
-
- white papers on our website:
- <https://en.syntaogf.com/collections/research-post-category-44>



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