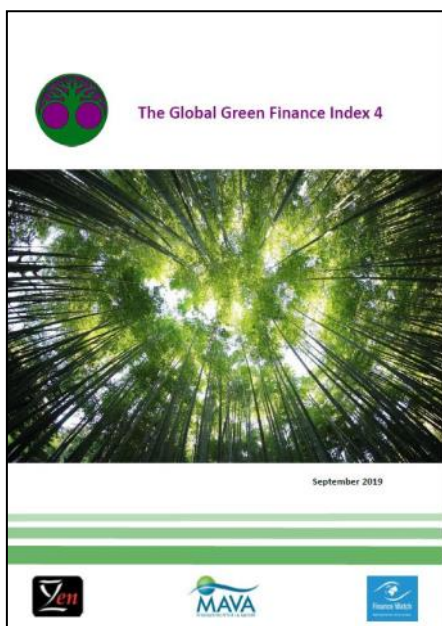




# Global Green Finance Index 4 Executive Summary



The 4th edition of the Global Green Finance Index (GGFI 4) features 64 financial centres. Tel Aviv enters the index for the first time.

- Ratings of green finance rose in almost all centres for both depth and quality. With one exception, all centres received a higher rating for quality than in GGFI 3. Average performance across the measures of green finance depth and quality increased, with the average rating rising 2.2% for depth and 3.8% for quality compared with GGFI 3.
- Several centres moved more than five places in the indices. Munich is up nine places in the depth index, with San Francisco and Rome also improving more than five places. Calgary, Liechtenstein and Kuala Lumpur rose more than five places for quality.

## Leading Centres

- Western Europe continues to lead the world's centres in green finance depth and quality, taking eight of the top ten places in depth and all ten of the top ten places in quality.
- Amsterdam retained its leading position in the depth index, with Luxembourg regaining the ground it lost in GGFI 3 to take second place.
- London retained its position as first in the quality index, albeit with a smaller margin than before, with Amsterdam overtaking Paris to rank second. On current trends, London would lose its top ranking for quality within the next 12 months. Brussels displaces Geneva to move into the top 10.
- Narrow margins continue to separate centres at top of the tables. Among the top ten centres the spread of ratings is 47 out of 1,000 for depth (37 in GGFI 3) and 53 for quality (60 in GGFI 3).

## GGFI 4

- GGFI 4 was compiled using 132 instrumental factors. These quantitative measures are provided by third parties including the World Bank, The Economist Intelligence Unit, the OECD, and the United Nations. Details can be found in Appendix 5 to the full report at <https://www.longfinance.net/publications/long-finance-reports/global-green-finance-index-4/>.
- The instrumental factors were combined with 4,220 financial centre assessments provided by respondents to the GGFI online questionnaire at <http://www.greenfinanceindex.net/survey/>.
- A breakdown of the 735 respondents is shown in Appendix 3 to the report. Further details of the methodology behind GGFI 4 are in Appendix 4 to the report.

The GGFI provides measures of the depth of green finance and the quality of green finance. This summary gives details of both rankings. We have chosen to print only this 12 page summary to save resources. The full report is 104 pages.

## Leading Financial Centres

It is notable that some leading financial centres perform less well than expected in the GGFI. This is especially visible from a comparison with the Global Financial Centres Index (GFCI), which has been measuring the overall competitiveness of financial centres since 2007.

We can compare the centres which rank in the top ten in each index. The colours in the table below indicate the ranking in the indices. This shows a clear disconnect between the highest performing centres in the GFCI and performance on green finance in the GGFI. Only London features in the top ten in each index.

Historically, green finance has not been a leading factor in overall competitiveness as measured by the GFCI; and the legacy is that most of the leading centres in the GFCI are not green finance leaders. This situation is not compatible with meeting the Paris Agreement targets and will have to change if the environmental challenge and the carbon risk highlighted in GGFI 3 is to be addressed.

London's placing in the indices shows it can be done, even if London's lead over other green financial centres has been reducing over the last two years. We consider that competitive advantage will change towards green finance. There is a role for leading centres and for political leadership across the world to use systems of tax and regulation to achieve the change.

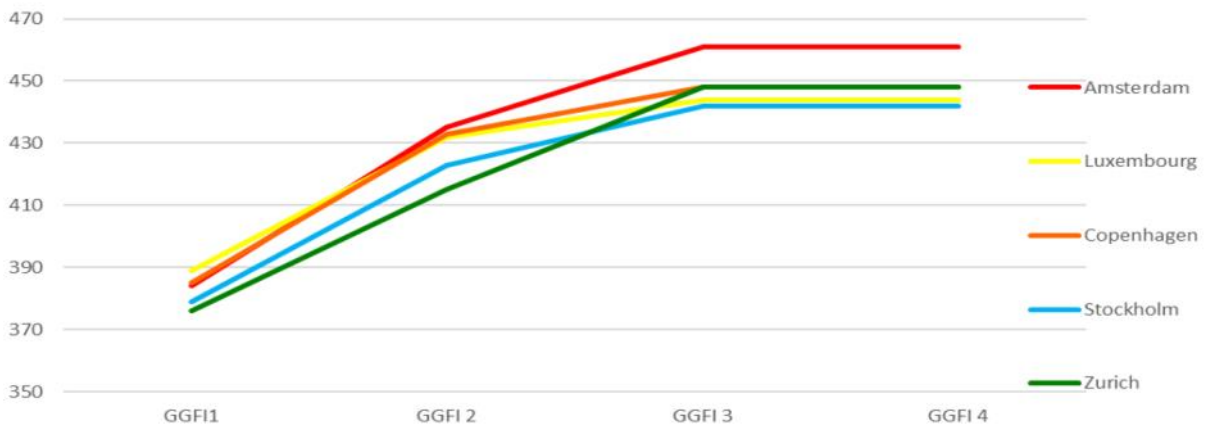
**Table 1 | Leading Financial Centres - Comparison of GGFI And GFCI Rankings**

Centre	Green Finance Depth	Green Finance Quality	Financial Centre Competitiveness
New York	41	29	1
London	6	1	2
Hong Kong	35	40	3
Singapore	24	21	4
Shanghai	11	28	5
Tokyo	32	24	6
Beijing	19	25	7
Dubai	52	53	8
Shenzhen	21	31	9
Sydney	15	17	10
Zurich	5	5	14
Paris	7	3	17
Montreal	9	13	20
Vancouver	10	14	24
Luxembourg	2	7	25
Amsterdam	1	2	37
Stockholm	4	7	46
Hamburg	7	4	49
Munich	11	9	52
Brussels	20	10	56
Copenhagen	3	6	67
<b>Source</b>	<b>GGFI 4 Depth Rank</b>	<b>GGFI 4 Quality Rank</b>	<b>GFCI 26 Rank</b>

### Leading Centres - Depth

The top five centres in the index for depth improved their ratings in the first three editions of the GGFI, but ratings have levelled off in GGFI 4.

**Chart 1 | The Top Five Centres For Depth - GGFI Ratings Over Time**



### Regional Performance - Depth

The top five centres in each region on average increased their ratings between GGFI 1 and GGFI 4 for depth. The leading North American centres, led by Canadian centres, overtook Asia/Pacific centres. The average for leading centres in Latin America & The Caribbean and in the Middle East & Africa recovered after a dip in ratings in GGFI 3.

**Chart 2 | Average Ratings Of The Top Five Centres In Each Region for Depth**

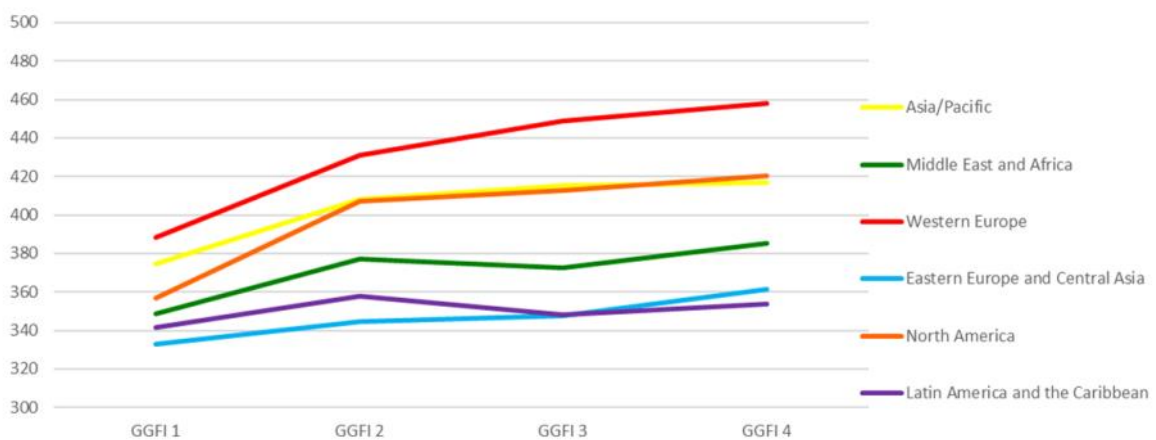


Table 2 | GGFI 4 Depth - Top 32 Ranks And Ratings (Rankings For Quality Are On Page 8)

Centre	GGFI 4		GGFI 3		Change in Rank		Change in Rating	
	Rank	Rating	Rank	Rating				
Amsterdam	1	471	1	461	▶	0	▲	10
Luxembourg	2	459	4	444	▲	2	▲	15
Copenhagen	3	455	2	448	▼	-1	▲	7
Stockholm	4	453	5	442	▲	1	▲	11
Zürich	5	452	2	448	▼	-3	▲	4
London	6	447	5	442	▼	-1	▲	5
Paris	7=	440	7	435	▶	0	▲	5
Hamburg	7=	440	10	424	▲	3	▲	16
Montréal	9	437	8	431	▼	-1	▲	6
Vancouver	10	424	9	429	▼	-1	▼	-5
Shanghai	11=	422	11	420	▶	0	▲	2
Munich	11=	422	20	407	▲	9	▲	15
Casablanca	13=	420	13	417	▶	0	▲	3
Toronto	13=	420	17	410	▲	4	▲	10
Sydney	15=	419	13	417	▼	-2	▲	2
Geneva	15=	419	15	412	▶	0	▲	7
Guangzhou	17=	416	22	405	▲	5	▲	11
San Francisco	17=	416	24	402	▲	7	▲	14
Beijing	19	415	12	418	▼	-7	▼	-3
Brussels	20	414	17	410	▼	-3	▲	4
Shenzhen	21=	413	15	412	▼	-6	▲	1
Seoul	21=	413	20	407	▼	-1	▲	6
Jersey	21=	413	25	399	▲	4	▲	14
Singapore	24	412	23	404	▼	-1	▲	8
Melbourne	25	411	19	409	▼	-6	▲	2
Frankfurt	26=	406	25	399	▼	-1	▲	7
Edinburgh	26=	406	27	393	▲	1	▲	13
Vienna	26=	406	27	393	▲	1	▲	13
Los Angeles	29	405	29	392	▶	0	▲	13
Tel Aviv	30	401	New	New	New		New	
Rome	31	400	37	379	▲	6	▲	21
Tokyo	32	399	34	382	▲	2	▲	17

Table 3 | GFCI 4 Depth - Remaining Ranks And Ratings

Centre	GGFI 4		GGFI 3		Change in Rank		Change in Rating	
	Rank	Rating	Rank	Rating				
Washington DC	33	397	31	385	▼	-2	▲	12
Boston	34	393	35	380	▲	1	▲	13
Hong Kong	35	392	31	385	▼	-4	▲	7
Calgary	36	391	38	376	▲	2	▲	15
Isle of Man	37	390	40	374	▲	3	▲	16
Dublin	38	388	33	384	▼	-5	▲	4
Milan	39	387	35	380	▼	-4	▲	7
Madrid	40	385	30	389	▼	-10	▼	-4
New York	41	381	38	376	▼	-3	▲	5
Chicago	42	379	47	358	▲	5	▲	21
Mauritius	43	376	41	372	▼	-2	▲	4
Malta	44=	375	44	367	▶	0	▲	8
Prague	44=	375	43	369	▼	-1	▲	6
São Paulo	46	374	46	366	▶	0	▲	8
Guernsey	47	371	44	367	▼	-3	▲	4
Cape Town	48	367	42	371	▼	-6	▼	-4
Liechtenstein	49	362	48	357	▼	-1	▲	5
Abu Dhabi	49	362	52	349	▲	3	▲	13
Moscow	51	361	56	341	▲	5	▲	20
Dubai	52	360	49	353	▼	-3	▲	7
Warsaw	53	359	50	352	▼	-3	▲	7
Cayman Islands	54	356	56	341	▲	2	▲	15
Rio de Janeiro	55=	353	55	344	▶	0	▲	9
Kuala Lumpur	55=	353	58	335	▲	3	▲	18
Istanbul	57	350	60	329	▲	3	▲	21
Johannesburg	58=	349	51	350	▼	-7	▼	-1
Mexico City	58=	349	53	345	▼	-5	▲	4
Bermuda	60	336	61	326	▲	1	▲	10
British Virgin Islands	61	335	53	345	▼	-8	▼	-10
Mumbai	62	334	63	315	▲	1	▲	19
New Delhi	63	333	62	322	▼	-1	▲	11
Bangkok	64	332	59	332	▼	-5	▶	0

## Burning Rembrandts: A Focus On Biodiversity

In each issue of the GGFI, we produce a supplement covering an area of focus for green finance. In GGFI 4, we focus on biodiversity. Awareness and concern about biodiversity risk within the financial services sector is still at an extremely low level, despite its potentially catastrophic impacts on financial asset values, the economy, and the planet. If finance is to help reduce biodiversity loss, policy makers must act quickly to embrace common environmental metrics and disclosure practices, tools to internalise environmental costs, encourage the flow of private finance to protect biodiversity, phase out environmentally-harmful subsidies, and increase public financing for 'unbankable' conservation projects. More detail can be found in the biodiversity supplement in the full report.



*Photo by Eutah Mizushima on Unsplash*

### Conclusions

Awareness of biodiversity risk within the financial services sector is still at an extremely low level. Macro-economic systems, regulation, and classical economic theory continue to drive unsustainable growth patterns.

Markets can be a powerful force for good, but they require direction and parallel, complementary initiatives in the public sector.

The damage that society continues to inflict on biodiversity, and the ecosystems which support it, arise from economic activity that fails to take account of externalities. Reducing this damage will require:

- significant intervention by regulators in order to internalise costs into decision-making;
- effective metrics to measure performance;
- a combination of private and public finance;
- a realisation that ecosystems do not exist in isolation, and that unlocking the value of nature requires that the rights and interests of indigenous populations must be harnessed in the protection of biodiversity.

## Areas Of Competitiveness

The instrumental factors used in the GGFI model are grouped into four areas of competitiveness. To assess how financial centres' green finance offerings perform against each of these areas, the GGFI model is run for each area separately. The top ranked 15 centres for depth and quality in each sub-index are shown in Tables 4 and 5.

These tables show that there are some centres with a focus strength, such as Tel Aviv which features in these tables only for human capital for depth, and others with more balanced strengths, such as Paris or London, which feature in a similar rank for each measure. It is notable that London is top in each analysis for quality.

**Table 4 | Top Ten Centres For Depth By Areas Of Competitiveness**

Rank	Sustainability	Business	Human Capital	Infrastructure
1	Zürich	Amsterdam	Luxembourg	London
2	Luxembourg	Stockholm	Stockholm	Zürich
3	London	Luxembourg	Amsterdam	Amsterdam
4	Copenhagen	Copenhagen	London	Luxembourg
5	Amsterdam	London	Copenhagen	Stockholm
6	Paris	Zürich	Zürich	Paris
7	Stockholm	Paris	Paris	Copenhagen
8	Vancouver	Sydney	Geneva	Vienna
9	Toronto	Munich	Tel Aviv	Toronto
10	Munich	Hamburg	Sydney	Munich

**Table 5 | Top Ten Centres For Quality By Areas Of Competitiveness**

Rank	Sustainability	Business	Human Capital	Infrastructure
1	London	London	London	London
2	Zürich	Amsterdam	Amsterdam	Zürich
3	Paris	Paris	Copenhagen	Paris
4	Copenhagen	Stockholm	Zürich	Amsterdam
5	Amsterdam	Zürich	Paris	Stockholm
6	Luxembourg	Luxembourg	Stockholm	Geneva
7	Munich	Copenhagen	Luxembourg	Vienna
8	Hamburg	Munich	Geneva	Hamburg
9	Stockholm	Geneva	Edinburgh	Copenhagen
10	Geneva	Hamburg	Brussels	Luxembourg



Table 6 | GGFI 4 Quality - Top 32 Ranks And Ratings

Centre	GGFI 4		GGFI 3		Change in Rank		Change in Rating	
	Rank	Rating	Rank	Rating				
London	1	497	1	491	▶	0	▲	6
Amsterdam	2	479	3	461	▲	1	▲	18
Paris	3	477	2	462	▼	-1	▲	15
Hamburg	4	476	4	459	▶	0	▲	17
Zürich	5	473	5	458	▶	0	▲	15
Copenhagen	6	466	7	452	▲	1	▲	14
Stockholm	7=	465	6	453	▼	-1	▲	12
Luxembourg	7=	465	8	450	▲	1	▲	15
Munich	9	458	9	441	▶	0	▲	17
Brussels	10	444	12	427	▲	2	▲	17
Geneva	11=	443	10	431	▼	-1	▲	12
San Francisco	11=	443	11	429	▶	0	▲	14
Montréal	13	438	18	416	▲	5	▲	22
Vancouver	14	435	13	425	▼	-1	▲	10
Edinburgh	15=	433	14	424	▼	-1	▲	9
Melbourne	15=	433	17	417	▲	2	▲	16
Casablanca	17=	432	15	422	▼	-2	▲	10
Sydney	17=	432	16	418	▼	-1	▲	14
Vienna	19	428	20	414	▲	1	▲	14
Toronto	20	426	20	414	▶	0	▲	12
Singapore	21	424	23	408	▲	2	▲	16
Prague	22=	420	22	413	▶	0	▲	7
Frankfurt	22=	420	23	408	▲	1	▲	12
Tokyo	24	419	28	404	▲	4	▲	15
Beijing	25=	418	25	406	▶	0	▲	12
Madrid	25=	418	26	405	▲	1	▲	13
Tel Aviv	25=	418	New	New	New		New	
Shanghai	28	417	19	415	▼	-9	▲	2
New York	29	416	32	399	▲	3	▲	17
Washington DC	30	415	30	401	▶	0	▲	14
Shenzhen	31=	412	29	403	▼	-2	▲	9
Milan	31=	412	30	401	▼	-1	▲	11



Table 7 | GFCI 4 Quality - Remaining Ranks And Ratings

Centre	GGFI 4		GGFI 3		Change in Rank		Change in Rating	
	Rank	Rating	Rank	Rating				
Dublin	33=	408	26	405	▼	-7	▲	3
Los Angeles	33=	408	34	392	▲	1	▲	16
Jersey	35=	406	32	399	▼	-3	▲	7
Boston	35=	406	35	391	▶	0	▲	15
Calgary	37	404	45	370	▲	8	▲	34
Malta	38	401	41	376	▲	3	▲	25
Guangzhou	39	400	36	386	▼	-3	▲	14
Hong Kong	40	399	37	385	▼	-3	▲	14
Chicago	41	393	42	374	▲	1	▲	19
Liechtenstein	42	392	50	367	▲	8	▲	25
São Paulo	43	390	46	369	▲	3	▲	21
Guernsey	44=	388	38	382	▼	-6	▲	6
Seoul	44=	388	46	369	▲	2	▲	19
Cape Town	46=	387	39	381	▼	-7	▲	6
Isle of Man	46=	387	43	372	▼	-3	▲	15
Warsaw	48	386	39	381	▼	-9	▲	5
Mauritius	49	379	49	368	▶	0	▲	11
Johannesburg	50=	378	46	369	▼	-4	▲	9
Rome	50=	378	51	357	▲	1	▲	21
Cayman Islands	50=	378	52	346	▲	2	▲	32
Dubai	53	372	43	372	▼	-10	▶	0
Kuala Lumpur	54	359	63	313	▲	9	▲	46
Abu Dhabi	55=	358	52	346	▼	-3	▲	12
Rio de Janeiro	55=	358	56	339	▲	1	▲	19
British Virgin Islands	57	357	54	342	▼	-3	▲	15
Istanbul	58	354	58	334	▶	0	▲	20
Mexico City	59	351	55	340	▼	-4	▲	11
Mumbai	60	349	61	323	▲	1	▲	26
Bangkok	61	348	57	337	▼	-4	▲	11
Moscow	62	346	59	331	▼	-3	▲	15
Bermuda	63	342	62	318	▼	-1	▲	24
New Delhi	64	334	60	328	▼	-4	▲	6

## Reputation

In the GGFI model, we look at reputation by examining the difference between the weighted average assessment given to a centre and its overall rating. The first measure reflects the average score a centre receives from finance professionals around the world. The second measure is the GGFI score itself, which represents the average assessment adjusted to reflect the instrumental factors.

If a centre has a higher average assessment than its GGFI rating, this indicates that respondents' perceptions of a centre are more favourable than the quantitative measures alone suggest. Centres in this position may need to focus on their underlying strengths and build a solid foundation.

Six of the top 15 centres in terms of reputational advantage for depth are in the Western European region, with three each from the Middle East & Africa, North America and Asia/Pacific. A similar range of centres feature for quality, but with Munich replacing Guangzhou in the top 15.

**Table 8 | Top 15 Centres – Reputational Advantage For Depth In GGFI 4**

Centre	Weighted Average Assessment	GGFI 4 Rating	Reputational Advantage
Casablanca	496	420	76
Hamburg	512	440	72
Copenhagen	527	455	72
Stockholm	510	453	57
Montréal	490	437	53
Istanbul	401	350	51
Beijing	459	415	44
Shanghai	465	422	43
San Francisco	458	416	42
Tel Aviv	439	401	38
Los Angeles	443	405	38
Amsterdam	505	471	34
Guangzhou	440	416	24
Luxembourg	482	459	23
Zürich	471	452	19

**Table 9 | Top 15 Centres – Reputational Advantage For Quality In GGFI 4**

Centre	Weighted Average Assessment	GGFI 4 Rating	Reputational Advantage
Casablanca	496	432	64
Stockholm	522	465	57
Copenhagen	518	466	52
San Francisco	493	443	50
Hamburg	523	476	47
Istanbul	396	354	42
Shanghai	458	417	41
Montréal	475	438	37
Amsterdam	508	479	29
Los Angeles	433	408	25
Zürich	498	473	25
Beijing	442	418	24
Tel Aviv	436	418	18
Luxembourg	479	465	14
Munich	464	458	6

Tables 10 and 11 show the 15 centres with the greatest reputational disadvantage – an indication that respondents’ perceptions of a centre are less favourable than the quantitative measures alone would suggest. These centres may need to market their strengths to ensure that their underlying quality is known to respondents.

A similar range of centres feature in the bottom 15 for depth and quality, though Rome, Dublin, and British Virgin Islands feature in the quality measure in place of Abu Dhabi, Moscow, and Jersey.

**Table 10 | Bottom 15 Centres – Reputational Advantage For Depth In GGFI 4**

Centre	Weighted Average Assessment	GGFI 4 Rating	Reputational Advantage
Abu Dhabi	310	362	-52
Cape Town	309	367	-58
Guernsey	311	371	-60
Moscow	299	361	-62
Warsaw	295	359	-64
Bermuda	267	336	-69
Cayman Islands	283	356	-73
Bangkok	258	332	-74
Johannesburg	274	349	-75
Jersey	329	413	-84
Malta	281	375	-94
New Delhi	239	333	-94
Mumbai	239	334	-95
Isle of Man	283	390	-107
Calgary	251	391	-140

**Table 11 | Bottom 15 Centres – Reputational Advantage For Quality In GGFI 4**

Centre	Weighted Average Assessment	GGFI 4 Rating	Reputational Advantage
Rome	324	378	-54
Cape Town	329	387	-58
Warsaw	326	386	-60
Guernsey	325	388	-63
Dublin	341	408	-67
British Virgin Islands	286	357	-71
Johannesburg	307	378	-71
Cayman Islands	304	378	-74
Bermuda	249	342	-93
Malta	308	401	-93
Bangkok	255	348	-93
New Delhi	234	334	-100
Isle of Man	284	387	-103
Mumbai	213	349	-136
Calgary	260	404	-144

For further analysis visit [www.greenfinanceindex.net](http://www.greenfinanceindex.net)



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