Global Green Finance Index 4
Global Launch

27 September 2019
House Of Startups, Luxembourg

Hosted By Luxembourg For Finance

@longfinance

Agenda

11:45 Welcome And Introduction

Nicolas Mackel, CEO Luxembourg for Finance

11:50 Keynote Presentation

Flavia Micilotta, Director, Luxembourg Green Exchange

12:00 GGFI 4 Results Measuring Green Finance

Mike Wardle, Head of Indices, Z/Yen

12:30 Focus on Biodiversity

Greg Ford, Senior Advisor, Projects & Strategy, Finance Watch

12:40 Questions

12:55 Concluding Remarks

Nicolas Mackel

13:00 Reception And Refreshments

Welcome And Introduction

Nicolas Mackel
CEO
Luxembourg For Finance

Keynote Presentation

Flavia Micilotta
Director
Luxembourg Green Exchange

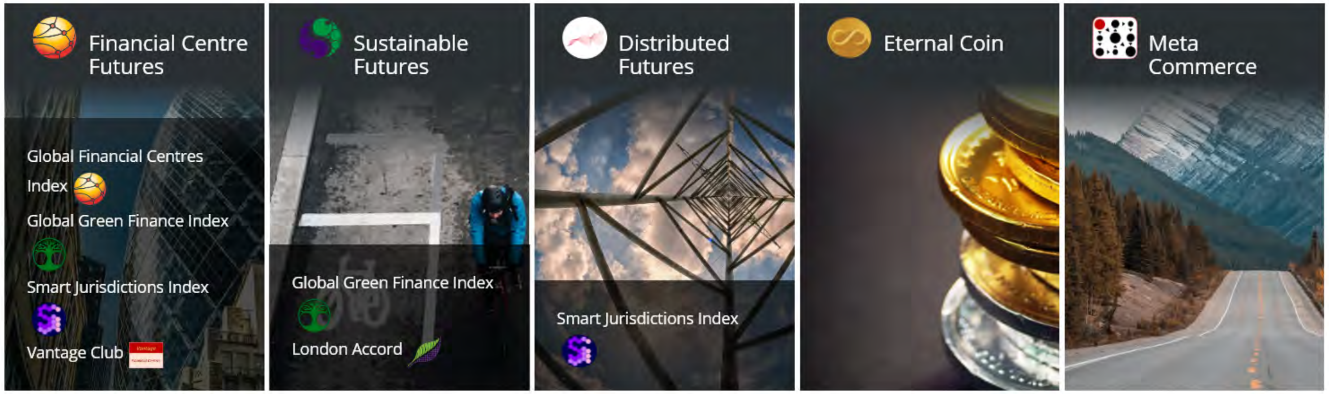
GGFI 4 Results

Mike Wardle
Head Of Indices
Z/Yen Group

Long Finance

“When Would We Know Our Financial System Is Working?”

This is the question underlying Long Finance’s goal to improve society’s understanding and use of finance over the long-term. In contrast to the short-termism that defines today’s economic view, the Long Finance time-frame is roughly 100 years.



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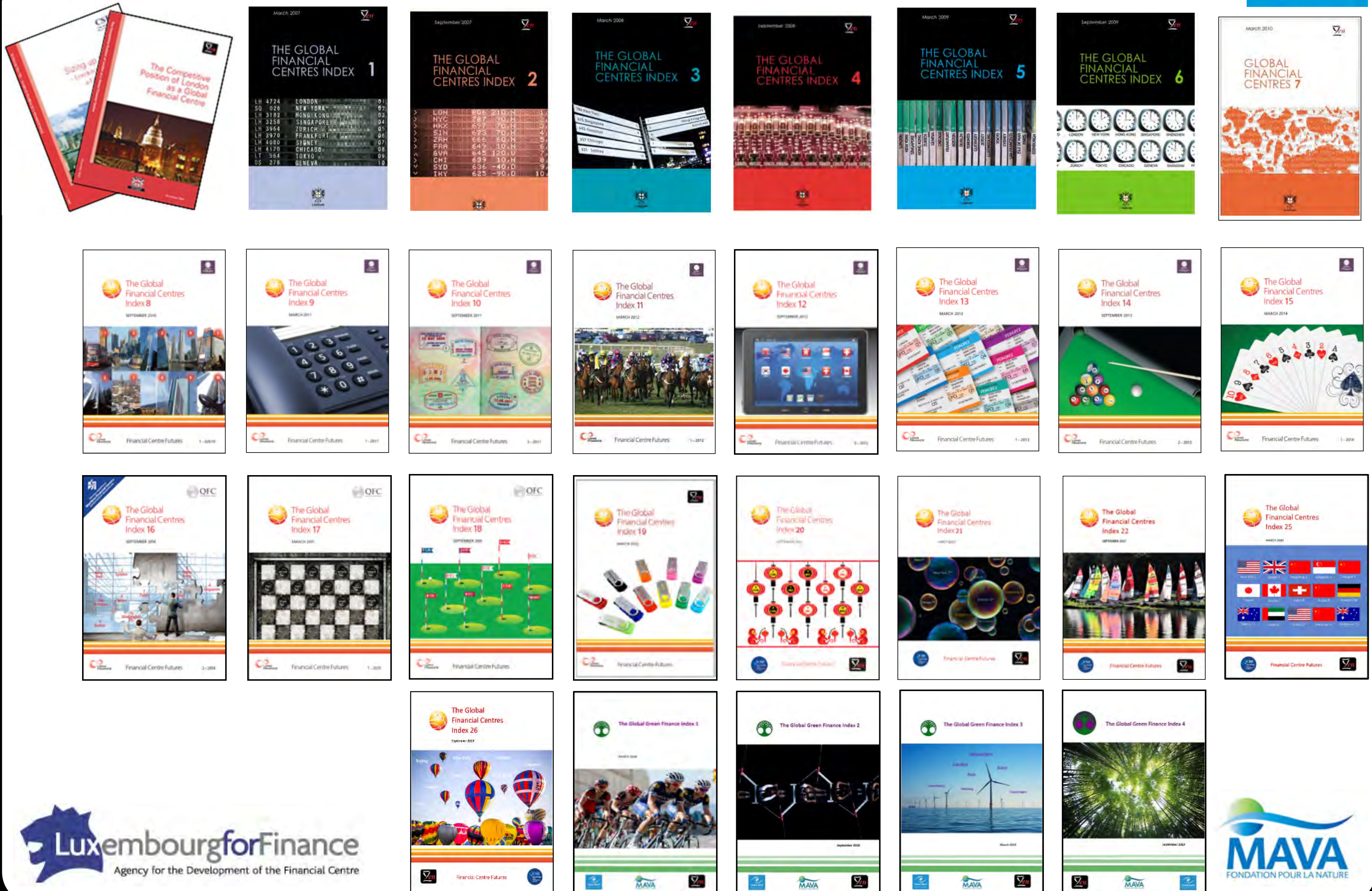
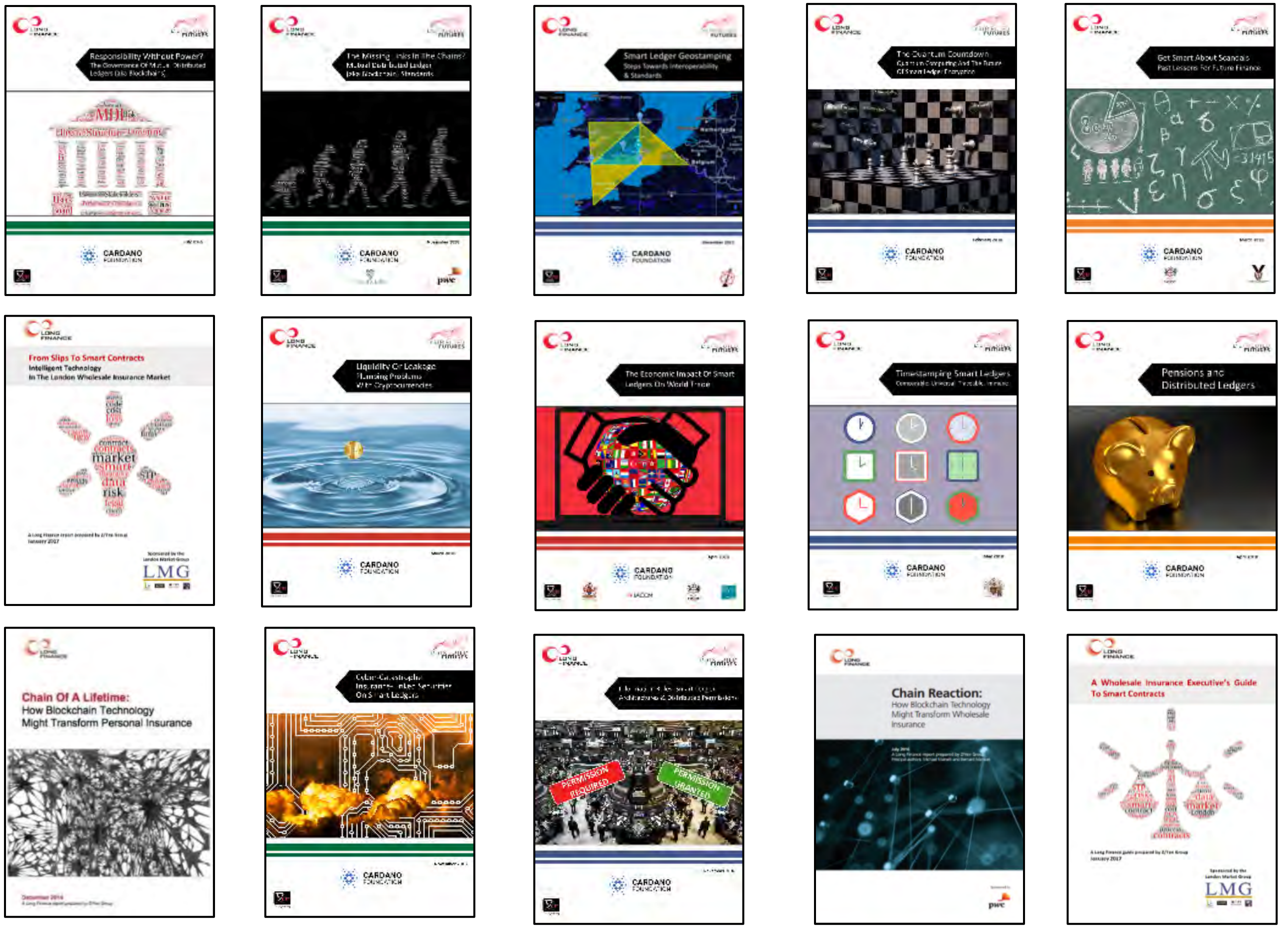
MAVA
FONDATION POUR LA NATURE

Financial Centre Research



Long Finance Research



The Global Green Finance Index

- Initiative sponsored by the MAVA Foundation and delivered by Finance Watch and Long Finance
- Aims to:
  - encourage financial centres to become greener, and the financial system to deliver sustainability
  - encourage collaboration and competition
  - help to catalyse growth in this sector, and help policy makers' understanding of what makes a financial centre 'green'

Definitions

- **Financial Centres** - UNEP defines financial centres as "cities with an intense concentration of financial activity involving an interlocking set of financial sectors and transactions".
- **Green Finance** - refers to any financial instrument or financial services activity – which results in positive change for the environment and society over the long term (sustainability). The most basic "greenness" criterion of a company or project is that it contributes to reducing the emission of Greenhouse Gases.

Photo by Ilya Gavin on Unsplash

Factor Assessment Index

Completed questionnaires: each respondent rates only a proportion of the total number of financial centres

Questionnaire
8 financial centres rated

Questionnaire
5 financial centres rated

Questionnaire
7 financial centres rated

Questionnaire
14 financial centres rated

Questionnaire
10 financial centres rated

Machine learning algorithm looks for relationships between assessments and instrumental factors

100+ instrumental factors on sustainability, business, human capital and infrastructure collected for all financial centres

Instrumental factor

Instrumental factor

Instrumental factor

Instrumental factor

Instrumental factor

Instrumental factor

Instrumental factor

Instrumental factor

Machine learning algorithm assigns ratings to unrated centres for each individual questionnaire response, based on analysis of instrumental factor/assessment relationship

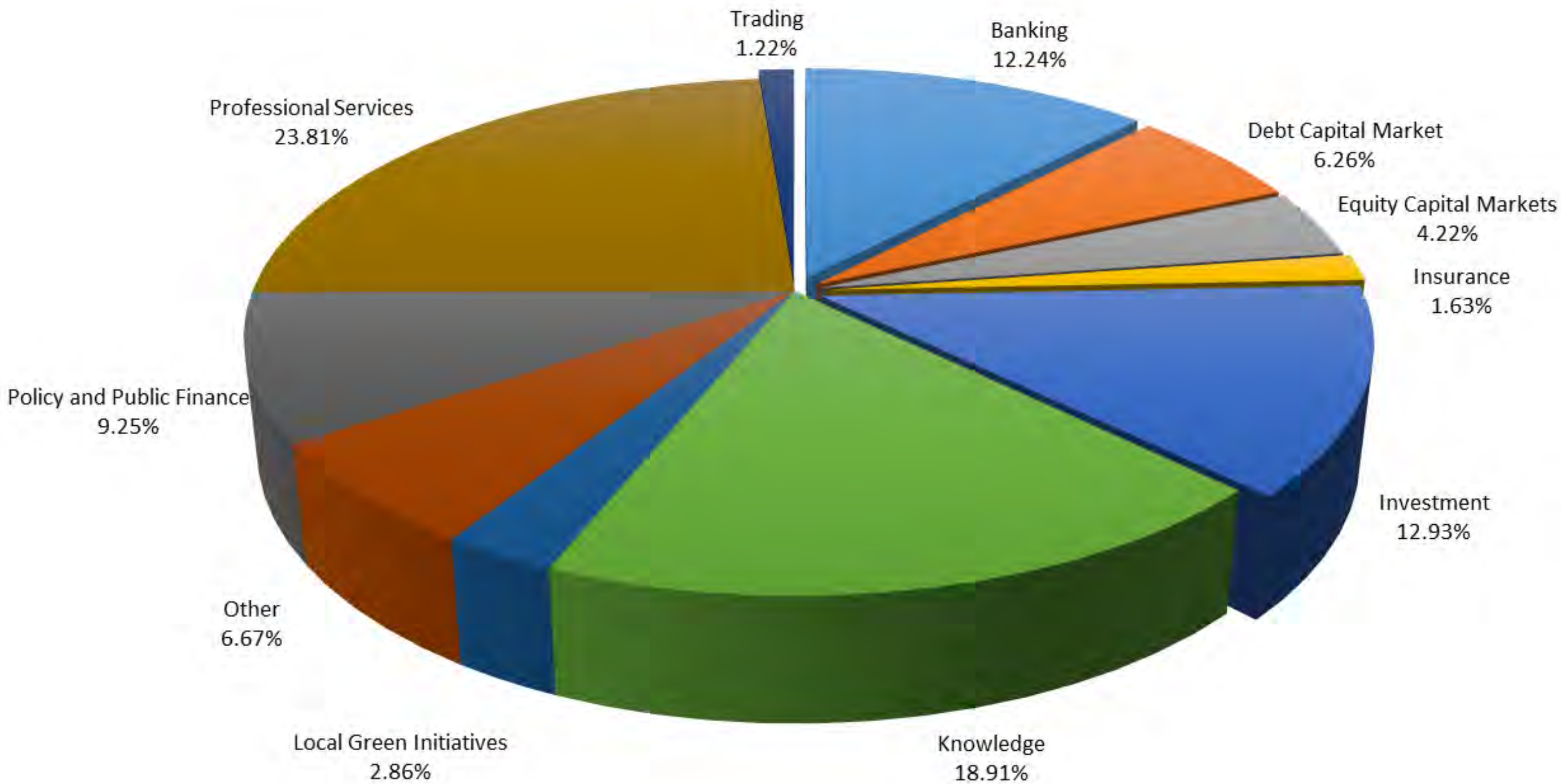
Complete assessments and predictions for all financial centres

Global Green Finance Index constructed/updated

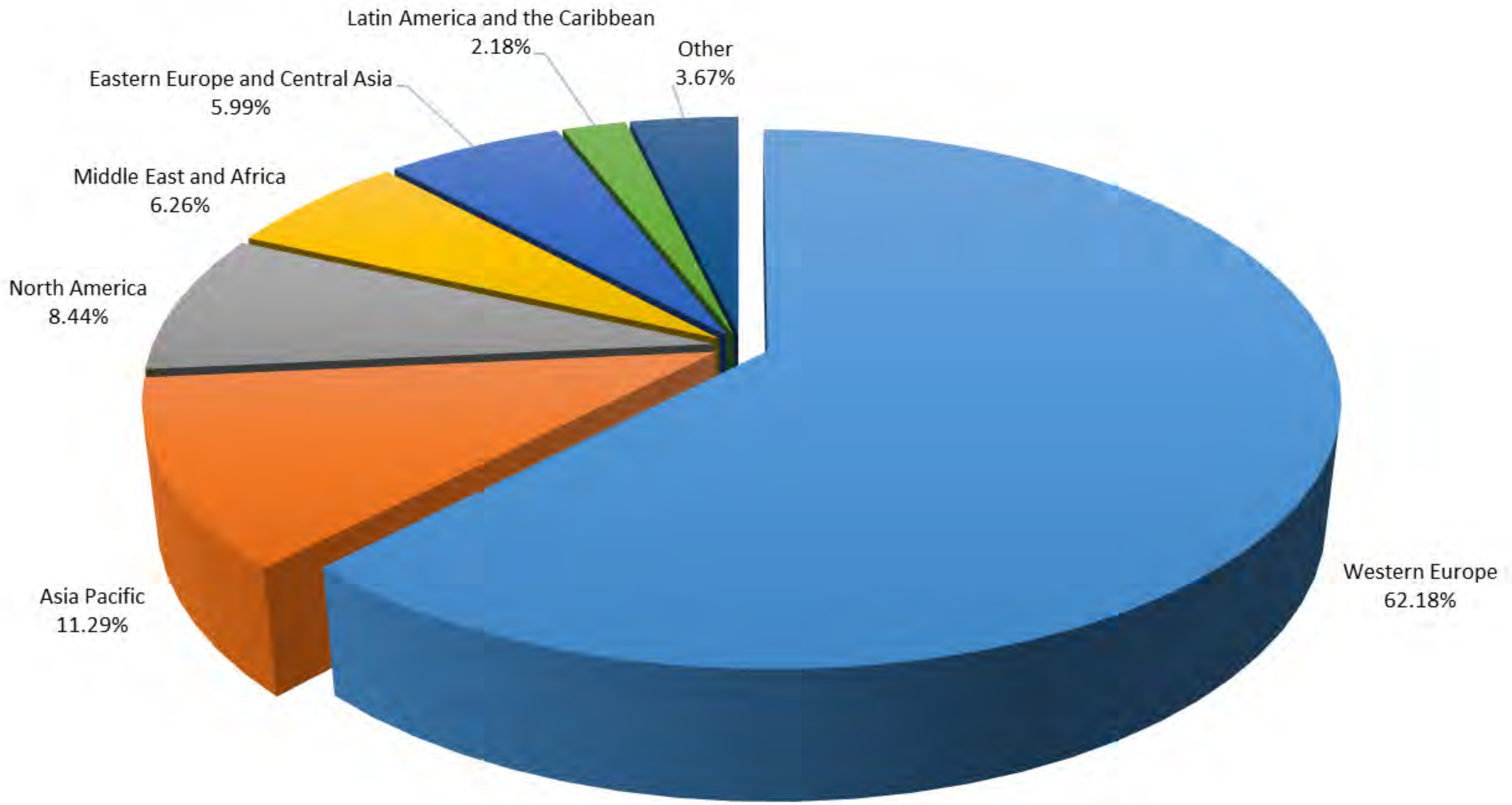
GGFI 4 uses 4,220 assessments from 735 individuals

GGFI 4 uses 132 instrumental factors

Respondents By Sector

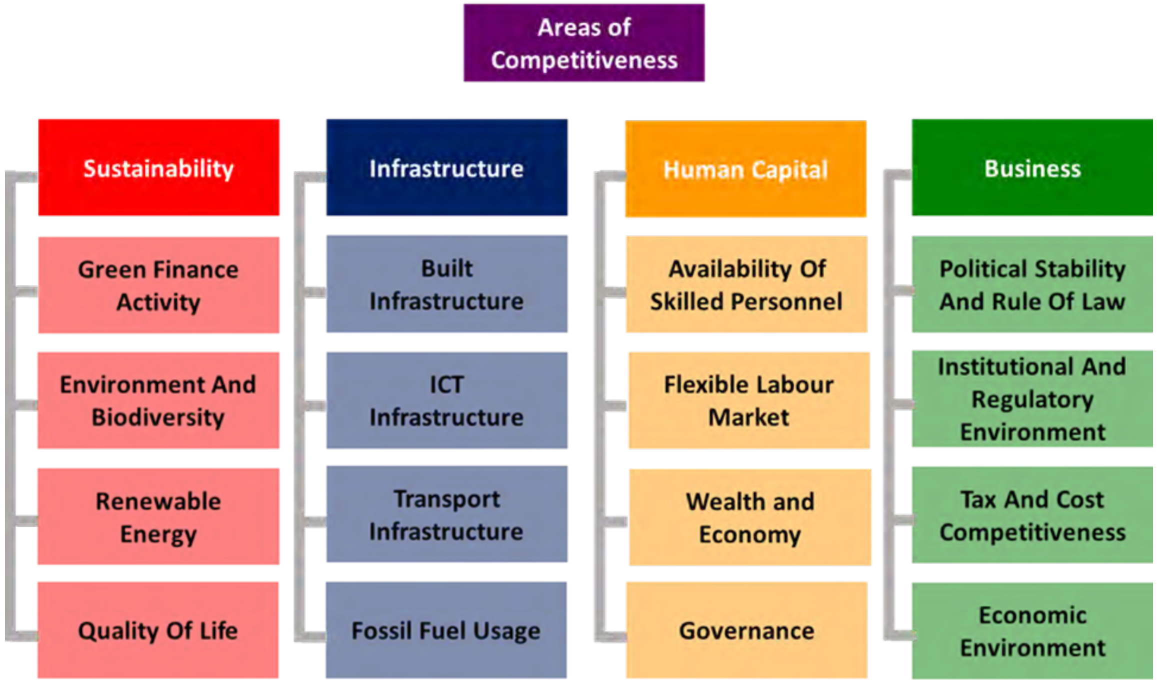


Respondents By Region



Total Respondents 735
Total Assessments 4,220

Instrumental Factors



- Top Factors By R Squared Correlation:
  - Arcadis Sustainable Cities Index;
  - Mercer Quality of Living City Rankings;
  - Yale Environmental Performance Index;
  - OECD Water Quality Index;
  - The IMD World Talent Rankings;
  - The Ericsson Networked Society City Index.

Depth & Quality

- GGFI measures depth and quality
  - The depth question in our survey focuses on green finance intensity, asking users to rate financial centres on how much of their overall financial offering they consider to be “green”
  - The quality question asks users to rate centres on their perception of the quality of each centre’s green finance offering
- Measurement of both factors is important to understand the balance between green and brown finance as well as the quality of advice and delivery in centres

Headlines – Depth Top 10

Centre	Rank	Rating	Change in Rank
Amsterdam	1	471	▶ 0
Luxembourg	2	459	▲ 1
Copenhagen	3	455	▼ -1
Stockholm	4	453	▲ 1
Zürich	5	452	▼ -3
London	6	447	▼ -1
Paris	7=	440	▶ 0
Hamburg	7=	440	▲ 3
Montréal	9	439	▼ -1
Vancouver	10	424	▼ -1

Headlines – Quality Top 10

Centre	Rank	Rating	Change In Rank
London	1	497	▶ 0
Amsterdam	2	479	▲ 1
Paris	3	477	▼ -1
Hamburg	4	476	▶ 0
Zürich	5	473	▶ 0
Copenhagen	6	466	▲ 1
Stockholm	7=	465	▼ -1
Luxembourg	7=	465	▲ 1
Munich	9	458	▶ 0
Brussels	10	452	▲ 2

Depth And Quality

- Close correlation between the assessments of each factor by respondents.
- However, some major, long-established centres such as New York, London and Paris score higher for quality than depth.

Sustainability Factor Ranking

Running the GGFI model using only the instrumental factors relating to sustainability gives a different picture – Zurich gains strongly on this analysis

	All Factors		Sustainability Factors	
Rank	Depth	Quality	Depth	Quality
1	Amsterdam	London	Zürich +4	London
2	Luxembourg	Amsterdam	Luxembourg	Zürich +3
3	Copenhagen	Paris	London +3	Paris
4	Stockholm	Hamburg	Copenhagen -1	Copenhagen +2
5	Zürich	Zürich	Amsterdam -4	Amsterdam -3
6	London	Copenhagen	Paris +1	Luxembourg -4
7	Paris	Stockholm	Stockholm -3	Munich +2
8	Hamburg (7=)	Luxembourg (7=)	Vancouver +2	Hamburg -4
9	Montréal	Munich	Toronto +4	Stockholm -2
10	Vancouver	Brussels	Munich +1	Geneva +1

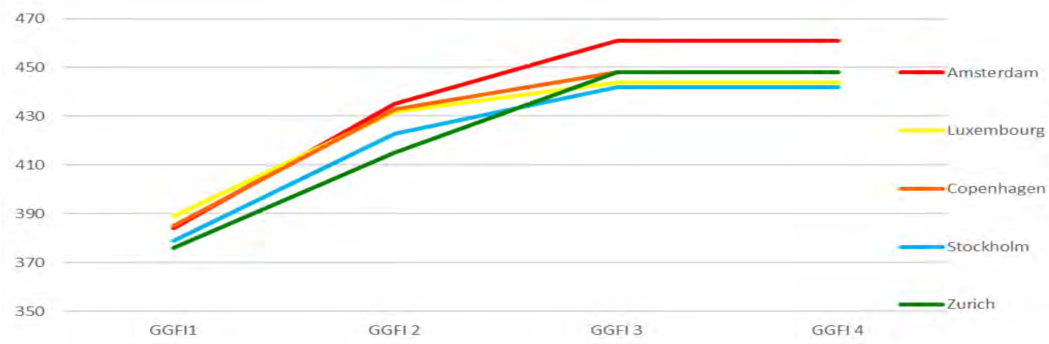
Leading Financial Centres

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
Source	GGFI 4 Depth Rank	GGFI 4 Quality Rank	GFCI 26 Rank

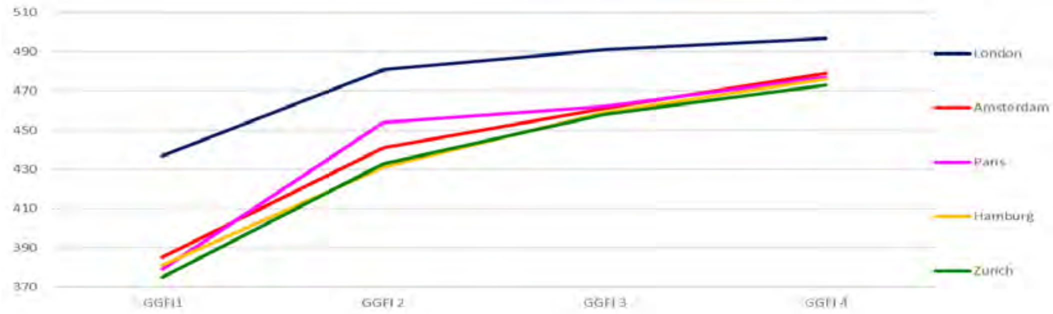
- Some leading financial centres perform less well than expected in the GGFI.
- Historically, green finance not a leading factor in overall competitiveness as measured by the Global Financial Centres Index.

Rising Stars

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



On the quality index, the top five centres have continued the improvement in their ratings, although the rate of increase for London has been slower than for the other leading centres.



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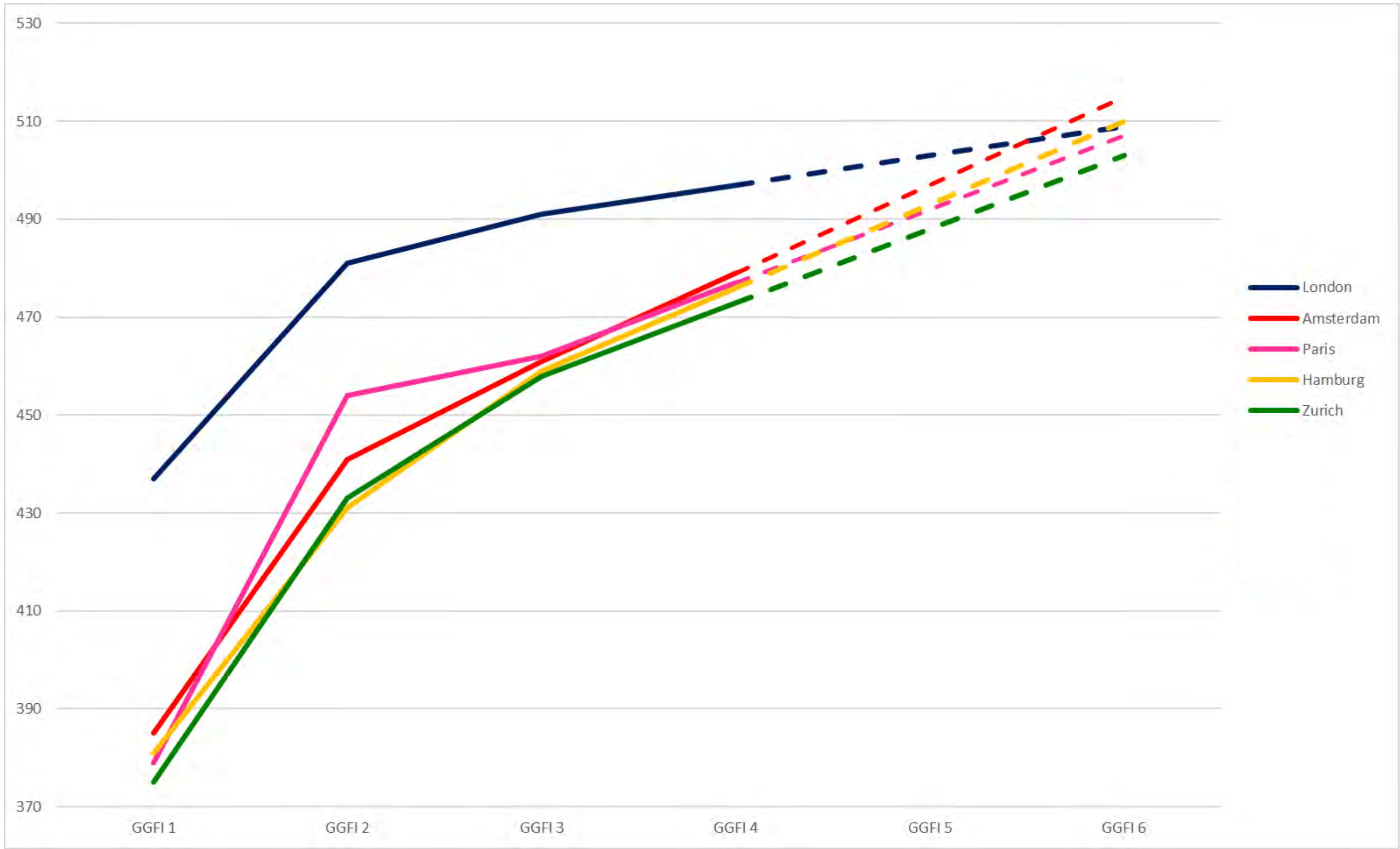
Headlines – Western Europe

Depth				Quality		
Centre	Rank	Rating		Centre	Rank	Rating
Amsterdam	1	471		London	1	497
Luxembourg	2	459		Amsterdam	2	479
Copenhagen	2	455		Paris	3	477
Stockholm	4	453		Hamburg	4	476
Zürich	5	452		Zürich	5	473
London	6	447		Copenhagen	6	466
Paris	7=	440		Stockholm	7=	465
Hamburg	7=	440		Luxembourg	7=	465
Munich	11	422		Munich	9	448
Geneva	15	419		Brussels	10	444

- Western European centres continue to perform well, with eight of the top ten ranked centres for depth and all ten for quality.
- In the quality index, London's improvement in ratings was slower than the main challengers. A straight line trend would see London lose its first place by GGFI 6

Western Europe – Quality Trend



Headlines – Asia/Pacific

Depth		
Centre	**Rank**	**Rating**
Shanghai	11=	422
Sydney	15=	419
Guangzhou	17=	416
Beijing	19	415
Shenzhen	21=	413
Seoul	21=	413
Singapore	24	412
Melbourne	25	411
Tokyo	32	399
Hong Kong	25	392

Quality		
Centre	**Rank**	**Rating**
Melbourne	15=	433
Sydney	17=	432
Singapore	21	424
Tokyo	24	419
Beijing	25=	418
Shanghai	28	417
Shenzhen	31=	412
Guangzhou	39	400
Hong Kong	40	399
Seoul	44=	388

- Shanghai retained its leading position in the region for depth, with Australian centres leading for quality.
- Seoul fell in both the depth and quality rankings, although its ratings remained reasonably stable, suggesting that other centres have overtaken its position.

Headlines – North America

Depth			Quality		
Centre	Rank	Rating	Centre	Rank	Rating
Montréal	9	437	San Francisco	11	443
Vancouver	10	424	Montréal	13	438
Toronto	13	420	Vancouver	14	435
San Francisco	17	416	Toronto	20	426
Los Angeles	29	405	New York	29	416
Washington DC	33	397	Washington DC	30	415
Boston	34	393	Los Angeles	33	392
Calgary	36	391	Boston	35	408
New York	41	381	Calgary	37	404
Chicago	42	379	Chicago	41	393

- Montréal is top in the region for depth, while San Francisco takes top position for quality.
- Canadian centres continue to outperform the USA both in depth and quality.

Eastern Europe & Central Asia

Depth		
Centre	Rank	Rating
Prague	44	375
Moscow	51	361
Warsaw	53	359
Istanbul	57	350

Quality		
Centre	Rank	Rating
Prague	22=	420
Warsaw	48	386
Istanbul	58	354
Moscow	62	346

- Prague remained the leading centre for depth and quality in the region; but lost a ranking place for depth.
- Moscow rose five places for depth and it is interesting to note that the first green bond in Russia was issued recently for the electrification of passenger trains.

Latin America & The Caribbean

Depth		
Centre	Rank	Rating
São Paulo	46	374
Cayman Islands	54	356
Rio de Janeiro	55=	353
Mexico City	58=	349
Bermuda	60	336
British Virgin Islands	61	325

Quality		
Centre	Rank	Rating
São Paulo	43	390
Cayman Islands	50=	378
Rio de Janeiro	55=	358
British Virgin Islands	57	357
Mexico City	59	351
Bermuda	63	342

- São Paulo continued to lead the region for both depth and quality and improved its ranking by three places in the quality measure;
- The British Virgin Islands and Mexico City fell in both the depth and quality rankings.

Middle East & Africa

Depth		
Centre	Rank	Rating
Casablanca	13	420
Tel Aviv	30	401
Mauritius	43	376
Cape Town	48	367
Abu Dhabi	49	362
Dubai	52	360
Johannesburg	58=	349

Quality		
Centre	Rank	Rating
Casablanca	17	432
Tel Aviv	25	418
Cape Town	46	387
Mauritius	49	379
Johannesburg	50	378
Dubai	53	372
Abu Dhabi	55	358

- Casablanca retained its position as the leading centre in the Middle East & Africa. It stayed at 13th place in the depth rankings and fell 2 places to 17th in the quality rankings after gaining 13 places in GGFI 3.
- New entrant to the index, Tel Aviv, placed second in the region.

Reputational "Advantage" Top 10

Top 10 Centres Assessments and Ratings – 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

Reputational "DIS-Advantage"

Bottom 10 Centres Assessments and Ratings – Reputational Advantage for Quality in GGFI 4

Centre	Weighted Average Assessment	GGFI 4 Rating	Reputational Advantage
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

Conclusions

- Stable policy frameworks appear critical - Strong performance of Western Europe, and the gap between Canada and the US, underline this point
- Green cities do well – where a centre is focussed on sustainability across the board, green finance is strong
- Long-established centres with a history of fossil-fuel financing tend to fare worse for depth than quality
- Premium to be gained from demonstrating leadership in particular sectors or products, for example, Luxembourg on green bonds, Paris on climate change and disclosure, London in relation to insurance and prudential regulation, or ESG equity in Hamburg

Focus On Biodiversity

Greg Ford
Senior Advisor, Policy & Strategy
Finance Watch

Finance Watch

- Non-profit NGO working on EU financial regulation and reform
- 90 Members: consumer organisations, trade unions, think tanks, NGOs, academics…
- Public interest advocacy to policymakers
- FW report: “Making Finance Serve Nature”
- GGFI 4 feature: “Burning Rembrandts”

www.finance-watch.org/topic/sustainable-finance/

Biodiversity Loss

"The loss of species, ecosystems and genetic diversity is already a global and generational threat to human well-being." IPBES, May 2019

40% of insect species face extinction

33% of marine fish stocks are overfished

29% of global land is degraded

30% of wild birds in the US and Canada have disappeared

85% of wetlands (area) have been lost

Rate of species extinction is 1000x higher than in pre-human times

6^{th} mass extinction > 1 million species under threat

⇒ Convention on Biological Diversity 15th COP, Beijing, Oct 2020

⇒ We are on track to miss 16 of the 20 Aichi Biodiversity Targets

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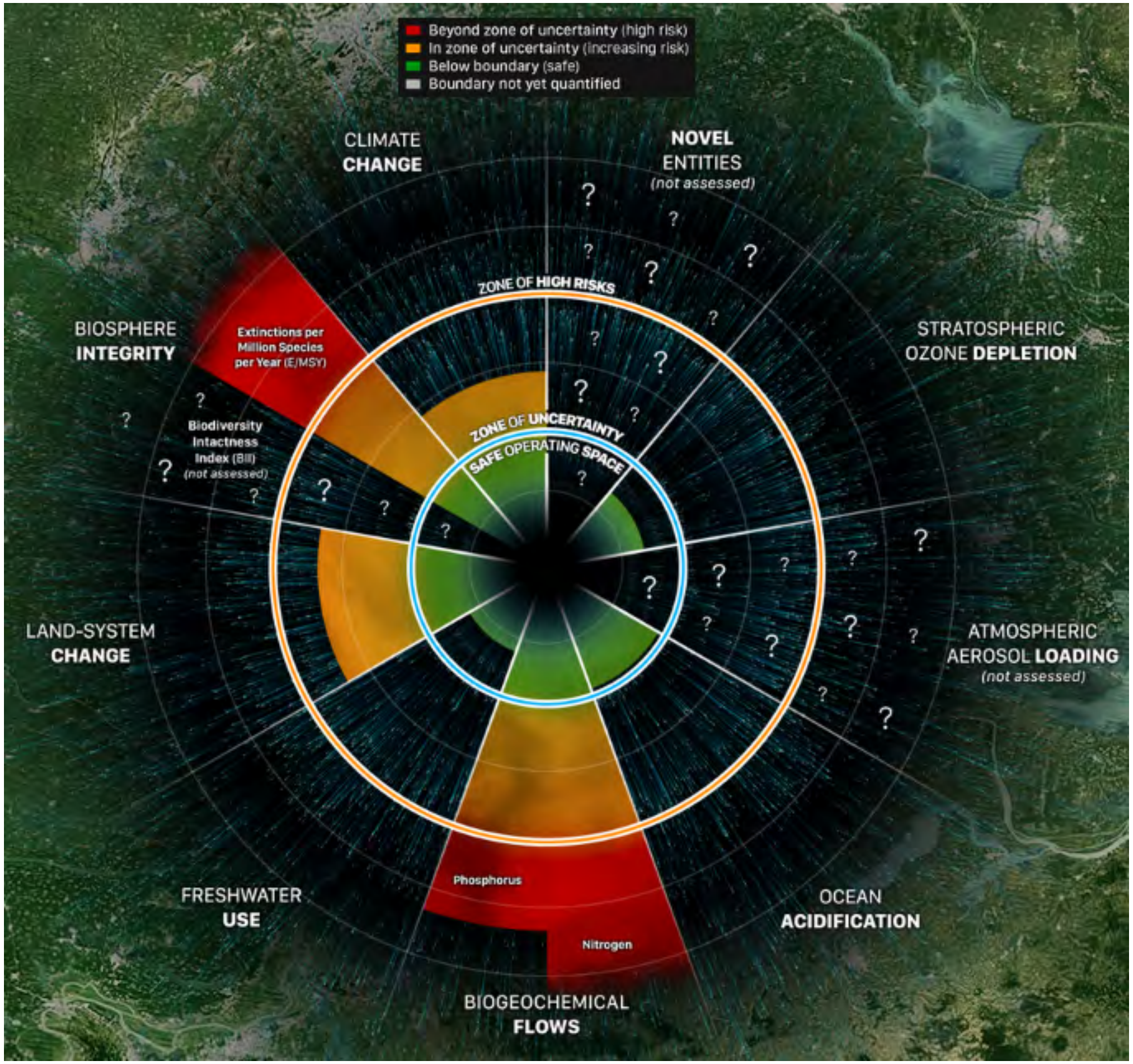
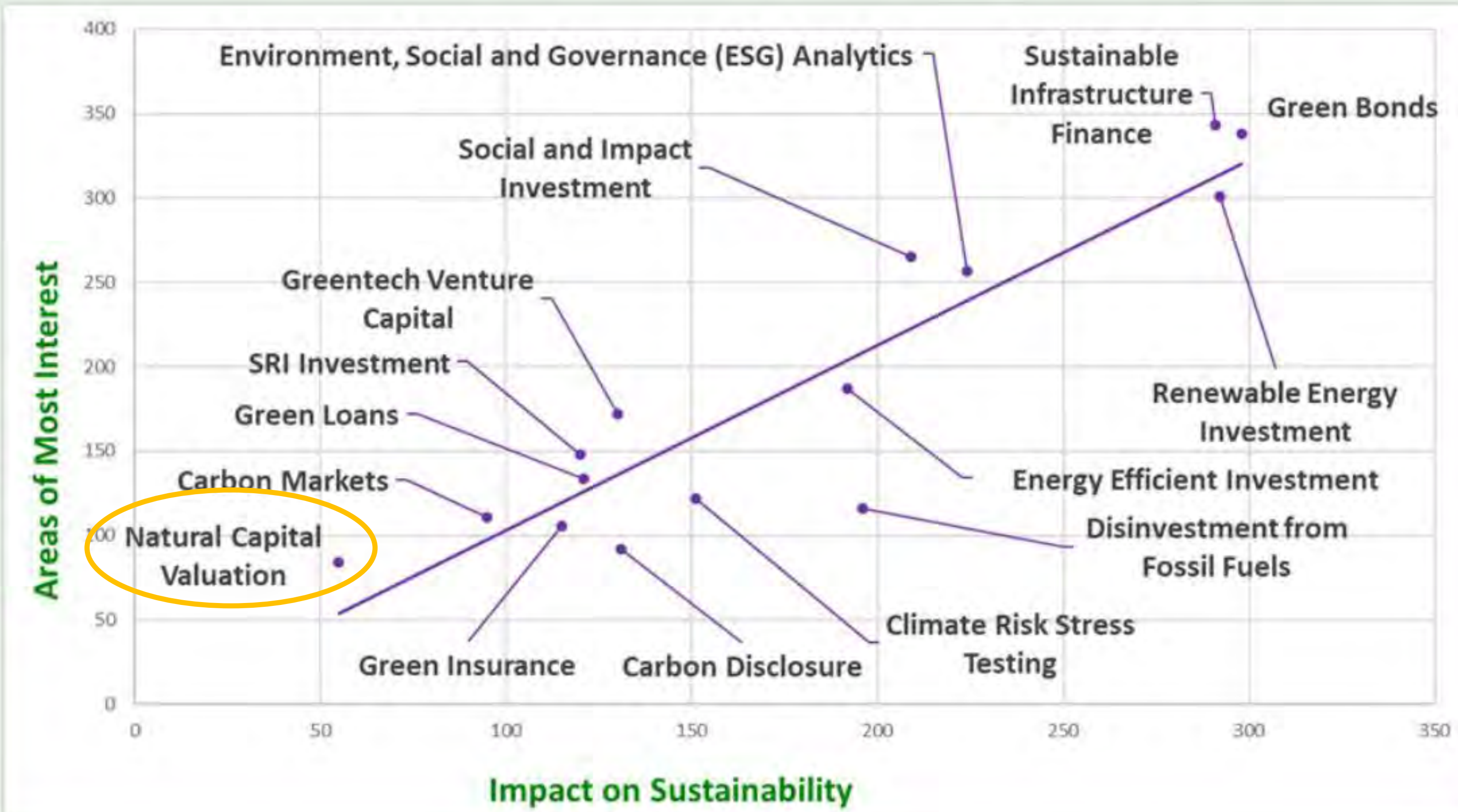


Low Awareness In Financial Sector

Figure 4 | The Views of Financial Services Professionals On Green Financial Products And Services



What Is Biodiversity Worth To The Financial Sector?

Biodiversity - the variety of life at genetic, species and ecosystem levels

Ecosystem Services - the benefits people obtain from ecosystems

Natural Capital - stock of natural resources that might yield a flow of valuable goods and services

What Is Biodiversity Worth To The Financial Sector?

Estimate of total global value of ecosystem services in 2011 ~ USD 125 trillion p.a.

Estimated loss of eco-services from 1997 to 2011 due to land use change ~ USD 4.3 trillion to USD 20.2 trillion p.a. (Costanza et al, 2014)

===

Conservation finance needed to implement the 20 Aichi targets ~ $150 to $440 billion per year (UNEP, 2013)

Conservation financing ~ $50 billion p.a. (Parker et al, 2012)

Conservation Has A Very High Return

Cost of managing the EU's Natura 2000 sites:
~ EUR 5.8 billion p.a.

Value of ecosystem service benefits from Natura 2000:
~ EUR 200-300 billion p.a.

= 35-50x !!


Heffingen
Moesdorf
Beringen
Angelsberg
Schoos
Rollingen
Houwald
Lintgen
Blaschette
Bourglinster
Imbringen
Hünsdorf
Helmdange
Eisenborn
Nospelt
Kehlen
Goeblange
Goetzingen
Olm
Cap
Mamer
Strassen
Rollingergrund
Limpertsberg
Clausen
Kirchberg
Neudorf
Cents
Pfaffenthal
Hamm
Hollerich
Merl
LUXEMBOURG
Bonnevoie
Cessange
Gasperich
Howald
Contern
Sandweiler
Munsbach
Senningen
Roodt-sur-Syre
Mensdorf
Hesperange
Alzingen
Fentange
Syren
Medingen
Trintange
Roedt
Ersange
Buchholz
Waldbredimus
Dalheim
Hassel
Leudelange
Sprinkange
Limpach
Kockelscheuer
Roeser
Weiler-
Holzem
Rouland
Colbett

But Still Does Not Get Enough Funding

Cost of managing the EU's Natura 2000 sites:
~ EUR 5.8 billion p.a. EC (2011)

Value of ecosystem service benefits from Natura 2000:
~ EUR 200-300 billion p.a. ten Brink et al (2011)

= 35-50x !!

Across the EU, Natura 2000 conservation is likely to have a funding shortfall of at least 50%

(BirdLife International 2015)

Example Of Public Finance

GLOBAL - Aichi Target 15:
By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems…

REGIONAL - EU Biodiversity Strategy Target 2
By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems.

NATIONAL - Luxembourg's "Plan national concernant la protection de la nature 2017-2021" (PNPN2)
(13) Intégration du concept des Infrastructures vertes dans l'urbanisme et l'aménagement du territoire

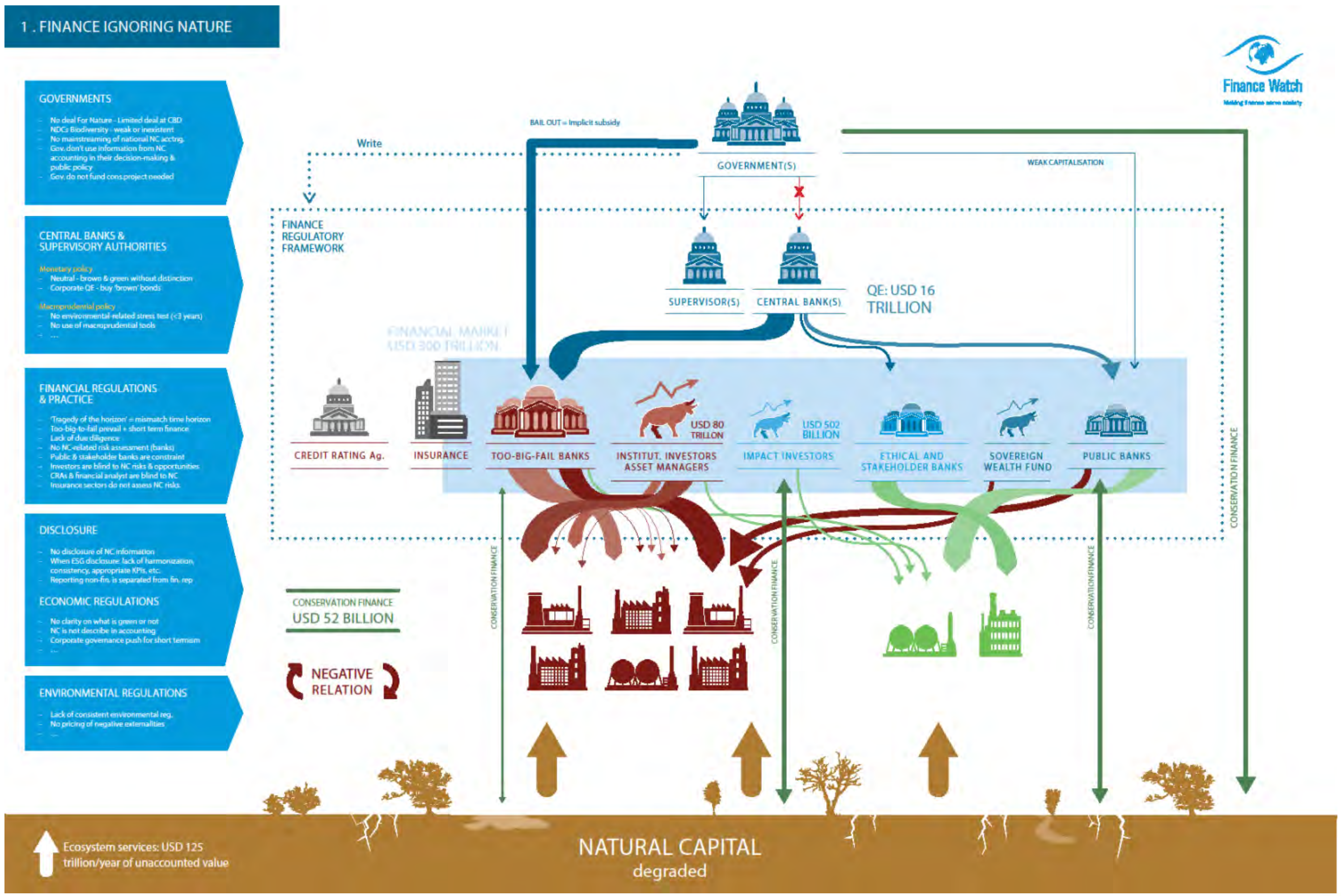
Green Infrastructure In Luxembourg

Measure	Financing source	Estimated costs (EUR)
Renaturation of water bodies	Water management fund	
Wetland restoration	Environmental protection fund	4.75 million
Restoration of semi-open landscapes and grasslands	Environmental protection fund	10 million
Development and adaptation of management plans, coordination of committees for Natura2000 network	Environmental protection fund	2.3 million
Implementation of conservation measures related to the Natura2000 network	State funds	12.2 million
Designation of protected areas	Environmental protection fund	0.75 million

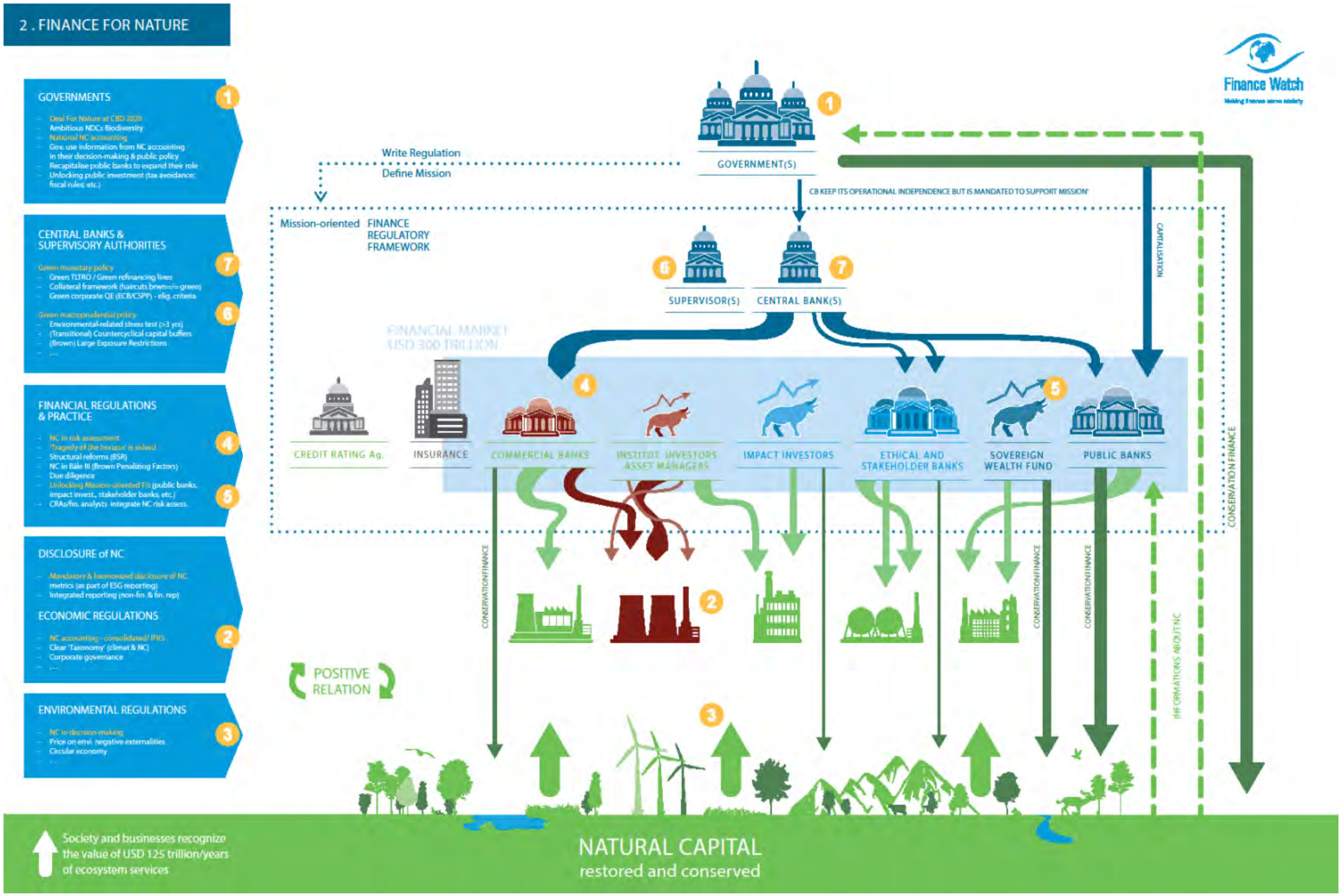
Increasing Public Finance

- Include natural capital in national accounts
- Strengthen public banking system
- Promote mission-led financial institutions

Institutional Barriers



Institutional barriers



Barriers To Private Finance

Features of conservation:

- Lack of bankable projects
- Lack of revenue streams
- Low rates of financial return
- Small size of the projects (< USD 5m)
- High transaction costs

Features of private finance:

- Short-term horizons for risk and reward
- Failure to deal effectively with externalities
- Discounting of assets

Risks To Private Finance

"Environmental degradation could cascade to risks for financial institutions, as reduced availability of fresh water or a lack of biodiversity could limit the operations of businesses in a specific region. These could turn into drivers of financial risks."

Network for Greening the Financial System, April 2019

Engaging Private Finance

Understand the risks:

- Natural capital accounting and disclosure - create TNFD
- Regulate biodiversity risks – NGFS

Look for opportunities:

- Specialised financial products – biodiversity green bonds, equity investments in ecotourism, sustainable forestry…
- Beware offset markets!
- Sustainable investing so far has higher investment returns

A Modern Perspective

Questions & Discussion

Global Green Finance Index

Ranking The World's Green Financial Centres

www.greenfinanceindex.net

GGFI 5 – March 2020

Global Green Finance Index
Ranking The World's Green Financial Centres

Take Part At:
www.greenfinanceindex.net/survey/

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