



The Global Financial Centres Index 22

SEPTEMBER 2017



Financial Centre Futures





We are pleased to present the twenty second edition of the Global Financial Centres Index (GFCI 22).

In March 2007, Z/Yen released the first edition of the GFCI, which continues to provide evaluations of competitiveness and rankings for the major financial centres around the world.

The China Development Institute (CDI) in Shenzhen and Z/Yen Partners in London continue their collaboration in producing the GFCI. In July 2016, we established a strategic partnership for research into financial centres.

The GFCI is updated every March and September and continues to receive considerable attention from the global financial community. The index serves as a valuable reference for policy and investment decisions.

The CDI is a leading national think-tank that develops solutions to public policy challenges through broad-scope and in-depth research to help advance China's reform and opening-up to world markets.

The CDI has been working on the promotion and development of China's financial system since its establishment 28 years ago. Based on rigorous research and objective analysis, CDI is committed to providing innovative and pragmatic reports for governments at different levels in China and corporations at home and abroad.

The author of this report, Mark Yeandle, would like to thank Bikash Kharel, Shevangee Gupta, Michael Mainelli, Carol Feng, Peng Yu, and the rest of the GFCI team for their contributions with research, modelling, and ideas.



Foreword

Since its inception, the Global Financial Centres Index (GFCI) has fortified itself as the principal instrument for measuring the attractiveness of financial centres. Well-established centres like New York, London, Singapore, Hong Kong, Tokyo have maintained their lead. However, several emerging cities have also been gaining traction and made tremendous strides as new economies and financial centres.

The GFCI provides a strategic understanding into the growth and competitiveness of financial centres over time. We are excited that Abu Dhabi is ranked among the top 25 cities this year. This is an endorsement of Abu Dhabi's initiatives and efforts to enhance its strengths as a financial centre. It also spurs us to continue raising the bar.

Abu Dhabi, the capital of the United Arab Emirates (UAE), has achieved a substantial increase in its economic and political influence, both on a regional and a global level. With a well-structured and comprehensive diversification economic vision and strategy apace, the Abu Dhabi Government has continuously introduced new initiatives, and progressed steadily towards its goals in developing a sustainable, knowledge-based economy. The total stock of foreign investment (FI) and foreign direct investments (FDI) in Abu Dhabi has expanded steadily over recent years despite the volatile global economic circumstances. FDI in the emirate scaled more than 50% from \$16.6bn in 2012 to \$25.9bn in 2016. The UAE, as a whole, has also performed well in terms of the 'Ease of Doing Business' World Bank's rankings.

The astute oversight of the Abu Dhabi Government is reflected in the successful merger of the National Bank of Abu Dhabi (NBAD) and First Gulf Bank (FGB), renamed as First Abu Dhabi Bank, creating one of the region's largest banks with total assets in excess of \$180 billion. The new entity embodies the UAE's vision for growth and prosperity as it is established to create new and greater opportunities for the nation. By facilitating the merger of Mubadala and IPIC, the country's largest State Owned Enterprises, the government further signalled its commitment to its economic diversification strategy to reduce dependence on oil revenues.

One of the strongest commitments and signals by the Abu Dhabi Government to anchor its leading status is the establishment of the Abu Dhabi Global

Market (ADGM). Strategically located on Abu Dhabi's first financial free zone, ADGM is an innovative and internationally benchmarked International Financial Centre that exercises its own financial services regulation, an independent companies registrar, as well as an independent legal system based on English common law. ADGM is central to achieving the Government's vision and it comes at an auspicious time for the UAE.

ADGM has rapidly transformed the financial landscape in the region by enabling local, regional, and international stakeholders to anchor financial activities in Abu Dhabi. Providing an efficient and inclusive framework based on English Common Law, ADGM enables local and global financial institutions and investors to thrive with certainty and familiarity of their operating environment. To remain at the forefront of the financial sector, ADGM has introduced innovative initiatives to widen strategic access to capital raising and unlock business opportunities. These included several "firsts" in the region, including a private REIT regime, a calibrated Venture Capital framework for fund managers, an Aviation financing regime, the first FinTech regulatory framework and sandbox to foster an inclusive FinTech ecosystem. ADGM's focus and efforts in FinTech earned Abu Dhabi and ADGM the title of Top MENA FinTech Hub by Deloitte in 2017. ADGM was also recognised as the 'Financial Centre of the Year' (MENA region) by the industry in the Global Investor IST award.

With its innovative suite of corporate vehicles and well-regulated environment, ADGM is an influencing platform for structuring international investments into the Middle East, Africa and Central Asia region. As a global citizen, ADGM will continue to unreservedly support the Abu Dhabi Government in its growth plans and work closely with local and international strategic stakeholders and partners to augment the competitiveness and sustainability of the Abu Dhabi economy to serve the dynamic needs of its investors and community.



Ahmed Al Sayegh
Chairman
Abu Dhabi Global Market

GFCI 22 Summary and Headlines

GLOBAL FINANCIAL CENTRES INDEX 22

- We researched 108 centres for this edition of the Global Financial Centres Index (GFCI 22). The number of financial centres in the main index has increased from 88 to 92 with the addition of Wellington, Buenos Aires, Hamburg, and Chengdu from the associate centres list. The number of associate centres is now 16.
- GFCI 22 was compiled using 102 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 4.
- The instrumental factors were combined with financial centre assessments provided by respondents to the GFCI online questionnaire (www.globalfinancialcentres.net). We received 3,159 responses to the questionnaire in the 24 months to June 2017. Of these, 2,058 respondents provided 23,812 valid assessments of financial centres. Details of the methodology behind GFCI 22 can be found in Appendix 3.
- **The gap between third place Hong Kong and second place New York is now only 12 points.** This is the smallest gap between second and third places for over five years. New York fell by 24 points, the largest fall in the top 15 centres, presumably due to fears over US trade.
- **Western European financial centres are still volatile.** Frankfurt, Dublin, Paris and Amsterdam all rose, but Zurich, Geneva, and Luxembourg fell in the ratings. Overall assessments for the European centres continued to fluctuate as people speculate about which centres might benefit from London leaving the EU. However, the majority of centres in the region rose with Stockholm, Copenhagen, and Vienna all showing strong rises.
- **The leading financial centres in the Asia/Pacific region fell in the ratings.** All of the top ten centres in the region fell in the ratings with Singapore, Tokyo, and Osaka all showing marked declines. These are reverses of strong gains made in 2015-16.
- **All centres in North America fell in the GFCI ratings.** As mentioned above, New York fell. San Francisco, Boston, Chicago, and Washington also saw large falls. The decline of Canadian centres was less severe than the falls of the USA centres.
- **All of the Eastern European centres rose in the ratings.** Cyprus, Athens, St Petersburg, and Moscow reversed some of their recent declines.
- **Financial centres in the Middle East and Africa showed mixed results in GFCI 22.** Dubai and Casablanca fell slightly, but other centres in the region did well. Abu Dhabi, second in the region, reduced the gap to first place Dubai to just nine points. Elsewhere in the Middle East, there were good rises for Bahrain and Riyadh.

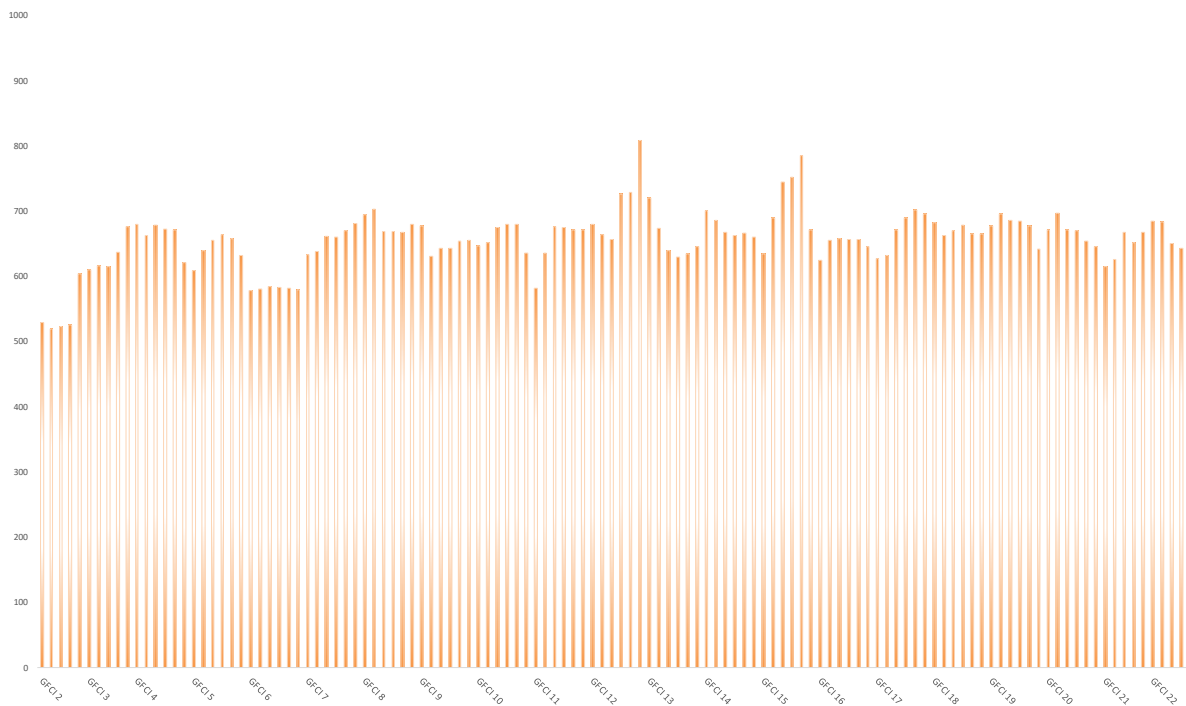
THE RESULTS

- **There is an overall drop in confidence amongst the leading centres.** Of the top 25 centres, 23 fell in the ratings and only two rose. At the lower end of the table, 20 of the 25 lowest rated centres actually rose in the GFCI ratings.
- **Little change in the top five positions.** London and New York remain in first and second places. Interestingly, despite the ongoing Brexit negotiations, London only fell two points, the smallest decline in the top ten centres. Hong Kong has moved just ahead of Singapore into third – only two points ahead on a scale of 1,000. Tokyo remains in fifth.

- Latin American and Caribbean centres did well.** The Caribbean centres of the British Virgin Islands and the Bahamas saw strong rises. Sao Paulo and Rio de Janeiro also did well. Buenos Aires joined the main GFCI, but Santiago remains an associate centre having failed to accumulate a sufficient number of assessments to enter the main index.
- European ‘island’ centres did well.** The British Crown Dependencies of Jersey, Guernsey, and the Isle of Man all performed strongly and there were also strong rises for Malta, Reykjavik, and Gibraltar.

The full set of GFCI 22 ranks and ratings are shown in Table 1 overleaf.

Chart 1 | Three Month Rolling Average Assessments for the Top 50 Financial Centres



“The British Crown Dependencies are seen as a safe haven from the turmoil in UK and EU.”

GLOBAL HEAD OF INVESTMENT BANKING BASED IN LONDON



Table 1 | GFCI 22 Ranks and Ratings

Centre	GFCI 22		GFCI 21		Change in	
	Rank	Rating	Rank	Rating	Rank	Rating
London	1	780	1	782	0	▼2
New York	2	756	2	780	0	▼24
Hong Kong	3	744	4	755	▲1	▼11
Singapore	4	742	3	760	▼1	▼18
Tokyo	5	725	5	740	0	▼15
Shanghai	6	711	13	715	▲7	▼4
Toronto	7	710	10	719	▲3	▼9
Sydney	8	707	8	721	0	▼14
Zurich	9	704	11	718	▲2	▼14
Beijing	10	703	16	710	▲6	▼7
Frankfurt	11	701	23	698	▲12	▲3
Montreal	12	697	14	713	▲2	▼16
Melbourne	13	696	21	702	▲7	▼6
Luxembourg	14	695	18	708	▲4	▼13
Geneva	15	694	20	704	▲5	▼10
San Francisco	16	693	6	724	▼10	▼31
Vancouver	17	692	17	709	0	▼17
Dubai	18	691	25	696	▲7	▼5
Boston	19	690	9	720	▼10	▼30
Shenzhen	20	689	22	701	▲2	▼12
Osaka	21	688	15	712	▼6	▼24
Seoul	22	686	24	697	▲2	▼11
Los Angeles	23	683	19	705	▼4	▼22
Chicago	24	683	7	723	▼17	▼40
Abu Dhabi	25	682	28	680	▲3	▲2
Paris	26	680	29	679	▲3	▲1
Taipei	27	677	26	689	▼1	▼12
Washington DC	28	676	12	716	▼16	▼40
Bermuda	29	673	34	660	▲5	▲13
Dublin	30	672	33	663	▲3	▲9
Cayman Islands	31	671	31	670	0	▲1
Guangzhou	32	668	37	650	▲5	▲18
Amsterdam	33	667	40	647	▲7	▲20
Tel Aviv	34	666	32	666	▼2	0
Casablanca	35	665	30	674	▼5	▼9
Warsaw	36	664	41	645	▲5	▲19
British Virgin Islands	37	663	51	625	▲14	▲38
Wellington	38	661	New	New	New	New
Stockholm	39	660	46	630	▲7	▲30
Jersey	40	658	43	633	▲3	▲25
Guernsey	41	657	47	629	▲6	▲28
Vienna	42	656	64	611	▲22	▲45
Copenhagen	43	655	52	623	▲9	▲32
Tallinn	44	653	42	640	▼2	▲13
Doha	45	651	39	648	▼6	▲3
Oslo	46	650	44	632	▼2	▲18

Table 1 (continued) | GFCI 22 Ranks and Ratings

Centre	GFCI 22		GFCI 21		Change in	Change in
	Rank	Rating	Rank	Rating	Rank	Rating
Qingdao	47	649	38	649	▼9	0
Johannesburg	48	648	59	616	▲11	▲32
Glasgow	49	647	53	622	▲4	▲25
Munich	50	646	27	682	▼23	▼36
Bahrain	51	645	57	618	▲6	▲27
Edinburgh	52	643	54	621	▲2	▲22
Riga	53	642	45	631	▼8	▲11
Milan	54	641	56	619	▲2	▲22
Kuala Lumpur	55	640	35	659	▼20	▼19
Isle of Man	56	639	58	617	▲2	▲22
Brussels	57	638	55	620	▼2	▲18
Prague	58	637	69	606	▲11	▲31
Madrid	59	636	68	607	▲9	▲29
Mumbai	60	635	63	612	▲3	▲23
Bangkok	61	634	36	656	▼25	▼22
Jakarta	62	633	67	608	▲5	▲25
Sao Paulo	63	632	62	613	▼1	▲19
Liechtenstein	64	631	48	628	▼16	▲3
Trinidad and Tobago	65	630	60	615	▼5	▲15
Manila	66	629	65	610	▼1	▲19
Hamburg	67	628	New	New	New	New
Monaco	68	627	74	598	▲6	▲29
Mauritius	69	626	71	603	▲2	▲23
Busan	70	625	50	626	▼20	▼1
Calgary	71	624	49	627	▼22	▼3
Budapest	72	623	70	604	▼2	▲19
Mexico City	73	622	61	614	▼12	▲8
Rome	74	621	72	601	▼2	▲20
Gibraltar	75	620	81	587	▲6	▲33
Cyprus	76	619	79	590	▲3	▲29
Riyadh	77	618	76	596	▼1	▲22
Istanbul	78	617	66	609	▼12	▲8
Lisbon	79	616	78	593	▼1	▲23
Almaty	80	615	80	589	0	▲26
Bahamas	81	614	83	582	▲2	▲32
Rio de Janeiro	82	613	73	599	▼9	▲14
Helsinki	83	612	82	585	▼1	▲27
Athens	84	611	88	522	▲4	▲89
Malta	85	609	77	594	▼8	▲15
Chengdu	86	604	New	New	New	New
St Petersburg	87	603	86	565	▼1	▲38
Panama	88	602	84	580	▼4	▲22
Moscow	89	601	85	566	▼4	▲35
Buenos Aires	90	600	New	New	New	New
Reykjavik	91	598	87	550	▼4	▲48
Dalian	92	595	75	597	▼17	▼2

Table 2 lists 'Associate Centres', which are included within the GFCI questionnaire but have

yet to acquire the number of assessments necessary to be included within the main index.

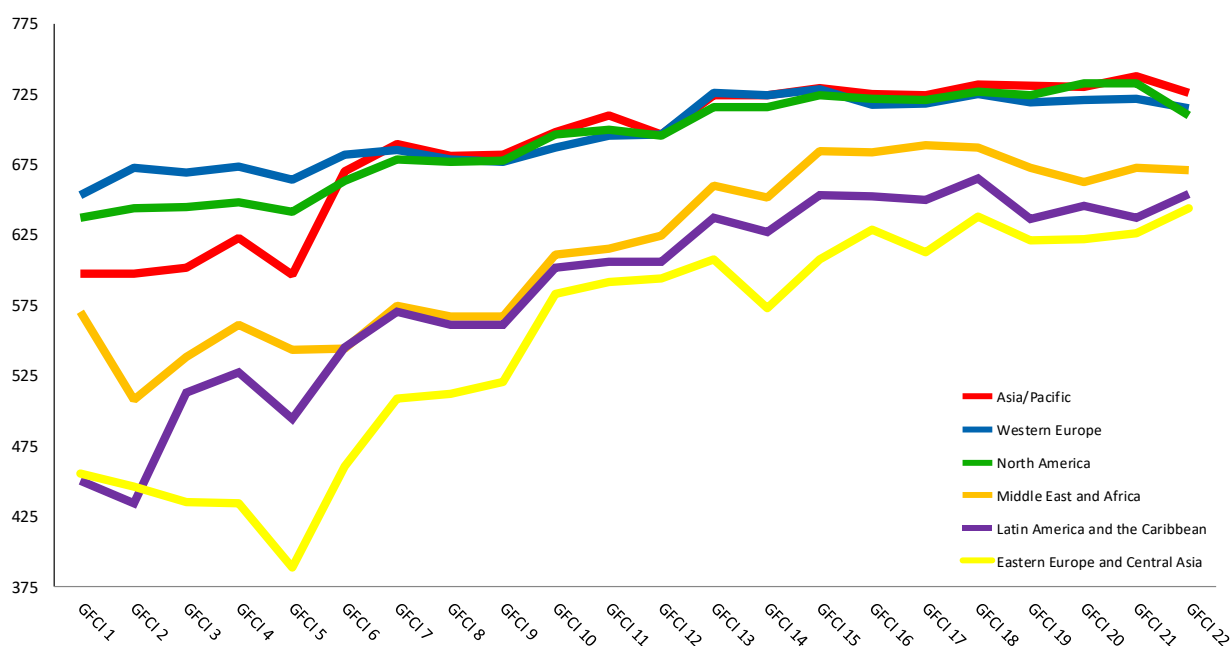
Table 2 | Associate Centres

Centre	Number of Assessments in the last 24 months	Mean of Assessments
Tianjin	141	654
New Delhi	113	527
Cape Town	95	612
Baku	79	504
Kuwait City	74	572
Barbados	74	511
Santiago	66	603
Hangzhou	64	688
Nairobi	61	515
Sofia	52	517
Bratislava	47	521
Gujarat	37	638
Karachi	31	535
Tehran	29	486
Astana	26	527
Stuttgart (added in June 2017)	0	-

Chart 2 shows the average rating of the top five centres in each region. This demonstrates that the historical dominance of the leading centres in Western Europe and North America has been eroded over time. The average assessment of the top five financial centres in the Asia/Pacific region

is now ahead of the comparable figure for Western Europe and North America. The top centres in other regions, especially in Latin America and Eastern Europe and Central Asia are also closing the gap on the leaders.

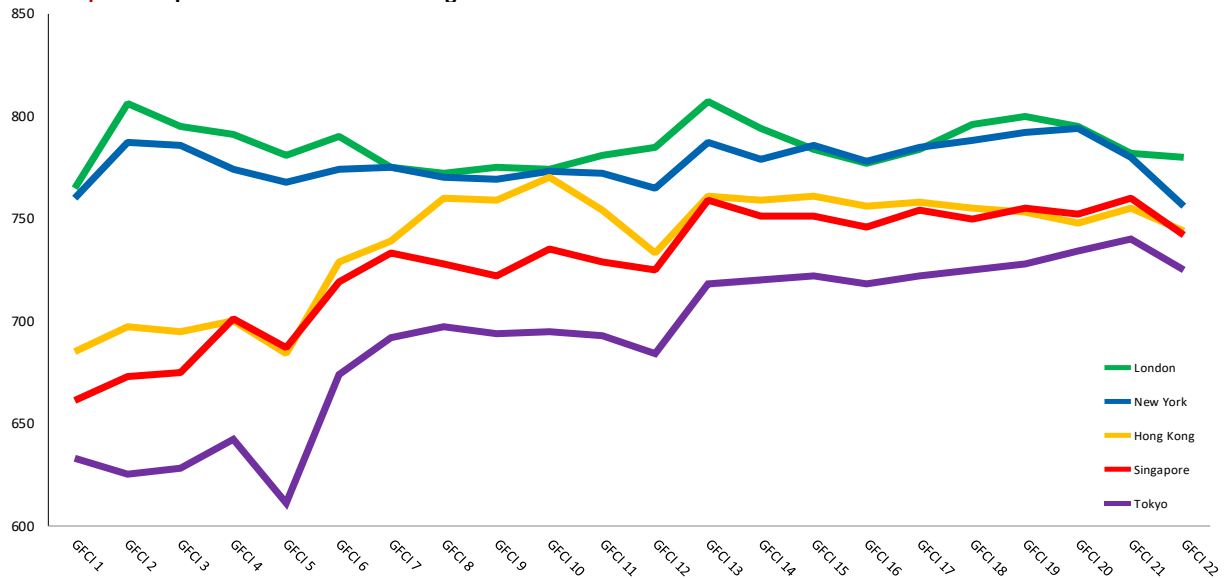
Chart 2 | The Mean Rating of the Top Five Centres in Each Region



- Chart 3 shows the performance over time of the top five financial centres. There has been little change in the top five positions. London and New York remain in first and second places. Interestingly, London only

fell two points, the smallest decline in the top ten centres. Hong Kong has moved just ahead of Singapore into third – only two points ahead on a scale of 1,000. Tokyo remains in fifth.

Chart 3 | The Top Five Centres— GFCI Ratings Over Time



The GFCI questionnaire asks respondents which centres they consider likely to become more significant in the next few years. Table 3 shows

the top 15 centres mentioned. Six of the top nine centres are Asian.

Table 3 | The 15 Centres Likely to Become More Significant

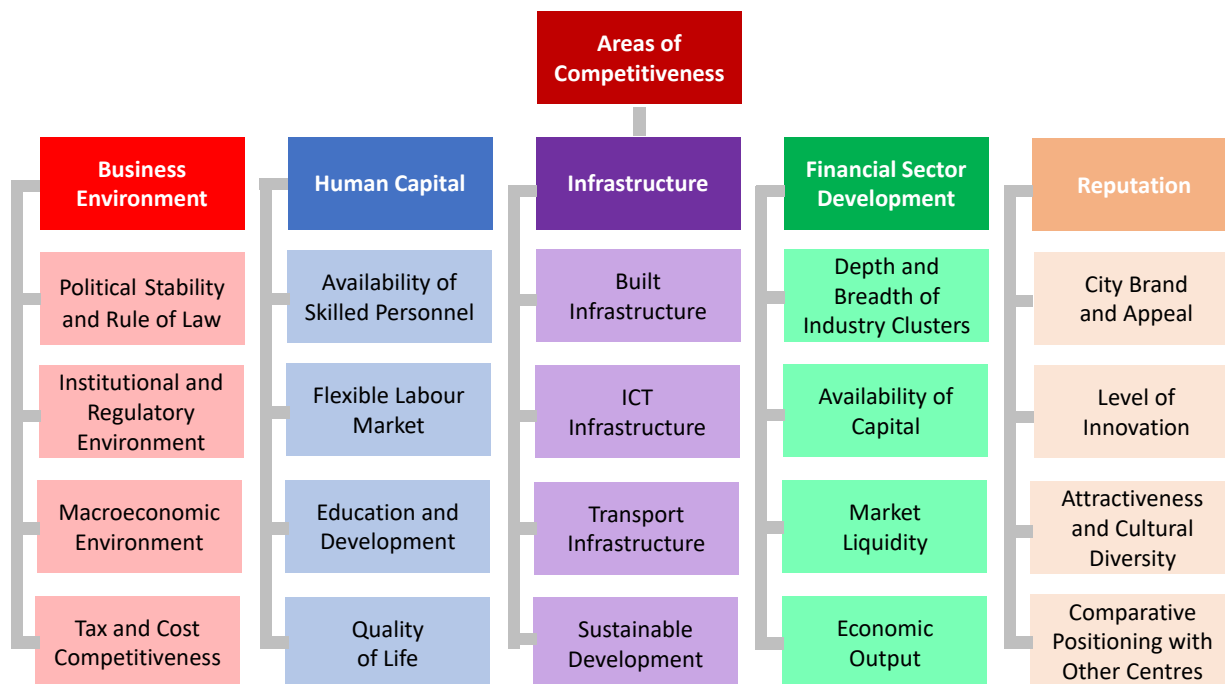
Centre	Mentions in the last 24 months
Shanghai	97
Qingdao	95
Singapore	45
Dublin	32
Casablanca	26
Shenzhen	26
Frankfurt	24
Hong Kong	23
Chengdu	21
GIFT	20
New York	14
Seoul	14
Beijing	13
Luxembourg	12
Toronto	12
Abu Dhabi	9

Areas of Competitiveness

The instrumental factors used in the GFCI model are grouped into five broad factors of competitiveness:

Business Environment, Human Capital, Infrastructure, Financial Sector Development, and Reputation.

Chart 4 | GFCI 22 Areas of Competitiveness



To assess how financial centres perform in each of these areas, the GFCI factor assessment model is run separately for each

one of the five groups of areas of competitiveness at a time. The top 15 ranked centres in each sub-index are shown in Table 4.

Table 4 | GFCI 22 Top 15 by Area of Competitiveness

Rank	Business Environment	Human Capital	Infrastructure	Financial Sector Development	Reputation
1	London	London	London	London	London
2	New York	New York	New York	New York	Hong Kong
3	Hong Kong	Hong Kong	Hong Kong	Hong Kong	Singapore
4	Singapore	Singapore	Singapore	Singapore	New York
5	Shanghai	Shanghai	Shanghai	Shanghai	Tokyo
6	Tokyo	Frankfurt	Beijing	Tokyo	Dubai
7	Frankfurt	Zurich	Tokyo	Beijing	Shanghai
8	Chicago	Beijing	Frankfurt	Boston	Stockholm
9	Zurich	Tokyo	Boston	Chicago	Frankfurt
10	Boston	Luxembourg	San Francisco	San Francisco	Toronto
11	Beijing	Toronto	Zurich	Washington DC	Zurich
12	Sydney	Boston	Washington DC	Zurich	Sydney
13	San Francisco	Chicago	Dubai	Frankfurt	Beijing
14	Toronto	Geneva	Shenzhen	Toronto	Osaka
15	Washington DC	Montreal	Chicago	Dubai	Montreal

The top financial centres of the world are well developed and strong in most areas. The top four financial centres overall hold the top four positions in all the sub-indices.

The GFCI questionnaire asks respondents to indicate which factors of competitiveness they consider the most important at the moment. The number of times that each area is mentioned is shown in Table 5 below.

Table 5 | GFCI 22 Main Areas of Competitiveness

Area of Competitiveness	Number of Mentions	Main Issues
Business Environment	712	Brexit continues to be a major source of uncertainty for all the EU. Corruption and the rule of law are being mentioned more and more. Protectionism and barriers to international trade concern many - especially in the USA.
Human Capital	684	Language skills remain vital and Asia recognises the need for English. Terrorism, personal safety, and human rights are becoming ever more important .
Taxation	567	Greater international harmonisation is needed. There is a fear that Brexit will lead to higher taxes in EU.
Reputation	544	More promotion of a centre is needed as competition increases. A reputation as a good and safe place to live grows in importance.
Infrastructure	481	The infrastructure for FinTech is becoming vital. Increased air travel connectivity is needed in some financial centres.
Financial Sector Development	442	A fear that London will become an 'also-ran' after Brexit? Protectionism will damage the critical mass of clusters in some financial centres.

*“I think Brexit will lead to lower taxes in the UK
but higher taxes in the EU.”*

INVESTMENT BANKER BASED IN FRANKFURT



The Business Environment

Our research into the competitiveness of financial centres indicates that the ease of doing business in a centre, as well as the business environment are becoming more important. Charts 5 and 6 map two factors that relate to the business environment, to demonstrate the close correlation with the GFCI 22 rating (size of

the bubbles indicates, the relative GDP of each centre). Table 20 (page 40) shows the correlation between individual factors and the GFCI ratings. Many of the factors with a high correlation are connected with the business environment.

Chart 5 | GFCI 22 Rating against Ease of Doing Business (supplied by the World Bank)

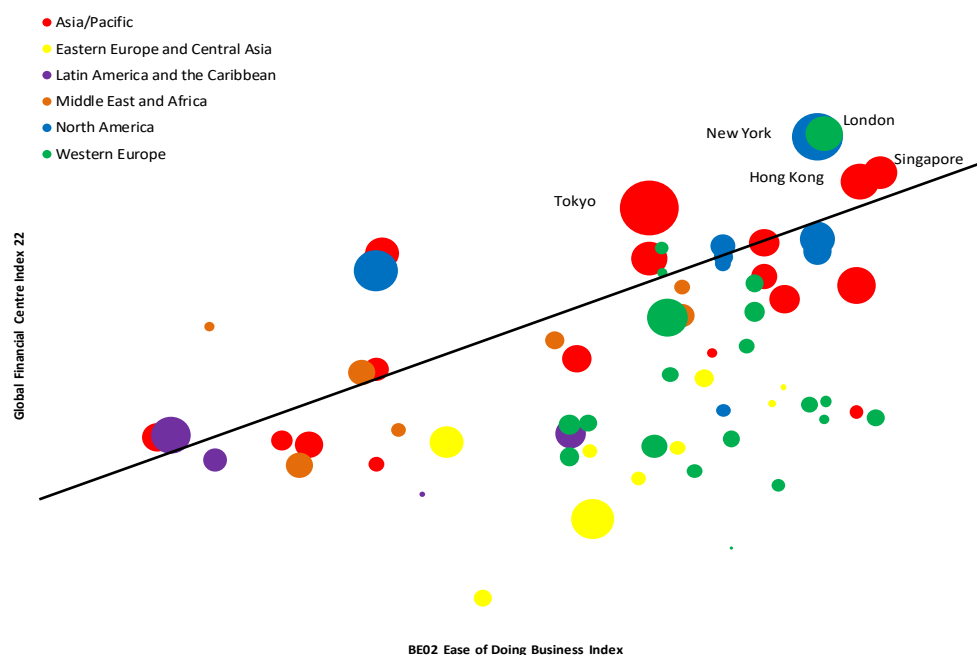
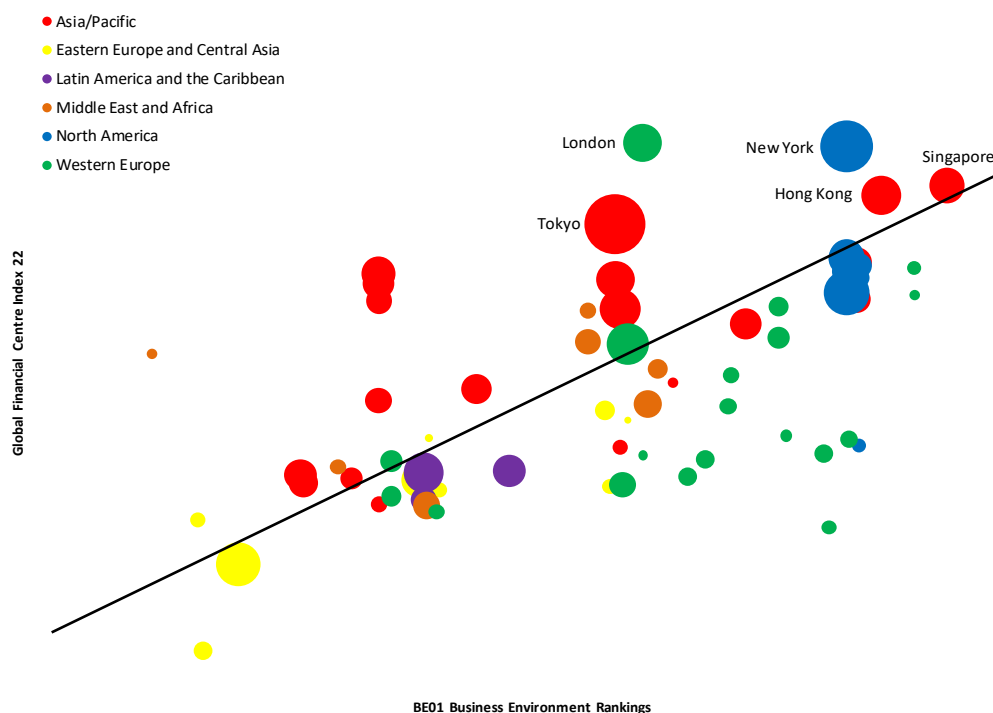


Chart 6 | GFCI 22 Rating against Business Environment Rankings (supplied by the Economist Intelligence Unit)



Connectivity

One of the most important benefits of hosting a thriving financial centre is the extent to which that centre is connected to other financial centres. One way of measuring this connectivity is to look at the number of assessments given to and received from other

financial centres. Charts 7 and 8 use London and Frankfurt as examples to contrast the different levels of connectivity that the two centres enjoy.

Chart 7 | GFCI 22 Connectivity — London

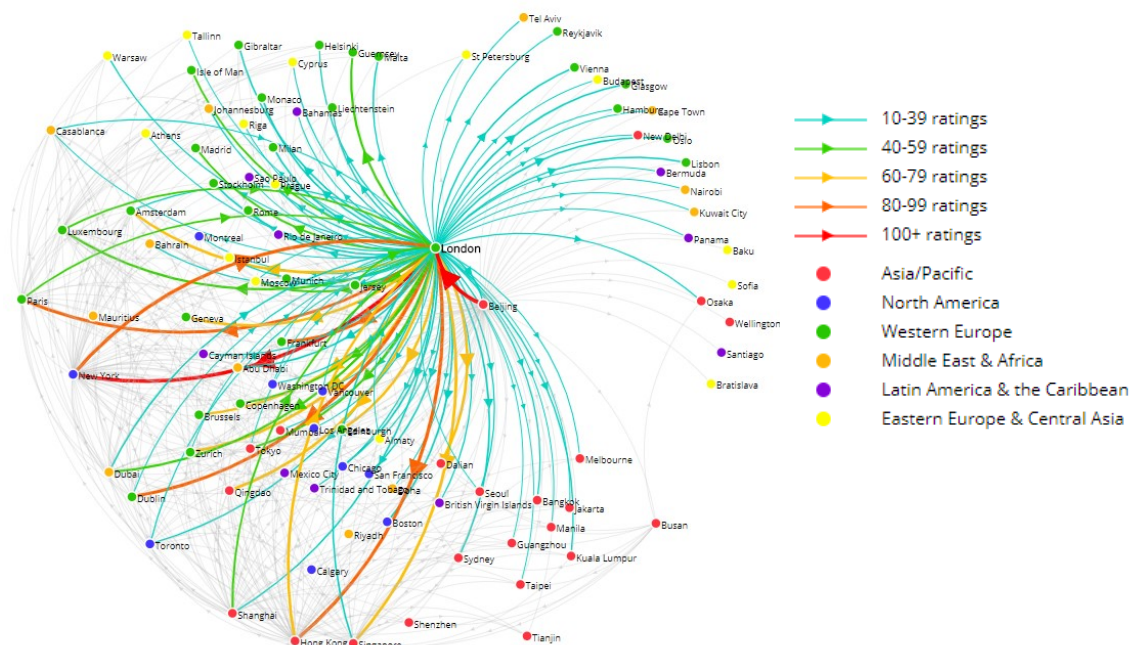
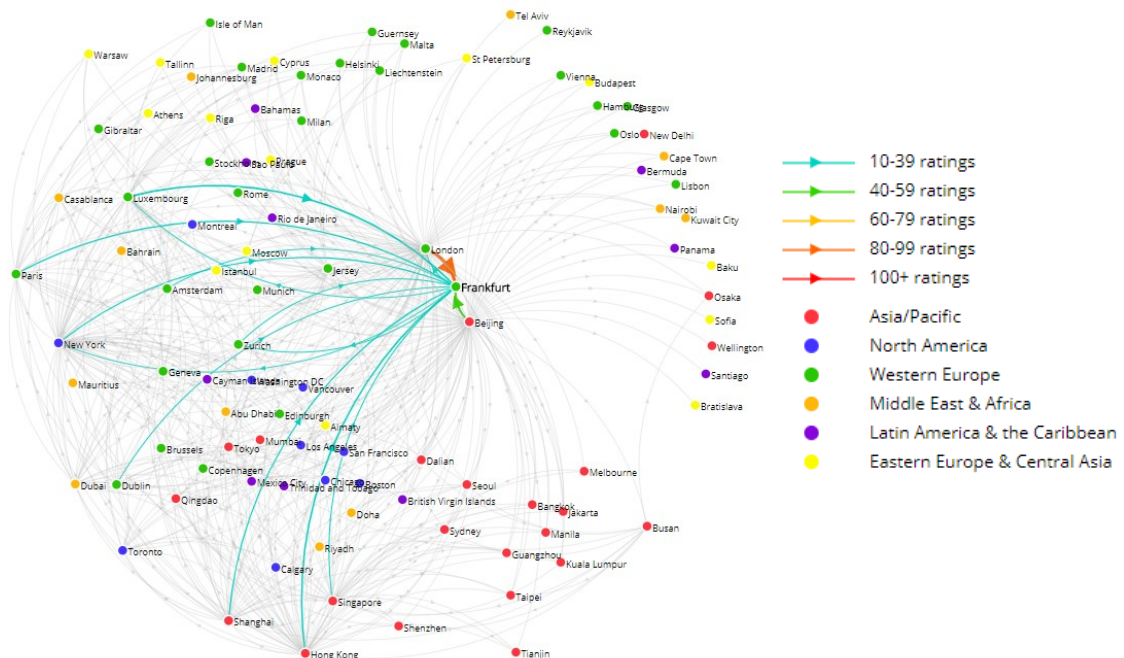


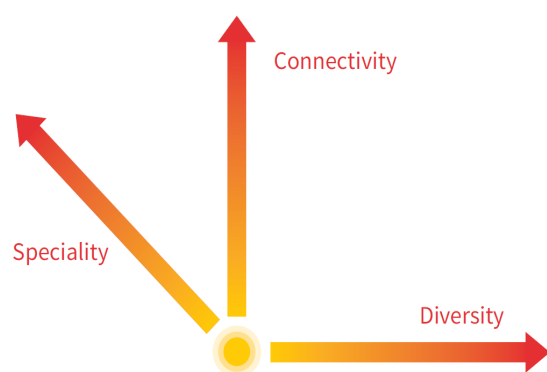
Chart 8 | GFCI 22 Connectivity — Frankfurt



Financial Centre Profiles

Using clustering and correlation analysis we have identified three measures (axes) that determine a financial centre's profile along different dimensions of competitiveness.

Chart 9 | GFCI 22 Profile Elements



‘Connectivity’ – the extent to which a centre is well known around the world, and how much non-resident professionals believe it is connected to other financial centres. Respondents are asked to assess only those centres with which they are personally familiar. A centre's connectivity is assessed using a combination of ‘inbound’ assessment locations (the number of locations from which a particular centre receives assessments) and ‘outbound’ assessment locations (the number of other centres assessed by respondents from a particular centre). If the weighted assessments for a centre are provided by over 50% of other centres, this centre is deemed to be ‘Global’. If the ratings are provided by over 40% of other centres, this centre is deemed to be ‘International’.

‘Diversity’ – the breadth of financial industry sectors that flourish in a financial centre. We consider this sector ‘richness’ to be measurable in a similar way to that of the natural environment. We therefore use a combination of biodiversity indices (calculated on the instrumental factors) to assess a centre's diversity. A high score means that a centre is well diversified; a low diversity score reflects a less rich business environment.

‘Speciality’ – the depth within a financial centre of the following industry sectors: investment management, banking, insurance, professional services, and the government and regulatory sector. A centre's ‘speciality’ performance is calculated from the difference between the GFCI rating and the industry sector ratings.

In Table 6 ‘Diversity’ (Breadth) and ‘Speciality’ (Depth) are combined on one axis to create a two dimensional table of financial centre profiles. The 92 centres in GFCI 22 are assigned a profile on the basis of a set of rules for the three measures: how well connected a centre is, how broad its services are, and how specialised it is.

The 15 Global Leaders (in the top left of the table) have both broad and deep financial services activities and are connected with many other financial centres. This list includes the top five global financial centres. Other leading centres are profiled as Established International Centres.

Significant changes in GFCI 22 include Abu Dhabi, Shanghai, and Sydney becoming Global Leaders, Moscow becoming a Global Diversified Centre (previously a Global Contender), and Tel Aviv becoming an Established Player (previously an Evolving Centre).

“The development of China is fascinating Shanghai, Shenzhen, and Hong Kong are the recognised centres but Beijing wants a look in.”

ASSET MANAGER BASED IN TOKYO

Table 6 | GFCI 22 Financial Centre Profiles

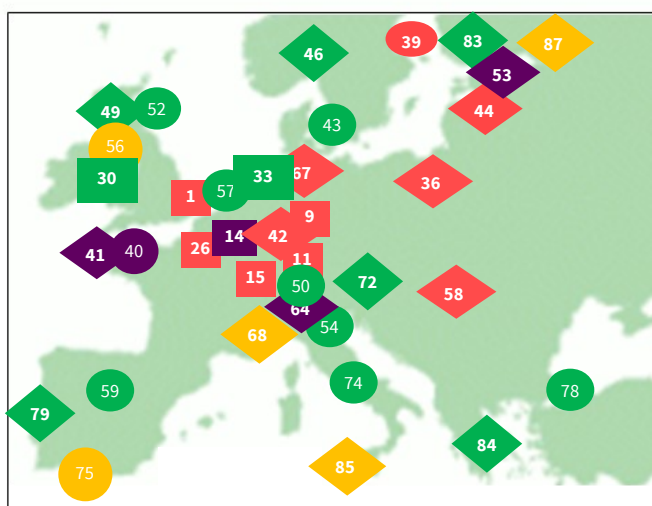
	Broad & Deep	Relatively Broad	Relatively Deep	Emerging
	Global Leaders	Global Diversified	Global Specialists	Global Contenders
Global	Abu Dhabi	Amsterdam	Luxembourg	Qingdao
	Beijing	Dublin	Shenzhen	
	Dubai	Moscow		
	Frankfurt	Washington DC		
	Geneva			
	Hong Kong			
	London			
	New York			
	Paris			
	Shanghai			
	Singapore			
	Sydney			
	Tokyo			
	Toronto			
	Zurich			
International	Established International	International Diversified	International Specialists	International Contenders
	Boston	Bangkok	British Virgin Islands	Almaty
	Chicago	Brussels	Casablanca	Bahamas
	Johannesburg	Busan	Cayman Islands	Doha
	Los Angeles	Copenhagen	Dalian	Gibraltar
	Melbourne	Edinburgh	Guangzhou	Isle of Man
	Montreal	Istanbul	Jersey	
	San Francisco	Kuala Lumpur		
	Seoul	Madrid		
	Stockholm	Milan		
	Vancouver	Munich		
		Rome		
Local	Established Players	Local Diversified	Local Specialists	Evolving Centres
	Hamburg	Athens	Bermuda	Bahrain
	Osaka	Budapest	Chengdu	Buenos Aires
	Prague	Calgary	Guernsey	Cyprus
	Tallinn	Glasgow	Liechtenstein	Jakarta
	Tel Aviv	Helsinki	Riga	Malta
	Vienna	Lisbon	Taipei	Manila
	Warsaw	Mexico City	Trinidad and Tobago	Mauritius
	Wellington	Oslo		Monaco
		Rio de Janeiro		Mumbai
		Sao Paulo		Panama
				Reykjavik
				Riyadh
				St Petersburg

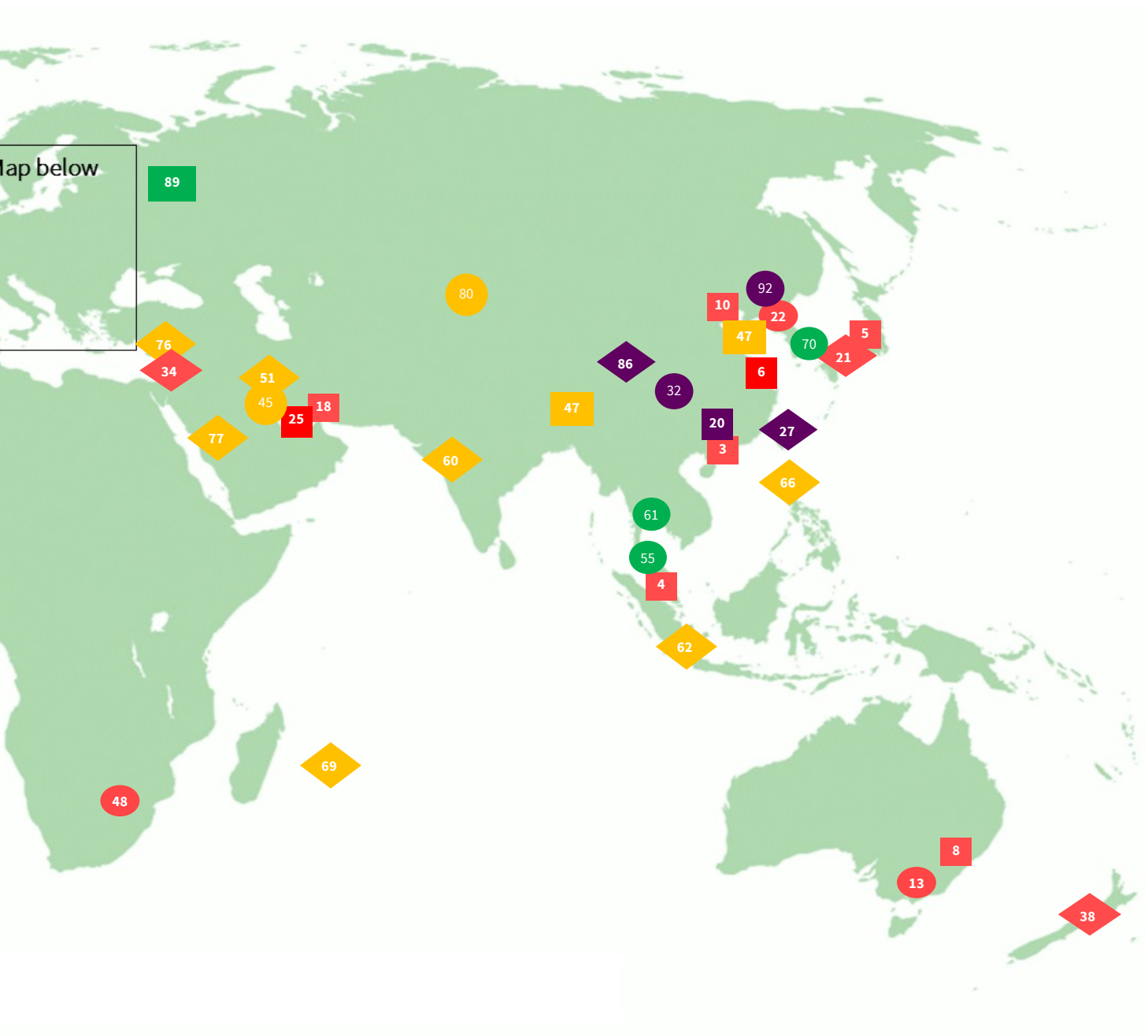
The GFCI 22 World



"Latin America is still such a hard place to do business in."

INVESTMENT BANKER BASED IN NEW YORK





Western Europe

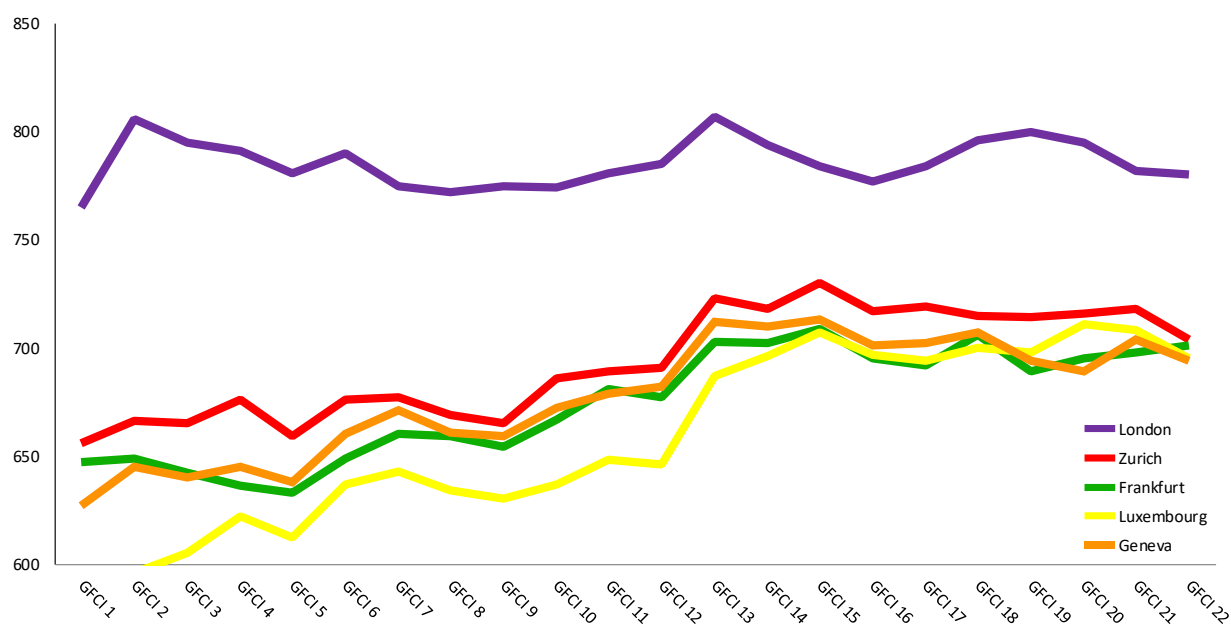
Table 7 shows the top 15 Western European centres in the GFCI. London, Zurich, Frankfurt, and Luxembourg are the top four centres in the region. Frankfurt, Dublin, Paris, and Amsterdam all rose but Zurich, Geneva, and Luxembourg fell in the ratings.

Overall assessments for the European centres continued to fluctuate as people speculate about which centres might benefit from London leaving the EU. However, the majority of centres in the region rose in the ratings, with Stockholm, Copenhagen, and Vienna all showing strong performances.

Table 7 | Western European Top 15 Centres in GFCI 22

Centre	GFCI 22		GFCI 21		Change in	
	Rank	Rating	Rank	Rating	Rank	Rating
London	1	780	1	782	0	▼ 2
Zurich	9	704	11	718	▲ 2	▼ 14
Frankfurt	11	701	23	698	▲ 12	▲ 3
Luxembourg	14	695	18	708	▲ 4	▼ 13
Geneva	15	694	20	704	▲ 5	▼ 10
Paris	26	680	29	679	▲ 3	▲ 1
Dublin	30	672	33	663	▲ 3	▲ 9
Amsterdam	33	667	40	647	▲ 7	▲ 20
Stockholm	39	660	46	630	▲ 7	▲ 30
Jersey	40	658	43	633	▲ 3	▲ 25
Guernsey	41	657	47	629	▲ 6	▲ 28
Vienna	42	656	64	611	▲ 22	▲ 45
Copenhagen	43	655	52	623	▲ 9	▲ 32
Oslo	46	650	44	632	▼ 2	▲ 18
Glasgow	49	647	53	622	▲ 4	▲ 25

Chart 10 | GFCI 22 Top Five Western European Centres over Time



Charts 11 to 13 show the mean of assessments by region given to the leading three centres in Western Europe. It is important to recognise that assessments given to a centre by people based in that centre are excluded to remove 'home' bias. The additional vertical axis (in red) shows the

mean of assessments when assessments from the home region are removed. The percentage figure noted by each region indicates the percentage of the total number of assessments that are from that region.

Chart 11 | GFCI 22 Assessments by Region for London — Difference from the Overall Mean of 850

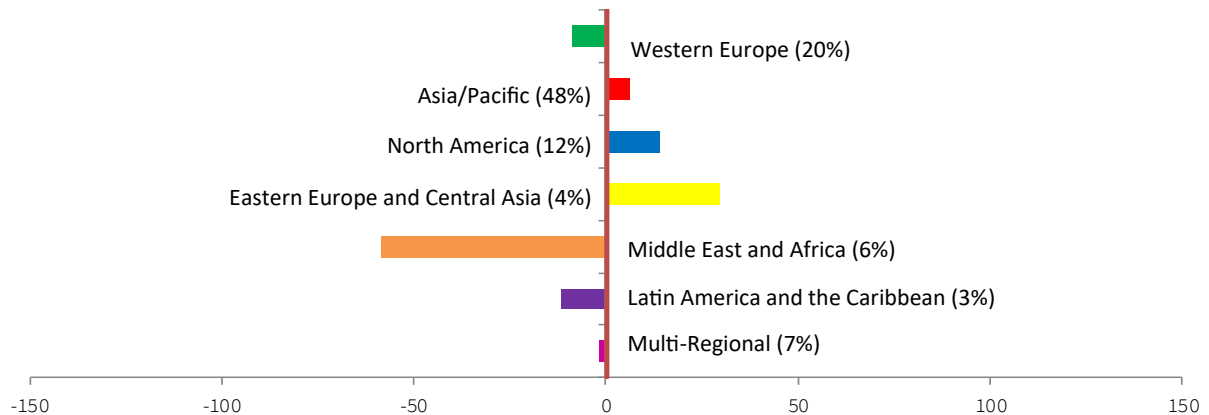


Chart 12 | GFCI 22 Assessments by Region for Zurich — Difference from the Overall Mean of 760

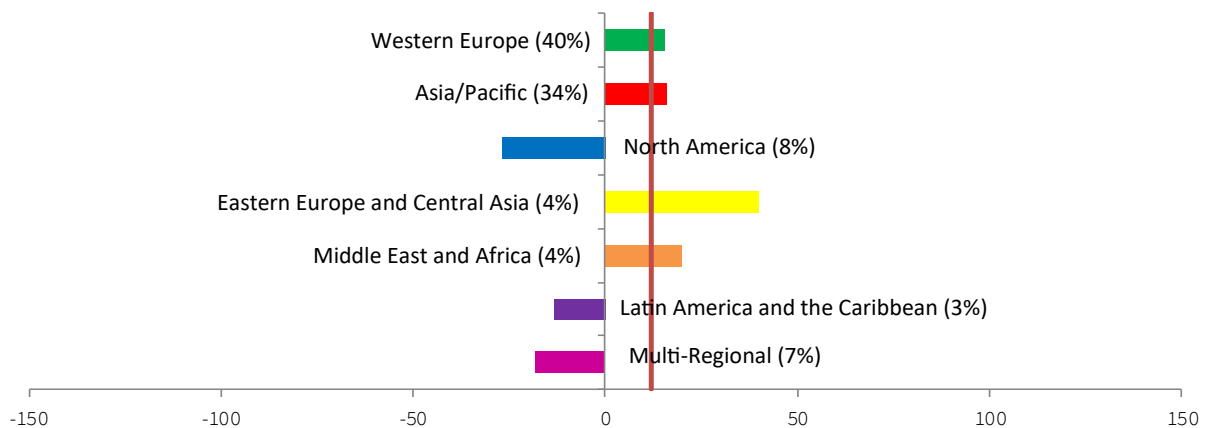
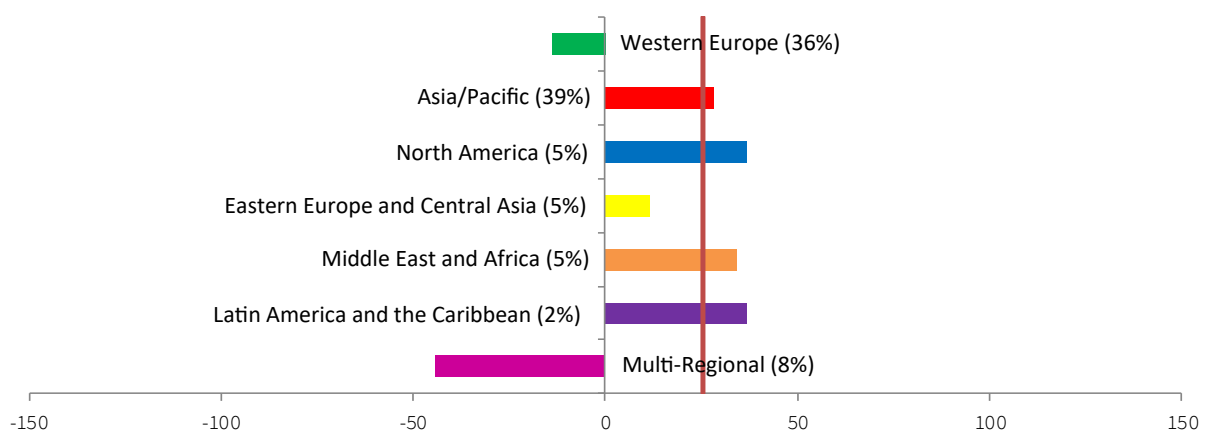


Chart 13 | GFCI 22 Assessments by Region for Frankfurt — Difference from the Overall Mean of 738



Asia/Pacific

Table 8 shows the Asia/Pacific Centres in GFCI 22. All of the top ten centres in the region fell in the ratings with Singapore, Tokyo, and Osaka all showing marked declines.

These are reverses of strong gains made in 2016.

Table 8 | Asia/Pacific Top 15 Centres in GFCI 22

Centre	GFCI 22		GFCI 21		Change in	
	Rank	Rating	Rank	Rating	Rank	Rating
Hong Kong	3	744	4	755	▲ 1	▼ 11
Singapore	4	742	3	760	▼ 1	▼ 18
Tokyo	5	725	5	740	0	▼ 15
Shanghai	6	711	13	715	▲ 7	▼ 4
Sydney	8	707	8	721	0	▼ 14
Beijing	10	703	16	710	▲ 6	▼ 7
Melbourne	13	696	21	702	▲ 8	▼ 6
Shenzhen	20	689	22	701	▲ 2	▼ 12
Osaka	21	688	15	712	▼ 6	▼ 24
Seoul	22	686	24	697	▲ 2	▼ 11
Taipei	27	677	26	689	▼ 1	▼ 12
Guangzhou	32	668	37	650	▲ 5	▲ 18
Wellington	38	661	New	New	New	New
Qingdao	47	649	38	649	▼ 9	0
Kuala Lumpur	55	640	35	659	▼ 20	▼ 19

Chart 14 | GFCI 22 Top Five Asia/Pacific Centres over Time

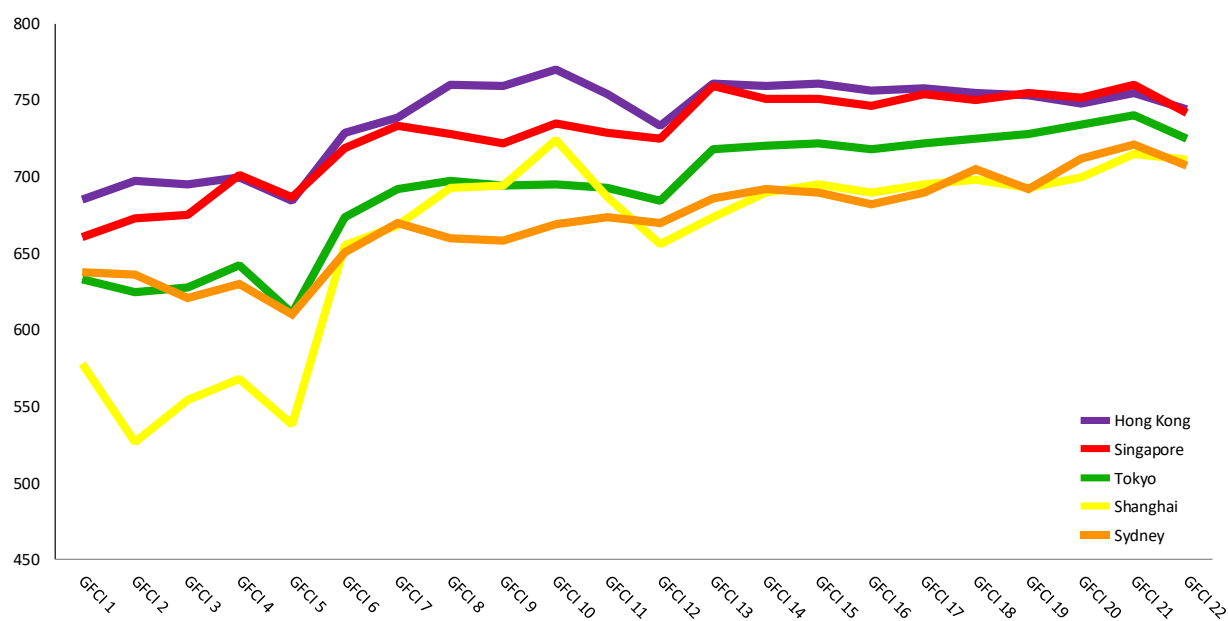
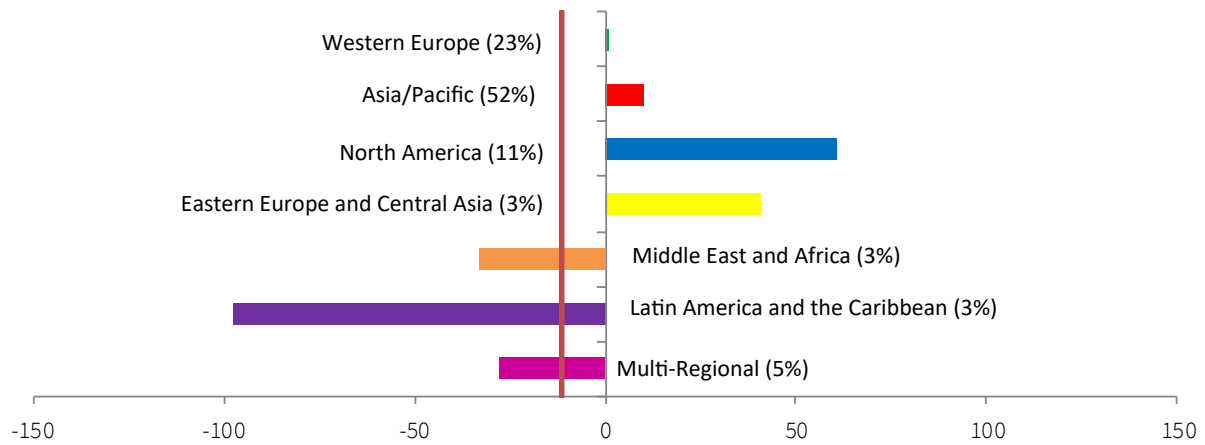
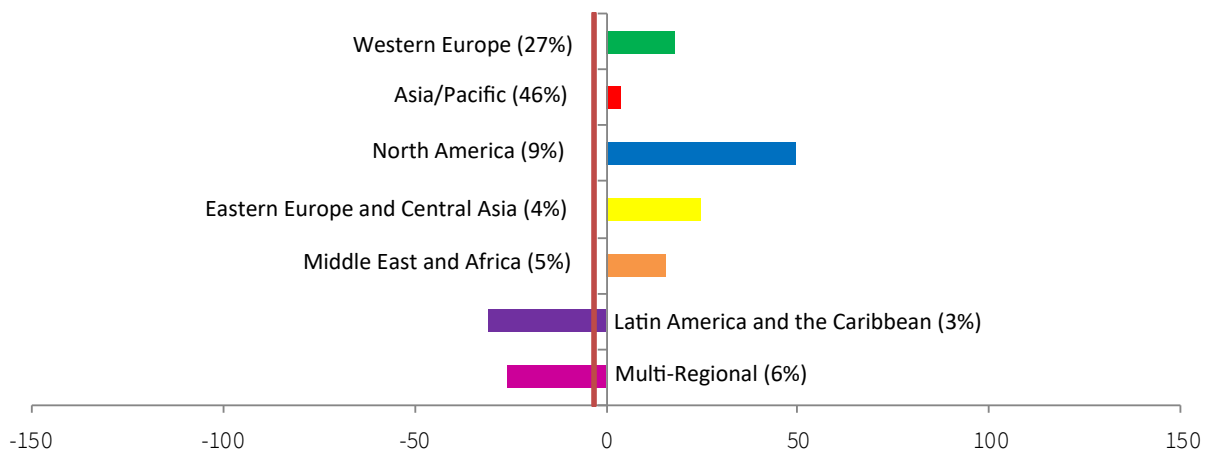
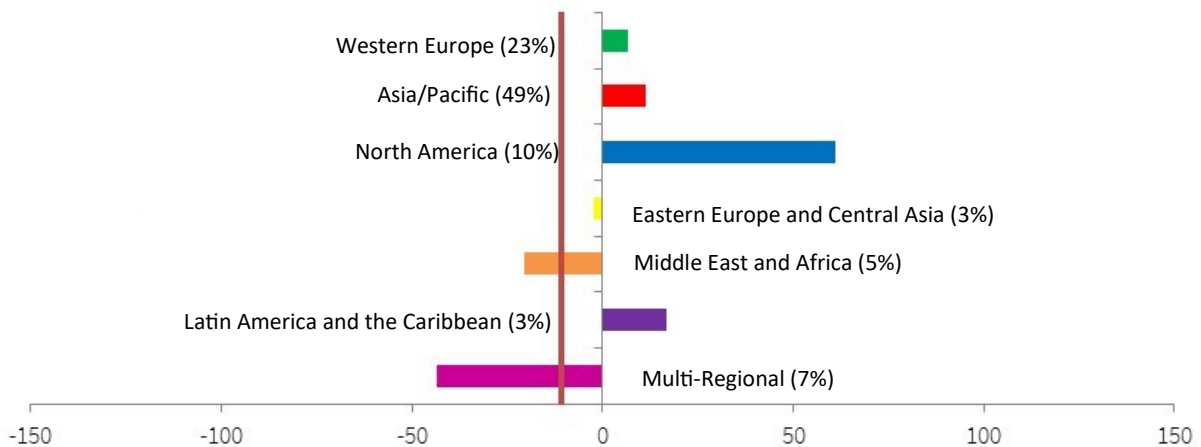


Chart 15 | GFCI 22 Assessments by Region for Hong Kong — Difference from the Overall Mean of 825**Chart 16 | GFCI 22 Assessments by Region for Singapore — Difference from the Overall Mean of 847****Chart 17 | GFCI 22 Assessments by Region for Tokyo — Difference from the Overall Mean of 810**

North America

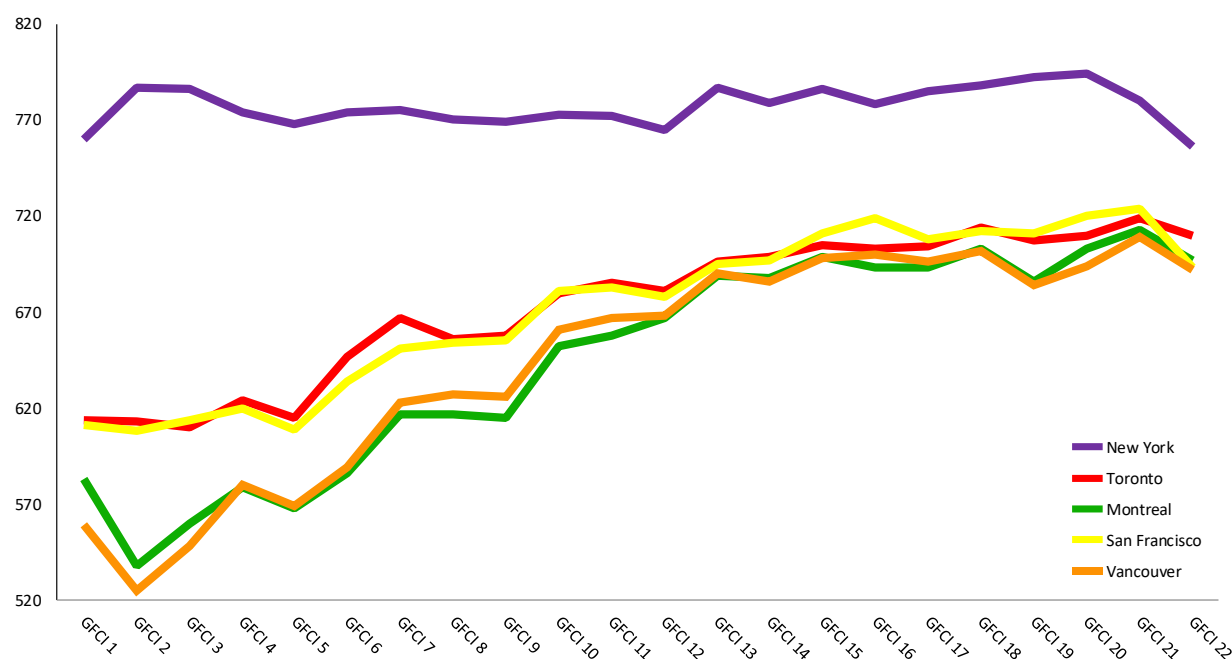
Table 9 shows the North American Centres in GFCI 22. All centres in North America fell in the GFCI ratings. New York saw a 24 point fall, with San Francisco, Boston, Chicago, and Washington

seeing even larger falls. The decline of the Canadian centres was less severe than the falls of the USA centres.

Table 9 | North American Centres in GFCI 22

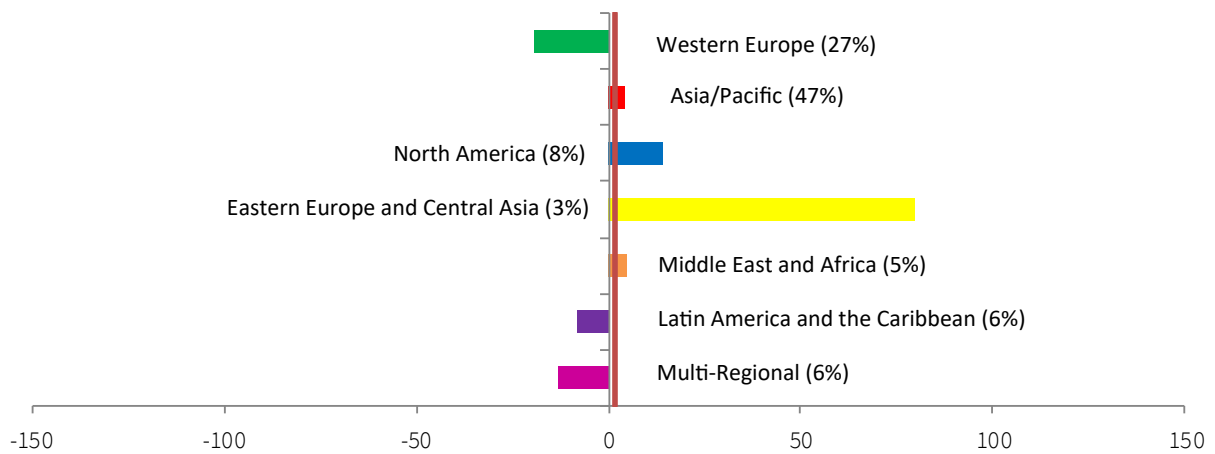
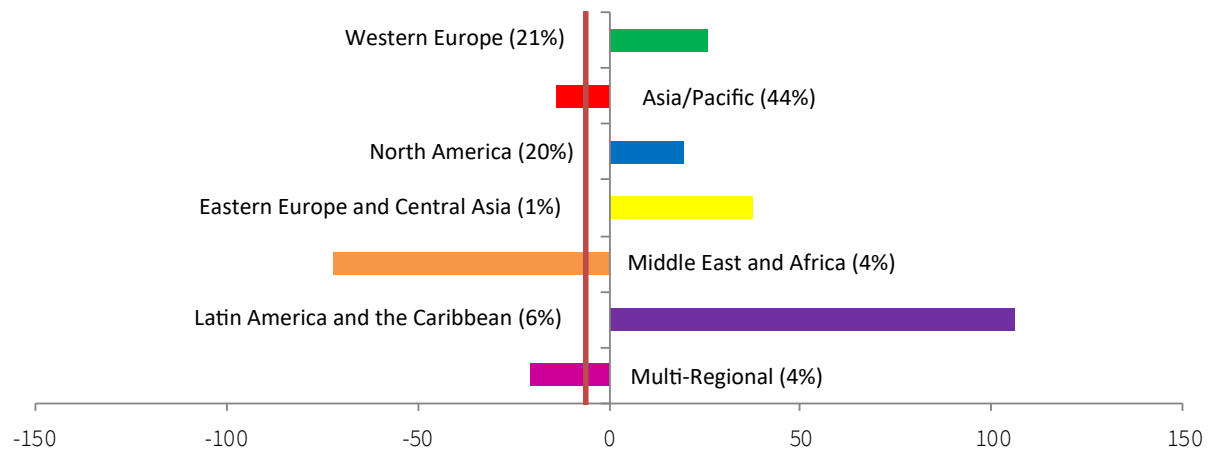
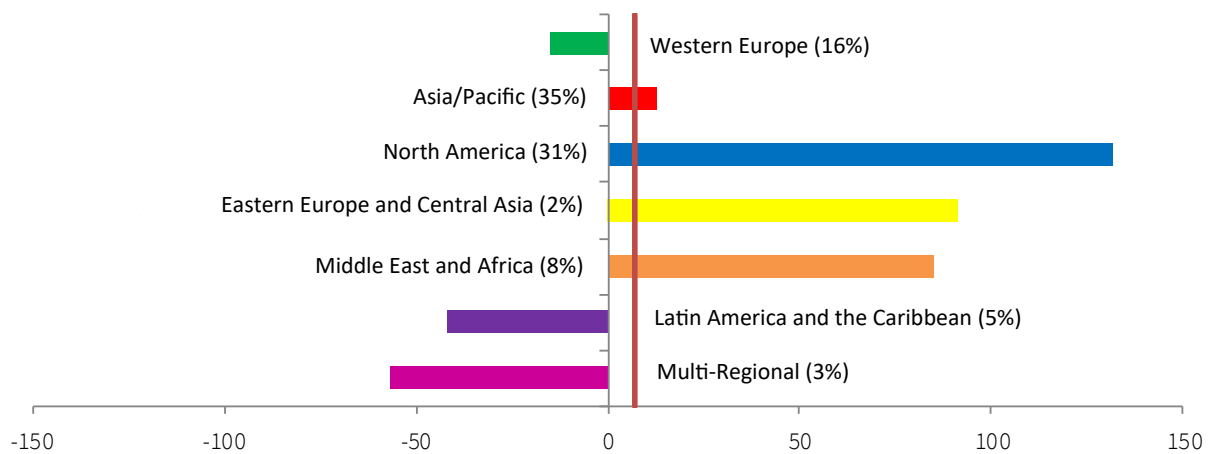
Centre	GFCI 22		GFCI 21		Change in	
	Rank	Rating	Rank	Rating	Rank	Rating
New York	2	756	2	780	0	▼24
Toronto	7	710	10	719	▲3	▼9
Montreal	12	697	14	713	▲2	▼16
San Francisco	16	693	6	724	▼10	▼31
Vancouver	17	692	17	709	0	▼17
Boston	19	690	9	720	▼10	▼30
Los Angeles	23	683	19	705	▼4	▼22
Chicago	24	683	7	723	▼17	▼40
Washington DC	28	676	12	716	▼16	▼40
Calgary	71	624	49	627	▼22	▼3

Chart 18 | GFCI 22 Top Five North American Centres over Time



“The industry in the USA is feeling a bit isolated at the moment.”

ANGEL INVESTOR BASED IN LOS ANGELES

Chart 19 | GFCI 22 Assessments by Region for New York — Difference from the Overall Mean of 865**Chart 20 | GFCI 22 Assessments by Region for Toronto — Difference from the Overall Mean of 763****Chart 21 | GFCI 22 Assessments by Region for Montreal — Difference from the Overall Mean of 709**

Eastern Europe and Central Asia

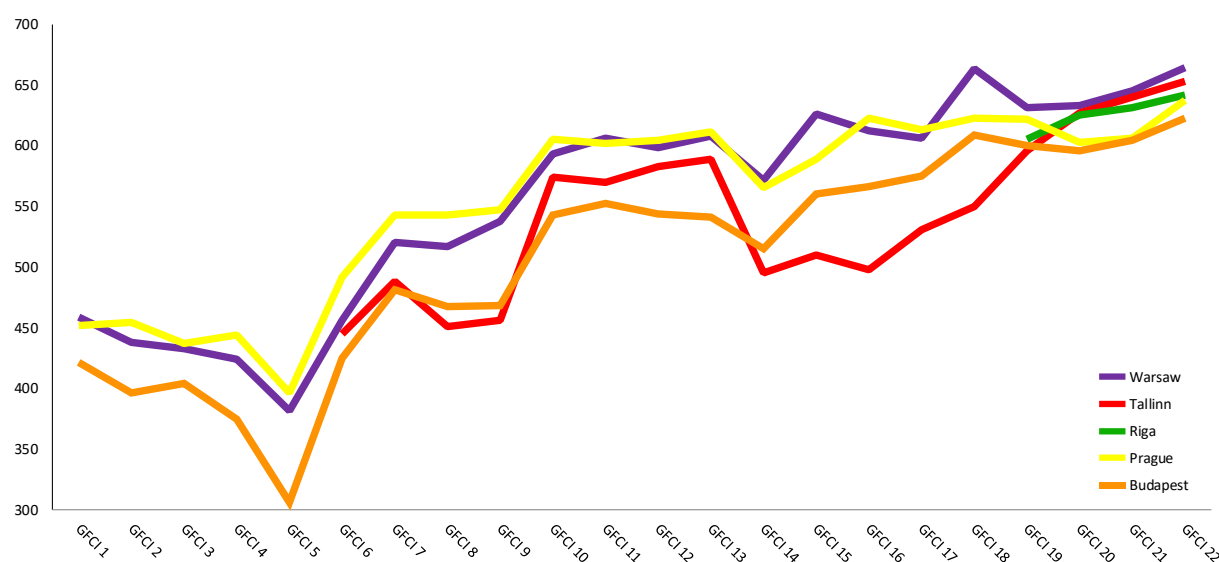
Table 10 shows the Eastern European and Central Asian Centres in GFCI 22. All of the centres in this region rose in the ratings. Cyprus, Athens,

St Petersburg, and Moscow reversed some of their recent declines.

Table 10 | Eastern European and Central Asian Centres in GFCI 22

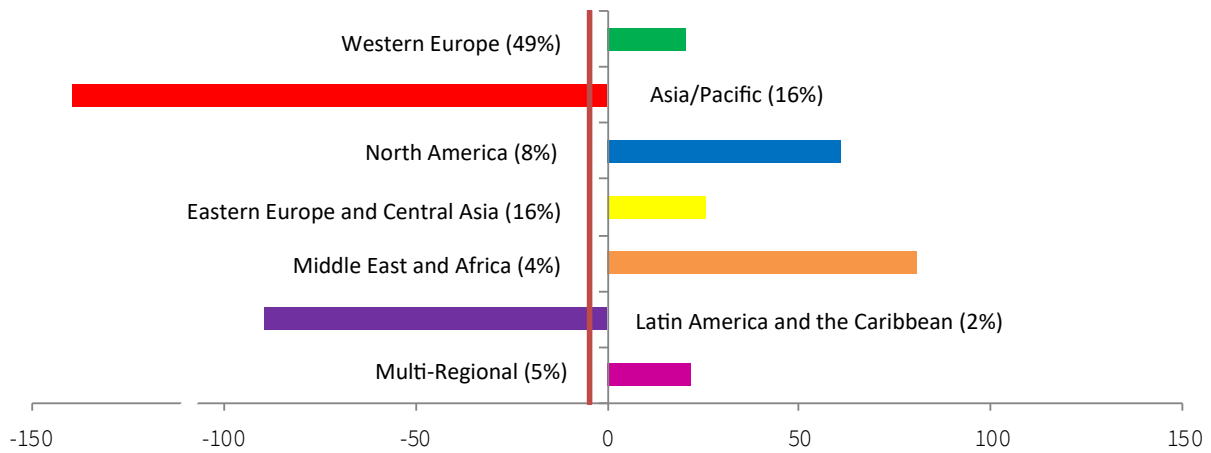
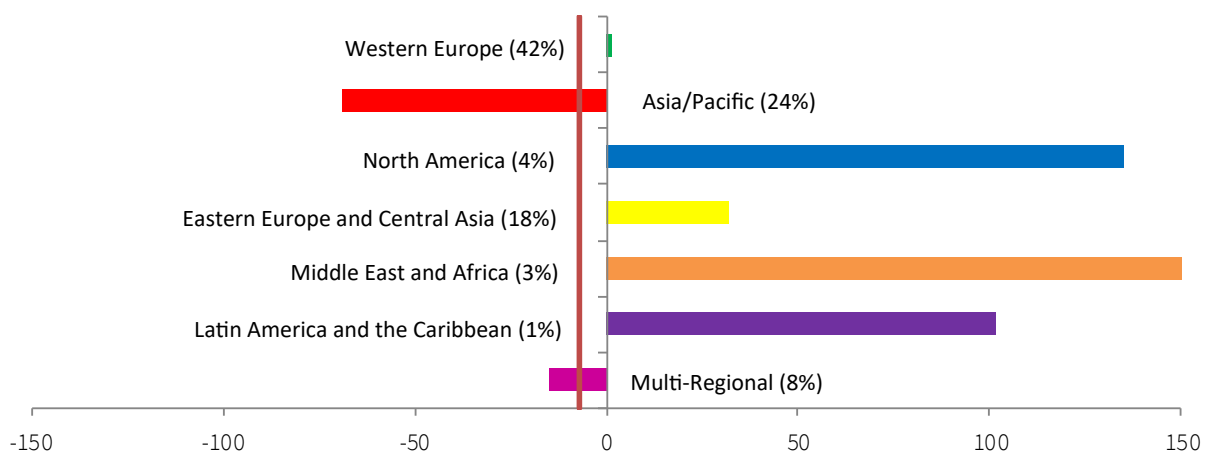
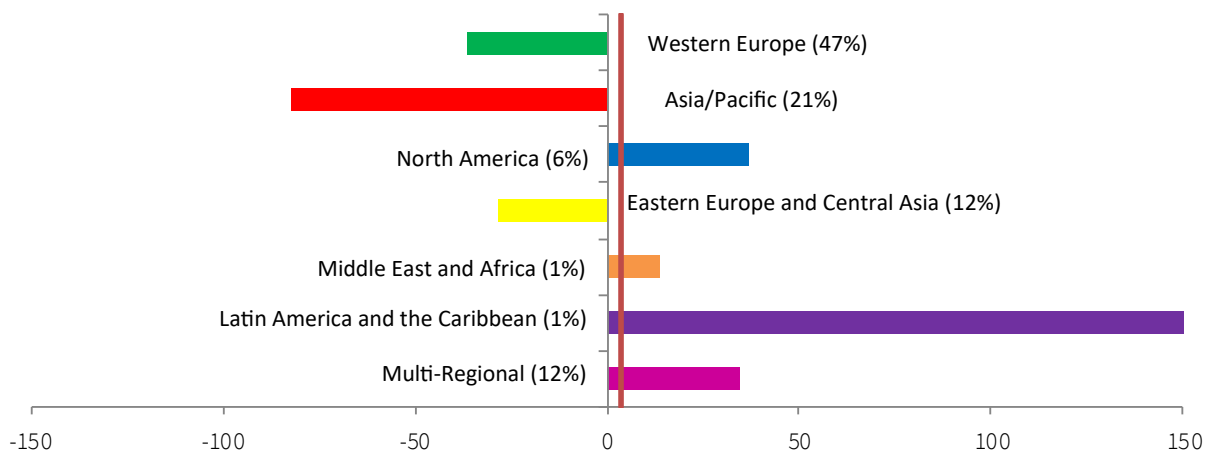
Centre	GFCI 22		GFCI 21		Change in	Change in
	Rank	Rating	Rank	Rating	Rank	Rating
Warsaw	36	664	41	645	▲ 5	▲ 19
Tallinn	44	653	42	640	▼ 2	▲ 13
Riga	53	642	45	631	▼ 8	▲ 11
Prague	58	637	69	606	▲ 11	▲ 31
Budapest	72	623	70	604	▼ 2	▲ 19
Cyprus	76	619	79	590	▲ 3	▲ 29
Istanbul	78	617	66	609	▼ 12	▲ 8
Almaty	80	615	80	589	0	▲ 26
Athens	84	611	88	522	▲ 4	▲ 89
St Petersburg	87	603	86	565	▼ 1	▲ 38
Moscow	89	601	85	566	▼ 4	▲ 35

Chart 22 | GFCI 22 Top Five Eastern European and Central Asian Centres over Time



“We are doing much more business in the Baltic at the moment.”

ASSET MANAGER BASED IN DUBAI

Chart 23 | GFCI 22 Assessments by Region for Warsaw — Difference from the Overall Mean of 639**Chart 24 | GFCI 22 Assessments by Region for Tallinn — Difference from the Overall Mean of 599****Chart 25 | GFCI 22 Assessments by Region for Riga — Difference from the Overall Mean of 586**

The Middle East and Africa

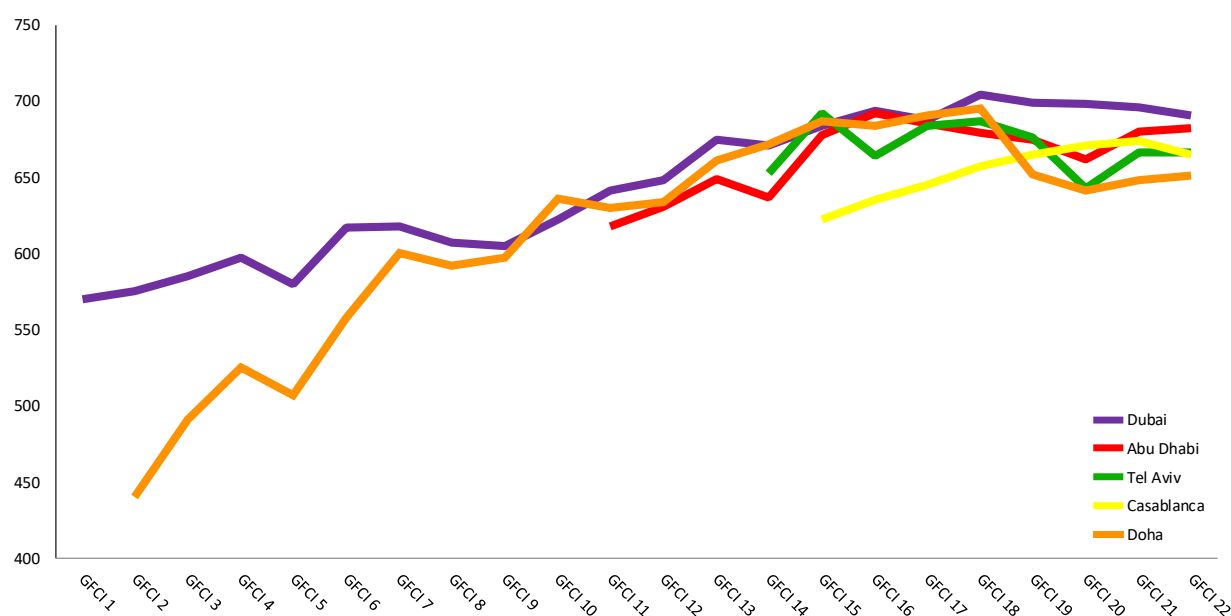
Table 11 shows the Middle East and African Centres in GFCI 22. Financial centres in this region showed mixed results in GFCI 22. Dubai and Casablanca fell slightly but other centres in the region did well. Abu Dhabi, second in the region,

reduced the gap with Dubai. Elsewhere in the Middle East, there were good rises for Bahrain and Riyadh.

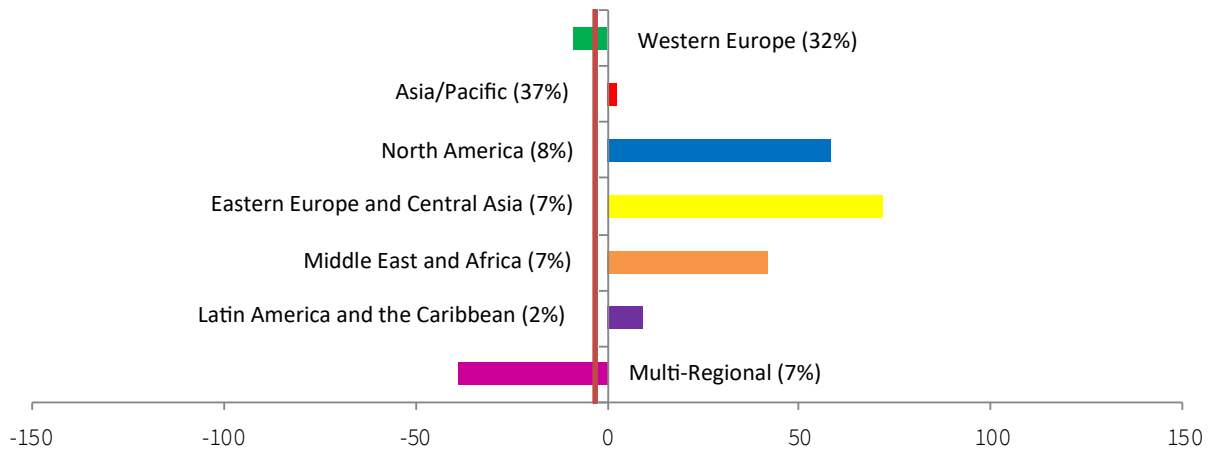
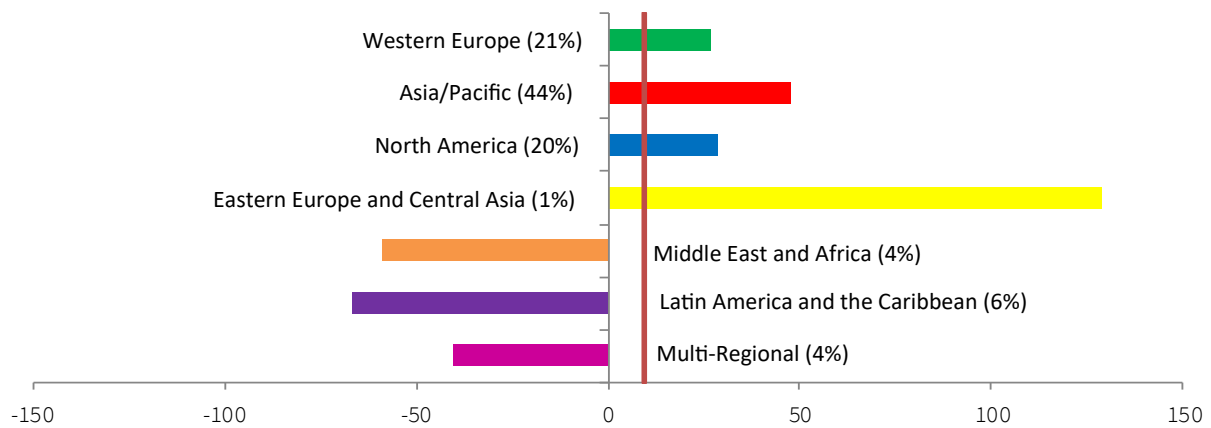
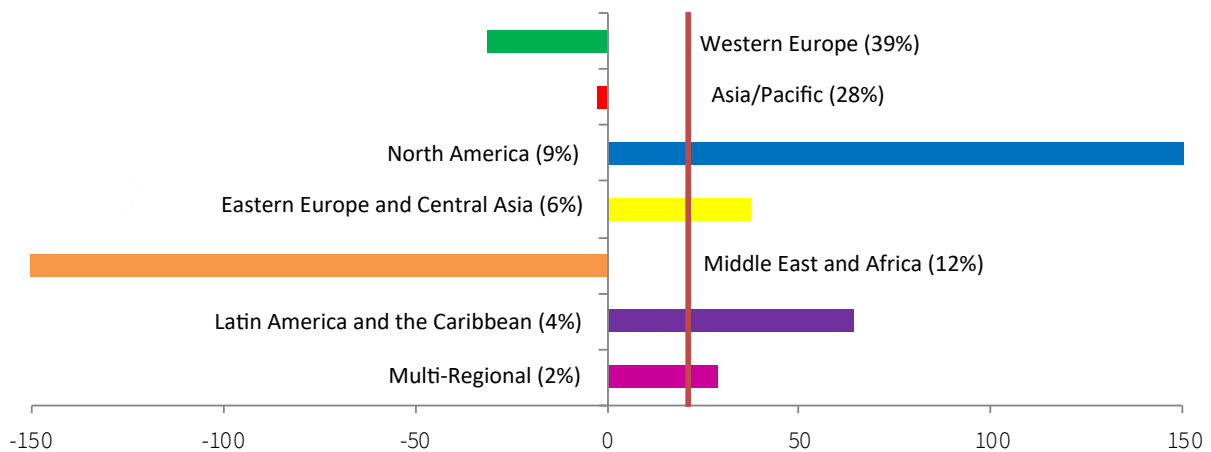
Table 11 | Middle East and African Centres in GFCI 22

Centre	GFCI 22		GFCI 21		Change in	
	Rank	Rating	Rank	Rating	Rank	Rating
Dubai	18	691	25	696	▲7	▼5
Abu Dhabi	25	682	28	680	▲3	▲2
Tel Aviv	34	666	32	666	▼2	0
Casablanca	35	665	30	674	▼5	▼9
Doha	45	651	39	648	▼6	▲3
Johannesburg	48	648	59	616	▲11	▲32
Bahrain	51	645	57	618	▲6	▲27
Mauritius	69	626	71	603	▲2	▲23
Riyadh	77	618	76	596	▼1	▲22

Chart 26 | GFCI 22 Top Five Middle East and African Centres over Time



“I sense that more activity is going on in Abu Dhabi at the moment.”

Chart 27 | GFCI 22 Assessments by Region for Dubai — Difference from the Overall Mean of 716**Chart 28 | GFCI 22 Assessments by Region for Abu Dhabi — Difference from the Overall Mean of 646****Chart 29 | GFCI 22 Assessments by Region for Tel Aviv — Difference from the Overall Mean of 602**

Latin America and the Caribbean

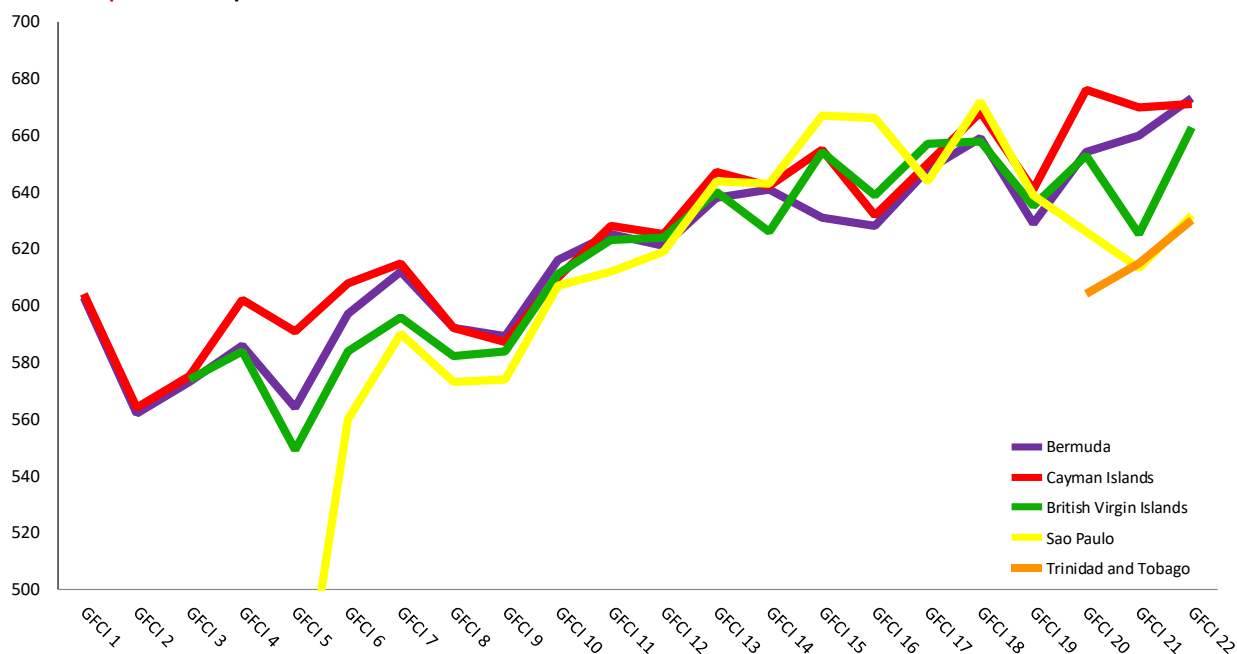
Table 12 shows the Latin American and Caribbean centres in GFCI 22. Latin American and Caribbean centres did well in GFCI 22. The island centres of the British Virgin Islands and the Bahamas saw strong rises. Sao Paulo and Rio de Janeiro also did well.

Buenos Aires joined the main GFCI but Santiago remains an associate centre, having failed to accumulate a sufficient number of assessments to enter the main index.

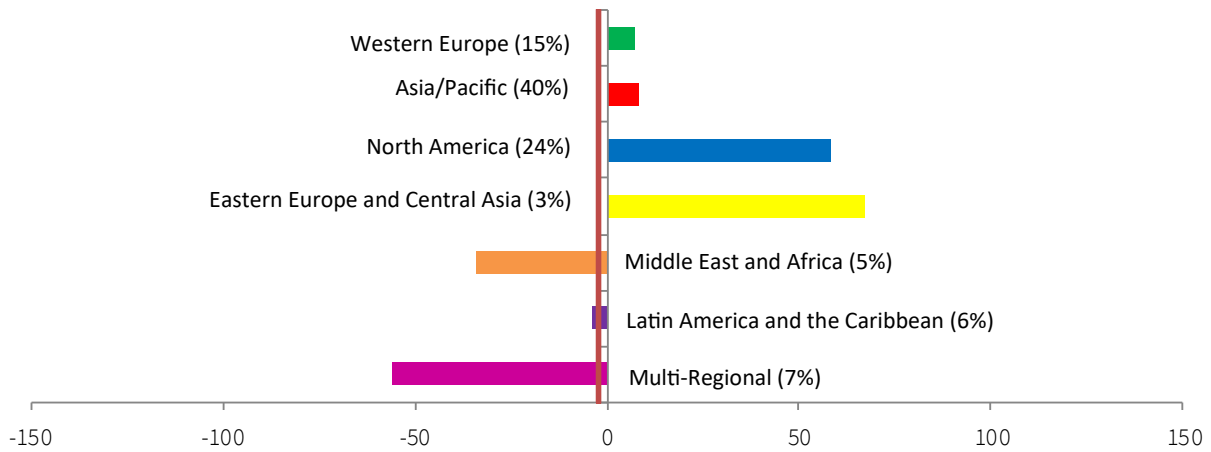
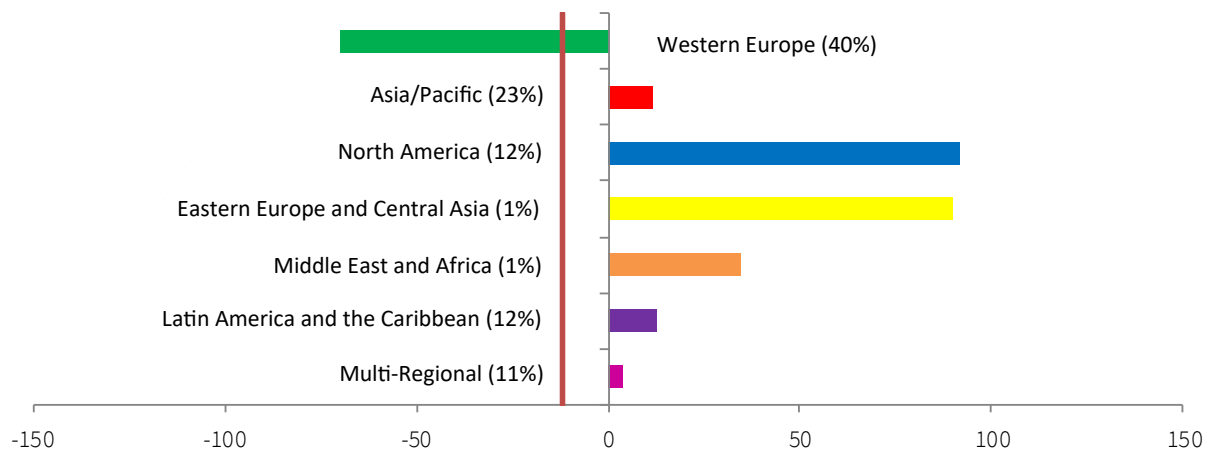
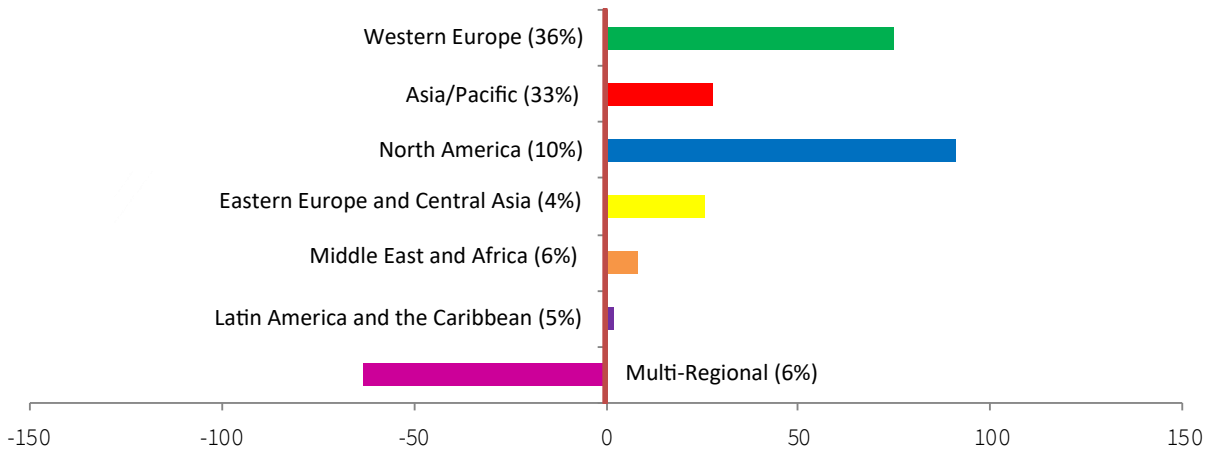
Table 12 | Latin American and Caribbean Centres in GFCI 22

Centre	GFCI 22		GFCI 21		Change in	
	Rank	Rating	Rank	Rating	Rank	Rating
Bermuda	29	673	34	660	▲ 5	▲ 13
Cayman Islands	31	671	31	670	0	▲ 1
British Virgin Islands	37	663	51	625	▲ 14	▲ 38
Sao Paulo	63	632	62	613	▼ 1	▲ 19
Trinidad and Tobago	65	630	60	615	▼ 5	▲ 15
Mexico City	73	622	61	614	▼ 12	▲ 8
Bahamas	81	614	83	582	▲ 2	▲ 32
Rio de Janeiro	82	613	73	599	▼ 9	▲ 14
Panama	88	602	84	580	▼ 4	▲ 22
Buenos Aires	90	600	New	New	New	New

Chart 30 | GFCI 22 Top Five Latin American and Caribbean Centres over Time



“Latin America still has huge potential but huge problems as well.”

Chart 31 | GFCI 22 Assessments by Region for the Bermuda — Difference from the Overall Mean of 634**Chart 32 | GFCI 22 Assessments by Region for Cayman Islands — Difference from the Overall Mean of 665****Chart 33 | GFCI 22 Assessments by Region for the British Virgin Islands — Difference from the Overall Mean of 632**

Home Centre Futures

Whilst the GFCI is calculated using only foreign assessments, we ask professionals on their views about the prospects of the centre in which they work (whether their 'home' centre will become more or less competitive).

In general, respondents are far more optimistic about the future of their home centres than people outside that centre.

Chart 34 | Home Centre Prospects — London

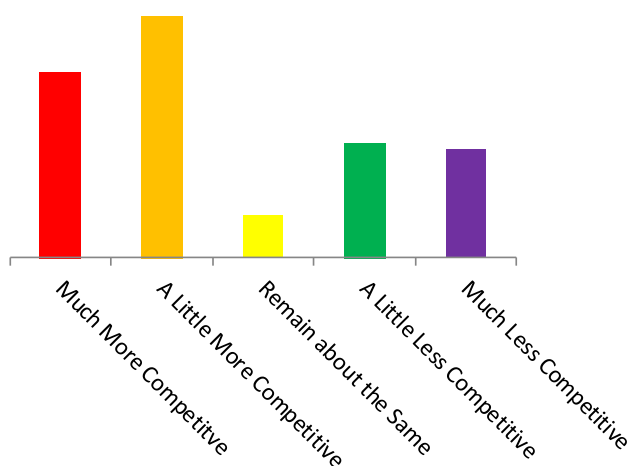


Chart 35 | Home Centre Prospects — New York

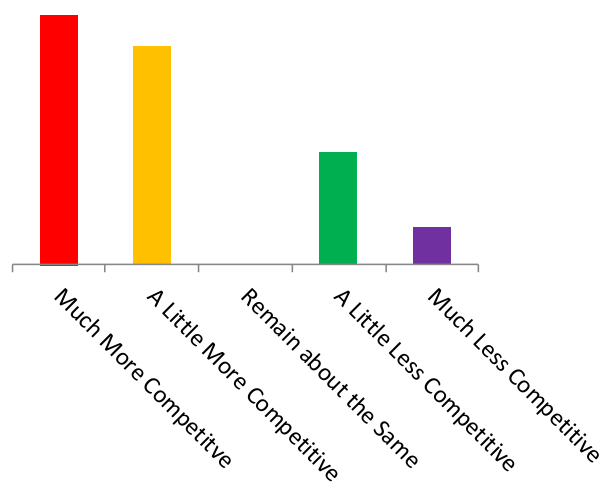


Chart 36 | Home Centre Prospects — Frankfurt

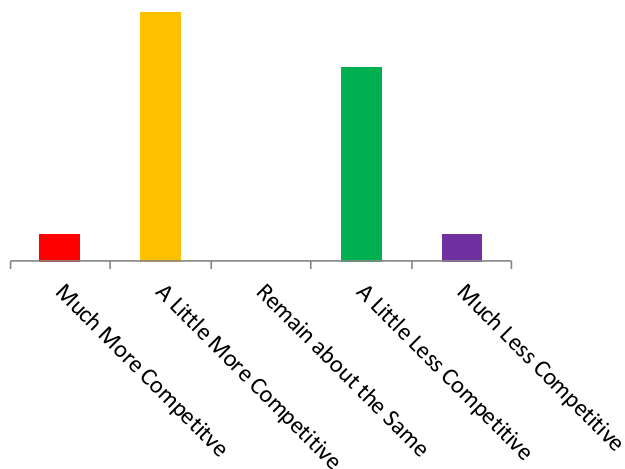
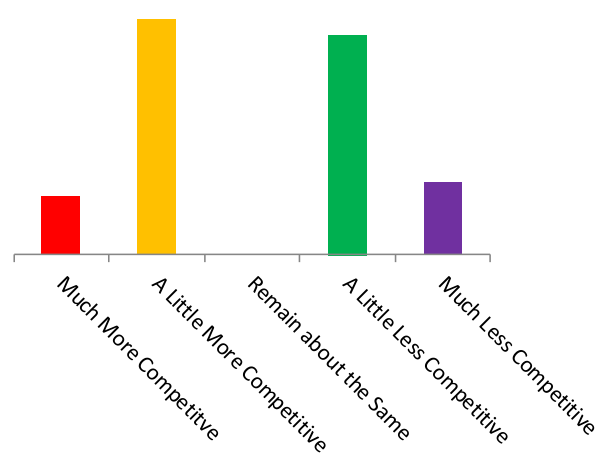


Chart 37 | Home Centre Prospects — Paris



Stability

The GFCI 22 model allows for an analysis of the financial centres, volatility of competitiveness. Chart 38 contrasts the 'spread' or variance of the individual assessments given to each of the top 40 centres with the sensitivity to changes in the instrumental factors.

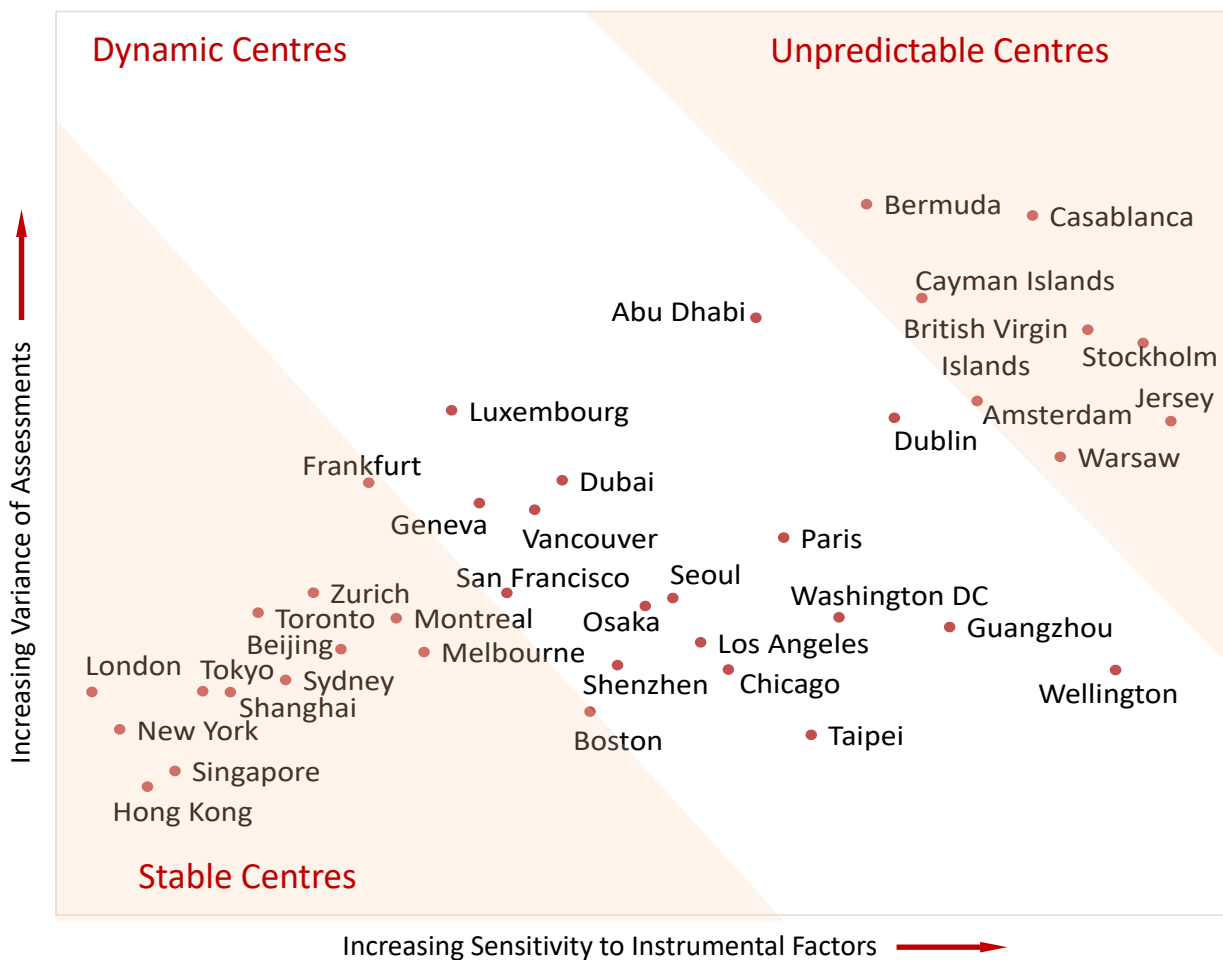
The chart shows three bands of financial centres. The unpredictable centres in the top right of the chart have a higher sensitivity to changes in the instrumental factors and a higher variance of assessments. These centres have the highest potential future movement.

The stable centres in the bottom left have a lower sensitivity to change and have shown consistency in their past GFCI ratings.

Beijing, Montreal and Melbourne have become more stable since GFCI 21. Guangzhou and Wellington have become dynamic centres. San Francisco and Washington DC were within the Stable zone in GFCI 21 but have become slightly less stable and are now classed as Dynamic.

Chart 38 only plots the top 40 centres (for clarity) but it is worth noting that most of the centres lower in the index would be in the unpredictable area of the chart if plotted.

Chart 38 | GFCI 22 – The Stability of the Top 40 Centres



Industry Sectors

Industry sector sub-indices are created by building the GFCI statistical model using only the questionnaire assessments from respondents working in the relevant industry sectors. The GFCI 22 dataset has been used to calculate separate sub-indices for Banking,

Investment Management, Insurance, Professional Services, and Government & Regulatory sectors. Table 13 shows the top fifteen ranked financial centres in these five industry sectors.

Table 13 | GFCI 22 Industry Sector Sub-Indices — Top Fifteen

Rank	Banking	Investment Management	Insurance	Professional Services	Government & Regulatory
1	London	London	Shanghai	London	London
2	New York	New York	Hong Kong	New York	New York
3	Hong Kong	Hong Kong	New York	Hong Kong	Singapore
4	Singapore	Singapore	London	Singapore	Hong Kong
5	Shanghai	Shanghai	Singapore	Shanghai	Beijing
5	Beijing	Beijing	Beijing	Zurich	Luxembourg
7	Frankfurt	Tokyo	Tokyo	Frankfurt	Chicago
8	Tokyo	Shenzhen	Shenzhen	Boston	Seoul
9	Shenzhen	Boston	Zurich	Tokyo	Frankfurt
10	Boston	Zurich	Sydney	Chicago	Washington DC
11	Los Angeles	Sydney	Boston	Beijing	Zurich
12	Washington DC	Frankfurt	Guangzhou	San Francisco	Toronto
13	Sydney	Toronto	Paris	Shenzhen	Boston
14	Zurich	San Francisco	Chicago	Toronto	Shanghai
15	Chicago	Chicago	Dubai	Washington DC	Tokyo

“Hong Kong may be worried about Beijing trying to exert more control. This is a factor, but Hong Kong has such strengths, such liquidity, and such loyalty that I wouldn’t write it off.”

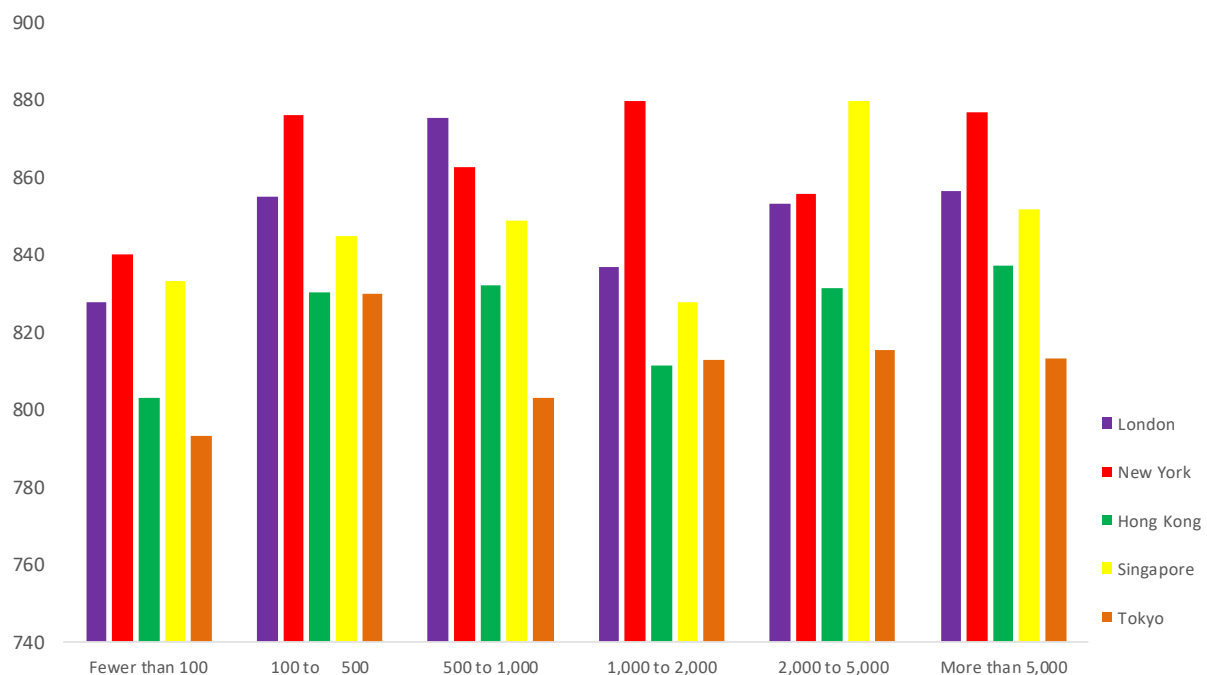
PRIVATE BANK DIRECTOR BASED IN SINGAPORE

Size of Organisation

It is useful to look at how the leading centres are viewed by respondents working for different sizes of organisation. London is favoured by respondents working in small and mid-sized organisations more than other

centres. New York is favoured by respondents from the smallest and the largest sized organisations. Singapore is favoured by organisations with between 2,000 and 5,000 people.

Chart 39 | GFCI 22 Average Assessments by Respondents' Organisation Size (number of employees)



“We now have an office in LA but we are also going into Europe now - London is the place to be for FinTech regardless of what they say about Brexit.”

VENTURE CAPITALIST BASED IN NEW YORK

“If you are a global bank you have to be in all of the top five centres.”

INVESTMENT BANKER BASED IN TOKYO

Reputation

In the GFCI 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, adjusted for time, with more recent assessments having more weight (see Appendix 3 for details).

The second measure is the GFCI score itself, which represents the average assessment adjusted to reflect the instrumental factors.

If a centre has a higher average assessment

than its GFCI rating, this indicates that respondents' perceptions of a centre are more favourable than the quantitative measures alone suggest.

Seven of the top ten centres in terms of reputational advantage are in the Asia/Pacific region. Toronto, New York, and London also show a strong reputational advantage. This may be due to strong marketing or general awareness. Table 14 shows the top 15 centres with the greatest positive difference between the average assessment and the GFCI rating.

Table 14 | GFCI 22 Top 15 Centres Assessments And Ratings — Reputational Advantage

Centre - Top 15	Weighted Average Assessment	GFCI 22 Rating	GFCI 22 Reputational Advantage
Qingdao	795	649	146
New York	867	756	111
Singapore	851	742	109
Hong Kong	830	744	86
Tokyo	809	725	84
Washington DC	753	676	77
Chengdu	680	604	76
Sydney	782	707	75
London	852	780	72
Boston	762	690	72
Shenzhen	759	689	70
Shanghai	779	711	68
San Francisco	758	693	65
Chicago	745	683	62
Zurich	758	704	54

“I find it hard to keep up with all these new centres growing up in China. I am sure that a number of others will enter your index soon.”

Table 15 shows 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.

Table 15 | GFCI 22 Bottom Ten Centres Assessments And Ratings — Reputational Disadvantage

Centre	Weighted Average Assessment	GFCI 22 Rating	GFCI 22 Reputational Advantage
Isle of Man	570	639	-69
Liechtenstein	559	631	-72
Istanbul	545	617	-72
Riga	568	642	-74
Buenos Aires	525	600	-75
Rio de Janeiro	536	613	-77
Vienna	576	656	-80
Almaty	535	615	-80
Glasgow	563	647	-84
Mauritius	541	626	-85
Gibraltar	533	620	-87
Trinidad and Tobago	527	630	-103
Riyadh	506	618	-112
Athens	438	611	-173
Dalian	391	595	-204

“The Caribbean centres still have a poor reputation to shake off and the Latin American centres are not much better.”

HEDGE FUND MANAGER BASED IN LONDON



Appendix 1: Assessment Details

Table 16 | Details of Assessments by Centre

Centre	GFCI 22 Rank	GFCI 22 Rating	----- Assessments Number	Average	----- St. Dev
London	1	780	1,016	850	151
New York	2	756	940	865	143
Hong Kong	3	744	817	825	131
Singapore	4	742	593	847	135
Tokyo	5	725	401	810	151
Shanghai	6	711	623	774	151
Toronto	7	710	311	763	165
Sydney	8	707	291	776	153
Zurich	9	704	449	760	169
Beijing	10	703	633	736	159
Frankfurt	11	701	555	738	187
Montreal	12	697	188	709	164
Melbourne	13	696	152	738	158
Luxembourg	14	695	343	704	198
Geneva	15	694	346	673	184
San Francisco	16	693	352	757	169
Vancouver	17	692	166	723	182
Dubai	18	691	361	716	187
Boston	19	690	419	762	147
Shenzhen	20	689	476	753	156
Osaka	21	688	134	714	166
Seoul	22	686	274	697	168
Los Angeles	23	683	322	723	160
Chicago	24	683	407	744	155
Abu Dhabi	25	682	237	646	211
Paris	26	680	501	679	178
Taipei	27	677	186	713	142
Washington DC	28	676	376	750	164
Bermuda	29	673	92	634	226
Dublin	30	672	352	642	197
Cayman Islands	31	671	170	665	214
Guangzhou	32	668	293	706	163
Amsterdam	33	667	379	644	199
Tel Aviv	34	666	82	602	281
Casablanca	35	665	97	704	224
Warsaw	36	664	127	639	191
British Virgin Islan	37	663	165	632	209
Wellington	38	661	63	692	155
Stockholm	39	660	144	610	207
Jersey	40	658	204	595	196
Guernsey	41	657	190	599	204
Vienna	42	656	139	581	222
Copenhagen	43	655	212	600	197
Tallinn	44	653	71	599	188
Doha	45	651	154	632	199
Oslo	46	650	143	603	197

Centre	GFCI 22 Rank	GFCI 22 Rating	----- Assessments Number	Average	----- St. Dev
Qingdao	47	649	915	791	161
Johannesburg	48	648	123	582	208
Glasgow	49	647	159	561	216
Munich	50	646	165	648	218
Bahrain	51	645	115	582	210
Edinburgh	52	643	289	638	182
Riga	53	642	103	586	197
Milan	54	641	202	632	184
Kuala Lumpur	55	640	175	633	179
Isle of Man	56	639	200	585	211
Brussels	57	638	343	616	189
Prague	58	637	122	594	187
Madrid	59	636	205	582	198
Mumbai	60	635	124	573	208
Bangkok	61	634	200	597	181
Jakarta	62	633	122	606	193
Sao Paulo	63	632	112	621	198
Liechtenstein	64	631	138	561	221
Trin. & Tob.	65	630	42	540	227
Manila	66	629	107	575	191
Hamburg	67	628	152	637	210
Monaco	68	627	182	612	191
Mauritius	69	626	75	548	232
Busan	70	625	106	589	191
Calgary	71	624	117	641	202
Budapest	72	623	101	576	184
Mexico City	73	622	130	588	208
Rome	74	621	187	567	214
Gibraltar	75	620	158	530	229
Cyprus	76	619	154	573	214
Riyadh	77	618	60	507	244
Istanbul	78	617	132	554	207
Lisbon	79	616	154	568	229
Almaty	80	615	63	544	221
Bahamas	81	614	113	567	225
Rio de Janeiro	82	613	78	533	227
Helsinki	83	612	149	566	198
Athens	84	611	112	448	206
Malta	85	609	164	571	215
Chengdu	86	604	205	680	200
St Petersburg	87	603	107	569	219
Panama	88	602	113	543	233
Moscow	89	601	269	541	215
Buenos Aires	90	600	75	528	239
Reykjavik	91	598	103	540	221
Dalian	92	595	660	389	189

Appendix 2: Respondent's Details

Table 17 | Respondents by Industry Sector

Industry Sector	Number of Respondents
Banking	637
Finance	87
Government & Regulatory	84
Insurance	157
Investment Management	293
Professional Services	378
Trade Association	66
Trading	123
Other	233
Total	2,058

Table 18 | Respondents by Region

Region	Number of Respondents
Western Europe	491
Asia/Pacific	987
North America	225
Middle East and Africa	93
Eastern Europe and Central Asia	82
Latin America and the Caribbean	50
Other	130
Total	2,058

Table 19 | Respondents by Size of Organisation

Size of Organisation	Number of Respondents
Fewer than 100	413
100 to 500	260
500 to 1,000	204
1,000 to 2,000	170
2,000 to 5,000	173
More than 5,000	823
Other	15
Total	2,058

Appendix 3: Methodology

The GFCI provides ratings for financial centres calculated by a ‘factor assessment model’ that uses two distinct sets of input:

Instrumental factors: objective evidence of competitiveness was sought from a wide variety of comparable sources. For example, evidence about the telecommunications infrastructure competitiveness of a financial centre is drawn from the ICT Development Index (supplied by the United Nations), the Networked Readiness Index (supplied by the World Economic Forum), the Telecommunication Infrastructure Index (by the United Nations) and the Web Index (supplied by the World Wide Web Foundation). Evidence about a business-friendly regulatory environment is drawn from the Ease of Doing Business Index (supplied by the World Bank), the Government Effectiveness rating (supplied by the World Bank) and the Corruption Perceptions Index (supplied by Transparency International) amongst others.

A total of 102 instrumental factors are used in GFCI 22 of which 53 were updated since GFCI 21 and two are new to the GFCI). Not all financial centres are represented in all the external sources, and the statistical model takes account of these gaps.

Financial centre assessments: by means of an online questionnaire, running continuously since 2007, We received 3,159 responses to the questionnaire in the 24 months to June 2017. Of these, 2,058 respondents provided 23,812 valid assessments of financial centres. Financial centres are added to the GFCI questionnaire when they receive five or more mentions in the online questionnaire in response to the question: “Are there any financial centres that might become significantly more important over the next two to three years?”

A centre is only given a GFCI rating and ranking if it receives more than 200 assessments from other centres within the previous 24 months in the online survey. Centres in the GFCI that do not receive 50 assessments in a 24 month period are removed and added to the Associate list until the number of assessments increases.

At the beginning of our work on the GFCI, a number of guidelines were set out. Additional Instrumental Factors are added to the GFCI model when relevant and meaningful ones are discovered:

- indices should come from a reputable body and be derived by a sound methodology;
- indices should be readily available (ideally in the public domain) and be regularly updated;
- updates to the indices are collected and collated every six months;
- no weightings are applied to indices;
- Indices are entered into the GFCI model as directly as possible, whether this is a rank, a derived score, a value, a distribution around a mean or a distribution around a benchmark.
- if a factor is at a national level, the score will be used for all centres in that country; nation-based factors will be avoided if financial centre (city) - based factors are available;
- if an index has multiple values for a city or nation, the most relevant value is used (and the method for judging relevance is noted);
- if an index is at a regional level, the most relevant allocation of scores to each centre is made (and the method for judging relevance is noted);
- if an index does not contain a value for a particular city, a blank is entered against that centre (no average or mean is used).

Creating the GFCI does not involve totalling or averaging scores across instrumental factors. An approach involving totalling and averaging would involve a number of difficulties:

- indices are published in a variety of different forms: an average or base point of 100 with scores above and below this; a simple ranking; actual values (e.g. \$ per square foot of occupancy costs); a composite ‘score’;
- indices would have to be normalised, e.g. in some indices a high score is positive while in others a low score is positive;
- not all centres are included in all indices;
- the indices would have to be weighted.

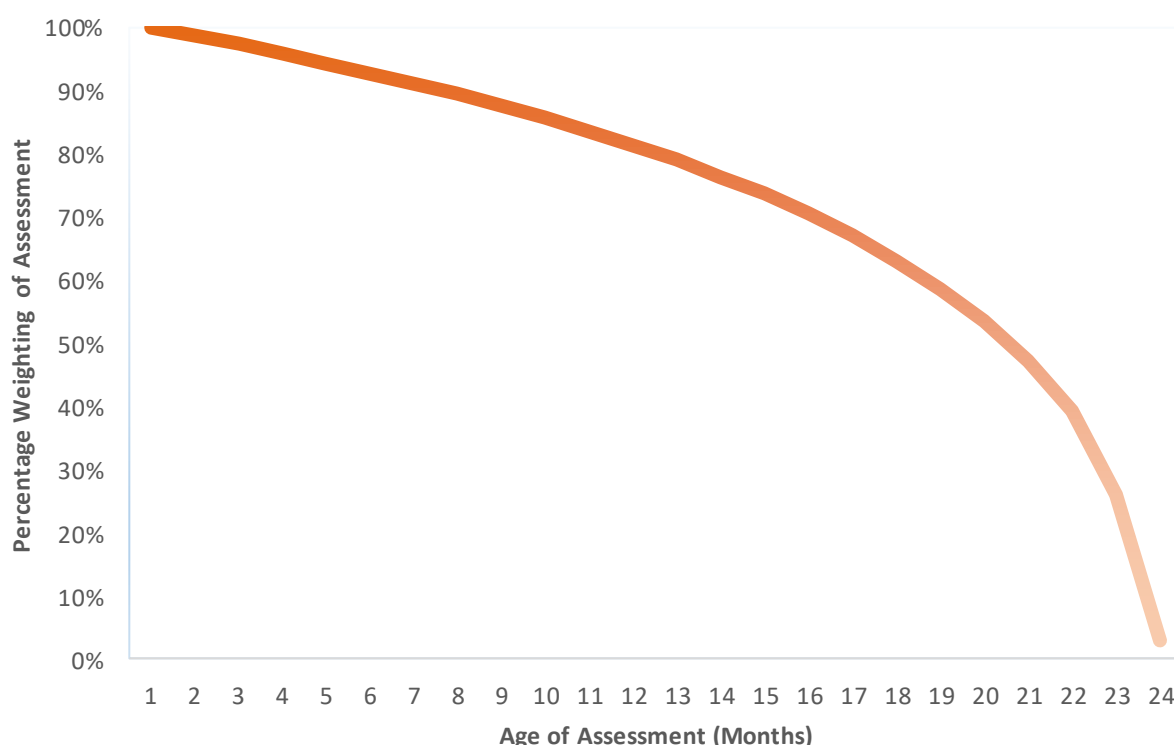
The guidelines for financial centre assessments by respondents are:

- responses are collected via an online questionnaire which runs continuously. A link to this questionnaire is emailed to the target list of respondents at regular intervals and other interested parties can fill this in by following the link given in the GFCI publications;
- financial centre assessments will be included in the GFCI model for 24 months after they have been received;
- respondents rating fewer than three or more than half of the centres are excluded from the model;
- respondents who do not say where they work are excluded;
- financial centre assessments from the month when the GFCI is created are given full weighting and earlier responses are given a reduced weighting on a log scale.

“I think the GFCI has become a valuable tool for the industry. Many of my contacts here and overseas mention it. City competitiveness is an elusive concept but this index is clever in its approach.”

PENSION FUND MANAGER BASED IN DUBLIN



Chart 40 | Reduction In Weighting as Assessments get Older

The financial centre assessments and instrumental factors are used to build a predictive model of centre competitiveness using a support vector machine (SVM). SVMs are based upon statistical techniques that classify and model complex historic data in order to make predictions of new data. SVMs work well on discrete, categorical data but also handle continuous numerical or time series data. The SVM used for the GFCI provides information about the confidence with which each specific classification is made and the likelihood of other possible classifications.

A factor assessment model is built using the centre assessments from responses to the online questionnaire. Assessments from respondents' home centres are excluded from the factor assessment model to remove home bias. The model then predicts how respondents would have assessed centres they are not familiar with, by answering questions such as:

- If an investment banker gives Singapore and Sydney certain assessments then, based on the relevant data for Singapore, Sydney and Paris, how would that person assess Paris?

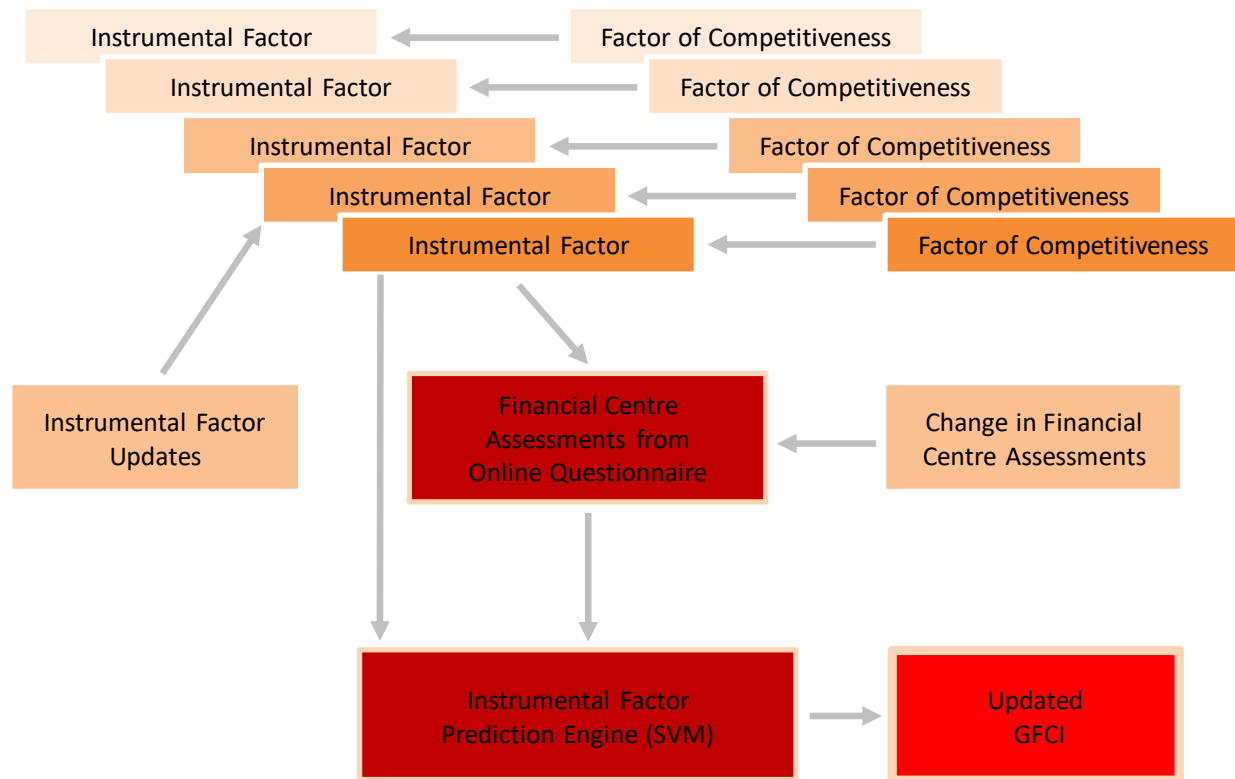
Or

- If a pension fund manager gives Edinburgh and Munich a certain assessment then, based on the relevant data for Edinburgh, Munich and Zurich, how would that person assess Zurich?

Financial centre predictions from the SVM are re-combined with actual financial centre assessments (except those from the respondents' home centres) to produce the GFCI – a set of financial centre ratings.

The GFCI is dynamically updated either by updating and adding to the instrumental factors or through new financial centre assessments. These updates permit, for instance, a recently changed index of rental costs to affect the competitiveness rating of the centres.

Chart 41 | The GFCI Process



It is worth drawing attention to a few consequences of basing the GFCI on instrumental factors and questionnaire responses:

- several indices can be used for each competitive factor;
- a strong international group of ‘raters’ has developed as the GFCL progresses;
- sector-specific ratings are available – using the business sectors represented by questionnaire respondents. This makes it possible to rate London as competitive in Insurance (for instance) while less competitive in Asset Management (for instance);
- the factor assessment model can be queried in a ‘what if’ mode – “how much would London rental costs need to fall in order to increase London’s ranking against New York?”

Part of the process of building the GFCI is extensive sensitivity testing to changes in factors of competitiveness and financial centre assessments.

There are over ten million data points in the current GFCI model. The accuracy of predictions given by the SVM are regularly tested against actual assessments.



Appendix 4: Instrumental Factors

Instrumental Factor	R-squared
RF09 Price Levels	0.397
RF17 IESE cities in motion index	0.332
IF01 Office Occupancy Cost	0.323
BE18 Government Effectiveness	0.257
RF02 Global Competitiveness Index	0.256
RF19 Sustainable Cities Index	0.248
BE07 Wage Comparison Index	0.243
BE01 Business Environment Rankings	0.243
IF16 Logistics Performance Index	0.243
RF20 Global Cities Index	0.238
BE13 Economic Freedom of the World	0.231
HC05 Citizens Domestic Purchasing Power	0.222
BE03 Operational Risk Rating	0.220
BE28 Regulatory Quality	0.218
RF01 World Competitiveness Scoreboard	0.215
RF14 Global Enabling Trade Report	0.214
IF10 Networked Readiness Index	0.210
BE06 Corruption Perception Index	0.208
IF17 Networked Society Index	0.208
BE29 Control of Corruption	0.204
HC08 Top Tourism Destinations	0.194
BE26 Rule of Law	0.193
HC10 Quality of Living City Rankings	0.189
IF07 Quality of Roads	0.183
BE02 Ease of Doing Business Index	0.183
RF06 Global Innovation Index	0.183
BE20 Regulatory Enforcement	0.180
BE32 Global Cybersecurity Index	0.179
IF06 Quality of Domestic Transport Network	0.178
HC16 Cost of Living City Rankings	0.174

Table 21 | Business Environment Factors

Instrumental Factor	Source	Website	Change Since GFCI 21
Business Environment Rankings	EIU	http://www.eiu.com/public/thankyou_download.aspx?activity=download&campaignid=bizenviro2014	
Ease of Doing Business Index	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=doing-business	Updated
Operational Risk Rating	EIU	http://www.viewswire.com/index.asp?layout=homePubTypeRK	Updated
Real Interest Rate	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
Global Services Location	AT Kearney	http://www.atkearney.com/research-studies/global-services-location-index	
Corruption Perception Index	Transparency International	http://www.transparency.org/policy_research/surveys_indices/cpi	Updated
Wage Comparison Index	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
Corporate Tax Rates	PWC	http://www.doingbusiness.org/reports/thematic-reports/paying-taxes/	
Employee Tax Rates	PWC	n/a	
Personal Tax Rates	OECD	http://www.oecd.org/tax/tax-policy/tax-database.htm	Updated
Tax as Percentage of GDP	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
Bilateral Tax Information Exchange Agreements	OECD	http://www.oecd.org/document/7/0,3343,en_2649_33767_38312839_1_1_1_1,00.html	
Economic Freedom of the World	Fraser Institute	http://www.freetheworld.com/release.html	
Government Debt as % of GDP	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2186rank.html	Updated
OECD Country Risk Classification	OECD	http://www.oecd.org/tad/xcred/crc.htm	Updated
Global Peace Index	Institute for Economics & Peace	http://www.visionofhumanity.org/	Updated
Financial Secrecy Index	Tax Justice Network	http://www.financialsecrecyindex.com/	
Government Effectiveness	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	
Open Government	World Justice Project	http://worldjusticeproject.org/rule-of-law-index	
Regulatory Enforcement	World Justice Project	http://worldjusticeproject.org/rule-of-law-index	
Press Freedom Index	Reporters Without Borders (RSF)	http://en.rsf.org/	Updated
Currencies	Swiss Association for Standardization (S)	http://www.currency-iso.org/en/home/tables/table-a1.html	Updated
Commonwealth Countries	The Commonwealth	http://thecommonwealth.org/member-countries	
Common Law Countries	CIA	https://www.cia.gov/library/publications/the-world-factbook/fields/2100.html	
Inflation, GDP Deflator	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
Rule of Law	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	
Political Stability and Absence of Violence/Terrorism	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	
Regulatory Quality	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	
Control of Corruption	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	
Best Countries for Business	Forbes	http://www.forbes.com/best-countries-for-business/list/#tab:overall	Updated
Lloyd's City Risk Index 2015-2025	Lloyd's	http://www.lloyds.com/cityriskindex/locations	
Global Cybersecurity Index	ITU	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/GC	Updated

Table 22 | Human Capital Factors

Instrumental Factor	Source	Website	Change Since GFCI 21
Graduates in Social Science, Business and Law	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=Education%20Statistics	
Gross Tertiary Graduation Ratio	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=Education%20Statistics	
Visa Restrictions Index	Henley Partners	http://www.henleyglobal.com/citizenship/visa-restrictions/	Updated
Human Development Index	UN Development Programme	http://hdr.undp.org	Updated
Citizens Domestic Purchasing Power	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
Number of High Net Worth Individuals	Capgemini	https://www.worldwealthreport.com/	
Homicide Rates	UN Office of Drugs & Crime	https://data.unodc.org/	Updated
Top Tourism Destinations	Euromonitor	http://blog.euromonitor.com/2016/01/top-100-city-destinations-ranking-2016.html	Updated
Average precipitation in depth	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	
Quality of Living City Rankings	Mercer	http://www.mercer.com	Updated
Health Care Index	Numbeo	http://www.numbeo.com/health-care/rankings.jsp	Updated
Global Skills Index	Hays	http://www.hays-index.com/	Updated
Linguistic Diversity	Ethnologue	http://www.ethnologue.com/statistics/country	Updated
Global Terrorism Index	Institute for Economics & Peace	http://www.visionofhumanity.org/	
World Talent Rankings	IMD	http://www.imd.org/wcc/news-talent-report/	
Cost of Living City Rankings	Mercer	http://www.mercer.com	Updated
Quality of Life Index	Numbeo	http://www.numbeo.com/quality-of-life/rankings.jsp	Updated
Crime Index	Numbeo	http://www.numbeo.com/crime/rankings.jsp#	Updated

Table 23 | Infrastructure Factors

Instrumental Factor	Source	Website	Change Since GFCI 21
Office Occupancy Cost	CBRE Research	http://www.cbre.com/research-and-reports/Global-Prime-Office-Occupancy-Costs-2016	Updated
Prime International Residential Index	Knight Frank	http://www.knightfrank.com/wealthreport	Updated
JLL Real Estate Transparency Index	Jones Lang LaSalle	http://www.jll.com/greti/Pages/Rankings.aspx	
ICT Development Index	United Nations	http://www.itu.int/net4/ITU-D/di/2016/	
Telecommunication Infrastructure Index	United Nations	http://unpan3.un.org/egovkb/Data-Center	
Quality of Domestic Transport Network	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	Updated
Quality of Roads	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	Updated
Roadways per Land Area	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2085rank.html	Updated
Railways per Land Area	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2121rank.html	Updated
Networked Readiness Index	World Economic Forum	http://reports.weforum.org/global-information-technology-report-2016/	
Energy Sustainability Index	World Energy Council	http://www.worldenergy.org/data/sustainability-index/	
Metro Network Length	Metro Bits	http://mic-ro.com/metro/table.html	
The Web Index	The World Wide Web Foundation	http://thewebindex.org/about/the-web-index/	
Environmental Performance	Yale University	http://epi.yale.edu/epi/country-rankings	
Global Sustainable Competitiveness Index	Solability	http://solability.com/the-global-sustainable-competitiveness-index/the-index	
Logistics Performance Index	The World Bank	http://lpi.worldbank.org/international/global	
Networked Society City Index	Ericsson	https://www.ericsson.com/res/docs/2016/2016-networked-society-city-index.pdf	New
TomTom Traffic Index	TomTom	https://www.tomtom.com/en_gb/trafficindex/list?citySize=LARGE&continent=ALL&country=ALL	New

Table 24 | Financial Sector Development Factors

Instrumental Factor	Source	Website	Change Since GFCI 21
Capitalisation of Stock Exchanges	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-	Updated
Value of Share Trading	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-	Updated
Volume of Share Trading	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-	Updated
Broad Stock Index Levels	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-	Updated
Value of Bond Trading	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-	Updated
Domestic Credit Provided by Banking Sector (% of G	The World Bank	http://databank.worldbank.org/data/reports.aspx?s	Updated
Percentage of Firms Using Banks to Finance Invest	The World Bank	http://databank.worldbank.org/data/reports.aspx?s	Updated
Total Net Assets of Regulated Open-End Funds	Investment Company Institute	http://www.icifactbook.org/	Updated
Islamic Finance Country Index	Islamic Banks and Financial Institution:	http://www.gifr.net/publications	Updated
Net External Positions of Banks	The Bank for International Settlements	http://www.bis.org/statistics/bankstats.htm	Updated
External Positions of Central Banks as a share of G	The Bank for International Settlements	http://www.bis.org/statistics/bankstats.htm	Updated
Liner Shipping Connectivity Index	The World Bank	http://databank.worldbank.org/data/reports.aspx?s	Updated
Global Connectedness Index	DHL	http://www.dhl.com/en/about_us/logistics_insights/studies_research/global_connectedness_index/glo	
City GDP composition (Business/Finance)	The Brookings Institution	http://www.brookings.edu/research/interactives/glo	
Business Process Outsourcing Location Index	Cushman & Wakefield	http://www.cushmanwakefield.com/en/research-and-insight/2015/business-process-outsourcing-	

Table 25 | Reputation Factors

Instrumental Factor	Source	Website	Change Since GFCI 21
World Competitiveness Scoreboard	IMD	http://www.imd.ch/research/publications/wcy/com-petitiveness_scoreboard.cfm	Updated
Global Competitiveness Index	World Economic Forum	http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm	
Foreign Direct Investment Inflows	UNCTAD	http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx?sRF_ActivePath=P,5,27&sRF_Expanded=	
FDI Confidence Index	AT Kearney	http://www.atkearney.com/research-studies/foreign-direct-investment-confidence-index	Updated
GDP per Person Employed	The World Bank	http://databank.worldbank.org/data/reports.aspx?s	Updated
Global Innovation Index	INSEAD	http://www.globalinnovationindex.org/content.aspx?page=GII-Home	Updated
Global Intellectual Property Index	Taylor Wessing	http://www.taylorwessing.com/ipindex/	
RPI (% change on year ago)	The Economist	http://www.economist.com/markets/indicators/	Updated
Price Levels	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
Number of International Association Meetings	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	Updated
Innovation Cities Global Index	2ThinkNow Innovation Cities	http://www.innovation-cities.com/	Updated
Big Mac Index	The Economist	http://www.economist.com/content/big-mac-index	Updated
Sustainable Economic Development	Boston Consulting Group	https://www.bcgperspectives.com/content/interactive/public_sector_globalization_interactive_map_su	
Global Enabling Trade Report	World Economic Forum	http://www.weforum.org/issues/international-trade	
Good Country Index	Good Country Party	http://www.goodcountry.org/overall	
Legatum Prosperity Index	Legatum Institute	http://www.prosperity.com/#/ranking	
IESE cities in motion index	IESE	http://citiesinmotion.iese.edu/indicecim/?lang=en	Updated
FDI Inward Stock as a Percentage of GDP	UNCTAD	http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx	Updated
Sustainable Cities Index	Arcadis	https://www.arcadis.com/en/global/our-perspectives/sustainable-cities-index-2016/	
Global Cities Index	AT Kearney	https://www.atkearney.com/research-studies/global-cities-index	

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**Carol Feng at carolf@cdi.org.cn
www.cdi.org.cn**



AIFC was established in 2015 to further develop the non-banking financial sector in Kazakhstan – a very timely establishment coinciding with a new wave of privatisation and review of asset allocation strategy of government funds. Based on Astana EXPO-2017 infrastructure, it also aims to promote FinTech and drive the development of niche markets such as Islamic and green finance in the region.

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