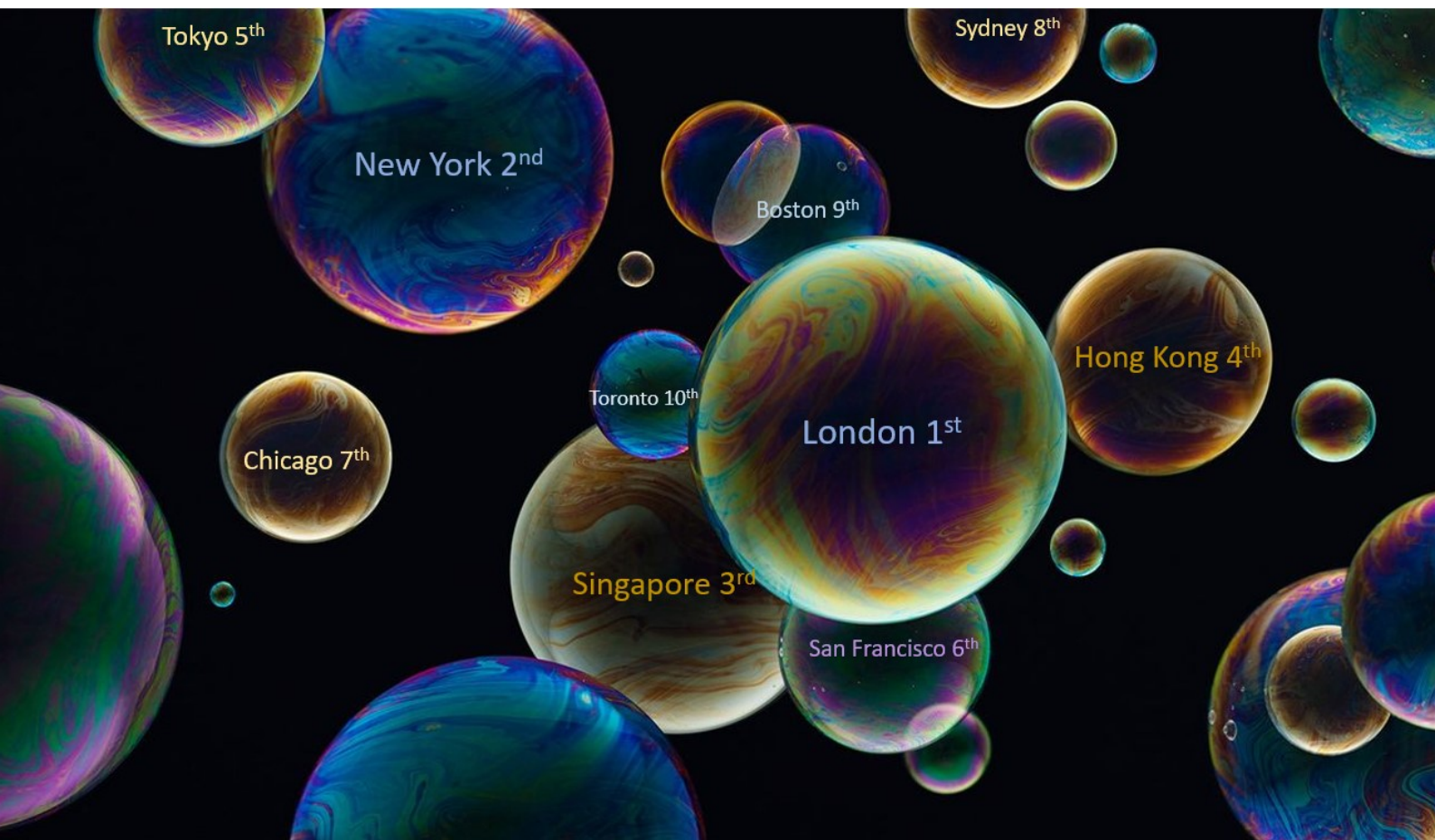




The Global Financial Centres Index 21

MARCH 2017



Financial Centre Futures





We are very pleased to present the twenty first edition of the Global Financial Centres Index (GFCI 21).

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 September 2015 the two think tanks jointly launched GFCI 18 in Shenzhen and 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 decision-making.

The CDI is a non-governmental 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 Xueyi Jiang, Simon Mills, Ben Morris, Michael Mainelli, Carol Feng, Peng Yu and the rest of the GFCI team for their contributions with research, modelling and ideas.



Foreword

China's financial sector is undergoing profound changes which have been accelerating in recent years.

The liberalization of interest rates and the cost of capital, has far-reaching influence on the financial system. In October 2014, China removed the deposit-rate ceiling, marking the last step of interest rate liberalization. The calm reaction of the market showed that market participants were mature and well-prepared.

The fluctuation of the financial markets in 2015 didn't change China's commitment to financial reform and opening up. In August 2015, the People's Bank of China (PBOC) announced a major improvement to the formation of the RMB's central parity rate against the US dollar, by taking into consideration the closing rate on the inter-bank forex market of the previous day. Two months later, RMB was accepted as the fifth component currency of SDR (the Special Drawing Rights by the IMF) following the US Dollar, Euro, Japanese Yen and British Pound. This was widely considered as recognition of China's financial reform and opening up by the international community.

With the growing size of the Chinese economy, fund-raising in China's A-share market amounted to RMB 1.62 trillion in 2016, more than any other market in the world. Since China aims to increase the proportion of direct finance, the potential of the capital market is definitely promising.

Shanghai plays a significant role in China's financial reform and opening up. As the far-eastern financial centre at the beginning of the 20th Century, Shanghai has now re-emerged as the leading financial centre of China. It hosts almost all financial markets, from stock market to gold, financial derivatives and foreign exchange market. Shanghai has also become China's first pilot Free Trade Zone. China has made it a national strategy to develop Shanghai into a global financial centre. In 2009, the State Council announced that it would turn Shanghai into an international financial centre, commensurate with China's overall economic strength and the international status of RMB. China expects its comprehensive reform to achieve decisive results by 2020. In GFCI 21, Shanghai has risen three places to 13th.

Despite the challenges and uncertainties in the global economy, China remains cool-headed with economic globalization. As Chinese President Xi Jinping put it at Davos 2017, *"It is true that economic globalization has created new problems, but this is no justification to write-off economic globalization completely. Rather, we should adapt to and guide economic globalization, cushion its negative impact, and deliver its benefits to all countries and all nations. We should act pro-actively and manage economic globalization as appropriate, so as to release its positive impact and rebalance the process of economic globalization."* These sentiments also apply to China's financial reform and opening up.

The next few years will be a critical period for deepening China's financial reform and opening up. With the reform of the financial regulatory framework, launch of the registration-based IPO system, evolution of FinTech and the robust growth of the Chinese economy, China will make great progress in its financial reform and opening up. Shanghai's position as an international financial centre will be further enhanced.



Jiang Jianqing

President of CEIBS Lujiazui Institute of International Finance

Chairman of China-Central Eastern European Fund

GFCI 21 Summary and Headlines

GLOBAL FINANCIAL CENTRES INDEX 21

The number of financial centres in the main index has increased to 88 with the addition of Guangzhou from the associate centres list. 106 financial centres were researched for this edition of the Global Financial Centres Index (GFCI).

- With the addition of Karachi, Chengdu and Hangzhou the number of associate centres has increased to 18.
- The index was compiled using 101 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 3,008 responses to the questionnaire in the 24 months to December 2016. Details of the methodology behind GFCI 21 can be found in Appendix 3.

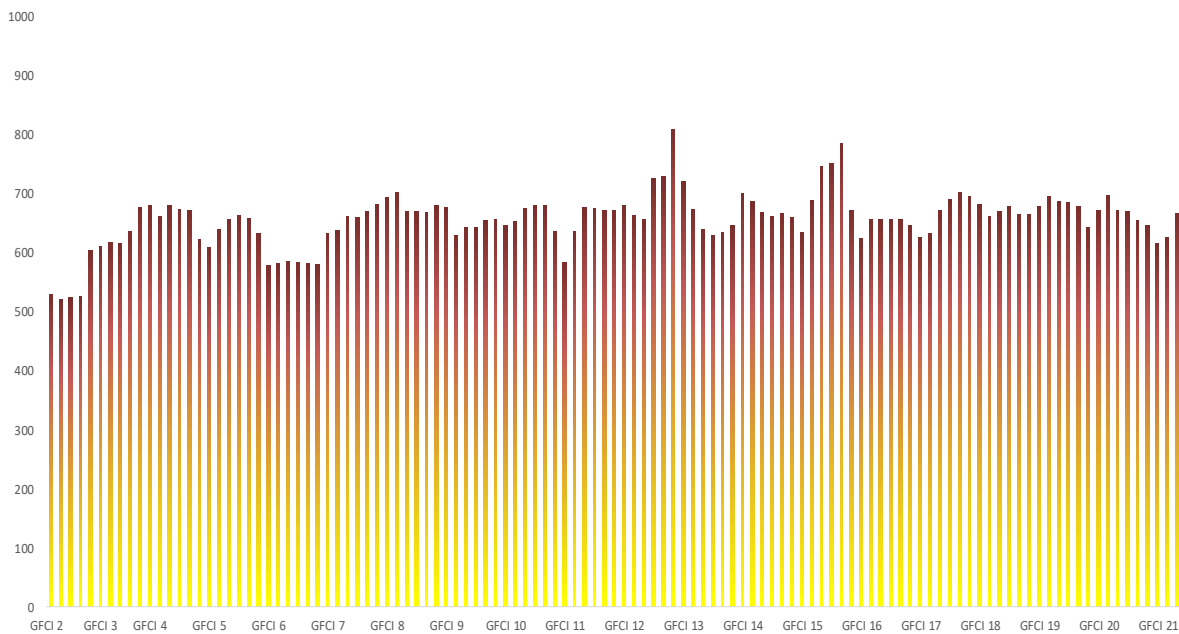
THE RESULTS

- **No change in the top five positions.** Despite the ‘interesting times’ in which we live, London, New York, Singapore, Hong Kong and Tokyo remain the top five financial centres.
- **Brexit and the US election have had a significant impact.** London and New York fell 13 and 14 points respectively. These were the largest declines (except for Calgary) in the top 50 financial centres.
- **The gap between third place Singapore and second place New York continues to close.** Singapore rose by eight points and is now only 20 points behind New York having been 42 points behind in GFCI 20.
- **Western European financial centres are still volatile.** Of the 29 GFCI centres in the region, 16 declined and 12 rose. Geneva recovered some of the ground it lost in GFCI 20. Ratings for Amsterdam, Vienna and Gibraltar fell significantly.
- **The leading financial centres in the Asia/Pacific region rose in the GFCI ratings.** Beijing rose significantly, rising ten places.
- **Centres in the USA, with the exception of New York, rose in the index.** Los Angeles moved up 20 points into the top 20 global centres.
- **In Canada, Toronto, Montreal and Vancouver all performed well in GFCI 21.** Financial professionals continue to favour safety and stability in their choices of location.
- **Five of the top six Eastern European centres rose in the ratings.** Istanbul was the exception to this pattern, falling 11 points. Istanbul is now in 66th place in the GFCI having been 45th a year ago. Continued conflict and political uncertainty affect confidence in the Turkish capital.
- **Financial centres in the Middle East and Africa did well in GFCI 21.** Apart from a very small decline by Dubai, the other main centres improved in the ratings. There were strong rises for Abu Dhabi and Tel Aviv.
- **Latin American centres continue to struggle.** Sao Paulo, Rio de Janeiro and Panama all fell significantly. Buenos Aires and Santiago remain associate centres having failed to accumulate a sufficient number of assessments to enter the main index.

- **Offshore centres had mixed results.** The British Crown Dependencies remained stable, whilst Caribbean centres had mixed fortunes with the Cayman Islands and the British Virgin Islands falling, but Bermuda and the Bahamas rising slightly.
- **Political and social upheaval continues to unsettle financial services.** The volatility of GFCI ratings rose in the second half of 2016. Assessments for London showed a sharp decline immediately after the results of the Brexit referendum were known but recovered later in 2016.
- Assessments for other European centres fluctuated as people speculated about which centres might benefit from London leaving the EU.
- North American assessments were also more volatile around the time of the USA election, first falling and then rising as the effect of a Trump administration was weighed up.

The full set of GFCI 21 ranks and ratings are shown in Table 1 overleaf.

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



“I’m kind of glad I’m this side of the Atlantic and north of the border with the USA right now.”

GLOBAL HEAD OF INVESTMENT BANKING BASED IN TORONTO

“The European finance industry is completely up in the air at the moment.”

COMMERCIAL BANK DIRECTOR BASED IN PARIS

Table 1 | GFCI 21 Ranks and Ratings

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
London	1	782	1	795	0	▼13
New York	2	780	2	794	0	▼14
Singapore	3	760	3	752	0	▲8
Hong Kong	4	755	4	748	0	▲7
Tokyo	5	740	5	734	0	▲6
San Francisco	6	724	6	720	0	▲4
Chicago	7	723	8	718	▲1	▲5
Sydney	8	721	11	712	▲3	▲9
Boston	9	720	7	719	▼2	▲1
Toronto	10	719	13	710	▲3	▲9
Zurich	11	718	9	716	▼2	▲2
Washington DC	12	716	10	713	▼2	▲3
Shanghai	13	715	16	700	▲3	▲15
Montreal	14	713	15	703	▲1	▲10
Osaka	15	712	17	699	▲2	▲13
Beijing	16	710	26	683	▲10	▲27
Vancouver	17	709	20	694	▲3	▲15
Luxembourg	18	708	12	711	▼6	▼3
Los Angeles	19	705	25	685	▲6	▲20
Geneva	20	704	23	689	▲3	▲15
Melbourne	21	702	24	687	▲3	▲15
Shenzhen	22	701	22	691	0	▲10
Frankfurt	23	698	19	695	▼4	▲3
Seoul	24	697	14	704	▼10	▼7
Dubai	25	696	18	698	▼7	▼2
Taipei	26	689	21	692	▼5	▼3
Munich	27	682	27	680	0	▲2
Abu Dhabi	28	680	32	662	▲4	▲18
Paris	29	679	29	672	0	▲7
Casablanca	30	674	30	671	0	▲3
Cayman Islands	31	670	28	676	▼3	▼6
Tel Aviv	32	666	38	643	▲6	▲23
Dublin	33	663	31	663	▼2	0
Bermuda	34	660	35	654	▲1	▲6
Kuala Lumpur	35	659	43	638	▲8	▲21
Bangkok	36	656	39	642	▲3	▲14
Guangzhou	37	650	-	-	-	-
Qingdao	38	649	46	631	▲8	▲18
Doha	39	648	40	641	▲1	▲7
Amsterdam	40	647	33	659	▼7	▼12
Warsaw	41	645	45	633	▲4	▲12
Tallinn	42	640	50	627	▲8	▲13
Jersey	43	633	42	639	▼1	▼6
Oslo	44	632	49	628	▲5	▲4

Table 1 (continued) | GFCI 21 Ranks and Ratings

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
Riga	45	631	52	625	▲7	▲6
Stockholm	46	630	44	636	▼2	▼6
Guernsey	47	629	47	630	0	▼1
Liechtenstein	48	628	56	621	▲8	▲7
Calgary	49	627	34	658	▼15	▼31
Busan	50	626	41	640	▼9	▼14
British Virgin Island	51	625	36	653	▼15	▼28
Copenhagen	52	623	60	616	▲8	▲7
Glasgow	53	622	61	615	▲8	▲7
Edinburgh	54	621	66	610	▲12	▲11
Brussels	55	620	62	614	▲7	▲5
Milan	56	619	53	624	▼3	▼5
Bahrain	57	618	58	619	▲1	▼1
Isle of Man	58	617	65	611	▲7	▲6
Johannesburg	59	616	59	618	0	▼2
Trinidad & Tobago	60	615	71	604	▲11	▲11
Mexico City	61	614	73	600	▲12	▲14
Sao Paulo	62	613	51	626	▼11	▼13
Mumbai	63	612	75	598	▲12	▲14
Vienna	64	611	37	645	▼27	▼34
Manila	65	610	78	595	▲13	▲15
Istanbul	66	609	57	620	▼9	▼11
Jakarta	67	608	76	597	▲9	▲11
Madrid	68	607	68	608	0	▼1
Prague	69	606	72	603	▲3	▲3
Budapest	70	604	77	596	▲7	▲8
Mauritius	71	603	79	594	▲8	▲9
Rome	72	601	64	612	▼8	▼11
Rio de Janeiro	73	599	54	623	▼19	▼24
Monaco	74	598	67	609	▼7	▼11
Dalian	75	597	48	629	▼27	▼32
Riyadh	76	596	82	585	▲6	▲11
Malta	77	594	74	599	▼3	▼5
Lisbon	78	593	69	607	▼9	▼14
Cyprus	79	590	80	593	▲1	▼3
Almaty	80	589	70	605	▼10	▼16
Gibraltar	81	587	55	622	▼26	▼35
Helsinki	82	585	81	586	▼1	▼1
Bahamas	83	582	86	566	▲3	▲16
Panama	84	580	63	613	▼21	▼33
Moscow	85	566	84	568	▼1	▼2
St Petersburg	86	565	85	567	▼1	▼2
Reykjavik	87	550	83	573	▼4	▼23
Athens	88	522	87	535	▼1	▼13

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 GFCI.

Table 2 | Associate Centres

Centre	Number of Assessments in last 24 months	Mean of Assessments
New Delhi	116	515
Tianjin	113	638
Hamburg	102	600
Baku	97	505
Buenos Aires	87	511
Kuwait City	85	568
Barbados	74	507
Wellington	69	680
Santiago	69	625
Nairobi	69	494
Sofia	69	561
Cape Town	69	603
Bratislava	53	536
Gujarat	30	620
Tehran	23	452
Karachi	17	500
Chengdu	-	-
Hangzhou	-	-
Astana	-	-

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

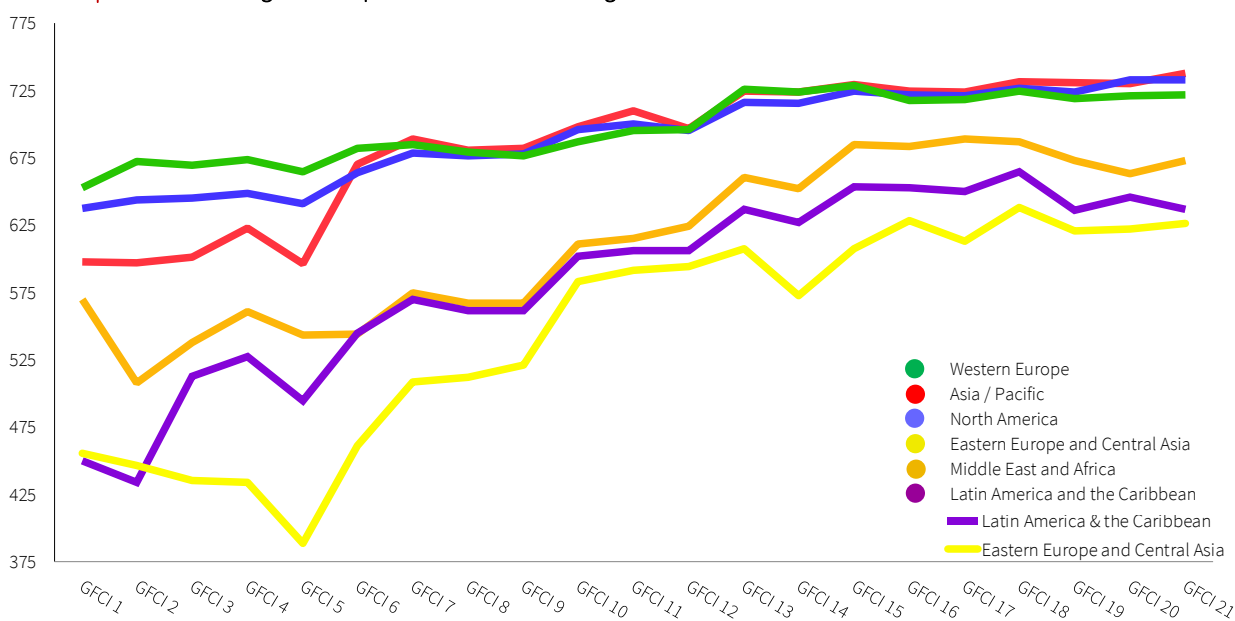
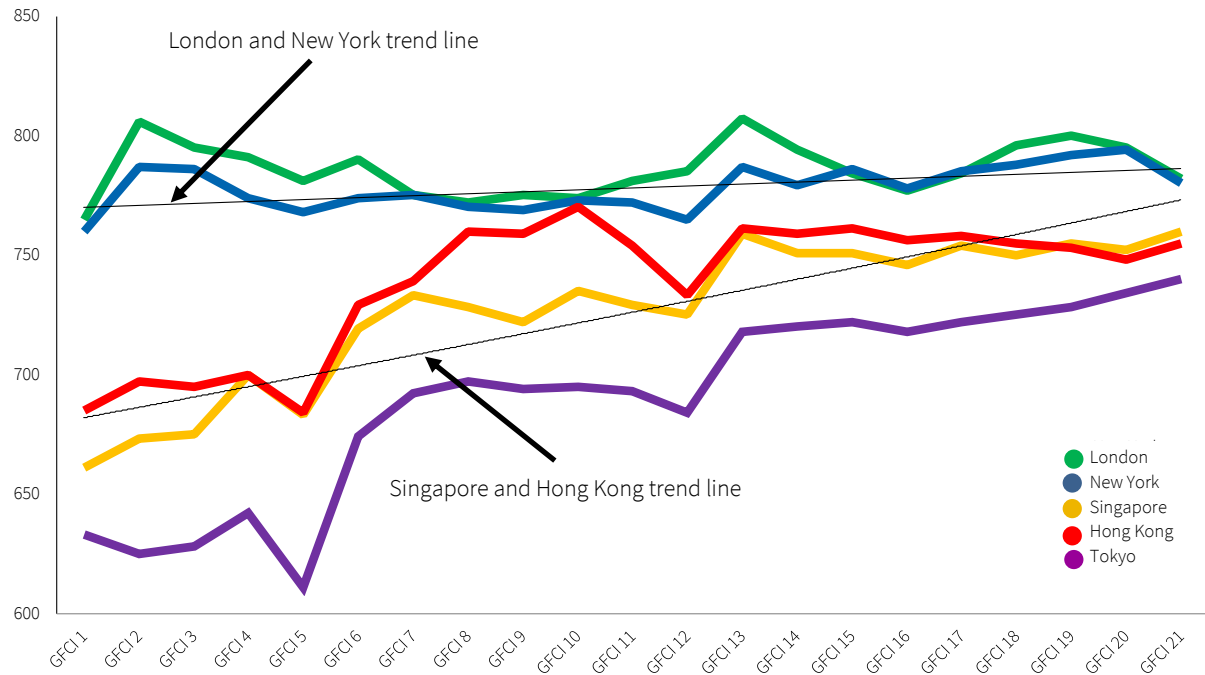


Chart 3 shows the performance over time of the top five financial centres. London and New York have suffered declines in the ratings in GFCI 21.

Singapore, in third place is now only 20 points behind New York.

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. Five of the top six centres are Asian.

Table 3 | The 15 Centres Likely to Become More Significant

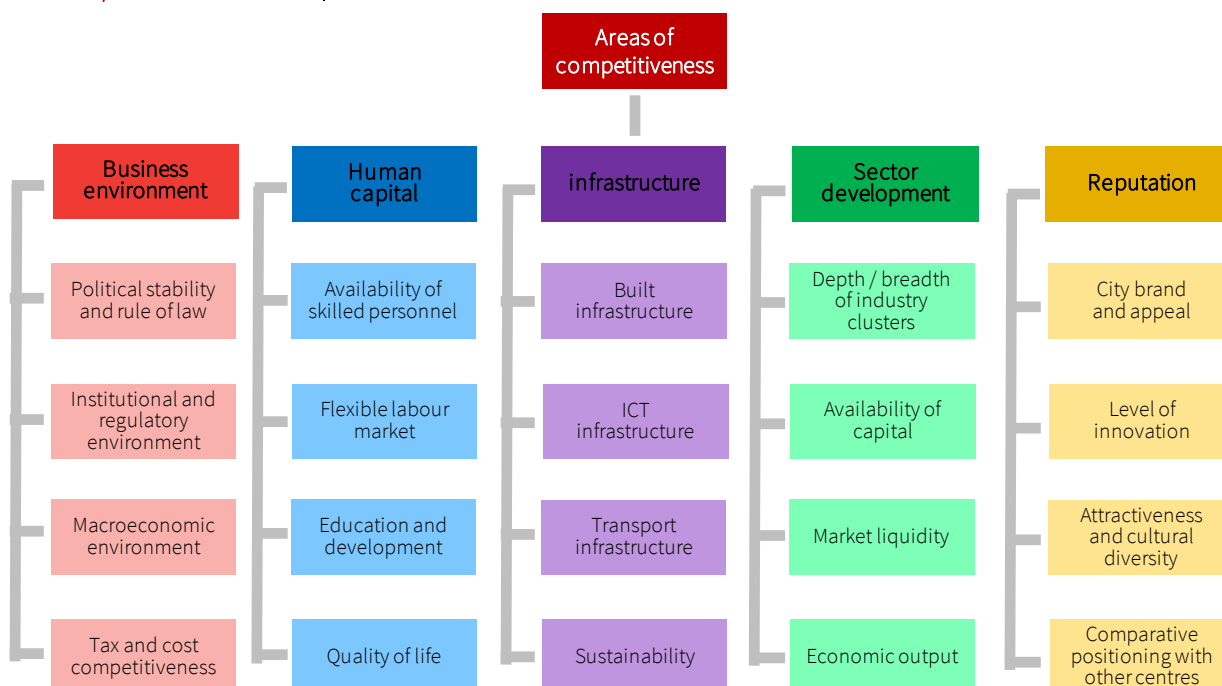
Centre	Mentions in last 24 months
Shanghai	119
Singapore	94
Dubai	78
Hong Kong	68
Qingdao	57
Shenzhen	55
Casablanca	38
Dublin	33
Luxembourg	31
Toronto	30
Gibraltar	24
Beijing	23
Busan	21
Istanbul	12
Abu Dhabi	12

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 21 Areas of Competitiveness



To assess how financial centres perform in each of these areas, the GFCI 21 factor assessment model is run with only 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 21 Areas of Competitiveness

Rank	Business Environment	Human Capital	Infrastructure	Financial Sector Development	Reputation
1	London (-)	New York (-)	London (-)	London (-)	New York (+1)
2	New York (-)	London (-)	New York (-)	New York (-)	London (-1)
3	Hong Kong (+1)	Hong Kong (-)	Hong Kong (-)	Hong Kong (+1)	Singapore (-)
4	Singapore (-1)	Singapore (-)	Singapore (-)	Singapore (-1)	Hong Kong (-)
5	Toronto (+3)	Tokyo (-)	Tokyo (-)	Boston (-)	Chicago (-)
6	Tokyo (-1)	Chicago (+1)	Shanghai (+3)	Tokyo (+1)	Boston (-)
7	Chicago (-1)	Los Angeles (-1)	Beijing (+9)	San Francisco (-)	Tokyo (+7)
8	Los Angeles (-1)	San Francisco (-1)	San Francisco (-2)	Chicago (-)	Sydney (+2)
9	Montreal (+3)	Boston (+1)	Taipei (+5)	Washington DC (+1)	San Francisco (-2)
10	Sydney (-)	Shanghai (+4)	Dubai (+3)	Shanghai (+18)	Zurich (+4)
11	Boston (-1)	Washington DC (-1)	Boston (-4)	Zurich (-1)	Washington DC (-3)
12	Luxembourg (+3)	Shenzhen (+7)	Washington DC (-3)	Frankfurt (-)	Toronto (-)
13	Zurich (-4)	Zurich (-2)	Paris (+5)	Los Angeles (-2)	Dublin (+15)
14	San Francisco (-1)	Luxembourg (-1)	Sydney (-4)	Toronto (+1)	Los Angeles (-6)
15	Washington DC (-1)	Toronto (+1)	Zurich (-3)	Edinburgh (+4)	Shanghai (-3)

The top financial centres of the world are well developed and sophisticated. The top five financial centres feature in the top seven centres 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 21 Main Areas of Competitiveness

Area of Competitiveness	Number of Mentions	Main Issues
Business Environment	645	Brexit is a major source of uncertainty for all centres - not just London Corruption and the rule of law remain major factors Protectionism and barriers to international trade are beginning to worry many
Human Capital	583	Terrorism, personal safety and human rights are becoming ever more important UK and USA respondents fear restrictions in movement of talented staff
Taxation	522	A crack-down on tax avoidance (through domicile arbitrage) is important A need for greater harmonisation of tax laws internationally
Reputation	518	More promotion of centres is needed for differentiation A reputation as a good and safe place to live grows in importance
Infrastructure	503	ICT links and FinTech advances are hot topics now Great need for increase air travel connectivity in some financial centres
Financial Sector Development	498	Will London lose its critical mass after Brexit? Fear of clustering being threatened by protectionism

“This new ‘protectionism’ cannot be a good thing in the long run - for financial services or any other sector.”

INVESTMENT BANKER BASED IN CHICAGO

“I think FinTech is likely to be even more disruptive than Brexit over the next five years.”

INSURANCE EXECUTIVE BASED IN LONDON

Competitiveness and Corruption

Our research into the competitiveness of financial centres indicates that the level of corruption in a financial centre is becoming ever more important. Charts 5 and 6 use two instrumental factors that relate specifically to

corruption, to demonstrate the close correlation with the GFCI 21 rating. The size of the bubbles is a relative indication of a financial centre's GDP.

Chart 5 | GFCI 21 Rating against Corruption Perceptions Index (Supplied by Transparency International)

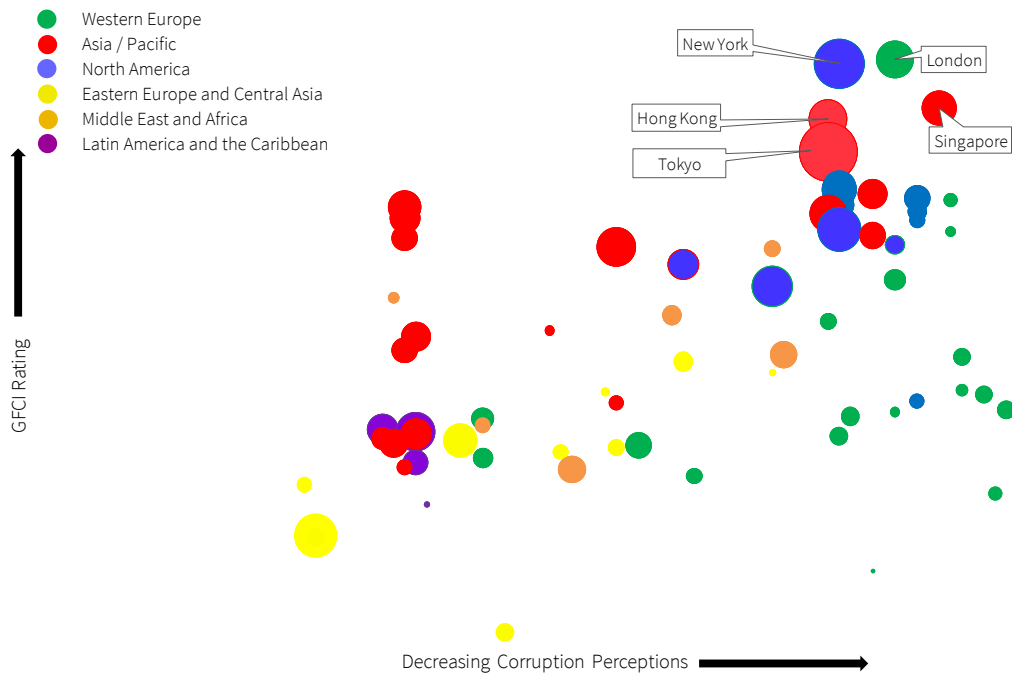
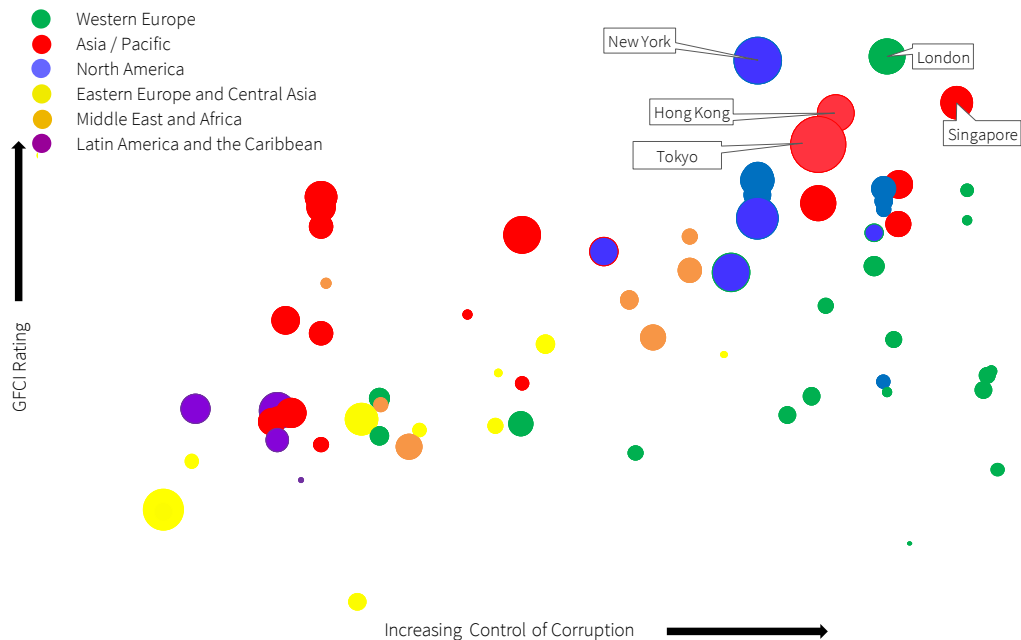


Chart 6 | GFCI 21 Rating against Increasing Control of Corruption (Supplied by the World Bank)



Connectivity

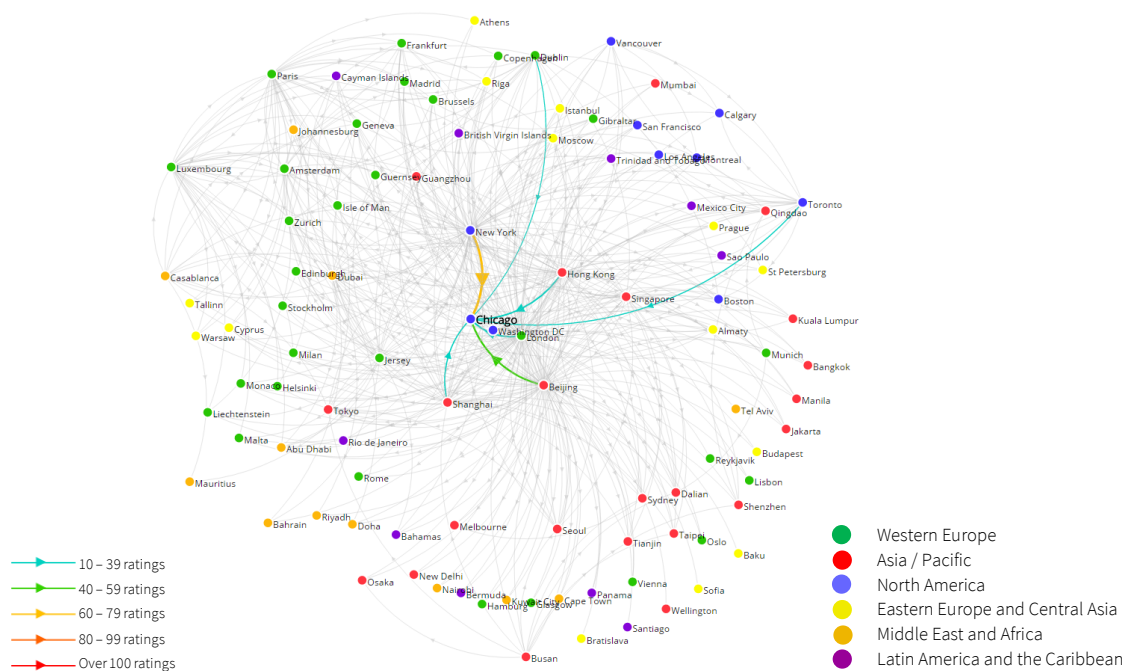
One of the most important benefits of hosting a thriving financial centres is the extent to which that centre is connected to other financial centres. One way of measuring this connectivity is to look at the number of

assessments given to and received from, other financial centres. Charts 7 and 8 use New York and Chicago as examples to contrast the different levels of connectivity that the two centres enjoy.

Chart 7 | GFCI 21 Connectivity - New York



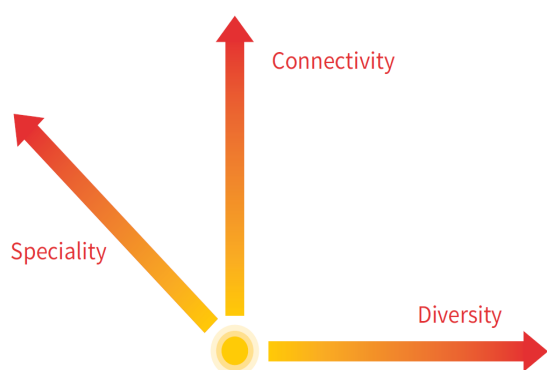
Chart 8 | GFCI 21 Connectivity - Chicago



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 21 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 government and regulatory. 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 88 centres in GFCI 21 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 14 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 21 include Dubai, Washington and Beijing becoming Global Leaders and Los Angeles becoming an Established International Centre (previously an International Diversified Centre).

“Banks in Frankfurt seem to be getting more and more connected with Asian banks.”

INVESTMENT BANKER BASED IN FRANKFURT

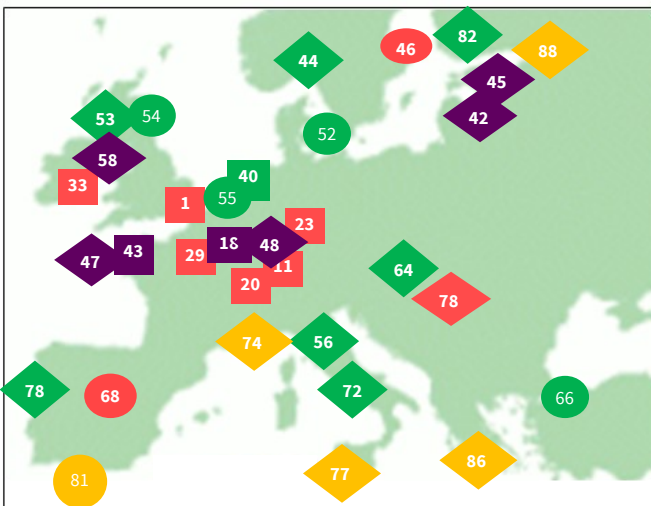
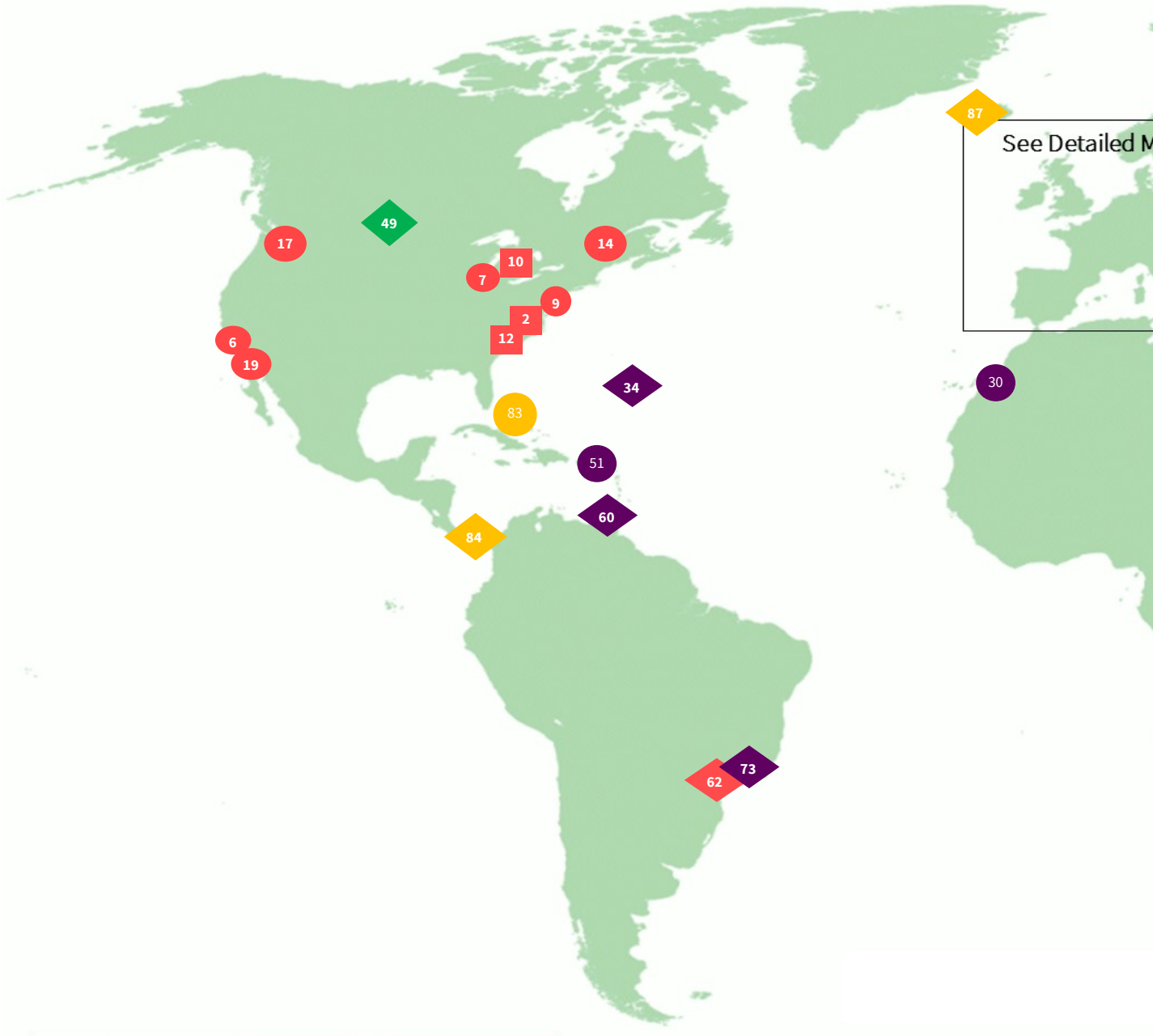
“The Chinese are making more effort to foster links with Europeans at the moment.”

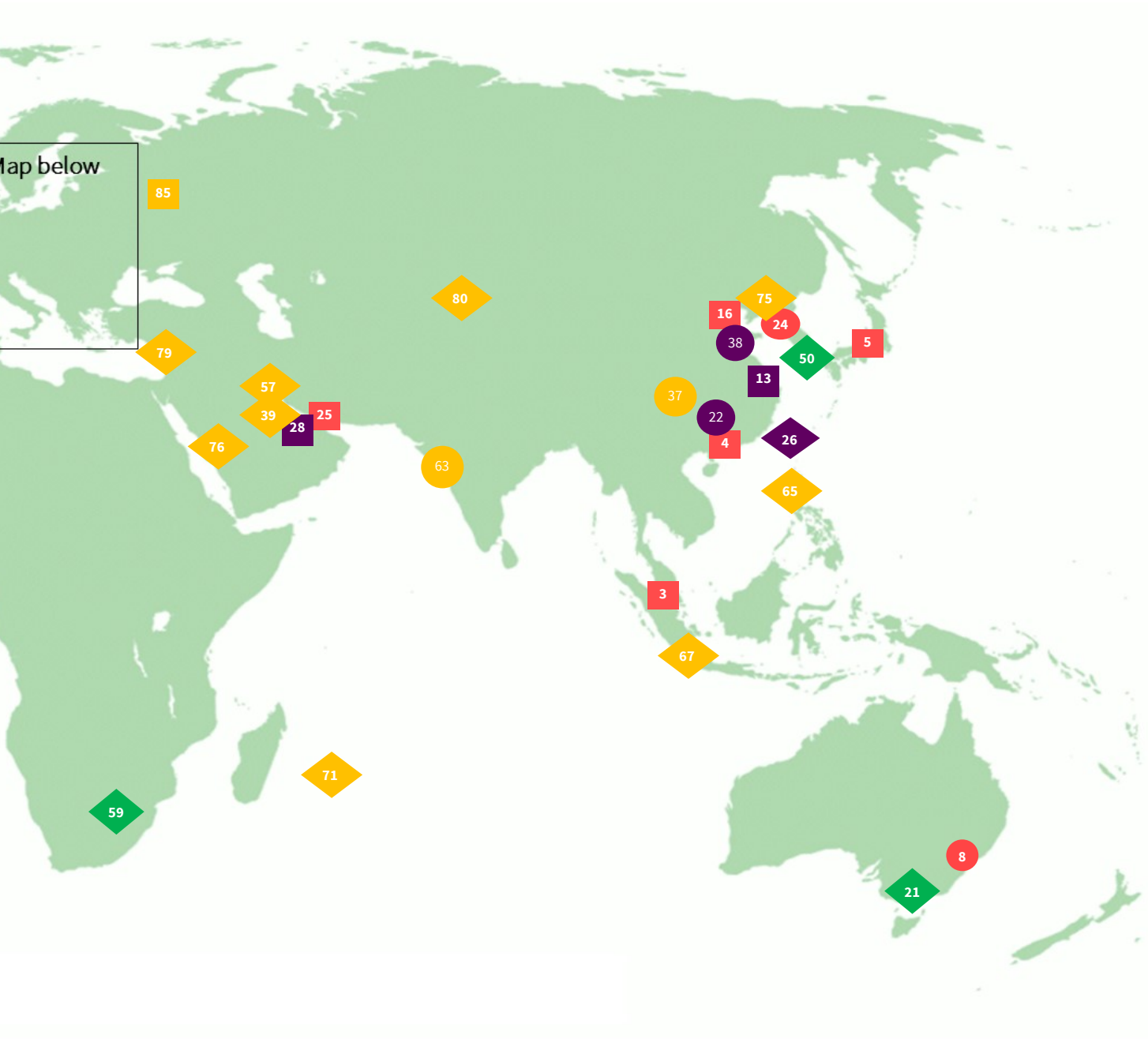
CEO OF TRADE ASSOCIATION BASED IN LONDON

Table 6 | GFCI 21 Financial Centre Profiles

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

The GFCI 21 World





The numbers on the map indicate the GFCI 21 rankings:

Broad and Deep	Relatively Broad	Relatively Deep	Emerging
Global Leaders	Global Diversified	Global Specialists	Global Contenders
Established International	International Diversified	International Specialists	International Contenders
Established Players	Local Diversified	Local Specialists	Evolving Centres

Western Europe

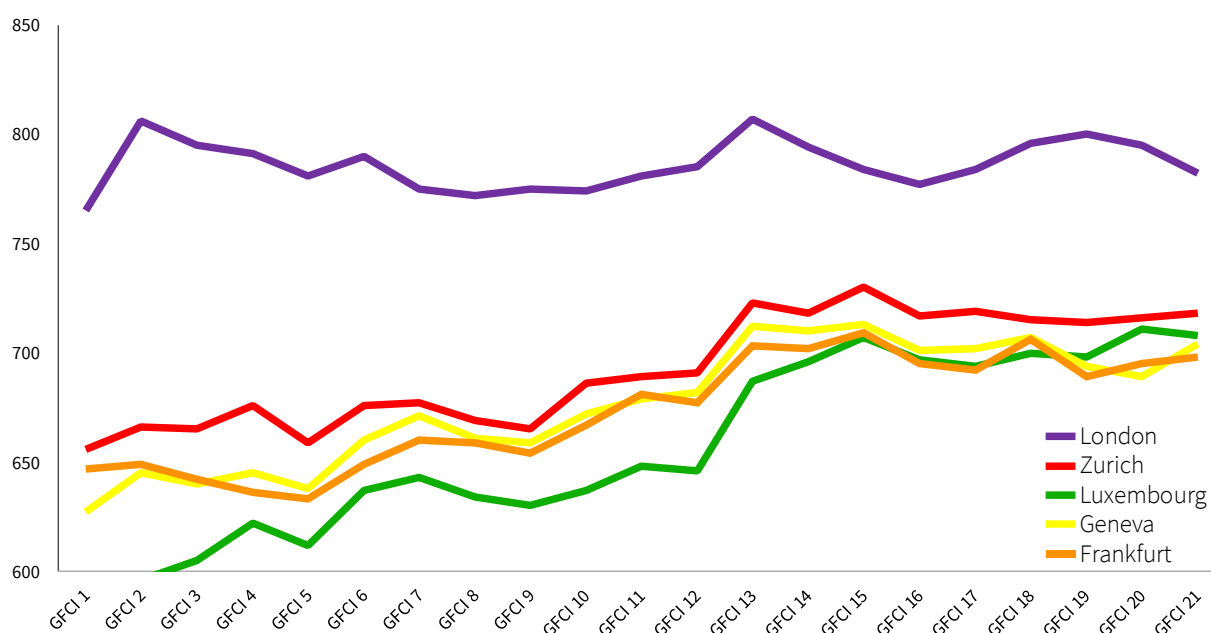
Table 7 shows the top 15 Western European centres in GFCI 21. London, Zurich, Luxembourg and Geneva remain the top four centres in the

region. Luxembourg is 3rd in the region despite having fallen to 18th in the main index.

Table 7 | Western European Top 15 Centres in GFCI 21

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
London	1	782	1	795	0	▼13
Zurich	11	718	9	716	▼2	▲2
Luxembourg	18	708	12	711	▼6	▼3
Geneva	20	704	23	689	▲3	▲15
Frankfurt	23	698	19	695	▼4	▲3
Munich	27	682	27	680	0	▲2
Paris	29	679	29	672	0	▲7
Dublin	33	663	31	663	▼2	0
Amsterdam	40	647	33	659	▼7	▼12
Jersey	43	633	42	639	▼1	▼6
Oslo	44	632	49	628	▲5	▲4
Stockholm	46	630	44	636	▼2	▼6
Guernsey	47	629	47	630	0	▼1
Liechtenstein	48	628	56	621	▲8	▲7
Copenhagen	52	623	60	616	▲8	▲7

Chart 10 | GFCI 21 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. These show the relative strengths of the centres' reputations in different regions. 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 by each region indicates the percentage of the total number of assessments that are from that region.

Chart 11 | GFCI 21 Assessments by Region for London - Difference from the Overall Mean of 843

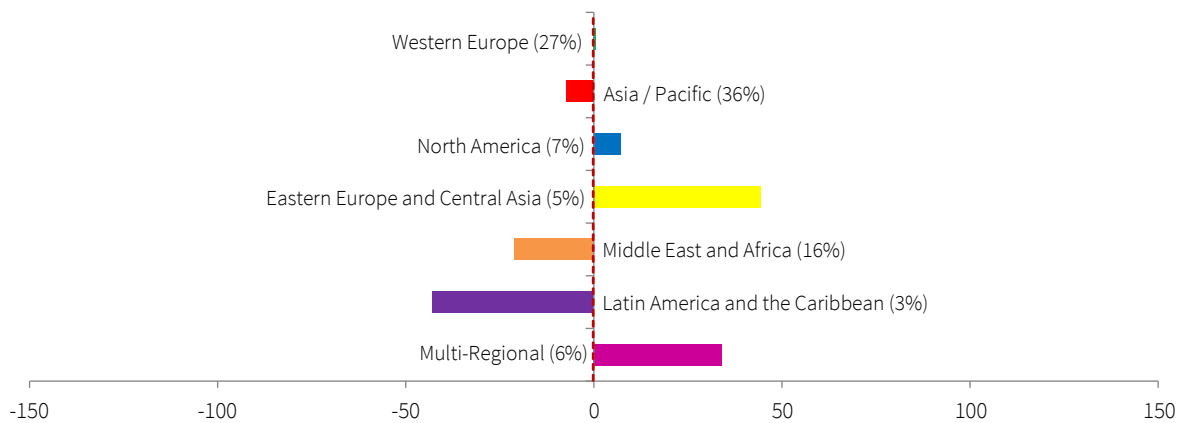


Chart 12 | GFCI 21 Assessments by Region for Zurich - Difference from the Overall Mean of 753

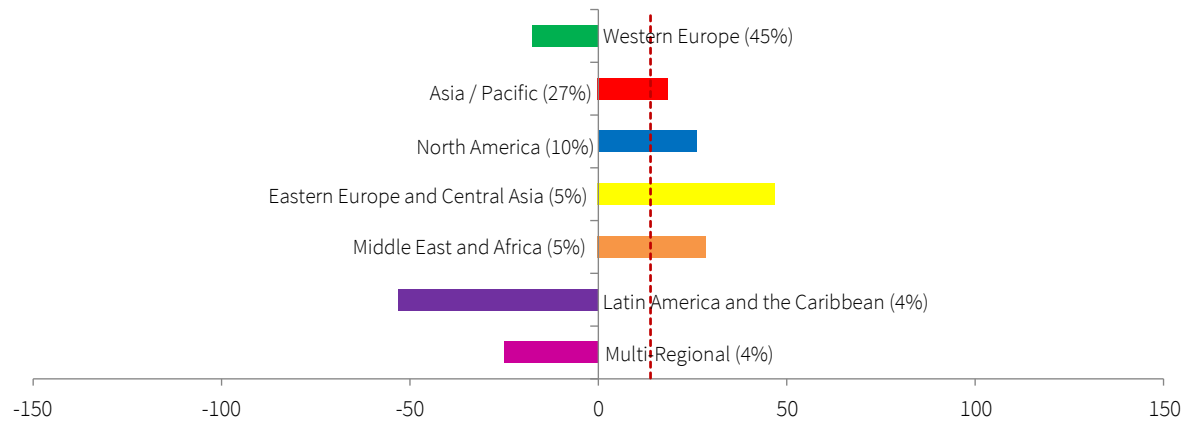
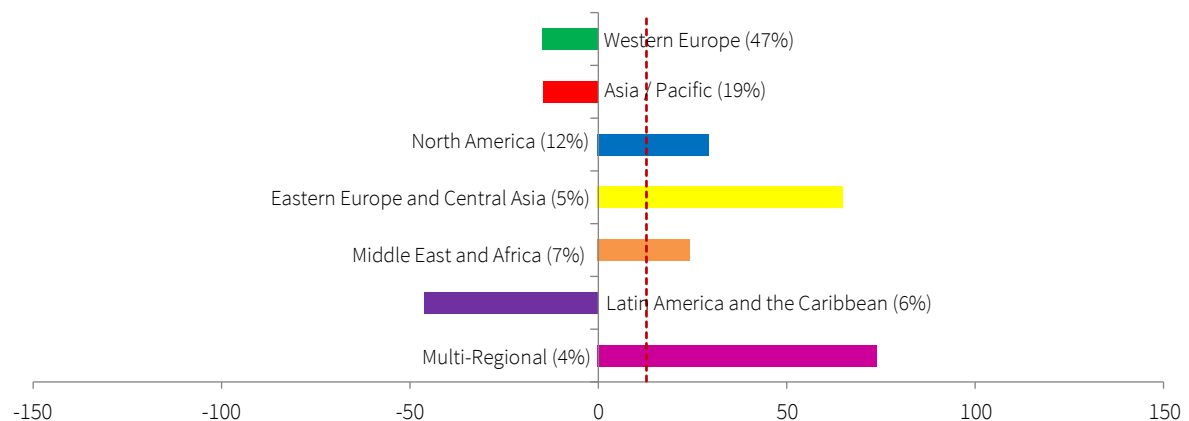


Chart 13 | GFCI 21 Assessments by Region for Luxembourg - Difference from the Overall Mean of 730



Asia / Pacific

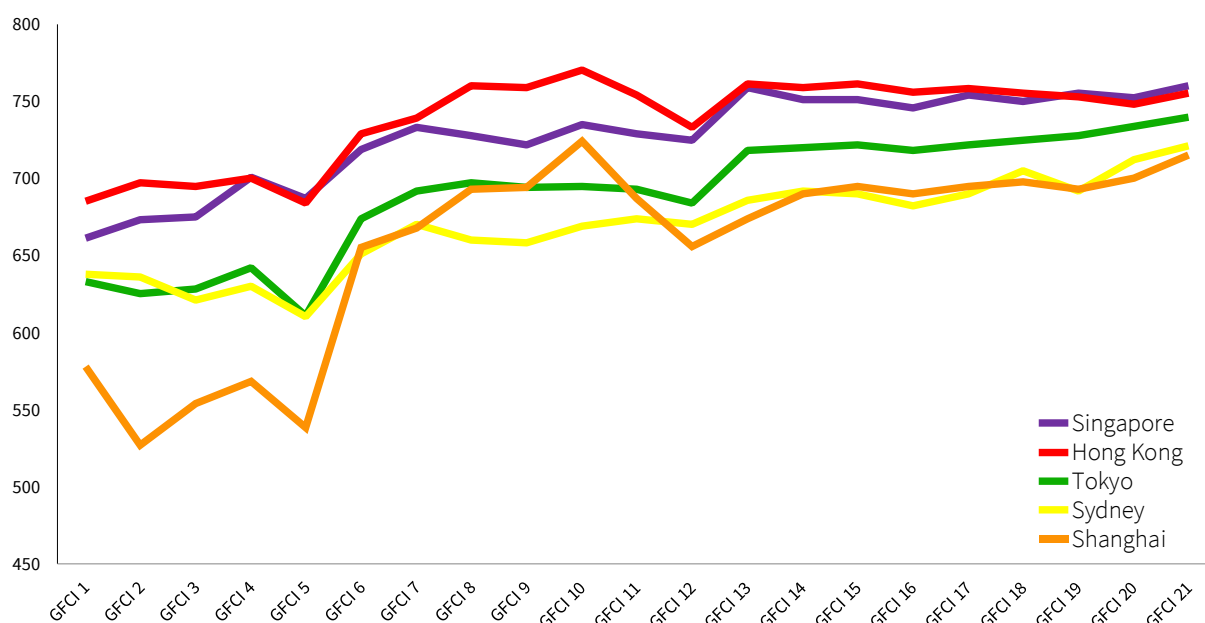
Table 8 shows the Asia / Pacific Centres in GFCI 21. The leading financial centres all rose in the ratings. Beijing rose significantly, rising ten places in the rankings. The two South Korean centres, Seoul

and Busan, showed modest losses whilst the Australian centres, Sydney and Melbourne, both continued to climb.

Table 8 | Asia / Pacific Top 15 Centres in GFCI 21

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
Singapore	3	760	3	752	0	▲8
Hong Kong	4	755	4	748	0	▲7
Tokyo	5	740	5	734	0	▲6
Sydney	8	721	11	712	▲3	▲9
Shanghai	13	715	16	700	▲3	▲15
Osaka	15	712	17	699	▲2	▲13
Beijing	16	710	26	683	▲10	▲27
Melbourne	21	702	24	687	▲3	▲15
Shenzhen	22	701	22	691	0	▲10
Seoul	24	697	14	704	▼10	▼7
Taipei	26	689	21	692	▼5	▼3
Kuala Lumpur	35	659	43	638	▲8	▲21
Bangkok	36	656	39	642	▲3	▲14
Guangzhou	37	650	-	-	-	-
Qingdao	38	649	46	631	▲8	▲18

Chart 14 | GFCI 21 Top Five Asia / Pacific Centres over Time



“The main Chinese centres are all still growing! There may be problems but sheer scale will prevail.”

Chart 15 | GFCI 21 Assessments by Region for Singapore - Difference from the Overall Mean of 831

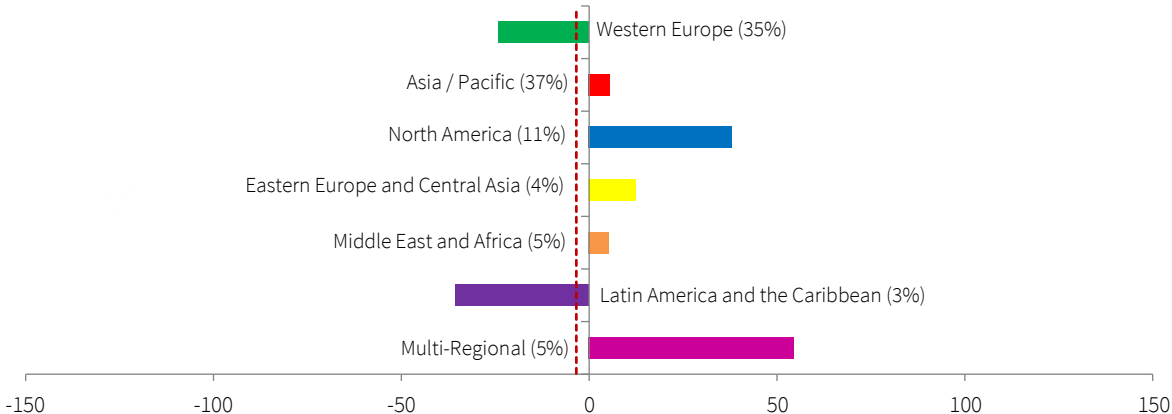


Chart 16 | GFCI 21 Assessments by Region for Hong Kong - Difference from the Overall Mean of 812

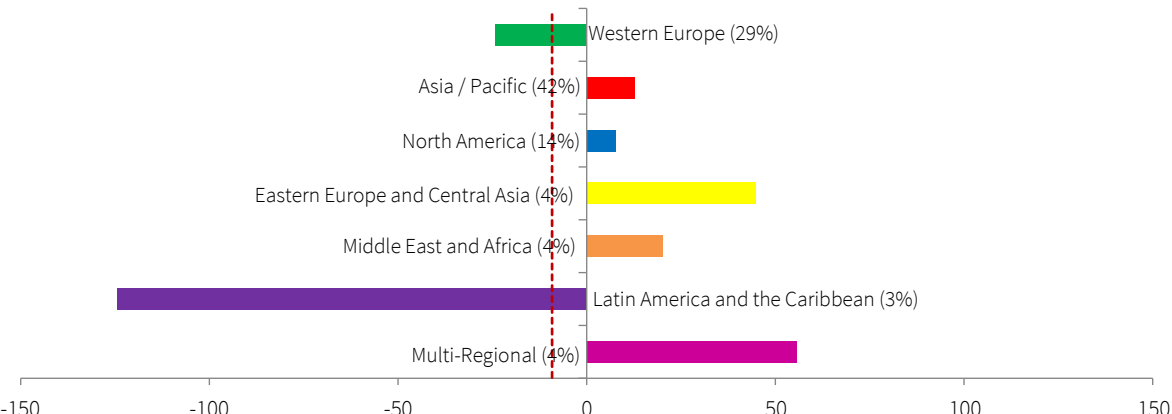
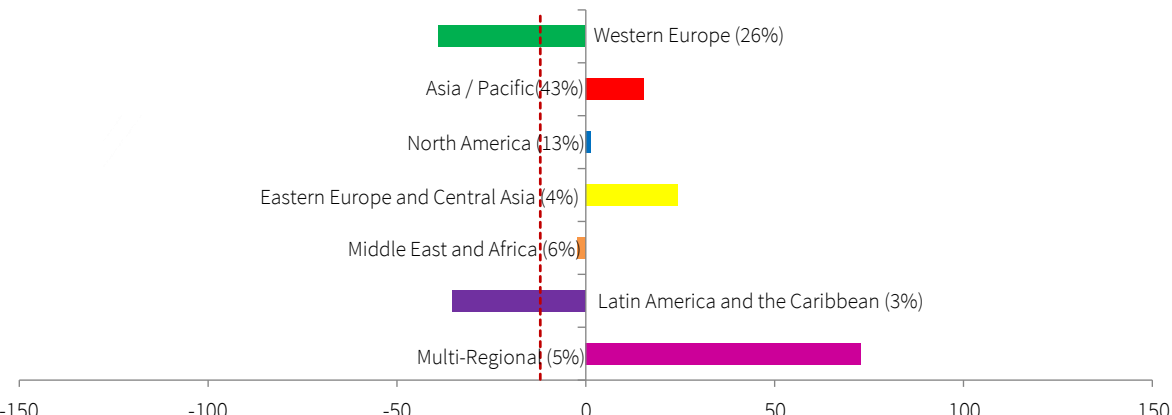


Chart 17 | GFCI 21 Assessments by Region for Tokyo - Difference from the Overall Mean of 802



North America

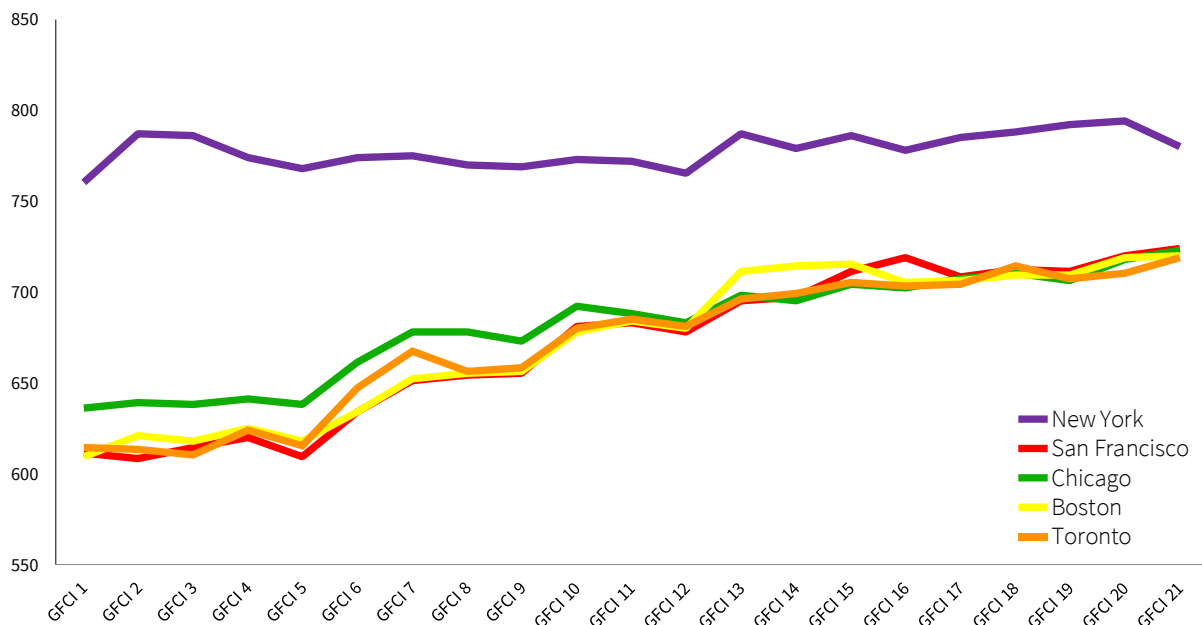
Table 9 shows the North American Centres in GFCI 21. With the exception of New York and Calgary (which is affected by energy price volatility), the other North American centres performed well in GFCI 21.

The Canadian centres Toronto, Montreal and Vancouver all performed well - finance professionals continue to favour safety and stability in their choices of location.

Table 9 | North American Centres in GFCI 21

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
New York	2	780	2	794	0	▼14
San Francisco	6	724	6	720	0	▲4
Chicago	7	723	8	718	▲1	▲5
Boston	9	720	7	719	▼2	▲1
Toronto	10	719	13	710	▲3	▲9
Washington DC	12	716	10	713	▼2	▲3
Montreal	14	713	15	703	▲1	▲10
Vancouver	17	709	20	694	▲3	▲15
Los Angeles	19	705	25	685	▲6	▲20
Calgary	49	627	34	658	▼15	▼31

Chart 18 | GFCI 21 Top Five North American Centres over Time



“Los Angeles seems to be the place to be in North America. FinTech has made a big mark here and the venture fund crowd have moved in.”

Chart 19 | GFCI 21 Assessments by Region for New York - Difference from the Overall Mean of 847

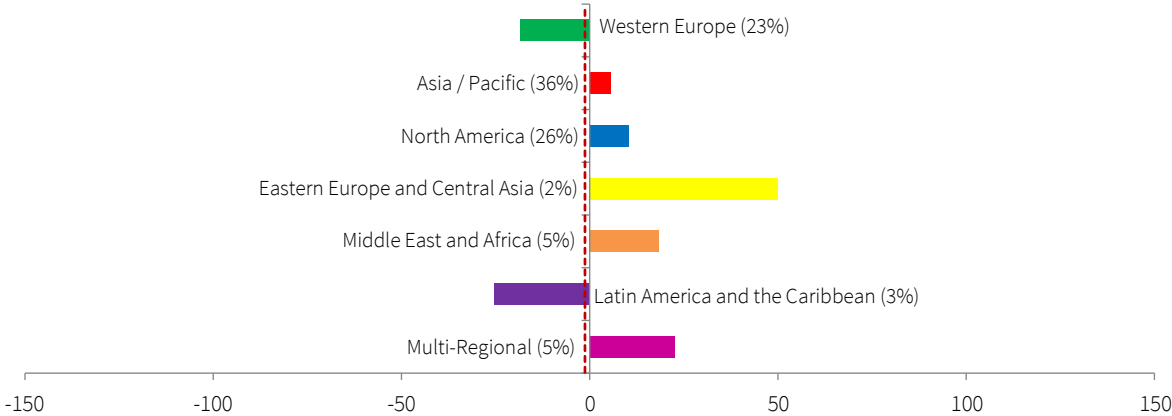


Chart 20 | GFCI 21 Assessments by Region for San Francisco - Difference from the Overall Mean of 756

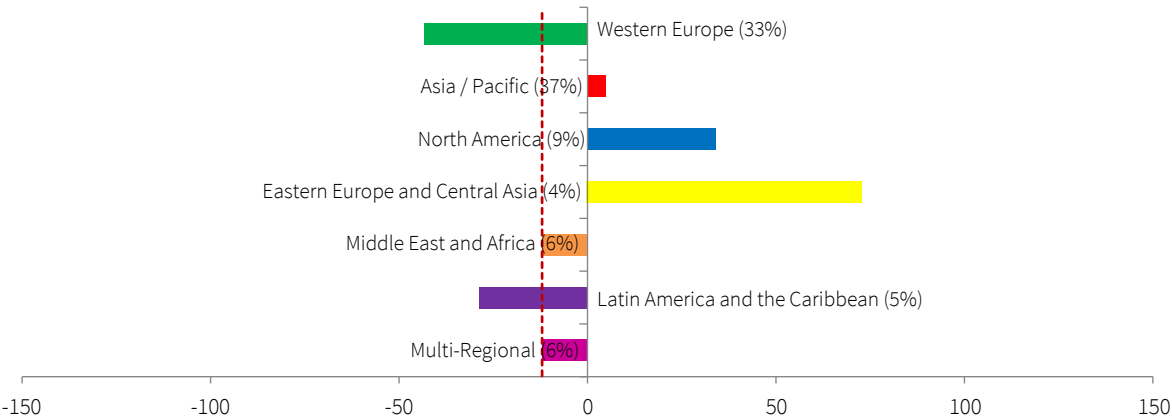
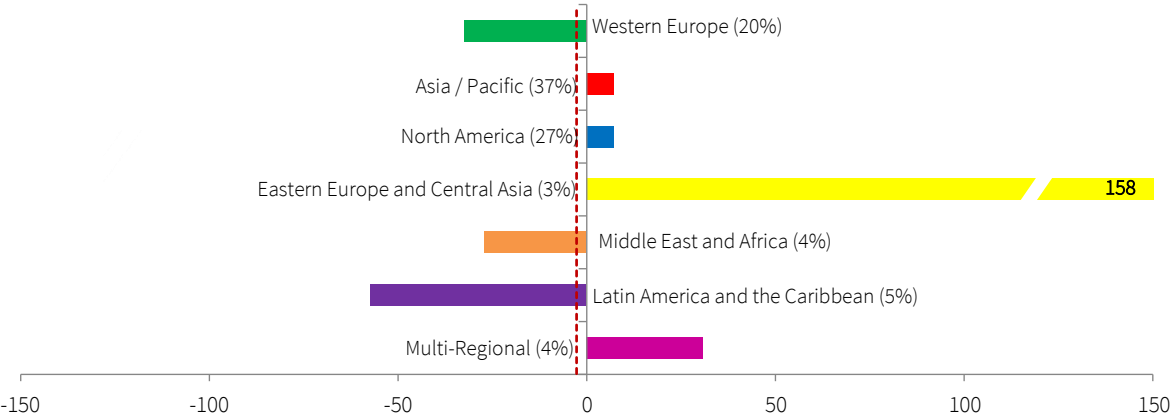


Chart 21 | GFCI 21 Assessments by Region for Chicago - Difference from the Overall Mean of 742



Eastern Europe and Central Asia

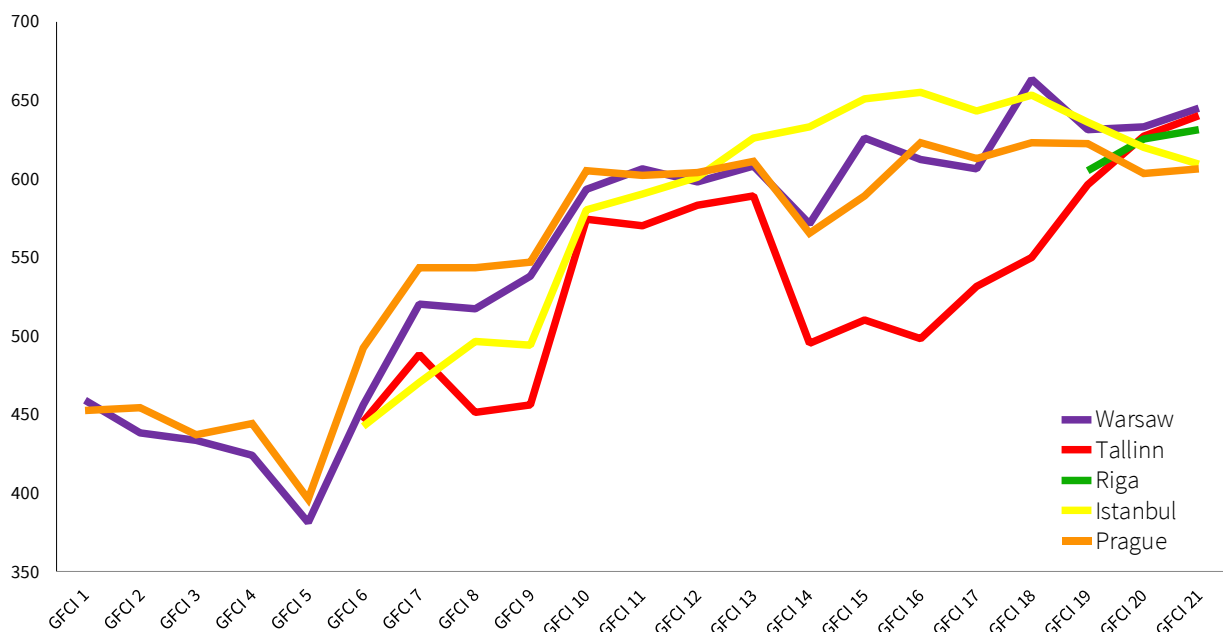
Table 10 shows the Eastern European and Central Asian Centres in GFCI 21. Warsaw, Tallinn and Riga remain the top three centres in the region.

Istanbul remains in 4th place in the region despite having fallen nine places in the main index.

Table 10 | Eastern European and Central Asians Centres in GFCI 21

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
Warsaw	41	645	45	633	▲4	▲12
Tallinn	42	640	50	627	▲8	▲13
Riga	45	631	52	625	▲7	▲6
Istanbul	66	609	57	620	▼9	▼11
Prague	69	606	72	603	▲3	▲3
Budapest	70	604	77	596	▲7	▲8
Cyprus	79	590	80	593	▲1	▼3
Almaty	80	589	70	605	▼10	▼16
Moscow	85	566	84	568	▼1	▼2
St Petersburg	86	565	85	567	▼1	▼2
Athens	88	522	87	535	▼1	▼13

Chart 22 | GFCI 21 Top Five Eastern European and central Asian Centres over Time



“Istanbul is really suffering at the moment. Terrorism, proximity to a war zone and an authoritarian president are all viewed badly by the finance industry.”

Chart 23 | GFCI 21 Assessments by Region for Warsaw - Difference from the Overall Mean of 673

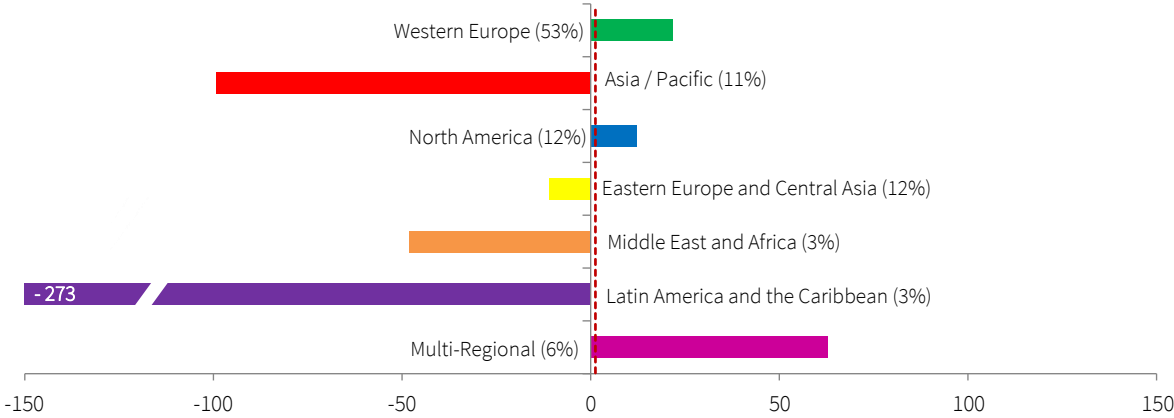


Chart 24 | GFCI 21 Assessments by Region for Tallinn - Difference from the Overall Mean of 627

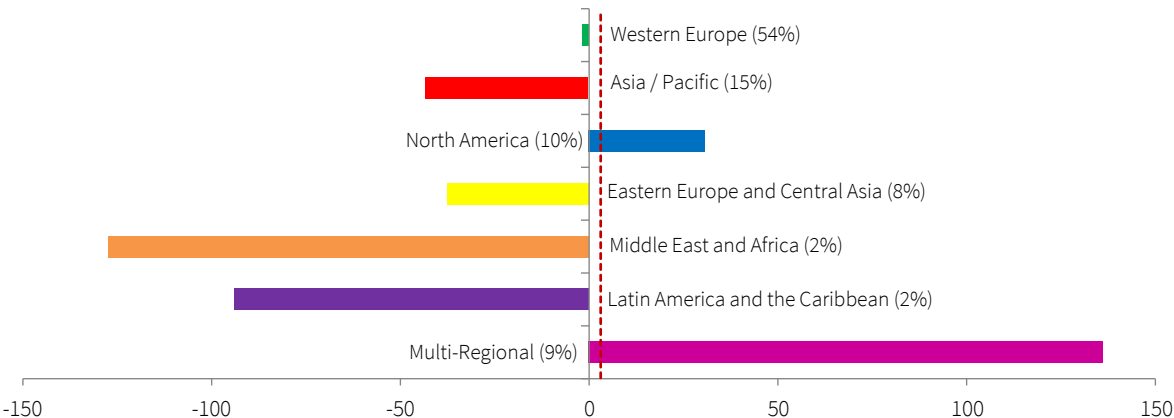
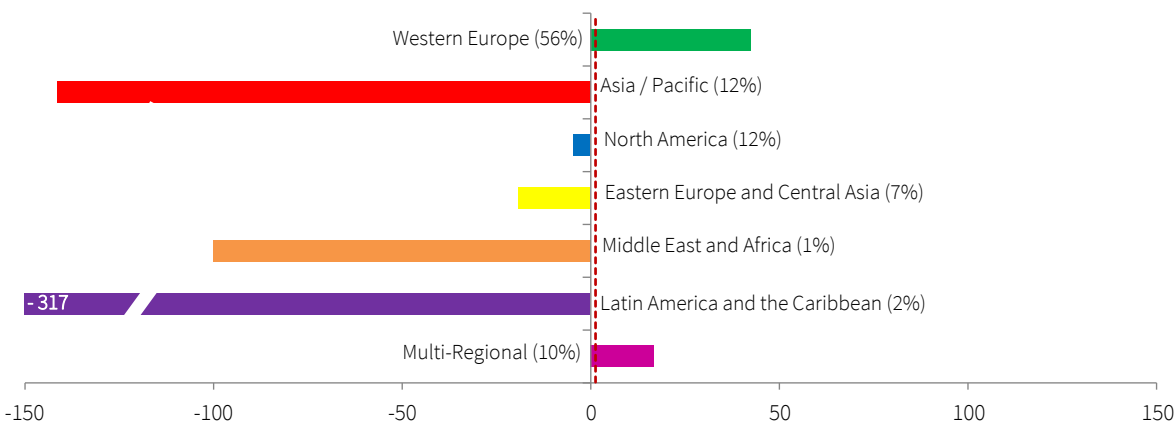


Chart 25 | GFCI 21 Assessments by Region for Riga - Difference from the Overall Mean of 650



The Middle East and Africa

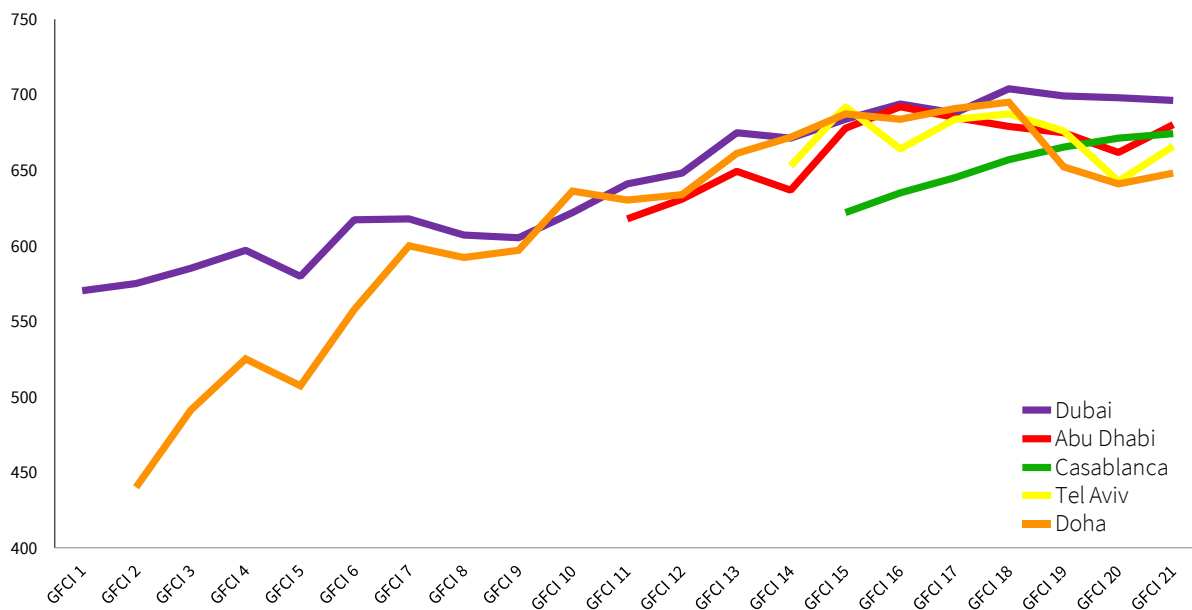
Table 11 shows the Middle East and African Centres in GFCI 21. Financial centres in the Middle East and Africa did well in GFCI 21. Apart from a very small

decline by Dubai, the other major centres improved in the ratings. There were strong rises for Abu Dhabi and Tel Aviv.

Table 11 | Middle East and African Centres in GFCI 21

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
Dubai	25	696	18	698	▼7	▼2
Abu Dhabi	28	680	32	662	▲4	▲18
Casablanca	30	674	30	671	0	▲3
Tel Aviv	32	666	38	643	▲6	▲23
Doha	39	648	40	641	▲1	▲7
Bahrain	57	618	58	619	▲1	▼1
Johannesburg	59	616	59	618	0	▼2
Mauritius	71	603	79	594	▲8	▲9
Riyadh	76	596	82	585	▲6	▲11

Chart 26 | GFCI 21 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 21 Assessments by Region for Dubai - Difference from the Overall Mean of 717

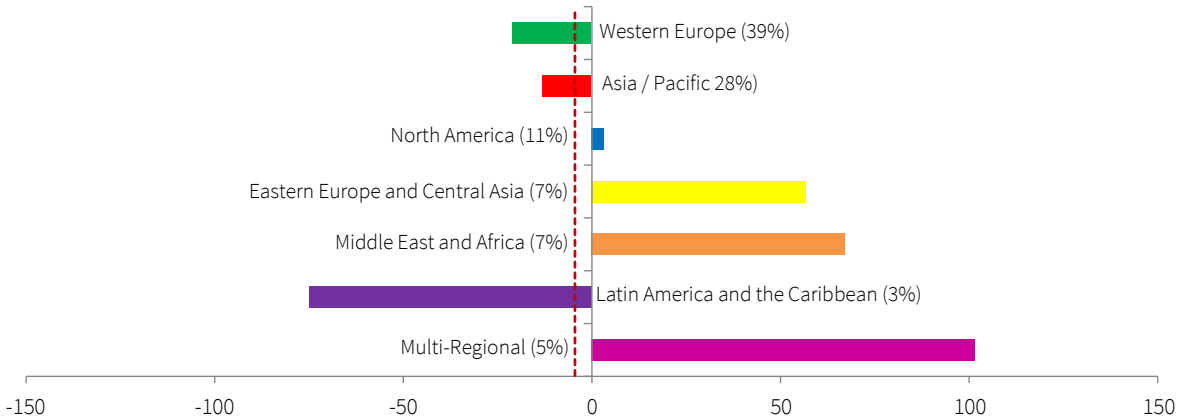


Chart 28 | GFCI 21 Assessments by Region for Abu Dhabi - Difference from the Overall Mean of 639

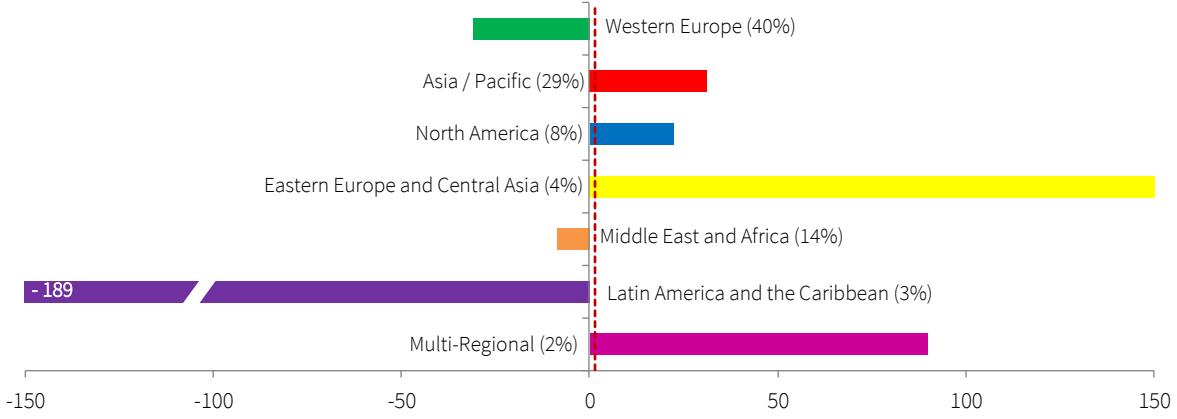
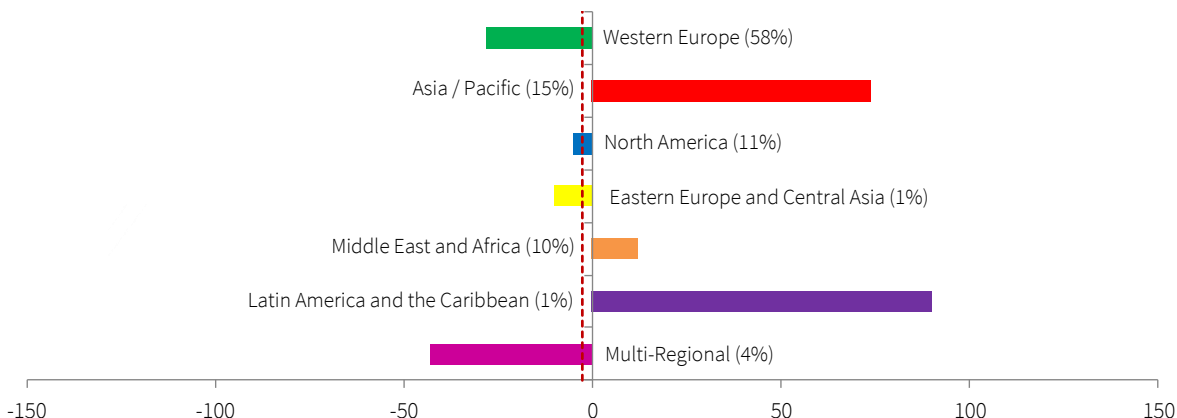


Chart 29 | GFCI 21 Assessments by Region for Casablanca - Difference from the Overall Mean of 698



Latin America and the Caribbean

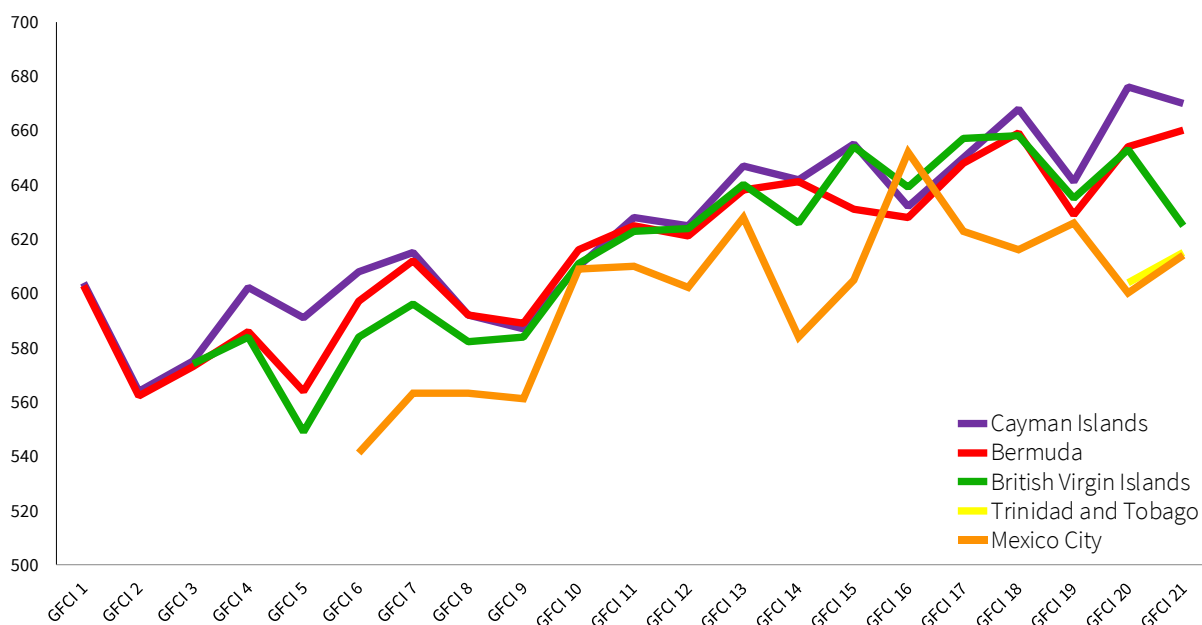
Table 12 shows the Latin American and Caribbean centres in GFCI 21. Latin American centres continue to struggle. Sao Paulo, Rio de Janeiro and Panama all fell significantly. Buenos Aires and Santiago remain as associate centres having failed to accumulate a sufficient number of assessments to enter the main index.

Offshore centres show a mixed picture. The British Crown Dependencies remained stable whilst Caribbean centres had mixed fortunes. The Cayman Islands and the British Virgin Islands fell but Bermuda and the Bahamas rose slightly.

Table 12 | Latin American and Caribbean Centres in GFCI 21

Centre	GFCI 21		GFCI 20		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
Cayman Islands	31	670	28	676	▼3	▼6
Bermuda	34	660	35	654	▲1	▲6
British Virgin Islands	51	625	36	653	▼15	▼28
Trinidad and Tobago	60	615	71	604	▲11	▲11
Mexico City	61	614	73	600	▲12	▲14
Sao Paulo	62	613	51	626	▼11	▼13
Rio de Janeiro	73	599	54	623	▼19	▼24
Bahamas	83	582	86	566	▲3	▲16
Panama	84	580	63	613	▼21	▼33

Chart 30 | GFCI 21 Top Five Latin American and Caribbean Centres over Time



“Latin America still has so much potential but still has so many problems as well. Corruption is endemic and that puts off international investors.”

Chart 31 | GFCI 21 Assessments by Region for the Cayman Islands - Difference from the Overall Mean of 657

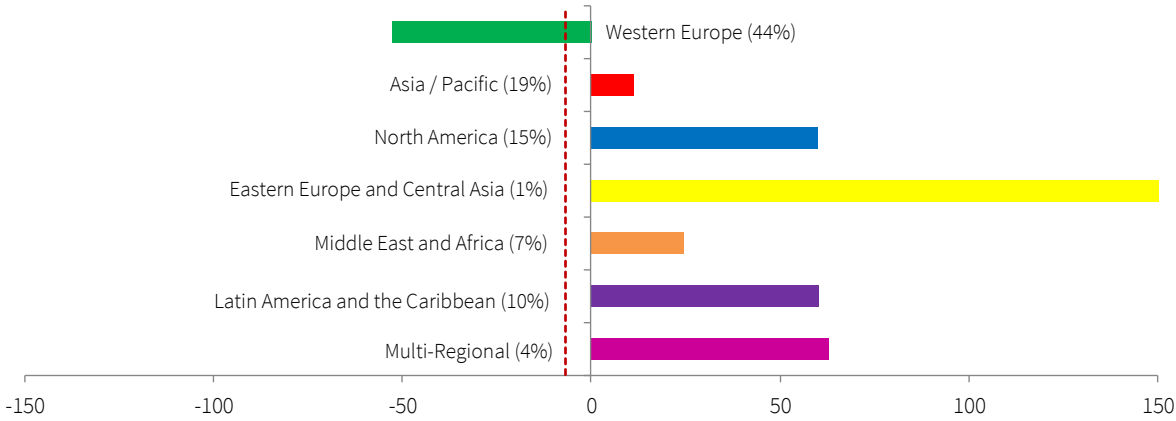


Chart 32 | GFCI 21 Assessments by Region for Bermuda - Difference from the Overall Mean of 625

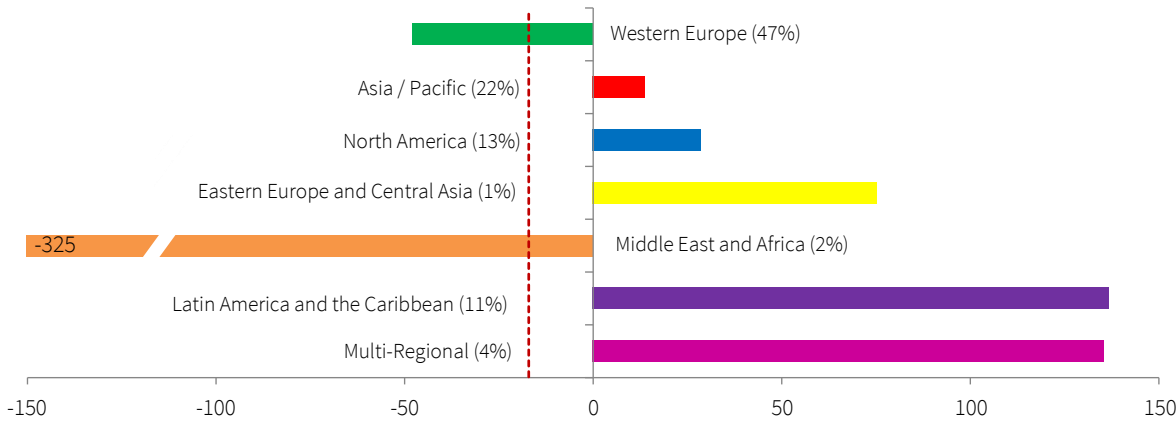
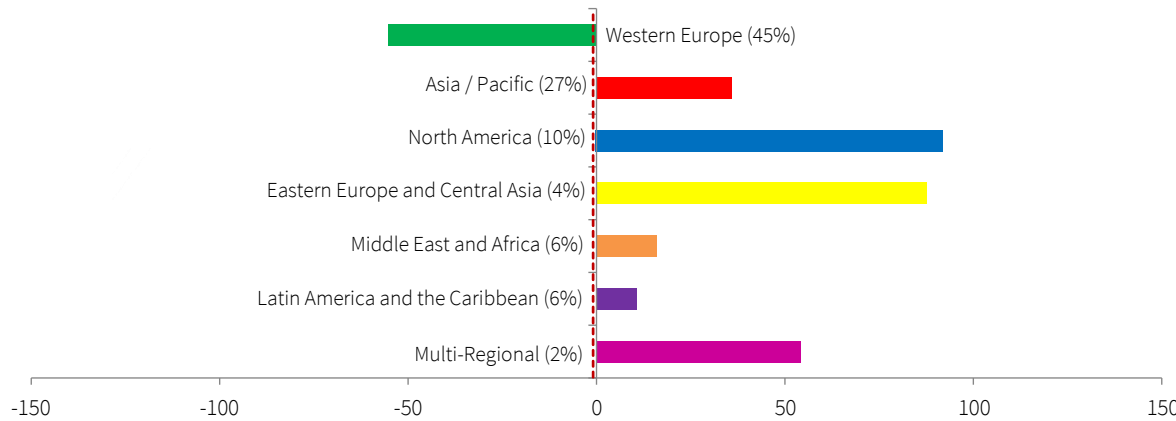


Chart 33 | GFCI 21 Assessments by Region for the British Virgin Islands - Difference from the Overall Mean of 613



Home Centre Futures

Whilst the GFCI is calculated using only foreign assessments, we ask professionals about the prospects for the centre in which they work (whether their 'home' centre will become more of 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

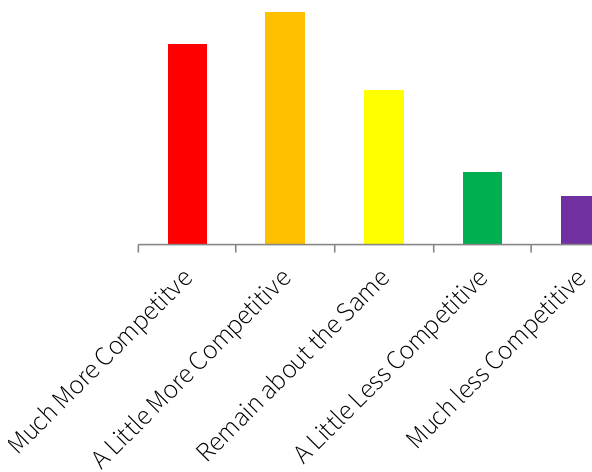


Table 35 | Home Centre Prospects - New York

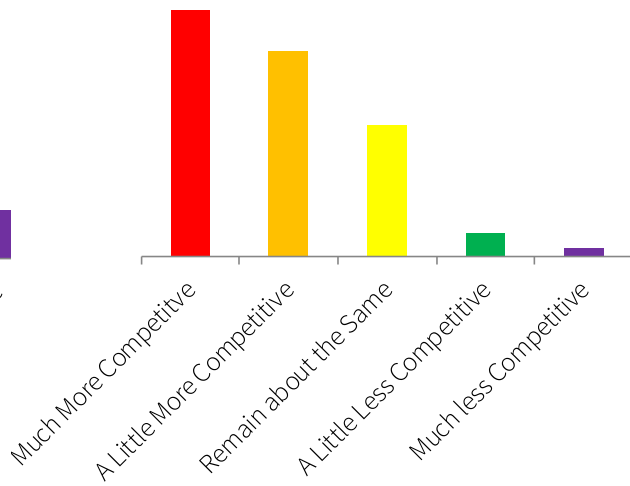


Table 36 | Home Centre Prospects - Frankfurt

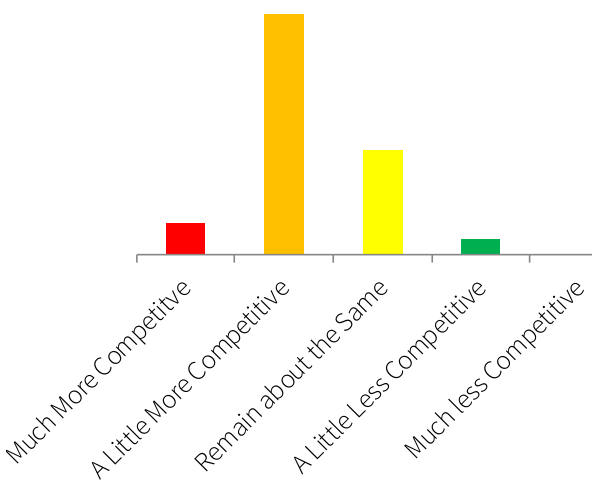
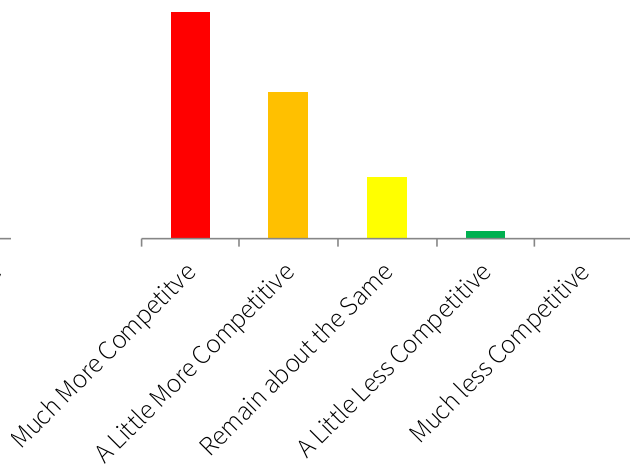


Table 37 | Home Centre Prospects - Shanghai



Stability

The GFCI 21 models allows for analysis of the financial centres with the most volatile 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.

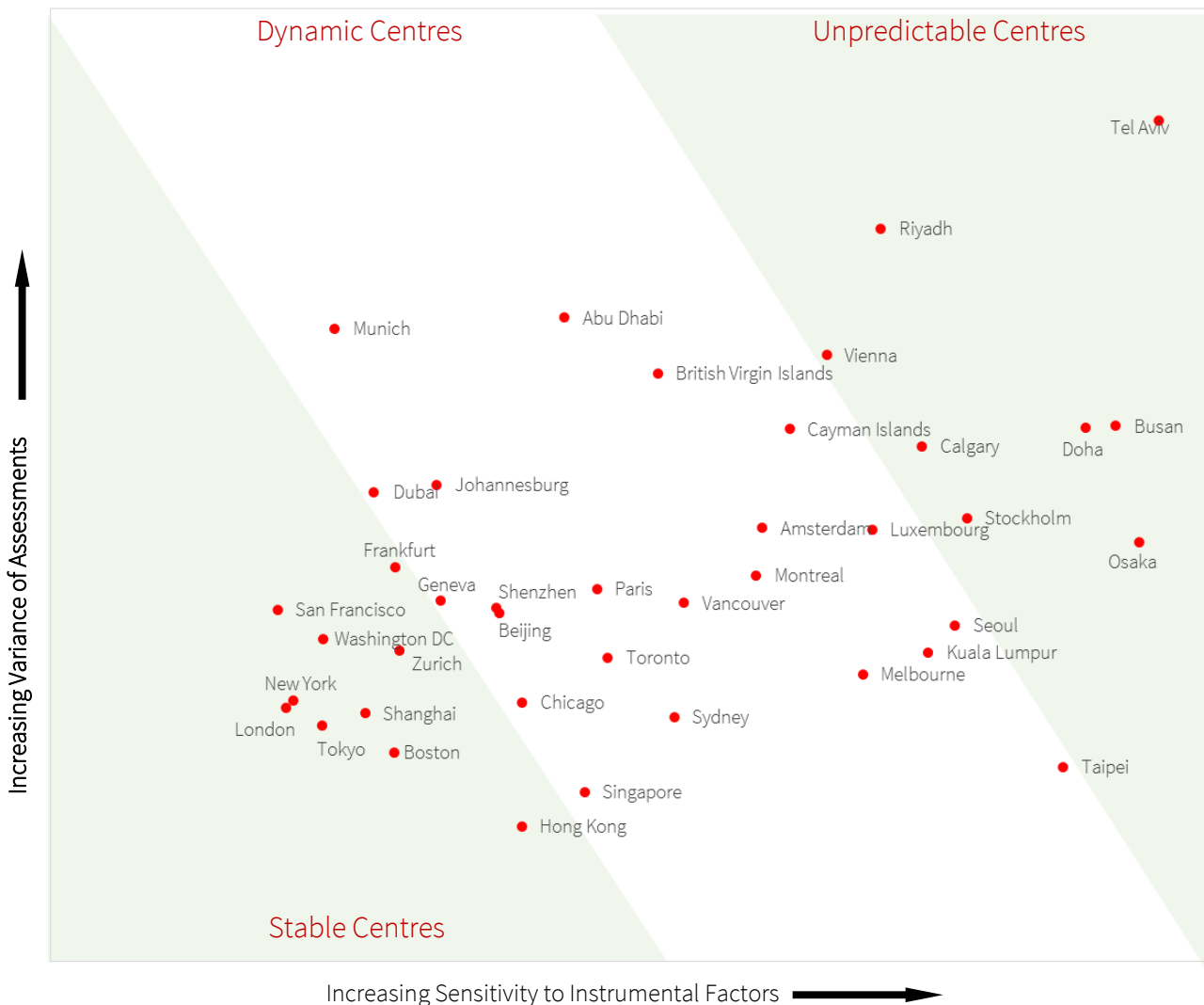
Chart 38 shows three bands of financial centres. The unpredictable centres in the top right of the chart have a higher sensitivity to changes in the instrumental factors and a higher variance of assessments. These centres have the highest potential future movement.

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

San Francisco, Washington, Frankfurt and Zurich have become more stable since GFCI 20. The British Virgin Islands and Amsterdam have become Dynamic centres having been unpredictable. Chicago and Sydney were within the Stable zone in GFCI 20 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 many of the centres lower in the index would be in the unpredictable area of the chart if plotted.

Chart 38 | GFCI 21 – 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 21 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 21 Industry Sector Sub-Indices – Top Fifteen

Rank	Banking	Investment Management	Insurance	Professional Services	Government & Regulatory
1	New York (+1)	New York (-)	New York (+1)	London (-)	New York (+1)
2	London (-1)	London (-)	Hong Kong (+4)	New York (-)	London (-1)
3	Hong Kong (-)	Hong Kong (-)	Singapore (+2)	Singapore (-)	Singapore (-)
4	Singapore (-)	Singapore (-)	Tokyo (-1)	Hong Kong (+1)	Hong Kong (+2)
5	Tokyo (-)	Tokyo (-)	London (-1)	Tokyo (+5)	Washington DC (+3)
5	Shanghai (+1)	Toronto (+3)	San Francisco (+4)	Shenzhen (+1)	Montreal (+10)
7	Washington DC (-)	Shanghai (+12)	Los Angeles (+2)	Boston (+1)	Los Angeles (-3)
8	Los Angeles (+3)	San Francisco (-1)	Boston (-1)	San Francisco (+3)	Chicago (-2)
9	Chicago (-)	Sydney (-1)	Washington DC (+1)	Washington DC (+1)	Tokyo (-2)
10	San Francisco (-2)	Boston (-4)	Sydney (+2)	Toronto (+1)	Toronto (+4)
11	Sydney (+2)	Montreal (+3)	Shanghai (+3)	Zurich (-6)	Boston (+1)
12	Boston (-)	Zurich (-1)	Chicago (-4)	Chicago (+2)	San Francisco (-1)
13	Shenzhen (+1)	Beijing (+12)	Shenzhen (+7)	Luxembourg (-7)	Luxembourg (+3)
14	Luxembourg (-5)	Chicago (-5)	Osaka (+6)	Shanghai (+4)	Vancouver (+11)
15	Guangzhou	Vancouver (+4)	Vancouver (+6)	Vancouver (+10)	Osaka (-5)

“The top financial centres are by nature strong in most, if not all, sectors of finance.”

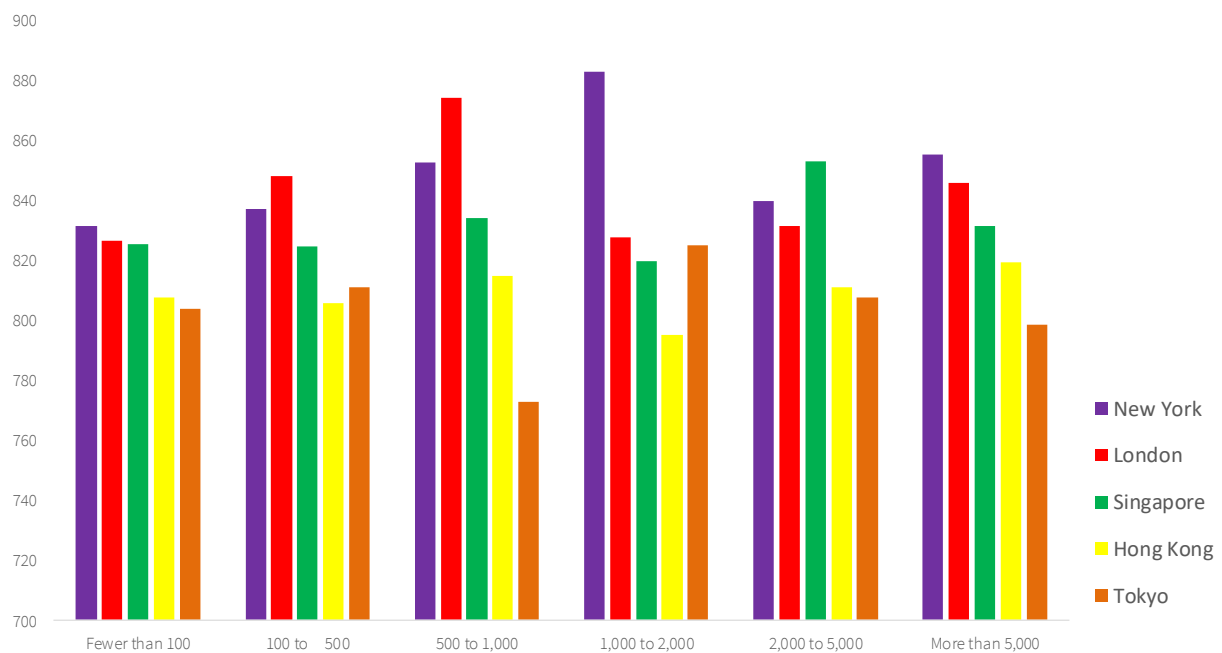
ANGEL INVESTOR BASED IN LONDON

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 mid-sized organisations more than other centres.

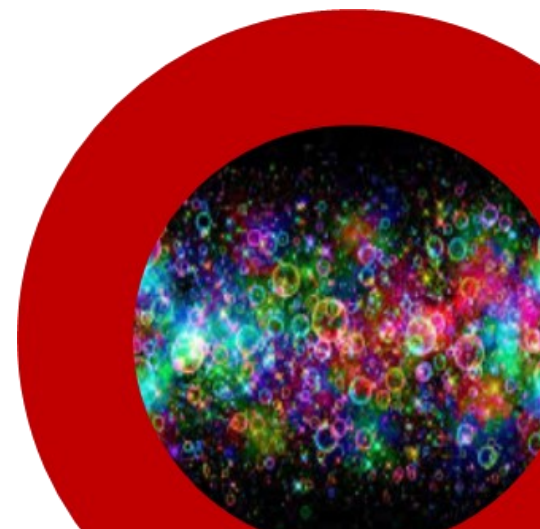
New York is favoured by respondents from the smallest and the largest sized organisations.

Chart 39 | GFCI 21 Average Assessments by Respondents' Organisation Size (number of employees)



“I think these results will change a great deal as shifts in headcount location will be seen as a result of Brexit.”

ANGEL INVESTOR BASED IN LONDON



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.

This may be due to strong marketing or general awareness. Table 14 shows the top ten centres with the greatest positive difference between the average assessment and the GFCI rating.

Table 14 | GFCI 21 Top Ten Centres Assessments and Ratings – Reputational Advantage

Centre - Top 10	Weighted Average Assessment	GFCI 21 Rating	GFCI 21 Reputational Advantage	GFCI 20 Reputational Advantage
Singapore	834	760	74	81
Qingdao	721	649	72	80
New York	849	780	69	56
Tokyo	802	740	62	69
Hong Kong	813	755	58	57
London	840	782	58	51
Sydney	770	721	49	62
Toronto	761	719	42	56
Shanghai	756	715	41	33
Shenzhen	737	701	36	17

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.

“Singapore seems to be the place that European and North American financiers are focusing on right now.”

HEAD OF INVESTMENT BANKING BASED IN FRANKFURT

Table 15 shows the ten 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 21 Bottom Ten Centres Assessments and Ratings – Reputational Disadvantage

Centre - Bottom 10	Weighted Average Assessment	GFCI 21 Rating	GFCI 21 Reputational Advantage	GFCI 20 Reputational Advantage
Almaty	538	589	-51	-34
Liechtenstein	576	628	-52	-21
Rio de Janeiro	544	599	-55	-73
Gibraltar	529	587	-58	-69
Tel Aviv	597	666	-69	-22
Bangkok	585	656	-71	-53
Glasgow	549	622	-73	-46
Athens	447	522	-75	-77
Dalian	517	597	-80	-76
Riyadh	513	596	-83	-56

“In terms of reputation, New York, London, Tokyo and Shanghai lead the way. Singapore remains strong also”

HEDGE FUND MANAGER BASED IN LONDON



Appendix 1: Assessment Details

Table 16 | Details of Assessments by Centre

Centre	GFCI 21		Assessments			Centre	GFCI 21		Assessments		
	Rank	Rating	Number	Average	St. Dev		Rank	Rating	Number	Average	St. Dev
London	1	782	1023	843	163	Riga	45	631	186	650	191
New York	2	780	893	847	164	Stockholm	46	630	174	637	192
Singapore	3	760	611	831	148	Guernsey	47	629	244	618	210
Hong Kong	4	755	746	812	141	Liechtenstein	48	628	187	597	239
Tokyo	5	740	417	802	160	Calgary	49	627	141	630	202
San Francisco	6	724	341	756	179	Busan	50	626	92	575	205
Chicago	7	723	383	742	164	British Virgin Islands	51	625	224	613	212
Sydney	8	721	289	774	161	Copenhagen	52	623	223	609	192
Boston	9	720	418	759	155	Glasgow	53	622	168	557	212
Toronto	10	719	332	767	171	Edinburgh	54	621	274	632	183
Zurich	11	718	487	753	172	Brussels	55	619	365	619	184
Washington DC	12	716	365	748	174	Milan	55	619	210	629	176
Shanghai	13	715	513	749	162	Bahrain	57	618	154	589	200
Montreal	14	713	206	701	184	Isle of Man	58	617	251	587	206
Osaka	15	712	128	714	189	Johannesburg	59	616	144	601	197
Beijing	16	710	470	696	178	Trinidad and Tobago	60	615	227	593	203
Vancouver	17	709	182	729	180	Mexico City	61	614	136	586	212
Luxembourg	18	708	443	730	191	Sao Paulo	62	613	126	648	200
Los Angeles	19	705	305	715	165	Mumbai	63	612	150	585	214
Geneva	20	704	431	680	180	Vienna	64	611	166	612	215
Melbourne	21	702	151	722	168	Manila	65	610	113	585	201
Shenzhen	22	701	318	731	179	Istanbul	66	609	169	572	217
Frankfurt	23	698	529	719	185	Jakarta	67	608	123	608	172
Seoul	24	697	250	705	176	Madrid	68	607	236	574	210
Dubai	25	696	407	717	196	Prague	69	606	145	598	202
Taipei	26	689	184	718	152	Budapest	70	604	112	587	209
Munich	27	682	182	640	218	Mauritius	71	603	93	578	213
Abu Dhabi	28	680	287	639	219	Rome	72	601	198	565	210
Paris	29	679	559	671	182	Rio de Janeiro	73	599	98	551	230
Casablanca	30	674	113	698	226	Monaco	74	598	205	588	194
Cayman Islands	31	670	230	657	205	Dalian	75	597	493	363	203
Tel Aviv	32	666	93	605	272	Riyadh	76	596	72	528	230
Dublin	33	663	399	652	192	Malta	77	594	191	571	213
Bermuda	34	660	118	625	214	Lisbon	78	593	154	558	227
Kuala Lumpur	35	659	199	636	172	Cyprus	79	590	202	557	220
Bangkok	36	656	184	595	187	Almaty	80	589	90	551	240
Guangzhou	37	650	211	679	181	Gibraltar	81	587	187	542	219
Qingdao	38	649	707	794	178	Helsinki	82	585	183	570	194
Doha	39	648	144	635	205	Bahamas	83	582	151	556	228
Amsterdam	40	647	432	655	191	Panama	84	580	131	554	224
Warsaw	41	645	173	673	180	Moscow	85	566	310	501	243
Tallinn	42	640	124	627	191	St Petersburg	86	565	118	481	256
Jersey	43	633	248	618	210	Reykjavik	87	550	114	511	221
Oslo	44	632	166	616	199	Athens	88	522	143	454	219

Appendix 2: Respondent's Details

Table 17 | Respondents by Industry Sector

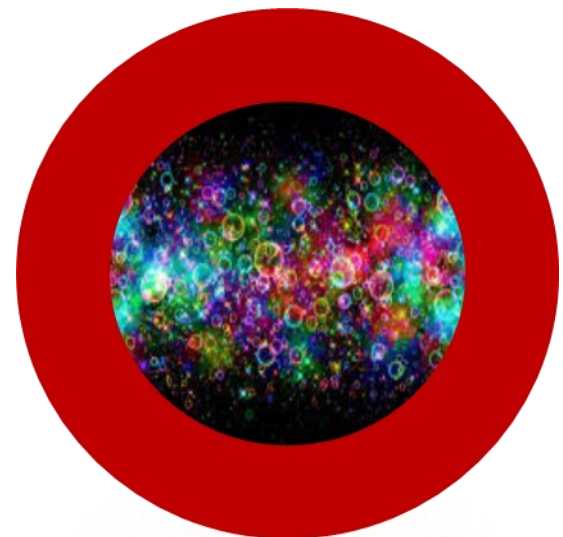
Industry Sector	Number of Respondents
Banking	556
Professional Services	403
Investment	292
Other	216
Insurance	138
Finance	84
Government & Regulatory	87
Trading	107
Trade Association	63
Total	1,946

Table 18 | Respondents by Region

Region	Number of Respondents
Western Europe	589
Asia/Pacific	754
North America	262
Eastern Europe and Central Asia	75
Middle East and Africa	90
Latin America and the Caribbean	57
Other	119
Total	1,946

Table 19 | Respondents by Size of Organisation

Size of Organisation	Number of Respondents
Fewer than 100	429
100 to 500	254
500 to 1,000	177
1,000 to 2,000	107
2,000 to 5,000	153
More than 5,000	809
Other	17
Total	1,946



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 101 instrumental factors are used in GFCI 21 (of which 44 were updated since GFCI 20 and six 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 use 24,406 financial centre assessments drawn from 3,008 respondents in GFCI 21. 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 2 to 3 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 am fascinated by this novel approach - using a simplified questionnaire and instrumental factors with a support vector machine is very smart and could lead to a revolution in market research.”

PROFESSOR OF STATISTICS BASED IN LONDON

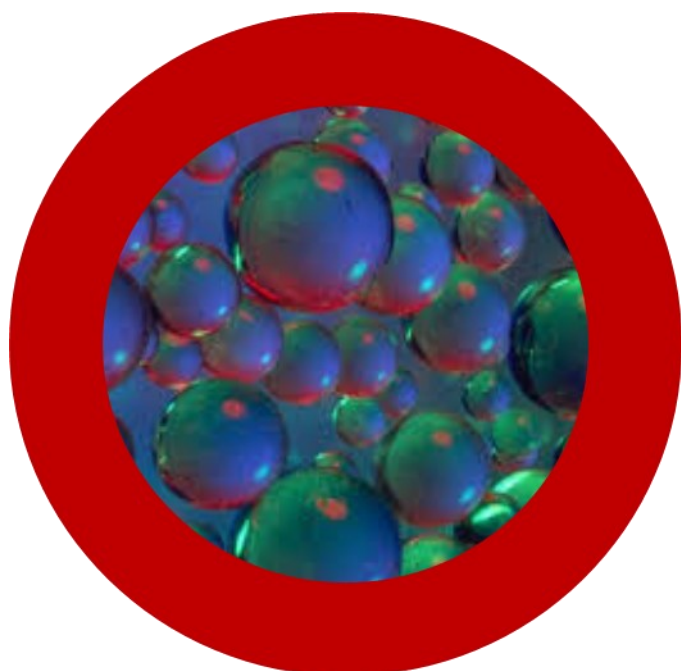
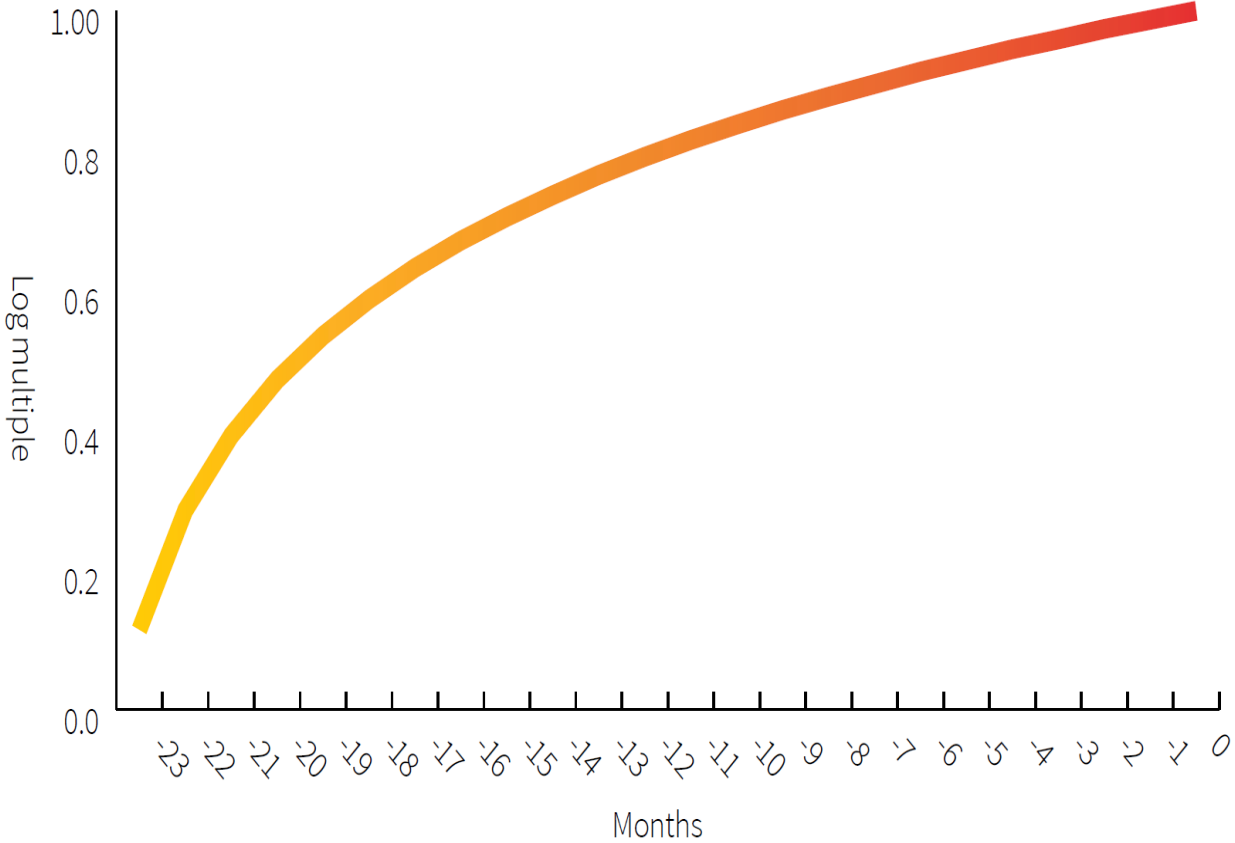


Chart 40 | Reduction in Weighting as Assessments get Older



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.

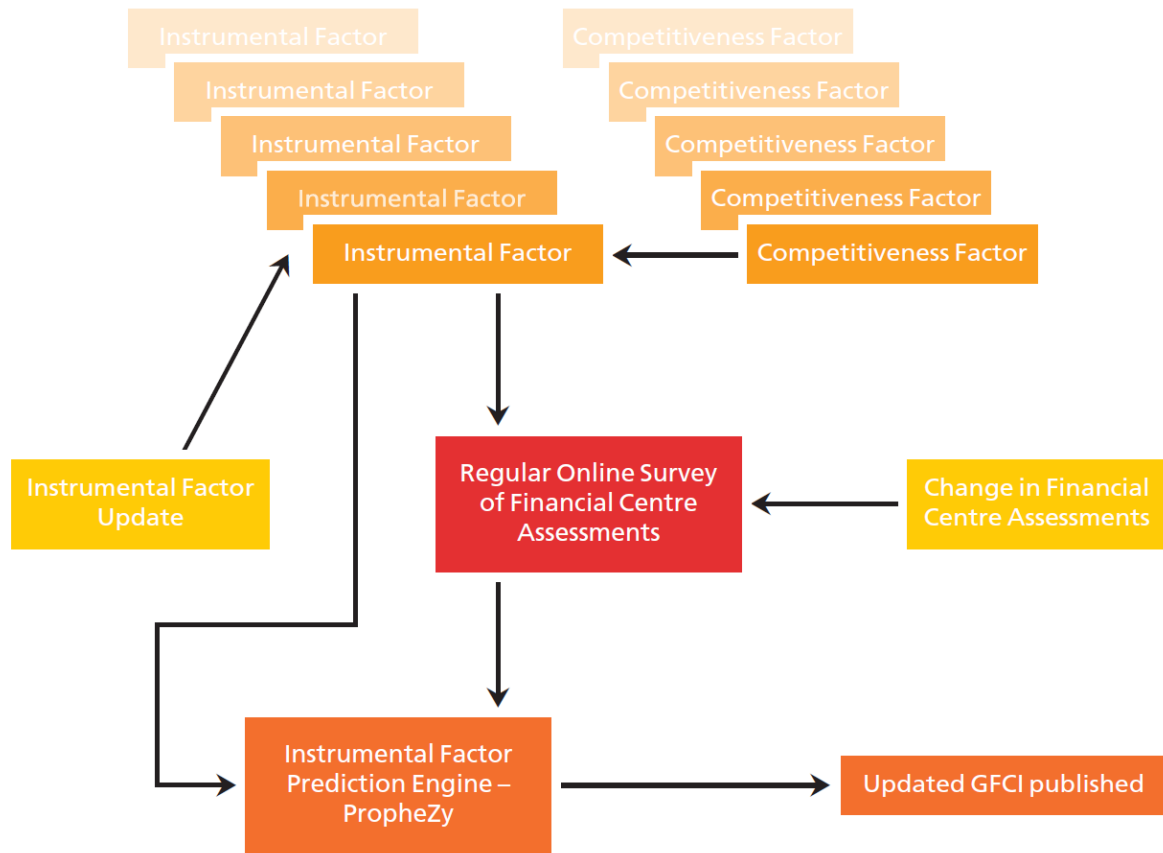
A factor assessment model is built using the centre assessments from responses to the online questionnaire. Assessments from respondents' home centres are excluded from the factor assessment model to remove home bias. The model then predicts how respondents would have assessed centres they are not familiar 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 GFCI 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

Table 20 | Top 25 Instrumental Factors by correlation with GFCI 21

Instrumental Factor	R-squared
BE15 OECD Country Risk Classification	0.521
RF09 Price Levels	0.449
RF01 World Competitiveness Scoreboard	0.449
BE17 Financial Secrecy Index	0.396
RF02 Global Competitiveness Index	0.392
IF16 Logistics Performance Index	0.365
BE01 Business Environment Rankings	0.364
RF17 IESE cities in motion index	0.354
RF11 Innovation Cities Global Index	0.333
HC16 Cost of Living City Rankings	0.322
RF04 FDI Confidence Index	0.299
BE18 Government Effectiveness	0.297
RF20 Global Cities Index	0.291
IF01 Office Occupancy Cost	0.278
HC05 Citizens Domestic Purchasing Power	0.262
FS06 Domestic Credit Provided by Banking Sector (% of GDP)	0.259
IF07 Quality of Roads	0.259
RF06 Global Innovation Index	0.256
RF03 Foreign Direct Investment Inflows	0.248
FS08 Total Net Assets of Regulated Open-End Funds	0.242
RF14 Global Enabling Trade Report	0.233
BE07 Wage Comparison Index	0.232
BE03 Operational Risk Rating	0.232
BE32 Global Cybersecurity Index	0.229
IF10 Networked Readiness Index	0.227

Table 21 | Business Environment Factors

Instrumental Factor	Source	Website	Change Since GFCI 20
BE01 Business Environment Rankings	EIU	http://www.eiu.com/public/thankyou_download.aspx?activity=download&campaignid=bizenviro2014	
BE02 Ease of Doing Business Index	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=doing-business	
BE03 Operational Risk Rating	EIU	http://www.viewswire.com/index.asp?layout=homePubTypeRK	Updated
BE04 Real Interest Rate	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
BE05 Global Services Location	AT Kearney	http://www.atkearney.com/research-studies/global-services-location-index	
BE06 Corruption Perception Index	Transparency International	http://www.transparency.org/policy_research/surveys_indices/cpi	
BE07 Wage Comparison Index	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
BE08 Corporate Tax Rates	PWC	http://www.doingbusiness.org/reports/thematic-reports/paying-taxes/	Updated
BE09 Employee Tax Rates	PWC	n/a	
BE10 Personal Tax Rates	OECD	http://www.oecd.org/tax/tax-policy/tax-database.htm	
BE11 Tax as Percentage of GDP	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
BE12 Bilateral Tax Information Exchange Agreements	OECD	http://www.oecd.org/document/7/0,3343,en_2649_33767_38312839_1_1_1_1_00.html	
BE13 Economic Freedom of the World	Fraser Institute	http://www.freetheworld.com/release.html	Updated
BE14 Government Debt as % of GDP	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2186rank.html	Updated
BE15 OECD Country Risk Classification	OECD	http://www.oecd.org/tad/xcred/crc.htm	Updated
BE16 Global Peace Index	Institute for Economics & Peace	http://www.visionofhumanity.org/	
BE17 Financial Secrecy Index	Tax Justice Network	http://www.financialsecrecyindex.com/	
BE18 Government Effectiveness	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	Updated
BE19 Open Government	World Justice Project	http://worldjusticeproject.org/rule-of-law-index	Updated
BE20 Regulatory Enforcement	World Justice Project	http://worldjusticeproject.org/rule-of-law-index	Updated
BE21 Press Freedom Index	Reporters Without Borders (RSF)	http://en.rsf.org/	
BE22 Currencies	Swiss Association for Standardization	(http://www.currency-iso.org/en/home/tables/table-a1.html)	Updated
BE23 Commonwealth Countries	The Commonwealth	http://thecommonwealth.org/member-countries	
BE24 Common Law Countries	CIA	https://www.cia.gov/library/publications/the-world-factbook/fields/2100.html	
BE25 Inflation, GDP Deflator	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
BE26 Rule of Law	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	Updated
BE27 Political Stability and Absence of Violence/Terrorism	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	Updated
BE28 Regulatory Quality	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	Updated
BE29 Control of Corruption	The World Bank	http://info.worldbank.org/governance/wgi/index.aspx#home	Updated
BE30 Best Countries for Business	Forbes	http://www.forbes.com/best-countries-for-business/list/#tab:overall	
BE31 Lloyd's City Risk Index 2015-2025	Lloyd's	http://www.lloyds.com/cityriskindex/locations	New
BE32 Global Cybersecurity Index	ITU	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/GCI.aspx	New

Table 22 | Human Capital Factors

Instrumental Factor	Source	Website	Change Since GFCI
HC01 Graduates in social Science, Business and Law (as % of t	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=Education%20Statistics	Updated
HC02 Gross Tertiary Graduation Ratio	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=Education%20Statistics	Updated
HC03 Visa Restrictions Index	Henley Partners	http://www.henleyglobal.com/citizenship/visa-restrictions/	
HC04 Human Development Index	UN Development Programme	http://hdr.undp.org	
HC05 Citizens Domestic Purchasing Power	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
HC06 Number of High Net Worth Individuals	Capgemini	https://www.worldwealthreport.com/	
HC07 Homicide Rates	UN Office of Drugs & Crime	https://data.unodc.org/	
HC08 Top Tourism Destinations	Euromonitor	http://blog.euromonitor.com/2016/01/top-100-city-destinations-ranking-2016.html	
HC09 Average precipitation in depth	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	
HC10 Quality of Living City Rankings	Mercer	http://www.mercer.com	
HC11 Health Care Index	Numbeo	http://www.numbeo.com/health-care/rankings.jsp	Updated
HC12 Global Skills Index	Hays	http://www.hays-index.com/	Updated
HC13 Linguistic Diversity	Ethnologue	http://www.ethnologue.com/statistics/country	Updated
HC14 Global Terrorism Index	Institute for Economics & Peace	http://www.visionofhumanity.org/	Updated
HC15 World Talent Rankings	IMD	http://www.imd.org/wcc/news-talent-report/	Updated
HC16 Cost of Living City Rankings	Mercer	http://www.mercer.com	
HC17 Quality of Life Index	Numbeo	http://www.numbeo.com/quality-of-life/rankings.jsp	Updated
HC18 Crime Index	Numbeo	http://www.numbeo.com/crime/rankings.jsp#	Updated

Table 23 | Infrastructure Factors

Instrumental Factor	Source	Website	Change Since GFCI
IF01 Office Occupancy Cost	CBRE Research	http://www.cbre.com/research-and-reports/Global-Prime-Office-Occupancy-Costs-2016	
IF02 Prime International Residential Index	Knight Frank	http://www.knightfrank.com/wealthreport	New
IF03 JLL Real Estate Transparency Index	Jones Lang LaSalle	http://www.jll.com/greti/Pages/Rankings.aspx	
IF04 ICT Development Index	United Nations	http://www.itu.int/net4/ITU-D/idi/2016/	Updated
IF05 Telecommunication Infrastructure Index	United Nations	http://unpan3.un.org/egovkb/Data-Center	
IF06 Quality of Domestic Transport Network	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	
IF07 Quality of Roads	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	
IF08 Roadways per Land Area	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2085rank.html	Updated
IF09 Railways per Land Area	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2121rank.html	Updated
IF10 Networked Readiness Index	World Economic Forum	http://reports.weforum.org/global-information-technology-report-2016/	
IF11 Energy Sustainability Index	World Energy Council	http://www.worldenergy.org/data/sustainability-index/	Updated
IF12 Metro Network Length	Metro Bits	http://mic-ro.com/metro/table.html	
IF13 The Web Index	The World Wide Web Foundation	http://thewebindex.org/about/the-web-index/	
IF14 Environmental Performance	Yale University	http://epi.yale.edu/epi/country-rankings	
IF15 Global Sustainable Competitiveness Index	Solability	http://solability.com/the-global-sustainable-competitiveness-index/the-index	Updated
IF16 Logistics Performance Index	The World Bank	http://lpi.worldbank.org/international/global	

Table 24 | Financial Sector Development Factors

Instrumental Factor	Source	Website	Change Since GFCI
FS01 Capitalisation of Stock Exchanges	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-reports	Updated
FS02 Value of Share Trading	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-reports	Updated
FS03 Volume of Share Trading	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-reports	Updated
FS04 Broad Stock Index Levels	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-reports	Updated
FS05 Value of Bond Trading	The World Federation of Stock Exchange	http://www.world-exchanges.org/home/index.php/statistics/monthly-reports	Updated
FS06 Domestic Credit Provided by Banking Sector (% of GDP)	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
FS07 Percentage of Firms Using Banks to Finance Investment	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
FS08 Total Net Assets of Regulated Open-End Funds	Investment Company Institute	http://www.icifactbook.org/	
FS09 Islamic Finance Country Index	Islamic Banks and Financial Institution:	http://www.gjfr.net/publications	
FS10 Net External Positions of Banks	The Bank for International Settlements	http://www.bis.org/statistics/bankstats.htm	Updated
FS11 External Positions of Central Banks as a share of GDP	The Bank for International Settlements	http://www.bis.org/statistics/bankstats.htm	Updated
FS12 Liner Shipping Connectivity Index	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
FS13 Global Connectedness Index	DHL	http://www.dhl.com/en/about_us/logistics_insights/studies_research/global_connectedness_index/global_connectedness	Updated
FS14 City GDP composition (Business/Finance)	The Brookings Institution	http://www.brookings.edu/research/interactives/global-metro-monitor-3	
FS15 Business Process Outsourcing Location Index	Cushman & Wakefield	http://www.cushmanwakefield.com/en/research-and-insight/2015/business-process-outsourcing-location-index	

Table 25 | Reputation Factors

Instrumental Factor	Source	Website	Change Since GFCI
RF01 World Competitiveness Scoreboard	IMD	http://www.imd.ch/research/publications/wcy/competitiveness_scoreboard.cfm	
RF02 Global Competitiveness Index	World Economic Forum	http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm	Updated
RF03 Foreign Direct Investment Inflows	UNCTAD	http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx?RF_ActivePath=P.5.27&RF_Expanded=P.5.27	Updated
RF04 FDI Confidence Index	AT Kearney	http://www.atkearney.com/research-studies/foreign-direct-investment-confidence-index	
RF05 GDP per Person Employed	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators	Updated
RF06 Global Innovation Index	INSEAD	http://www.globalinnovationindex.org/content.aspx?page=Global-Home	Updated
RF07 Global Intellectual Property Index	Taylor Wessing	http://www.taylorwessing.com/ipindex/	
RF08 RPI (% change on year ago)	The Economist	http://www.economist.com/markets/indicators/	Updated
RF09 Price Levels	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
RF10 Number of International Association Meetings	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	
RF11 Innovation Cities Global Index	2ThinkNow Innovation Cities	http://www.innovation-cities.com/	
RF12 Big Mac Index	The Economist	http://www.economist.com/content/big-mac-index	
RF13 Sustainable Economic Development	Boston Consulting Group	https://www.bcgperspectives.com/content/interactive/public_sector_globalization_interactive_map_sustainable_economic	
RF14 Global Enabling Trade Report	World Economic Forum	http://www.weforum.org/issues/international-trade	Updated
RF15 Good Country Index	Good Country Party	http://www.goodcountry.org/overall	Updated
RF16 Legatum Prosperity Index	Legatum Institute	http://www.prosperity.com/#/ranking	Updated
RF17 IESE cities in motion index	IESE	http://citiesinmotion.iese.edu/indicecim/?lang=en	
RF18 FDI Inward Stock as a Percentage of GDP	UNCTAD	http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx	
RF19 Sustainable Cities Index	Arcadis	https://www.arcadis.com/en/global/our-perspectives/sustainable-cities-index-2016/	New
RF20 Global Cities Index	AT Kearney	https://www.atkearney.com/research-studies/global-cities-index	New

Vantage

Financial Centres

Vantage Financial Centres is an exclusive club of financial centres around the world run by Z/Yen for organisations looking for deeper understanding of financial centre

competitiveness. Members receive enhanced access to GFCI data, marketing opportunities, and training for centres seeking to enhance their profile and reputation.



The China Development Institute (CDI) is a non-governmental 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 9 years ago. Based on rigorous research and objective analysis, CDI is committed to providing prospective, innovative and pragmatic reports for governments at different levels in China and corporations at home and abroad.

There are currently six Chinese financial centres in the GFCI - Shanghai, Beijing, Shenzhen, Guangzhou, Qingdao and Dalian.

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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.

Located at the heart of Eurasia, AIFC provides unprecedented conditions for participants and investors: legal system based on English law, independent regulatory framework consistent with internationally recognised standards, tax exemptions for 50 years, simplified visa and labour regimes, English as a working language. AIFC will be fully operational from the beginning of 2018.

Astana's geography within Eurasian Economic Union and its role in "One Belt, One Road" offer great potential for AIFC to be a successful regional financial centre.

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www.aifc.kz**



Tokyo is a modern and well run city, and overall political and economic stability are strong relative to the international peer group. Health care and quality of life are in a good condition.

Risk is well managed in that levels of crime and corruption are under control. Overall prosperity is good and infrastructure is better than in many capital cities. As an advanced economy, the business environment is favourable, with uncertainty and country risk well managed. There is a room for further improvement in such areas as ease of doing business and attracting international skills and talent. These are our priorities at the moment.

**Takaaki Yoda at yoda@cfainstitute.org
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mark_yeandle@zyen.com**ABU DHABI GLOBAL MARKET**
سوق أبوظبي العالمي

Abu Dhabi Global Market (ADGM), an international financial centre in the capital of the UAE, opened for business on 21st October 2015. Located in Abu Dhabi, home to one of the world's largest sovereign wealth funds, ADGM plays a pivotal role in positioning Abu Dhabi as a global centre that connects businesses to the growing economies of the Middle East, South Asia and Africa.

ADGM's three independent authorities, the Registration Authority, the Financial Services Regulatory Authority and ADGM Courts, enable companies to conduct their business efficiently within an international regulatory framework that has an independent judicial system and legislative infrastructure based on the Common Law.

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www.adgm.com**CASABLANCA FINANCE CITY**
القطب المالي للدار البيضاء

Launched in 2010 under the initiative of His Majesty the King Mohammed VI, Casablanca Finance City (CFC) is a Pan-African financial hub that aims to provide a competitive platform for international investors towards African economies. Casablanca Finance City's ecosystem is organized around four key categories of institutions: financial institutions, professional services providers, regional headquarters of multinational corporations, and holding companies.

The CFC status provides a range of advantages including overall facilitation of doing business, relaxation of exchange controls and tax incentives. In less than seven years of existence, CFC has joined other international financial centres on the Global Financial Centres Index (GFCI) as Africa's number one financial centre.

contact@cfca.ma
www.casablancafinancecity.com**TFSA** | **TORONTO FINANCIAL SERVICES ALLIANCE**

The Toronto Financial Services Alliance (TFSA) is a unique, public-private partnership dedicated to growing Toronto region's financial services cluster and building it as a "top ten" global financial services centre. Established in 2001, TFSA is a collaboration involving three levels of government, the financial services industry and academia.

Working collaboratively with industry and government, we build international awareness of the advantages offered by the Toronto region and we work with financial services companies from around the world that are exploring business opportunities in Toronto. To leverage the financial industry's global reputation for stability, we have established the Global Risk Institute in Financial Services. To capitalize on Toronto region's talent advantages, we have established the Centre of Excellence in Financial Services Education.

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www.tfsa.ca**International Financial Services Centre**

Gujarat International Finance Tec-City (GIFT), Gujarat, India has set up International Financial Services Centre (IFSC) which is the only approved IFSC in India. The GIFT IFSC is a gateway for inbound and outbound business from India. Centre is fast emerging as a preferred destination for undertaking International Financial Services.

The GIFT IFSC covers Banking, Insurance, Capital Market and allied services covering law firms, accounting firms and professional services firms. It provides very competitive cost of operation with competitive tax regime, single window clearance, relaxed Company Law provisions, International Arbitration Centre with overall facilitation of doing business.

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