



The Global Financial Centres Index 18

SEPTEMBER 2015





A DECADE OF FACILITATING SUCCESS

The Qatar Financial Centre (QFC) is a fully onshore business and financial centre located in Doha, and provides an excellent platform for firms to incorporate and do business in Qatar and the region. It consists of a commercial arm, the QFC Authority; an independent financial regulator, the QFC Regulatory Authority; and has an independent judiciary which comprises a civil and commercial court and a regulatory tribunal.

The QFC Authority is responsible for the organisation's commercial strategy and for developing relationships with the global financial community and other key institutions both within and outside Qatar. It approves and issues licences to individuals, businesses and other entities that wish to use its platform to set up in Qatar.

The QFC allows 100% foreign ownership, unlimited repatriation of profits, no restrictions on the currency used for trading, and charges a competitive rate of 10% corporate tax on locally sourced profits.

These foundations have helped to foster Doha's world-class business environment; indeed, Qatar is currently ranked as the 16th most business-friendly country in the world (Economic Forum Global Competitiveness Report 2014–2015).

The QFC has undertaken several legal and structural enhancements, together with process improvements, to encourage a broader range of professional and business services firms to be licensed, facilitated by streamlined processes, significantly shortening the turnaround time for applications.

In 2015, the QFC celebrated its 10-year anniversary representing a decade of facilitating firms' success and contributing to diversifying Qatar's economy.

For more information about the QFC, please visit qfc.qa

Z/Yen Group thanks the City of London Corporation for its cooperation in the development of the GFCI and sponsorship of GFCI 1 to GFCI 7.

The author of this report, Mark Yeandle, would like to thank Xueyi Jiang, Michael Mainelli and the rest of the GFCI team for their contributions with research, modelling and ideas.

Foreword

New York, London, Singapore, Tokyo, Paris and Frankfurt are well-known Global Financial Centres (GFCs), but one cannot ignore the rapid rise of the GFCs in China. In the past three decades, rapid economic growth in China has helped with remarkable urban development. Shanghai, Beijing and Shenzhen have all become important GFCs in China. In this report (GFCI 18), Shanghai, Shenzhen and Beijing are ranked in 21st, 23rd and 29th places respectively. These three GFCs have their own strengths merits and all play an important role in the economic and financial development in China.

As one of the famous historical and cultural cities in China, Shanghai is known as the Paris of the Orient and its urban development in Early Modern China incorporated many western elements. It has been the hub of traditional commerce and the financial and cultural centre of mainland China. Inspired by China's national strategy, Shanghai has made every effort to enhance its capability as a GFC in recent years. The pilot program of the Shanghai Free-Trade Zone has opened the financial sector to the outside world and further developments are being made to further enhance the status of Shanghai as a Global Financial Centre.

Beijing, the Chinese Capital, is a well-known cultural city with a history stretching back over 3,000 years. Beijing has become the regulatory centre of China and the headquarters of financial regulatory authorities and the Four Major National Banks - ABC, BOA, ICBC and CCB are located in Beijing. Many Fortune 500 headquarters are also located in Beijing.

Shenzhen is a special case in urban development in China. Three decades ago Shenzhen was a small fishing village but urban development has happened very rapidly. Situated close to Hong Kong, Shenzhen was appointed as an experimental development area by Deng Xiaoping at the beginning of the reform and opening-up to the outside world. Emancipation of minds and innovative thinking runs through the theme of Shenzhen's urban development and the city has become a miracle of urban construction. Despite its short history, the construction of Shenzhen Financial Centre has unveiled a new chapter in reform and innovation in China's financial sector.

Looking into the future, there are very good prospects and huge opportunities for the construction of GFCs in China. With the advance of financial reforms, China's financial system will keep improving. The opening of financial markets is accelerating. It is expected that the development of China's financial centres will strengthen the ties with the rest of the world.



Dr Wanda Guo
Executive Vice President
China Development Institute – Shenzhen

GFCI 18 – Executive Summary

The GFCI provides profiles, ratings and rankings for financial centres, drawing on two separate sources of data – instrumental factors and responses to an online survey. The GFCI was created in 2005 and first published by Z/Yen Group in March 2007. The GFCI is updated and republished each September and March. This is the eighteenth edition (GFCI 18). We research 98 financial centres of which 84 appear in GFCI 18. The remaining 14 ‘associate centres’ may join the index when they receive sufficient assessments.

Instrumental factors: previous research indicates that many factors combine to make a financial centre competitive. We group these factors into five broad ‘areas of competitiveness’: **Business Environment, Financial Sector Development, Infrastructure, Human Capital and Reputational & General Factors.** Evidence of a centre’s performance in these areas is drawn from a range of external measures. 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 (supplied by the United Nations) and the Web Index (supplied by the World Wide Web Foundation). 105 factors have been used in GFCI 18.

Financial centre assessments: GFCI uses responses to an ongoing online questionnaire¹ completed by international financial services professionals. Respondents are asked to rate those centres with which they are familiar and to answer a number of questions relating to their perceptions of competitiveness. Responses from 3,194 financial services professionals were collected in the 24 months to June 2015. These responses provided 28,676 financial centre assessments which were used to compute GFCI 18, with older assessments discounted

according to age. Full details of the methodology behind GFCI 18 can be found on page 42.

The main headlines of GFCI 18 are:

London has moved ahead of New York to reclaim the number one position. London climbed 12 points in the ratings to lead New York by eight points. The GFCI is on a scale of 1,000 points and we believe that a lead of fewer than 20 points indicates relative parity. London and New York are often as much complementary as competitive. It is noticeable that assessments for London have been higher since the general election in May 2015.

London, New York, Hong Kong, and Singapore remain the four leading global financial centres. New York (2nd) is now only 33 points ahead of Hong Kong (3rd). Tokyo (5th), is only 25 points behind the leading four centres.

Western European centres show signs of recovery. The leading three centres in Europe are London, Zurich and Geneva. Frankfurt has moved up into fourth place just ahead of Luxembourg. Of the 29 centres in this region, 23 centres rose in the ratings with Dublin doing particularly well. Liechtenstein appears in the GFCI for the first time and is ranked 60th. Reykjavik continues to reverse some of its recent decline.

Eastern European and Central Asian centres prosper. The leading centre in this region is now Warsaw in 38th place, just ahead of Istanbul. The top seven centres all saw an increase in their ratings but the largest decline in this region was St Petersburg.

Twelve of the top 15 Asia/Pacific centres see a rise in their ratings. With the exception of Hong Kong and Singapore, the top Asia/Pacific financial centres have all seen their ratings

¹ www.zyen.info/gfci/

increase in GFCI 18. Hong Kong, Singapore, Tokyo and Seoul remain in the GFCI Top 10.

All North American centres are up in the ratings. Toronto remains the leading Canadian centre and is now the second North American centre behind only New York.

Sao Paulo and Rio de Janeiro rise strongly. Sao Paulo remains the top Latin American centre in GFCI 18, and along with Rio de Janeiro, made significant progress in the ratings and rankings. Mexico was the only centre that fell in the GFCI ratings. The Cayman Islands and the Bahamas also showed good improvements.

Middle East and Africa centres do well. All Middle Eastern and African centres, except Abu Dhabi and Riyadh, showed gains. Dubai made strong gains after a fall in GFCI 17. Doha rose in

the ratings but fell a couple of places in the ranks.

There were two new entrants to the GFCI. Los Angeles joined in 49th place and Liechtenstein joined in 60th place.

GFCI ratings are up overall and volatility in ratings remains low. The majority of centres saw an increase in the ratings with only 11 of the 84 centres declining. This increase in ratings is driven by a nearly universal increase in average assessments given by finance professionals who are more confident than they have been in recent times. The top financial centres have performed well in GFCI 18 with only three of the top 25 dropping in the ratings.

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

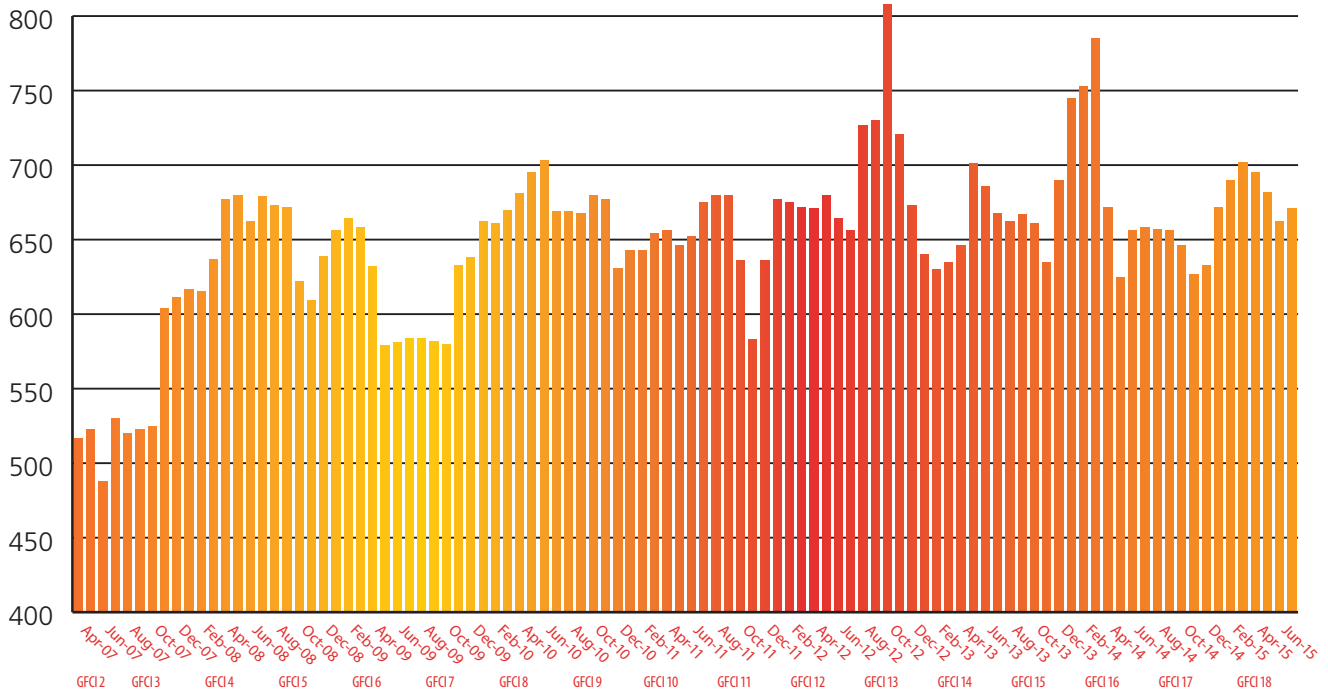


Table 1 | GFCI 18 Ranks and Ratings

Centre	GFCI 18		GFCI 17		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
London	1	796	2	784	▲ 1	▲ 12
New York	2	788	1	785	▼ 1	▲ 3
Hong Kong	3	755	3	758	-	▼ 3
Singapore	4	750	4	754	-	▼ 4
Tokyo	5	725	5	722	-	▲ 3
Seoul	6	724	7	718	▲ 1	▲ 6
Zurich	7	715	6	719	▼ 1	▼ 4
Toronto	8	714	11	704	▲ 3	▲ 10
San Francisco	9	712	8	708	▼ 1	▲ 4
Washington DC	10	711	12	703	▲ 2	▲ 8
Chicago	11	710	9	707	▼ 2	▲ 3
Boston	12	709	10	706	▼ 2	▲ 3
Geneva	13	707	13	702	-	▲ 5
Frankfurt	14	706	19	692	▲ 5	▲ 14
Sydney	15	705	21	690	▲ 6	▲ 15
Dubai	16	704	23	688	▲ 7	▲ 16
Montreal	17	703	18	693	▲ 1	▲ 10
Vancouver	18	702	15	696	▼ 3	▲ 6
Luxembourg	19	700	17	694	▼ 2	▲ 6
Osaka	20	699	31	668	▲ 11	▲ 31
Shanghai	21	698	16	695	▼ 5	▲ 3
Doha	22	695	20	691	▼ 2	▲ 4
Shenzhen	23	694	22	689	▼ 1	▲ 5
Busan	24	690	24	687	-	▲ 3
Tel Aviv	25	687	27	684	▲ 2	▲ 3
Taipei	26	686	25	686	▼ 1	-
Melbourne	27	685	28	677	▲ 1	▲ 8
Abu Dhabi	28	679	26	685	▼ 2	▼ 6
Beijing	29	676	29	674	-	▲ 2
Vienna	30	674	35	656	▲ 5	▲ 18
Sao Paulo	31	672	43	644	▲ 12	▲ 28
Stockholm	32	671	36	655	▲ 4	▲ 16
Johannesburg	33	669	32	662	▼ 1	▲ 7
Cayman Islands	34	668	39	650	▲ 5	▲ 18
Rio de Janeiro	35	666	47	638	▲ 12	▲ 28
Amsterdam	36	665	40	649	▲ 4	▲ 16
Paris	37	664	37	653	-	▲ 11
Warsaw	38	663	64	606	▲ 26	▲ 57
Calgary	39	662	33	661	▼ 6	▲ 1
Munich	40	661	30	670	▼ 10	▼ 9
Dalian	41	660	51	632	▲ 10	▲ 28
Bermuda	42	659	41	648	▼ 1	▲ 11
British Virgin Islands	43	658	34	657	▼ 9	▲ 1

Table 1 | GFCI 18 Ranks and Ratings continued

Centre	GFCI 18		GFCI 17		CHANGES	
	Rank	Rating	Rank	Rating	Rank	Rating
Casablanca	44	657	42	645	▼ 2	▲ 12
Kuala Lumpur	45	656	38	652	▼ 7	▲ 4
Dublin	46	654	52	627	▲ 6	▲ 27
Istanbul	47	653	44	643	▼ 3	▲ 10
Bangkok	48	651	50	633	▲ 2	▲ 18
Los Angeles	49	650	-	-	-	-
Bahrain	50	647	46	641	▼ 4	▲ 6
Almaty	51	640	49	634	▼ 2	▲ 6
Panama	52	638	48	637	▼ 4	▲ 1
Jersey	53	633	54	625	▲ 1	▲ 8
Guernsey	54	632	55	624	▲ 1	▲ 8
Manila	55	631	62	611	▲ 7	▲ 20
Gibraltar	56	630	45	642	▼ 11	▼ 12
Riyadh	57	629	14	698	▼ 43	▼ 69
Isle of Man	58	628	58	617	-	▲ 11
Mumbai	59	627	53	626	▼ 6	▲ 1
Liechtenstein	60	626	-	-	-	-
Copenhagen	61	625	61	612	-	▲ 13
Brussels	62	624	63	607	▲ 1	▲ 17
Prague	63	623	60	613	▼ 3	▲ 10
Mauritius	64	622	68	598	▲ 4	▲ 24
Milan	65	621	70	596	▲ 5	▲ 25
Lisbon	66	619	77	570	▲ 11	▲ 49
Oslo	67	618	65	601	▼ 2	▲ 17
Malta	68	617	71	594	▲ 3	▲ 23
Mexico City	69	616	56	623	▼ 13	▼ 7
Glasgow	70	615	66	600	▼ 4	▲ 15
Edinburgh	71	613	67	599	▼ 4	▲ 14
Monaco	72	612	59	616	▼ 13	▼ 4
Jakarta	73	610	57	618	▼ 16	▼ 8
Budapest	74	609	76	575	▲ 2	▲ 34
Bahamas	75	606	69	597	▼ 6	▲ 9
Rome	76	605	72	586	▼ 4	▲ 19
Helsinki	77	604	74	581	▼ 3	▲ 23
Moscow	78	598	75	579	▼ 3	▲ 19
Madrid	79	597	73	582	▼ 6	▲ 15
Cyprus	80	587	79	551	▼ 1	▲ 36
St Petersburg	81	552	78	569	▼ 3	▼ 17
Tallinn	82	550	80	531	▼ 2	▲ 19
Athens	83	540	81	499	▼ 2	▲ 41
Reykjavik	84	537	82	484	▼ 2	▲ 53

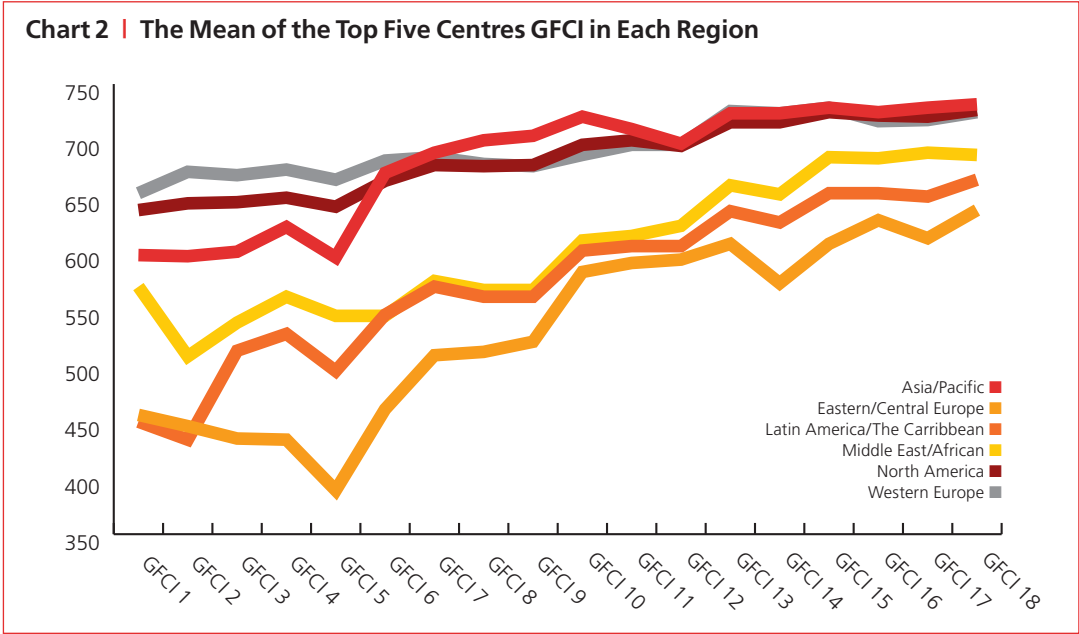
The following 'associate centres' are included within the GFCI questionnaire but have yet to acquire the number of assessments necessary to be included in the GFCI:

Table 2 | Associate Centres

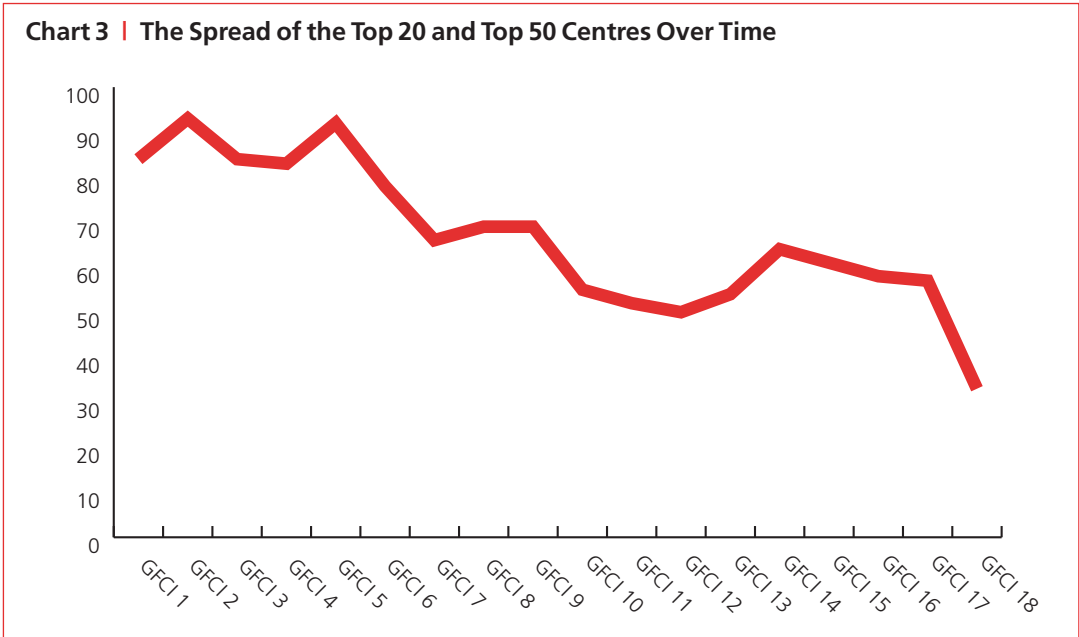
Centre	Number of assessments in last 24 months	Mean of Assessments
Guangzhou	194	707
Riga	172	634
New Delhi	141	579
Baku	118	573
Nairobi	106	581
Tianjin	102	687
Buenos Aires	96	568
Trinidad and Tobago	83	589
Sofia	74	504
Santiago	72	676
Wellington	58	747
Bratislava	48	460
Kuwait City	37	622
Barbados	12	517



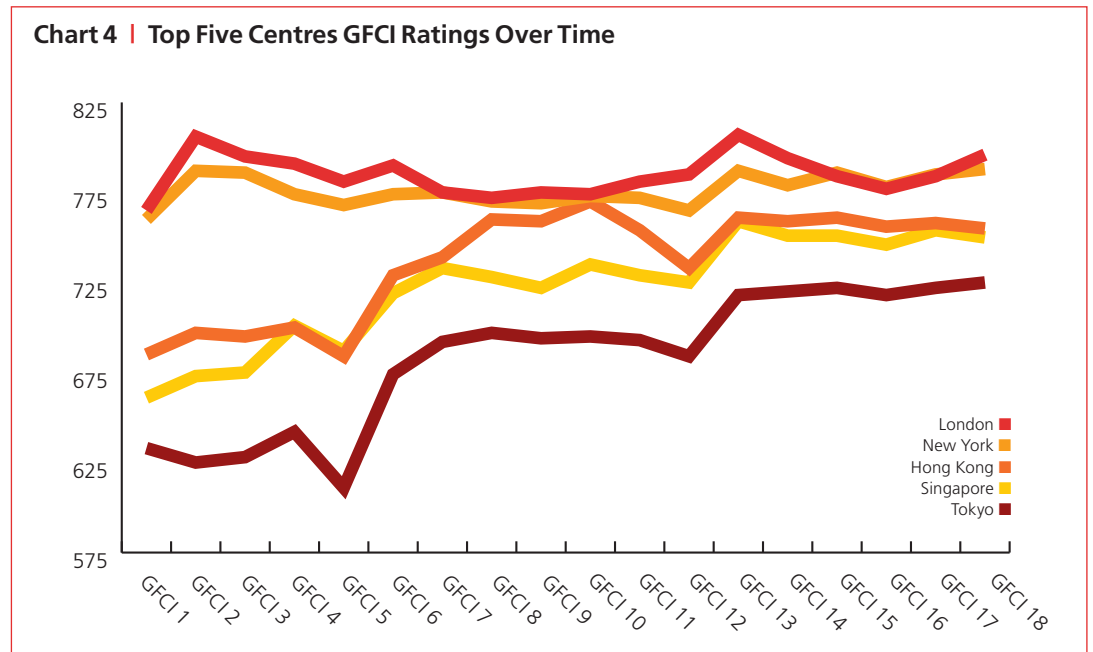
The average rating of the top five centres in each region shows that the historical dominance of the leading centres in Western Europe and North America has eroded over time and is now lower than the mean of the top five centres in the Asia/Pacific region. Chart 2 shows that the top centres in other regions, especially in Latin America and Eastern Europe, are also closing the gap:



A further indication of the increasing competitiveness of the top centres is given by looking at the standard deviation (the amount of variation in the data) of the ratings in each GFCI. Chart 3 below shows that the standard deviation has dropped significantly since GFCI 17:



22 of the top 25 centres showed an increase in ratings. The performance of the top five centres are shown below:



The GFCI questionnaire asks respondents which centres they consider likely to become more significant in the next few years. Eight of the top 15 are in the Asia-Pacific region:

Table 3 | The 15 Centres Likely to Become More Significant

Centre	Mentions within the last 24 months
Singapore	121
Shanghai	120
Casablanca	74
Busan	56
Hong Kong	55
Gibraltar	50
Dalian	40
Luxembourg	39
Seoul	37
Dubai	29
Shenzhen	21
Beijing	20
Doha	19
Istanbul	18
Almaty	16

Areas of Competitiveness

The instrumental factors used in the GFCI model are grouped into five key areas of competitiveness (Business Environment, Financial Sector Development, Infrastructure, Human Capital and Reputational & General Factors). To assess how financial centres perform in each of these areas, the GFCI 18 factor assessment model is run with only one of the five groups of instrumental factors at a time.

Table 4 shows the top 12 ranked centres in each sub-index:

Table 4 | GFCI 18 Area of Competitiveness Sub-indices – Top 12

Rank	Business environment	Financial sector development	Infrastructure	Human capital	Reputational & general
1	London (+1)	London (-)	London (-)	London (+1)	London (+1)
2	New York (-1)	New York (-)	New York (-)	New York (-1)	New York (-1)
3	Hong Kong (+1)	Hong Kong (-)	Hong Kong (-)	Hong Kong (-)	Hong Kong (-)
4	Singapore (-1)	Singapore (-)	Singapore (+1)	Singapore (-)	Singapore (-)
5	Tokyo (-)	Tokyo (-)	Tokyo (-1)	Tokyo (-)	Tokyo (+1)
6	Seoul (+7)	Boston (+5)	Seoul (+1)	San Francisco (+3)	Sydney (+12)
7	Zurich (-1)	Chicago (+7)	Zurich (-1)	Zurich (+3)	Chicago (-1)
8	Luxembourg (+11)	Washington DC (+7)	Luxembourg (+31)	Chicago (-2)	Toronto (+8)
9	Toronto (+3)	San Francisco (+10)	Toronto (-1)	Washington DC (-2)	San Francisco (-4)
10	Chicago (-2)	Zurich (-4)	Chicago (-)	Boston (+4)	Boston (-1)
11	Sydney (-4)	Seoul (-4)	Sydney (-3)	Toronto (+13)	Zurich (-2)
12	Dubai (+6)	Sydney (-1)	Dubai (+7)	Seoul (+2)	Vancouver (+12)

The top financial centres of the world are very well developed, sophisticated and cosmopolitan cities in their own right. Successful people are attracted to successful cities and it is perhaps no surprise that these centers are ranked so high by financial services professionals. The top five GFCI centres remain in the top five in each of the sub-indices.

“Now that the Scottish referendum and the general election are out of the way some of the uncertainty over London’s short-term future has been resolved. The referendum on the UK’s EU membership is now a major focus.”

Investment Banker based in London



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

Table 5 | Main Areas of Competitiveness

Area of Competitiveness	Number of Mentions	Main Issues
Business Environment	231	<ul style="list-style-type: none"> • Rate of regulatory change is increasing but banks want stability • Rule of Law
Taxation	199	<ul style="list-style-type: none"> • Becoming more important – EU should harmonise rules • Transparency
Human Capital	198	<ul style="list-style-type: none"> • Lack of skilled people is a barrier to further investment in developing countries • There is a demographic timebomb ticking in some Asian centres
Reputation	176	<ul style="list-style-type: none"> • Safety from terrorism is becoming more important • Reputation is vital in order to attract high quality staff
Infrastructure	169	<ul style="list-style-type: none"> • Investment in infrastructure is a sign that a city is serious about its ambitions • ICT speed and reliability is a concern for developing centres
Financial Sector Development	152	<ul style="list-style-type: none"> • Developing centres are more aware of the need for strong clustering • The EU is a vital financial services cluster – the UK leaving would be a big blow to London

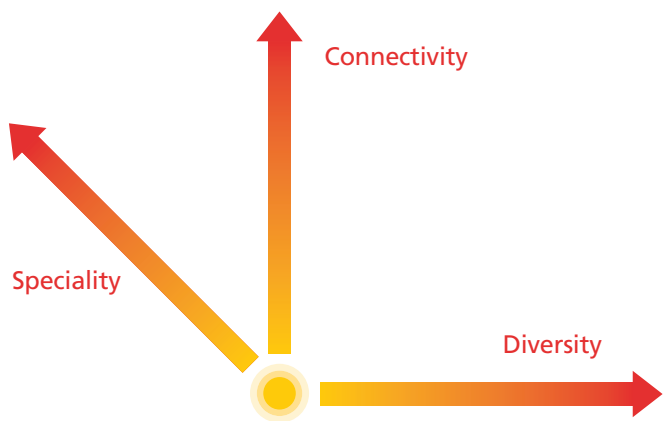
“Hong Kong’s reputation has suffered because of the worry about China becoming too influential in the running of the city.”

Investment Banker based in Hong Kong



Financial Centre Profiles

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



'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 70% of other centres, this centre is deemed to be 'Global'. If the ratings are provided by over 55% of other centres, this centre is deemed to be 'Transnational'.

'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 and 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 overleaf, 'Diversity' (Breadth) and 'Speciality' (Depth) are combined on one axis to create a two dimensional table of financial centre profiles. The 84 centres 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:



Table 6 | GFCI 18 Financial Centre Profiles

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

The 11 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 London, New York, Hong Kong and Singapore, the top four global financial centres. A number of centres have moved profile since GFCI 17. These include:

- Busan becoming an Established Transnational centre having been a Transnational Diversified centre;
- The Cayman Islands becoming a Transnational Specialist having been a Transnational Contender;
- Vancouver becoming an Established Transnational having been an Established Player;

Los Angeles entered the index as a Transnational Diversified Centre and Liechtenstein entered as an Evolving Centre.

“Singapore is a really exciting place to be right now – we can do business all over the world from here.”

Asset Manager based in Singapore



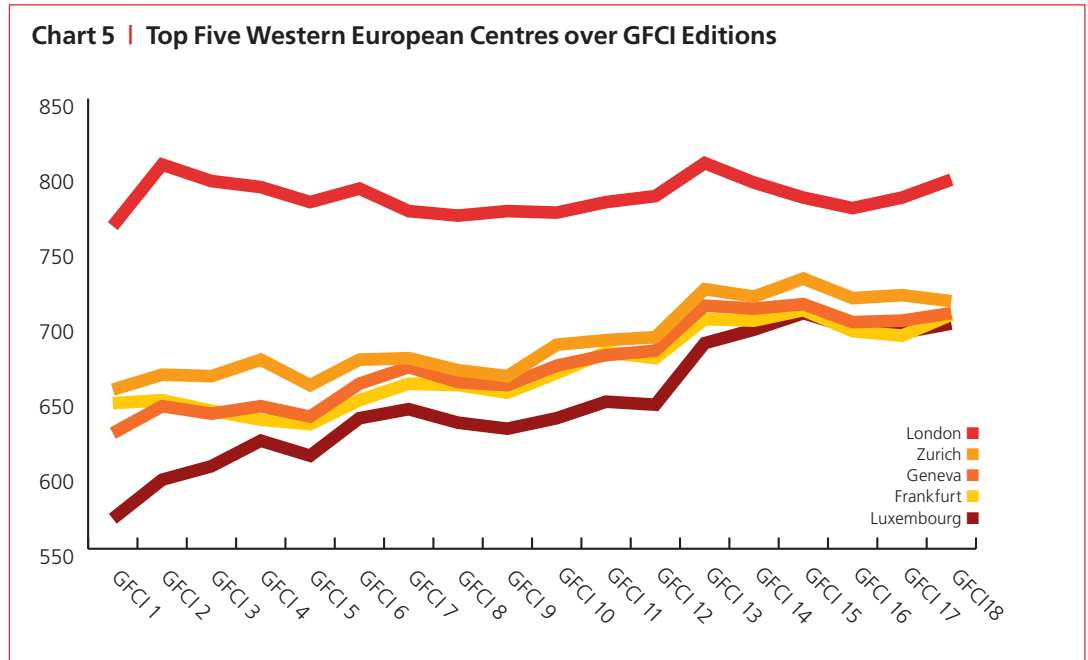
Western Europe

Table 7 shows the Western European financial centres in GFCI 18. The leading centres in Europe are London, Zurich and Geneva as in GFCI 17 and Frankfurt has moved up into fourth place just ahead of Luxembourg. Of the 29 centres in this region, 23 centres rose in the ratings with Dublin doing particularly well. Liechtenstein appears in the GFCI for the first time and is ranked 60th. Reykjavik continues to reverse some of its recent decline.

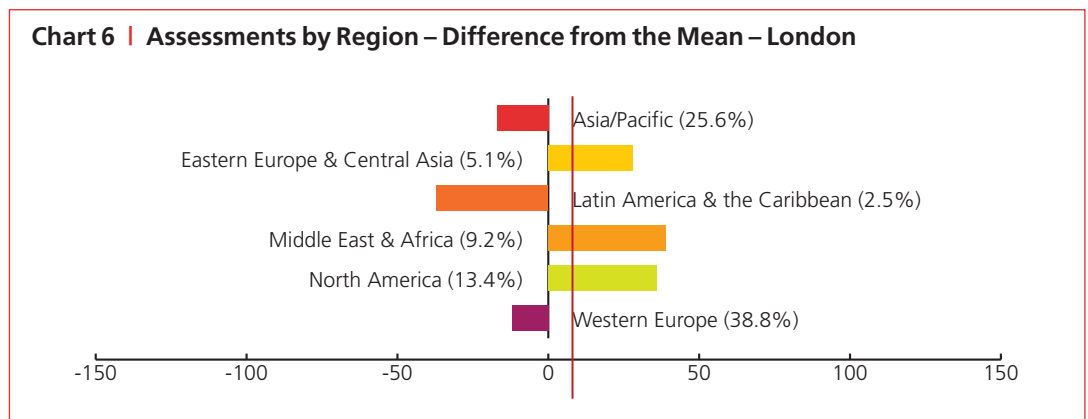
Table 7 | Western European Centres in GFCI 18

	GFCI 18 rank	GFCI 18 rating	GFCI 17 rank	GFCI 17 rating	Change in rank	Change in rating
London	1	796	2	784	▲ 1	▲ 12
Zurich	7	715	6	719	▼ 1	▼ 4
Geneva	13	707	13	702	-	▲ 5
Frankfurt	14	706	19	692	▲ 5	▲ 14
Luxembourg	19	700	17	694	▼ 2	▲ 6
Vienna	30	674	35	656	▲ 5	▲ 18
Stockholm	32	671	36	655	▲ 4	▲ 16
Amsterdam	36	665	40	649	▲ 4	▲ 16
Paris	37	664	37	653	-	▲ 11
Munich	40	661	30	670	▼ 10	▼ 9
Dublin	46	654	52	627	▲ 6	▲ 27
Jersey	53	633	54	625	▲ 1	▲ 8
Guernsey	54	632	55	624	▲ 1	▲ 8
Gibraltar	56	630	45	642	▼ 11	▼ 12
Isle of Man	58	628	58	617	-	▲ 11
Liechtenstein	60	626	-	-	-	-
Copenhagen	61	625	61	612	-	▲ 13
Brussels	62	624	63	607	▲ 1	▲ 17
Milan	65	621	70	596	▲ 5	▲ 25
Lisbon	66	619	77	570	▲ 11	▲ 49
Oslo	67	618	65	601	▼ 2	▲ 17
Malta	68	617	71	594	▲ 3	▲ 23
Glasgow	70	615	66	600	▼ 4	▲ 15
Edinburgh	71	613	67	599	▼ 4	▲ 14
Monaco	72	612	59	616	▼ 13	▼ 4
Rome	76	605	72	586	▼ 4	▲ 19
Helsinki	77	604	74	581	▼ 3	▲ 23
Madrid	79	597	73	582	▼ 6	▲ 15
Reykjavik	84	537	82	484	▼ 2	▲ 53

Chart 5 below shows that four of the top Five Western European centres have shown an improvement in their competitiveness since GFCI 17:

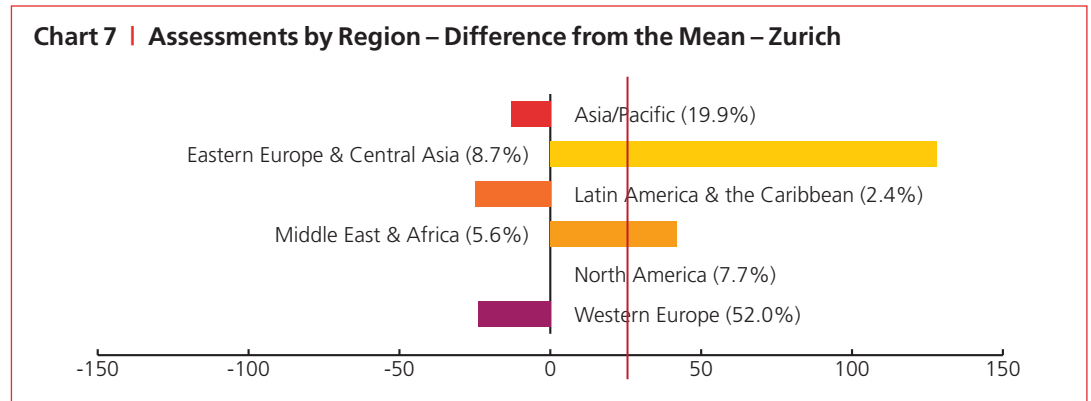


Examining the assessments given to each major centre is a useful means of assessing the relative strength and weakness of their reputations in different regions. It is important to note that assessments given to a centre by people based in that centre are excluded from the GFCI model to eliminate ‘home preference’. The charts below show the difference between the overall mean and the mean of assessments by region. The additional vertical axis shows the mean when assessments from the home region are removed:

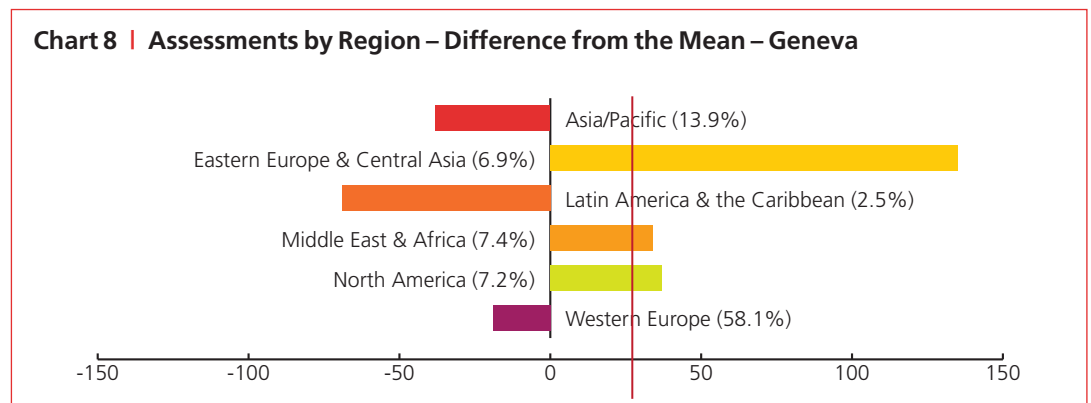


London’s overall average assessment (foreign assessments only) is 834, up from 820 in GFCI 17. Respondents from the Asia/Pacific region, Latin America and Western Europe are the least favourable to London, while North Americans and Middle Eastern respondents are the most favourable.

Zurich’s overall average assessment is 750 up from 742 in GFCI 17. Eastern European respondents are significantly more favourable than the mean.



Geneva’s overall average assessment is 713, down from 714 in GFCI 17. Western Europeans are the largest regional group of respondents (63% of the total) and their assessments are slightly less favourable than the average.



“Switzerland remains very strong but Luxembourg and Liechtenstein are becoming much more powerful in their own niches.”

Pension Fund Manager based in Zurich

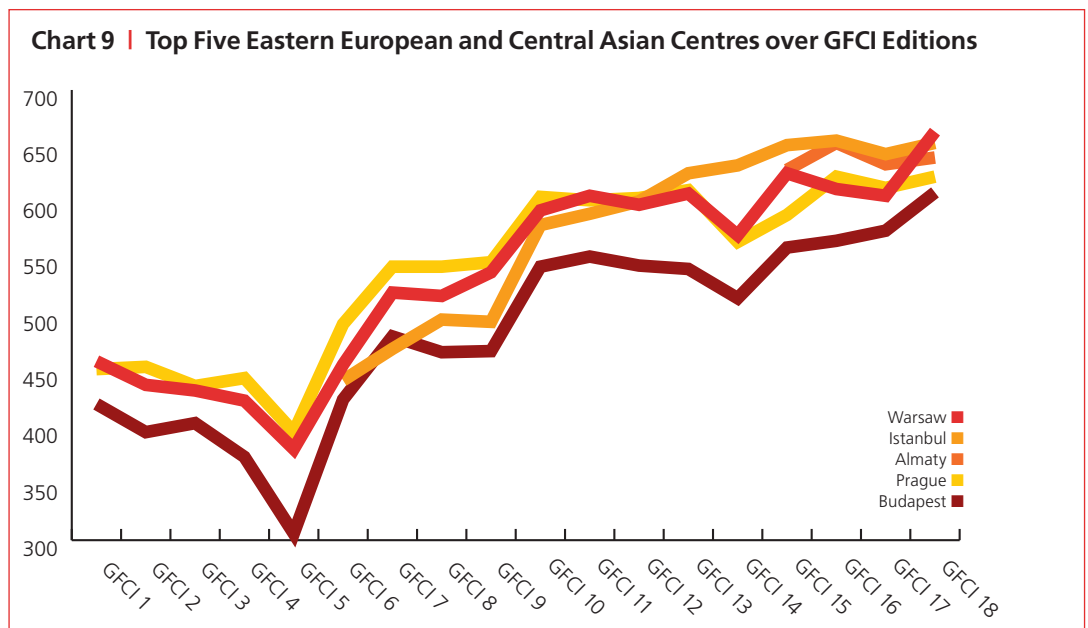
Eastern Europe and Central Asia

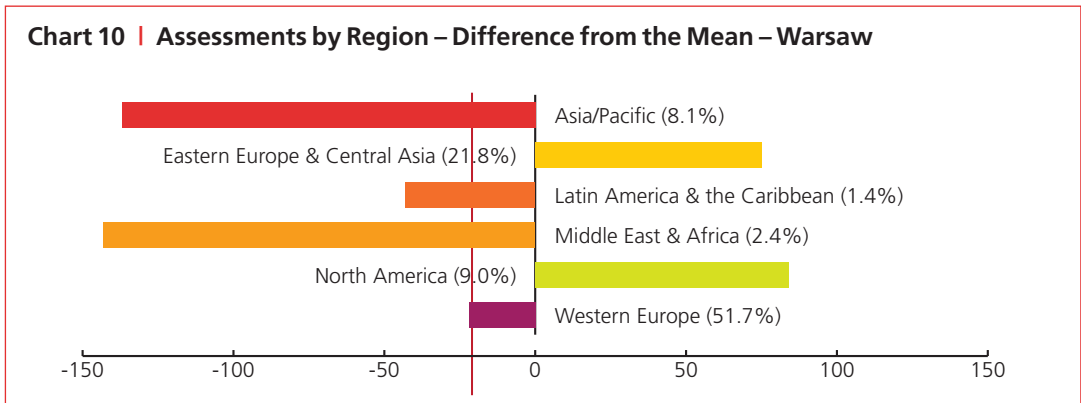
Table 8 shows the Eastern European and Central Asian financial centres in GFCI 18. The leading centre in this region is now Warsaw in 38th place, just ahead of Istanbul. The top seven centres all saw an increase in their ratings but the largest decline in this region was St Petersburg. Athens increased in the ratings but still trails the other regional centres.

Table 8 | Eastern European and Central Asian Centres in GFCI 18

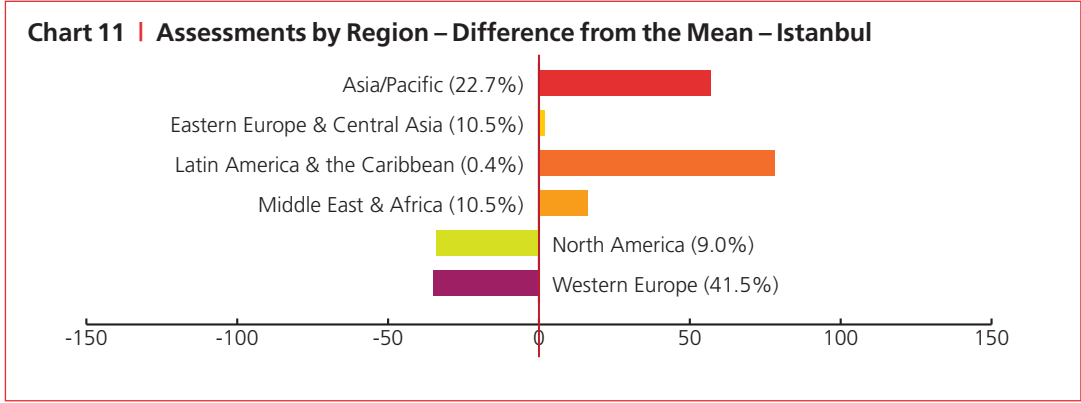
	GFCI 18 rank	GFCI 18 rating	GFCI 17 rank	GFCI 17 rating	Change in rank	Change in rating
Warsaw	38	663	64	606	▲ 26	▲ 57
Istanbul	47	653	44	643	▼ 3	▲ 10
Almaty	51	640	49	634	▼ 2	▲ 6
Prague	63	623	60	613	▼ 3	▲ 10
Budapest	74	609	76	575	▲ 2	▲ 34
Moscow	78	598	75	579	▼ 3	▲ 19
Cyprus	80	587	79	551	▼ 1	▲ 36
St Petersburg	81	552	78	569	▼ 3	▼ 17
Tallinn	82	550	80	531	▼ 2	▲ 19
Athens	83	540	81	499	▼ 2	▲ 41

Chart 9 below shows the progress over time made by the top centres in this region:

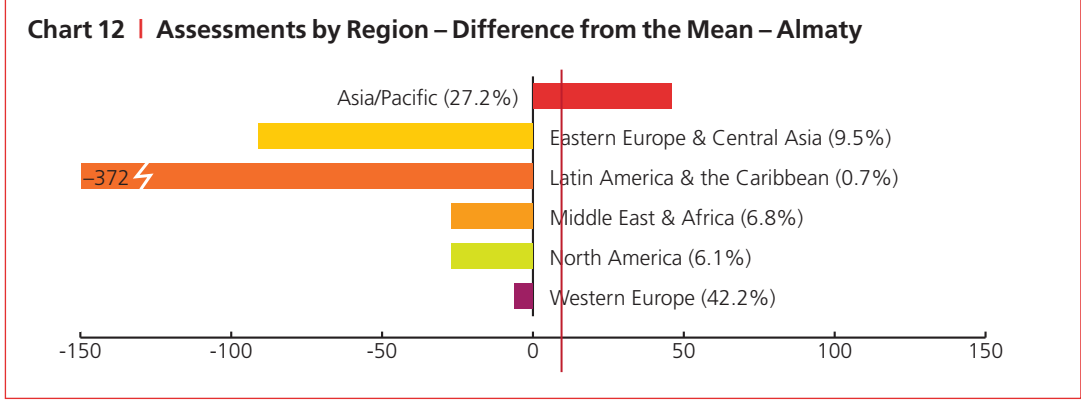




Warsaw's overall average assessment is 643 significantly up from 579 in GFCI 17. Eastern European respondents and those from North America are more favourable than the mean.



Istanbul's overall average assessment is 622, slightly down from 634 in GFCI 17. Respondents from Asia/Pacific are significantly more favourable to Istanbul than the mean.



Almaty's overall average assessment is 627 down from 653 in GFCI 17. Respondents from the Asia/Pacific region are more favourable to Almaty than the mean.

Asia/Pacific

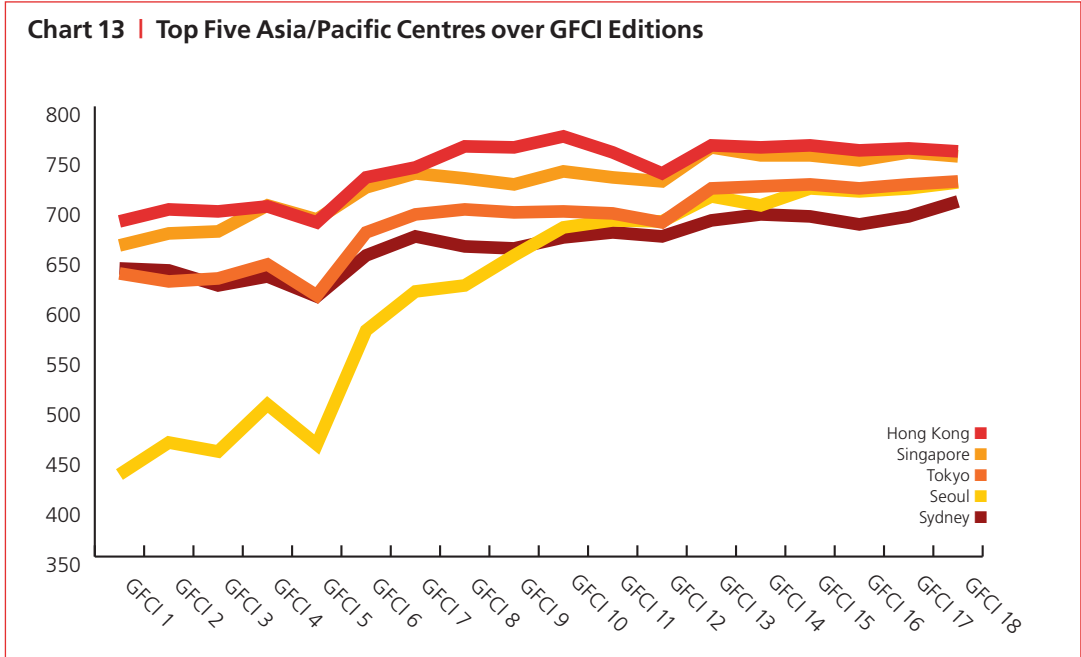
With the exception of Hong Kong and Singapore, the top Asia/Pacific financial centres have all seen their ratings increase in GFCI 18. Hong Kong, Singapore, Tokyo and Seoul remain in the GFCI Top 10.

Table 9 | Asia/Pacific Centres in GFCI 18

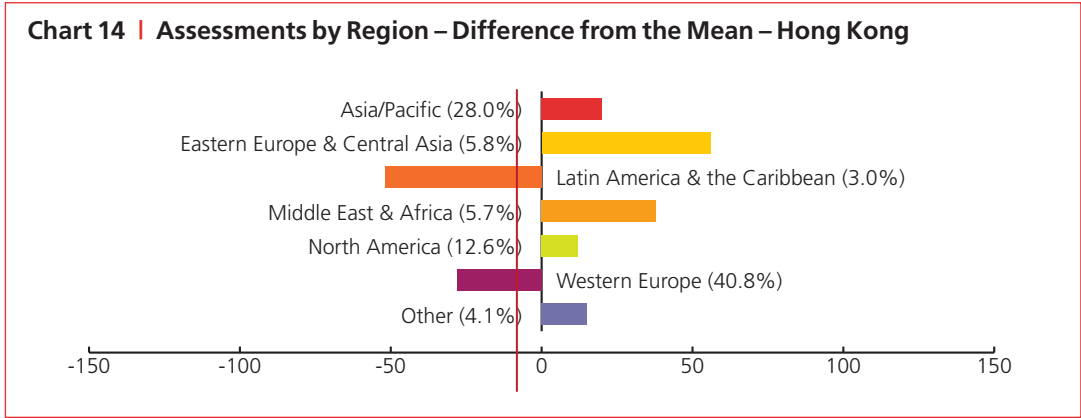
	GFCI 18 rank	GFCI 18 rating	GFCI 17 rank	GFCI 17 rating	Change in rank	Change in rating
Hong Kong	3	755	3	758	-	▼ 3
Singapore	4	750	4	754	-	▼ 4
Tokyo	5	725	5	722	-	▲ 3
Seoul	6	724	7	718	▲ 1	▲ 6
Sydney	15	705	21	690	▲ 6	▲ 15
Osaka	20	699	31	668	▲ 11	▲ 31
Shanghai	21	698	16	695	▼ 5	▲ 3
Shenzhen	23	694	22	689	▼ 1	▲ 5
Busan	24	690	24	687	-	▲ 3
Taipei	26	686	25	686	▼ 1	-
Melbourne	27	685	28	677	▲ 1	▲ 8
Beijing	29	676	29	674	-	▲ 2
Dalian	41	660	51	632	▲ 10	▲ 28
Kuala Lumpur	45	656	38	652	▼ 7	▲ 4
Bangkok	48	651	50	633	▲ 2	▲ 18
Manila	55	631	62	611	▲ 7	▲ 20
Mumbai	59	627	53	626	▼ 6	▲ 1
Jakarta	73	610	57	618	▼ 16	▼ 8

Four Asia/Pacific centres are now in the overall GFCI top six.

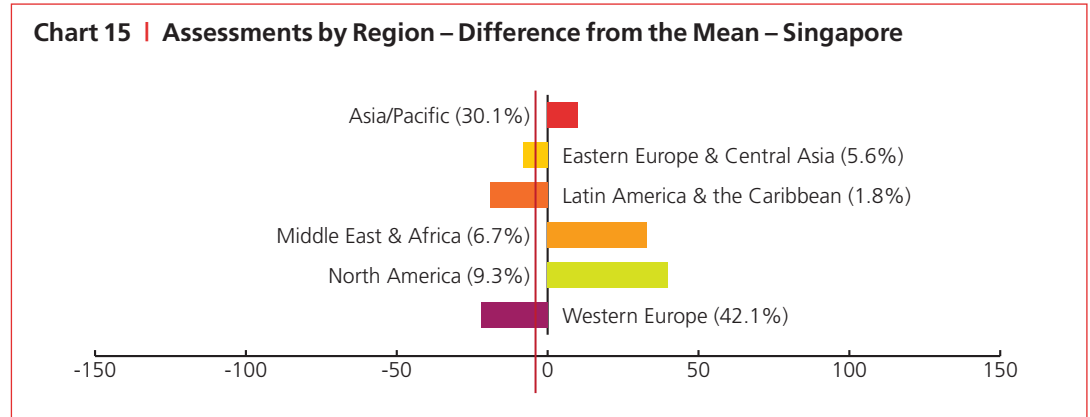
Chart 13 below shows a stable performance for Asia/Pacific centres over the past four years. Seoul continues its long term positive trend and is now almost level with Tokyo. The graph shows a rapid but turbulent rise in these centres from 2007 (GFCI 1) to 2009 (GFCI 6) followed by a period of relatively stable performance which continues into 2015.



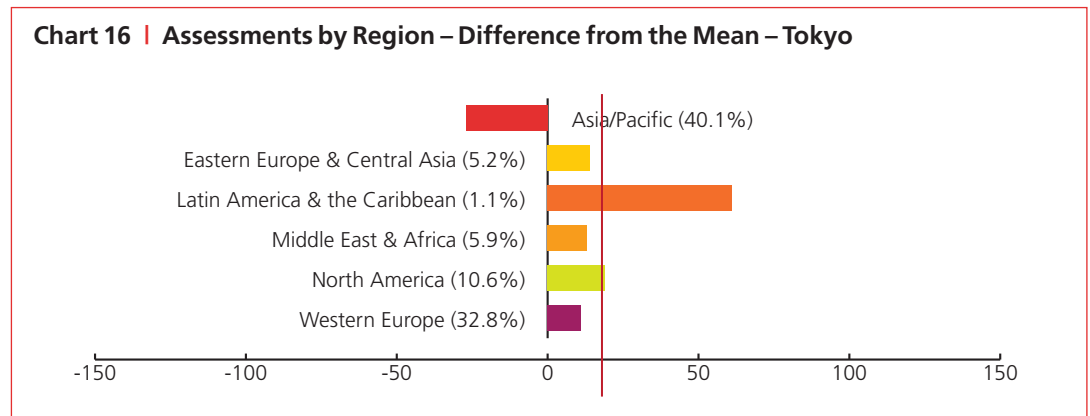
Hong Kong has an average assessment of 817 slightly up from 810 in GFCI 17. Western Europeans, the largest group of respondents, were less positive than the mean.



Singapore’s average assessment is 826, up from 811 in GFCI 17. North Americans’ ratings were the most favourable; Western European respondents, the largest group, gave lower than average assessments.



Tokyo is the third highest centre in Asia/Pacific and has an average assessment of 772, up from 762 in GFCI 17. Asia/Pacific respondents gave slightly lower than average assessments for Tokyo.



“Business is booming in Asia at the moment. South Korea seems to be doing better than ever.”

Investment Banker based in Singapore

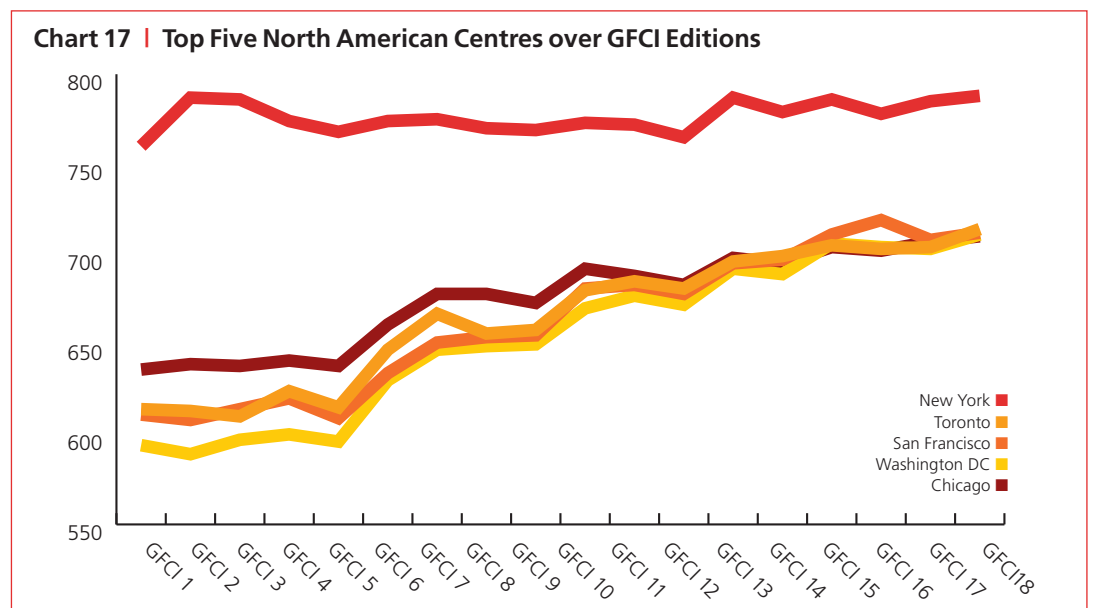
North America

All North American centres went up in the ratings and Los Angeles is a new entrant. New York gained three points in GFCI 18 but has slipped just below London as the world's leading financial centre. The eight point difference is statistically insignificant on a scale of 1,000. Despite this, due to continuing rise of some Asian centres, San Francisco, Chicago, Boston, Vancouver and Calgary and suffered small declines in the ranks. Toronto remains the leading Canadian centre and is now the second North American centre behind only New York.

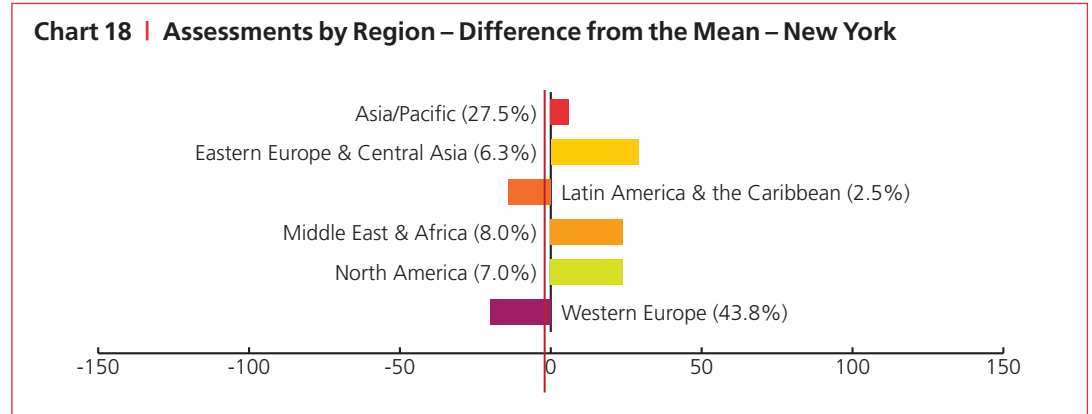
Table 10 | North American Centres in GFCI 18

	GFCI 18 rank	GFCI 18 rating	GFCI 17 rating	GFCI 17 rating	Change in rank	Change in rating
New York	2	788	1	785	▼ 1	▲ 3
Toronto	8	714	11	704	▲ 3	▲ 10
San Francisco	9	712	8	708	▼ 1	▲ 4
Washington DC	10	711	12	703	▲ 2	▲ 8
Chicago	11	710	9	707	▼ 2	▲ 3
Boston	12	709	10	706	▼ 2	▲ 3
Montreal	17	703	18	693	▲ 1	▲ 10
Vancouver	18	702	15	696	▼ 3	▲ 6
Calgary	39	662	33	661	▼ 6	▲ 1
Los Angeles	49	650	-	-	-	-

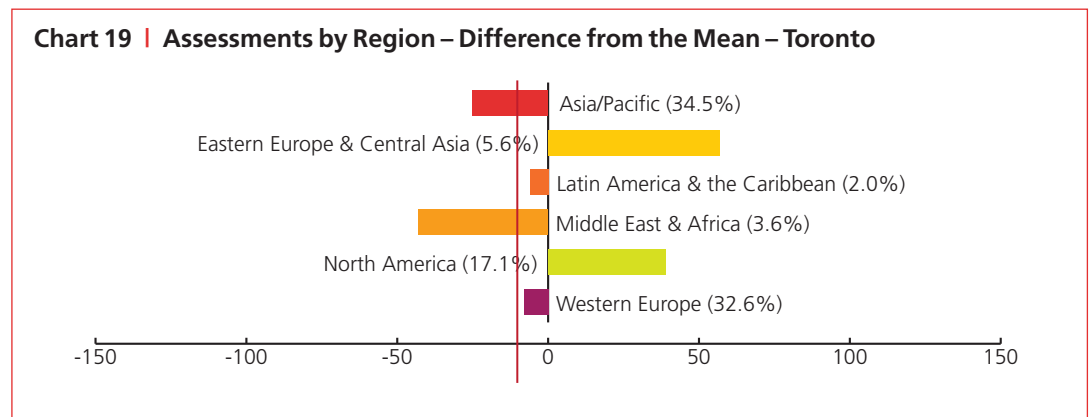
Chart 17 below shows leading American centres' performance. New York is still well ahead of the rest.



The difference between regional assessments for the leading North American centres is shown below:



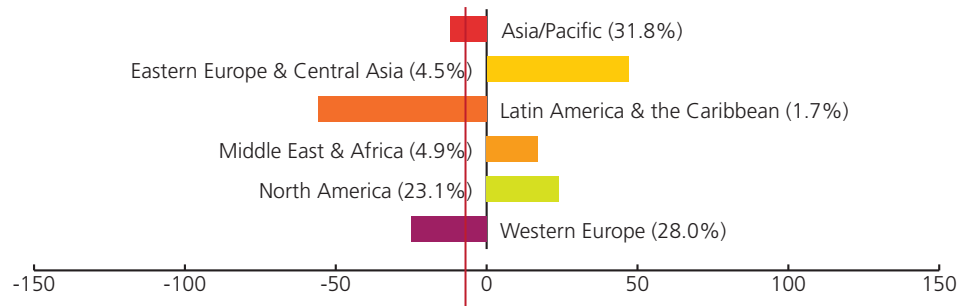
New York’s overall average assessment is 837, up from 834 in GFCI 17. Respondents from Western Europe (45% of all respondents that assessed New York) were less favourable than the rest.



Toronto’s overall average assessment is 756, up from 743 in GFCI 17. North American respondents (together with a few Eastern European respondents) gain more favourable assessments than the mean.



Chart 20 | Assessments by Region – Difference from the Mean – San Francisco



San Francisco has a global average assessment of 776, up from 761 in GFCI 17. Assessments from Western Europe are lower than the mean. In contrast North American respondents are more favourable than the mean to San Francisco.

“Toronto seems to get stronger and stronger. A number of our rivals have opened up subsidiaries there.”

Investment Banker based in New York



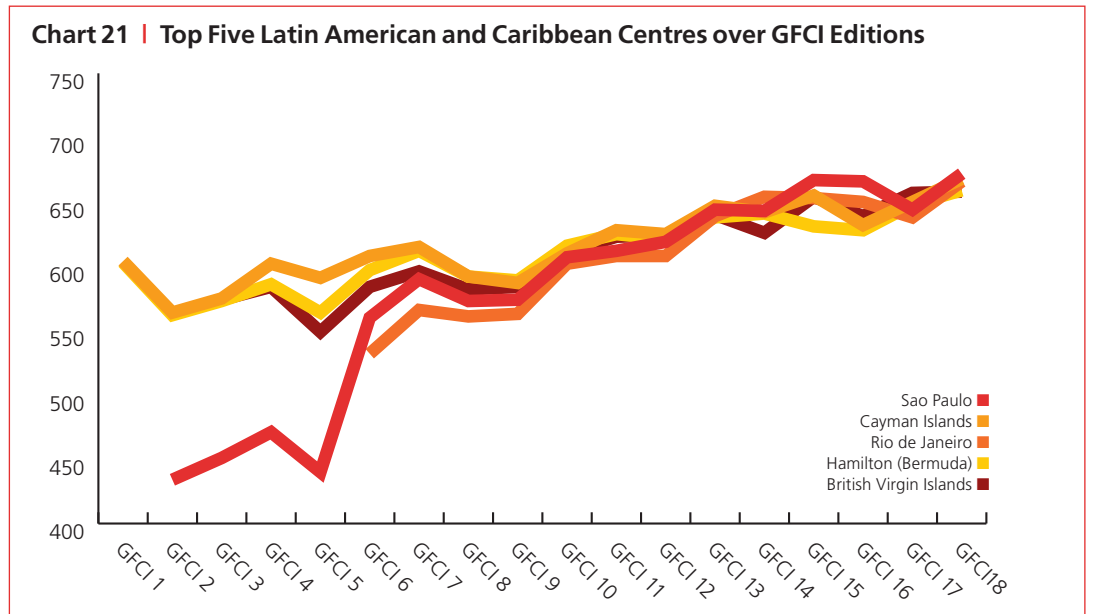
Latin America and the Caribbean

Sao Paulo remains the top Latin American centre in GFCI 18, and along with Rio de Janeiro, made significant progress in the ratings and rankings. Mexico was the only centre that fell in the GFCI ratings. The Cayman Islands and the Bahamas showed good improvements.

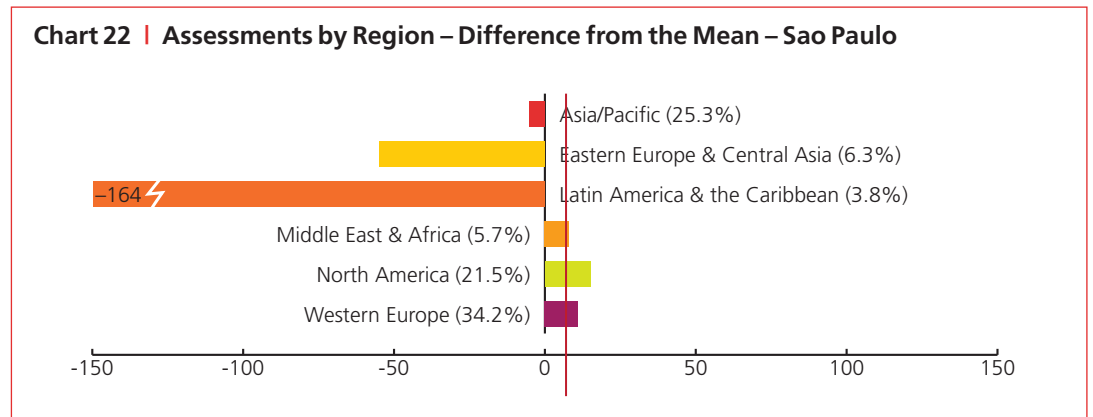
Table 11 | Latin American and Caribbean Centres in GFCI 18

	GFCI 18 rank	GFCI 18 rating	GFCI 17 rating	GFCI 17 rating	Change in rank	Change in rating
Sao Paulo	31	672	43	644	▲ 12	▲ 28
Cayman Islands	34	668	39	650	▲ 5	▲ 18
Rio de Janeiro	35	666	47	638	▲ 12	▲ 28
Hamilton (Bermuda)	42	659	41	648	▼ 1	▲ 11
British Virgin Islands	43	658	34	657	▼ 9	▲ 1
Panama	52	638	48	637	▼ 4	▲ 1
Mexico City	69	616	56	623	▼ 13	▼ 7
Bahamas	75	606	69	597	▼ 6	▲ 9

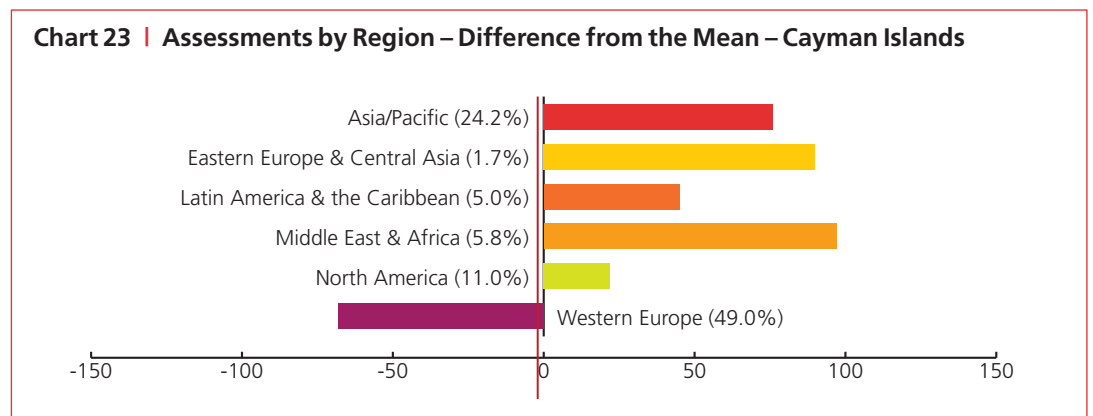
Chart 21 below shows the Latin American and Caribbean centres' performance since they joined the index. All centres have risen over time although Sao Paulo has seen the most dramatic rise.



The difference between regional assessments for the top three centres in this region is shown below:



Sao Paulo has a global average assessment of 715, up from 694 in GFCI 17. Respondents from North America and Western Europe give average assessments higher than the mean.

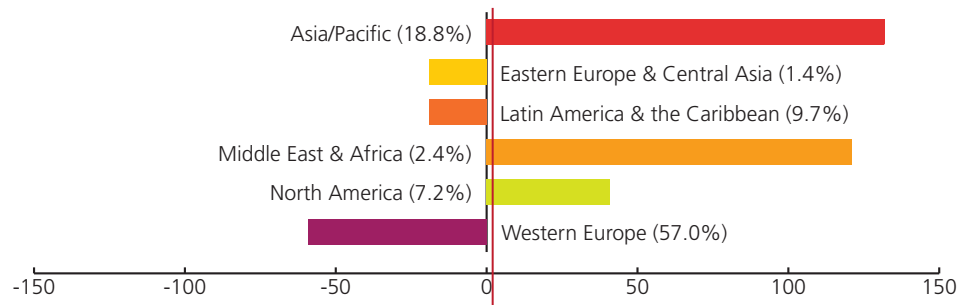


The Cayman Islands has a global average score of 660, well up from 633 in GFCI 17. Respondents from Asia/Pacific, North America and the Middle East & Africa gave average assessments higher than the mean.

“Politics and economic conditions continue to blight Latin America but Brazil defies the odds and continues to get more important.”

Asset Manager based in Los Angeles

Chart 24 | Assessments by Region – Difference from the Mean – Rio de Janeiro



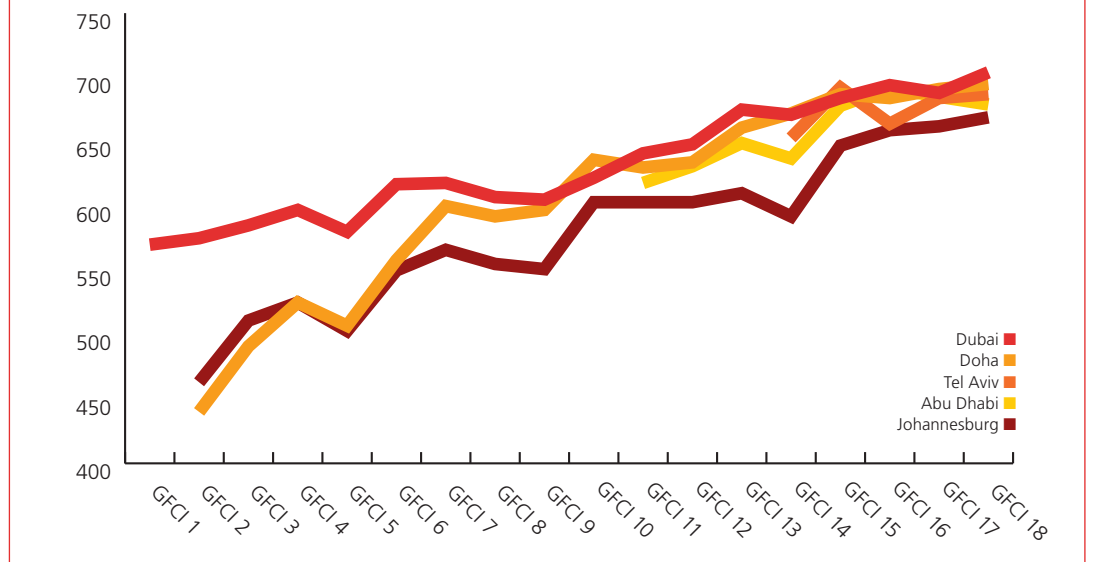
The Middle East and Africa

All Middle Eastern and African centres, except Abu Dhabi and Riyadh, showed gains. Dubai made strong gains after a fall in GFCI 17.

Table 12 | The Middle East and African Centres in GFCI 18

	GFCI 18 rank	GFCI 18 rating	GFCI 17 rating	GFCI 17 rating	Change in rank	Change in rating
Dubai	16	704	23	688	▲ 7	▲ 16
Doha	22	695	20	691	▼ 2	▲ 4
Tel Aviv	25	687	27	684	▲ 2	▲ 3
Abu Dhabi	28	679	26	685	▼ 2	▼ 6
Johannesburg	33	669	32	662	▼ 1	▲ 7
Casablanca	44	657	42	645	▼ 2	▲ 12
Bahrain	50	647	46	641	▼ 4	▲ 6
Riyadh	57	629	14	698	▼ 43	▼ 69
Mauritius	64	622	68	598	▲ 4	▲ 24

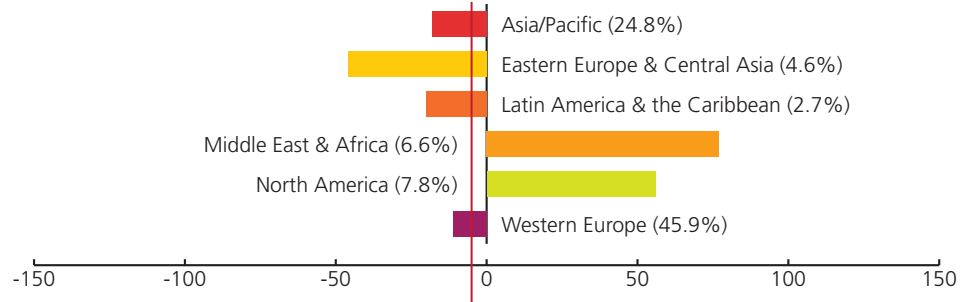
Chart 25 | Top Five Middle East and African Centres over GFCI Editions



The chart shows the progress of the Middle Eastern centres over the past eight years.

Dubai’s global average assessment is 720 up from 707 in GFCI 17. Respondents from North America and the Middle East & Africa gave the most favourable assessments.

Chart 26 | Assessments by Region – Difference from the Mean – Dubai

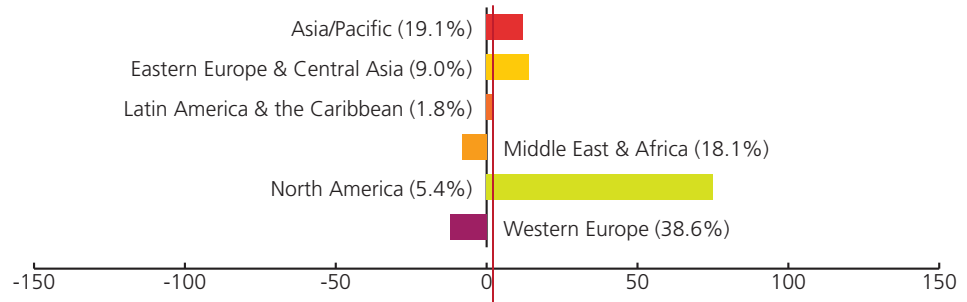


“Dubai and Doha continue to rule the roost in the Middle East.”

Asset Manager based in Casablanca

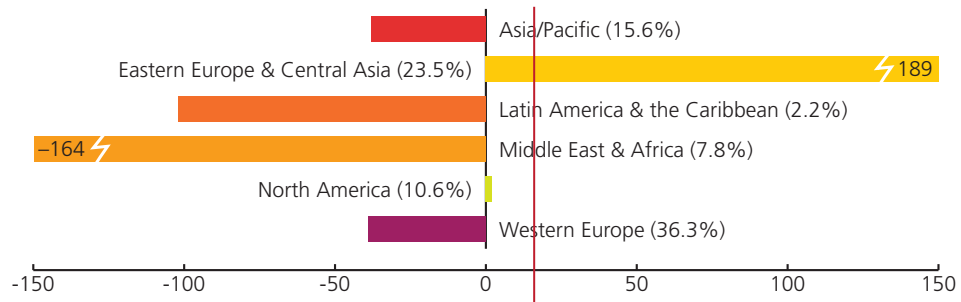
Doha’s average global assessment is 658, up from 650 in GFCI 17. The highest average assessments for Doha came from North America.

Chart 27 | Assessments by Region – Difference from the Mean – Doha

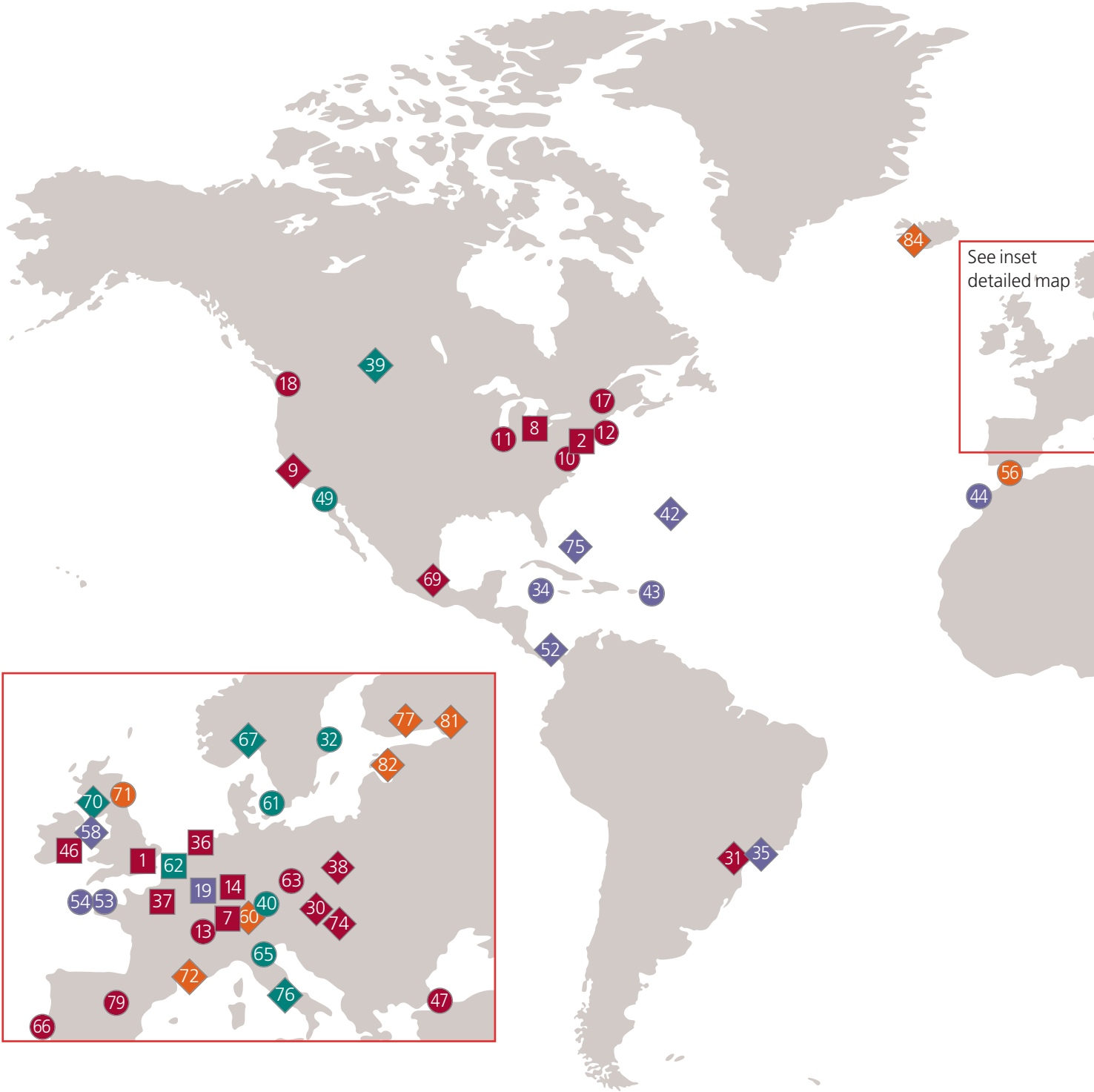


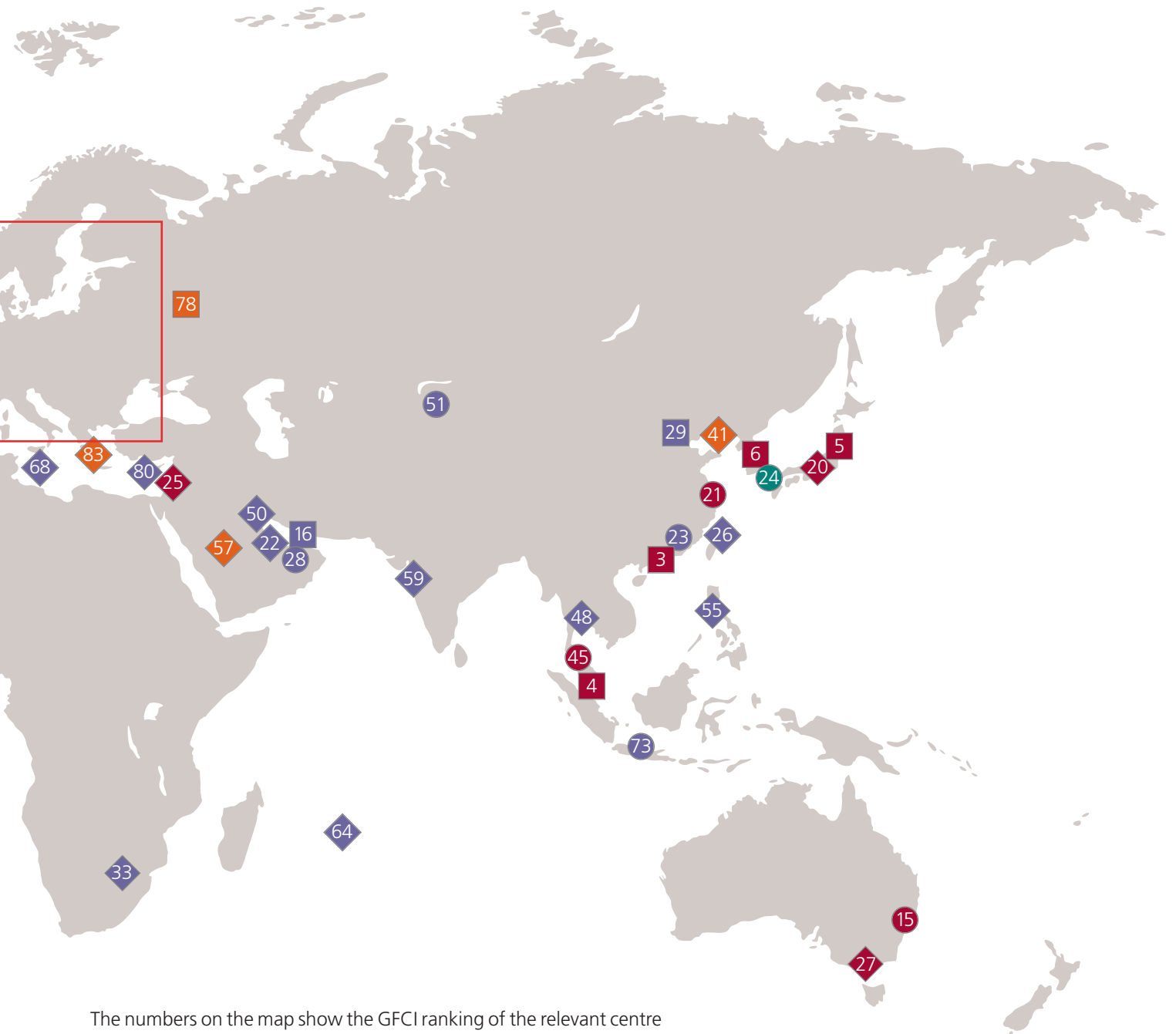
Tel Aviv’s overall average assessment is 677 up from 670. Eastern European and Central Asian were the most positive about Tel Aviv’s competitiveness. Western Europe, the largest respondent group is less favourable.

Chart 28 | Assessments by Region – Difference from the Mean – Tel Aviv



The GFCI World





- | | | | |
|-----------------------------|-----------------------------|-----------------------------|----------------------------|
| Broad and deep | Relatively broad | Relatively deep | Emerging |
| ■ Global leaders | ■ Global diversified | ■ Global specialists | ■ Global contenders |
| ● Established transnational | ● Transnational diversified | ● Transnational specialists | ● Transnational contenders |
| ◆ Established players | ◆ Local diversified | ◆ Local nodes | ◆ Evolving centres |

Industry Sectors

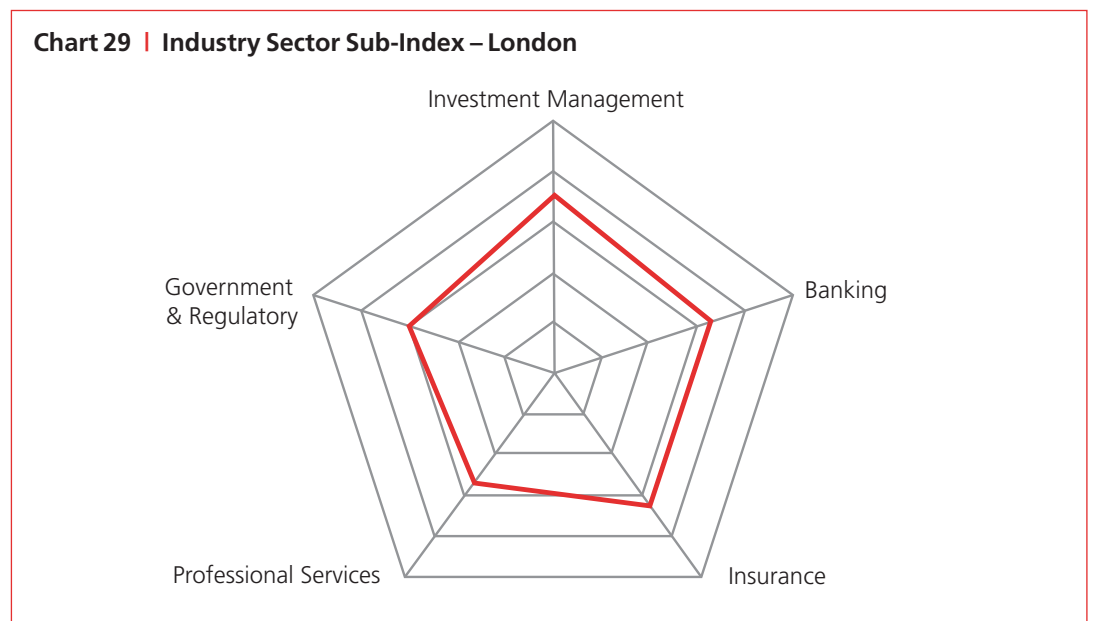
Industry sector sub-indices are created by building the GFCI statistical model using only the questionnaire responses from respondents working in the relevant industry sectors. The GFCI 18 dataset has been used to produce separate sub-indices for the Investment Management, Banking, Government & Regulatory, Insurance and Professional Services sectors.

Table 13 below shows the top ten ranked financial centres in the industry sector sub-indices:

Table 13 | GFCI 18 Industry Sector Sub-Indices Top Ten

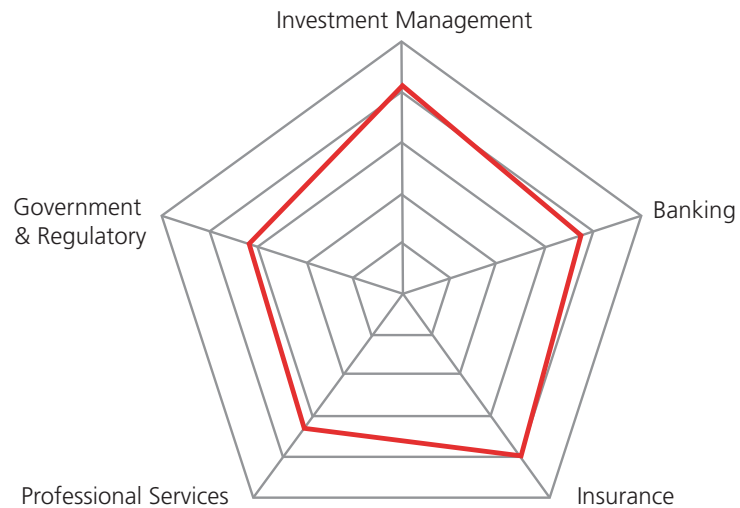
Rank	Investment Management	Banking	Government & regulatory	Insurance	Professional services
1	London (+1)	London (+1)	London (-)	New York (-)	London (-)
2	New York (-1)	New York (-1)	New York (-)	London (-)	New York (-)
3	Hong Kong (-)	Hong Kong (-)	Hong Kong (+1)	Singapore (+1)	Singapore (+1)
4	Singapore (-)	Singapore (-)	Singapore (-1)	Busan (-1)	Hong Kong (-1)
5	Toronto (+4)	Tokyo (+1)	Tokyo (+4)	Hong Kong (-)	Washington DC (+5)
5	Tokyo (-1)	Chicago (+4)	Seoul (-)	Chicago (+1)	San Francisco (+6)
7	Chicago (+6)	Zurich (-)	Chicago (-)	Seoul (-1)	Chicago (+1)
8	San Francisco (+3)	Shanghai (-)	Sydney (+10)	Washington DC (+1)	Boston (+3)
9	Boston (-2)	Seoul (-4)	Toronto (+5)	San Francisco (+1)	Tokyo (-4)
10	Zurich (-4)	San Francisco (+8)	Zurich (-2)	Tokyo (-2)	Zurich (-4)

The GFCI 18 top four centres make it into the top five of all industry sector sub-indices. The graphs below show how the GFCI 18 top five centres fared in the industry sub-indices:



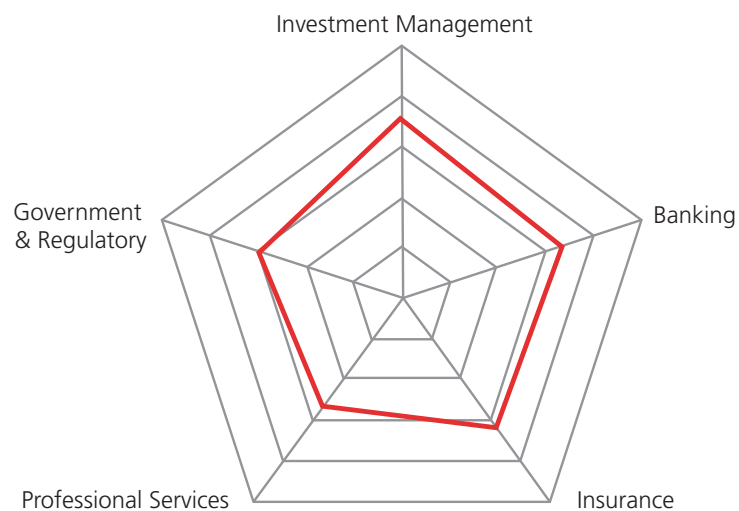
London performs well in all five sub-indices as an all-round global centre. New York follows a similar pattern although is slightly less well rated in the Government and Regulatory and Professional Services sub-index.

Chart 30 | Industry Sector Sub-Index – New York



Hong Kong also performs strongly in all sectors except in Professional Services where it is slightly less well rated.

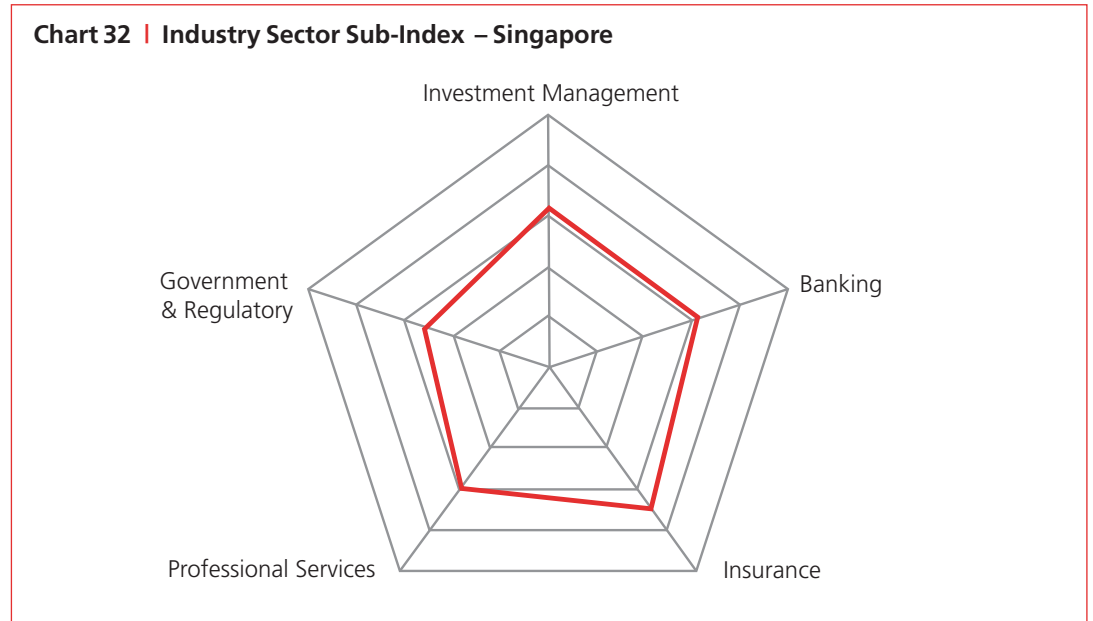
Chart 31 | Industry Sector Sub-Index – Hong Kong



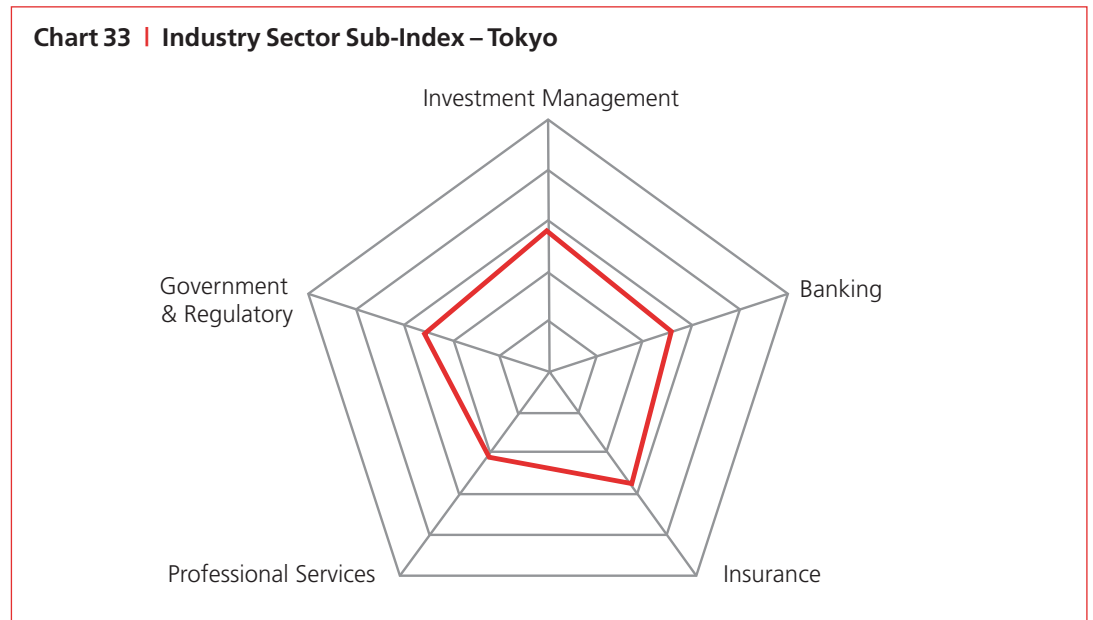
“London remains the centre for professional services firms. We have offices in other capitals but still do most of our international business from here.”

Managing Partner of Tax Advisors based in London

Singapore is slightly less well rated than the top three centres and particularly in the Government and Regulatory sector.

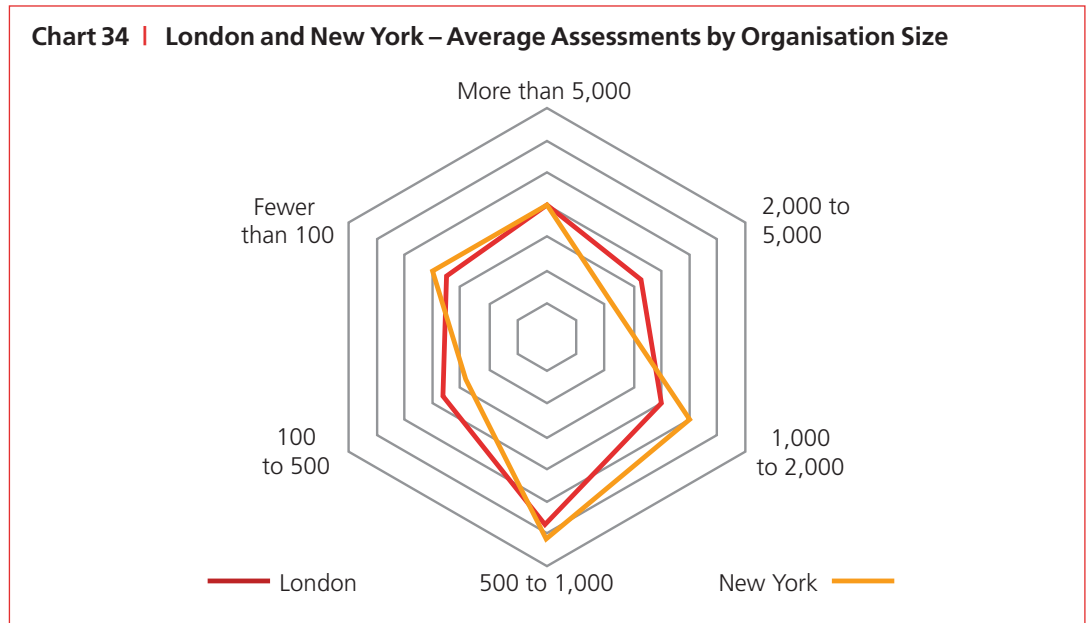


Tokyo, 5th overall, is noticeably less well rated than the top four global centres, especially in Professional Services.

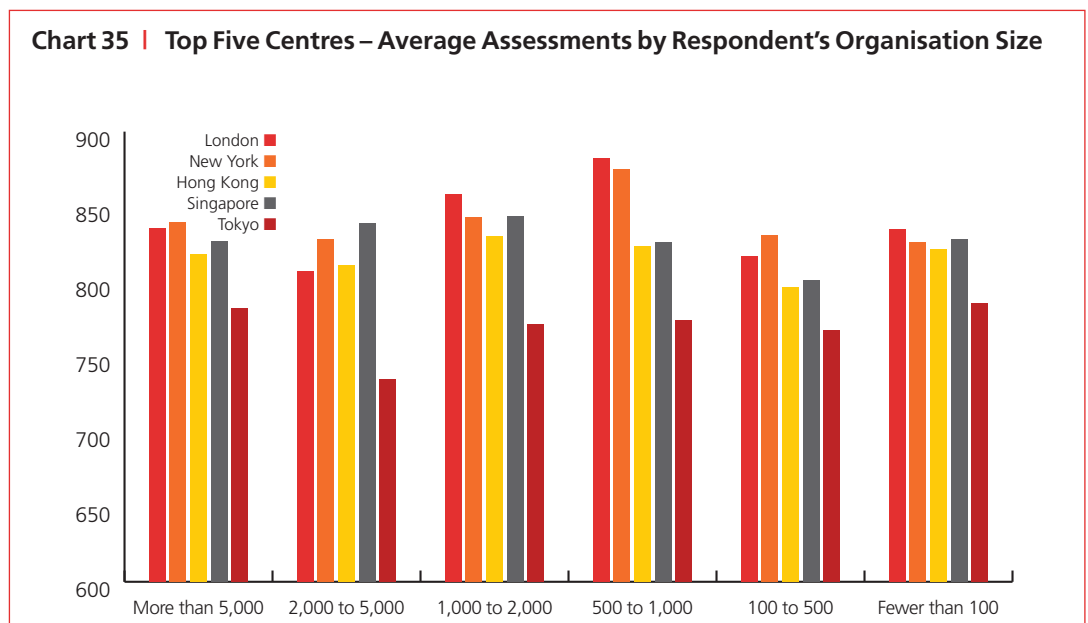


Size of Organisation

It is useful to look at how the leading centres are viewed by respondents working for different sizes of organisation. Chart 34 compares London and New York:



New York obtains higher assessments from respondents working in large organisations and London generally fairs better with respondents in smaller organisations. Chart 35 below compares the five leading centres:



“The big banks all need to be in London, New York and Hong Kong at the very least.”

Investment banker based in Hong Kong

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 financial professionals across 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 18 rating this indicates that respondents' perceptions of a centre are more favourable than the quantitative measures alone would suggest. This may be due to strong marketing or general awareness. Table 14 below shows the 15 centres with the greatest positive difference between average assessment and the GFCI rating:

Table 14 | GFCI 18 Top 15 Centres Assessments & Ratings – Reputational Advantage

Centre – Top 15	Average assessment	GFCI 18 rating	Reputational advantage
Casablanca	790	657	129
Busan	808	690	98
Dalian	752	660	88
Singapore	826	750	75
Sydney	773	705	71
San Francisco	776	712	62
Los Angeles	211	650	62
Hong Kong	817	755	60
Tokyo	772	725	52
Washington DC	766	711	51
Seoul	783	724	51
Tallinn	588	550	51
Chicago	758	710	49
New York	837	788	48
Toronto	756	714	47

Of the top four financial centres in the GFCI, only London is outside the top 15 for reputational advantage. Seven of the top 15 centres by reputational advantage are Asia/Pacific centres. Four of the top seven centres are recent entries in the GFCI, new entries often appear very high in this list before finding their natural level after two or three GFCI editions. No Western European centres are in the top 15.

Table 15 below 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 18 Bottom Ten Centres Assessments & Ratings – Reputational Disadvantage

Centre – Bottom Ten	Average assessment	GFCI 18 rating	Reputational advantage
Stockholm	607	655	-48
Jakarta	570	618	-48
Isle of Man	569	617	-48
Cyprus	501	551	-50
Moscow	527	579	-52
Rome	529	586	-57
St Petersburg	510	569	-59
Gibraltar	582	642	-60
Athens	427	499	-72
Riyadh	560	698	-138

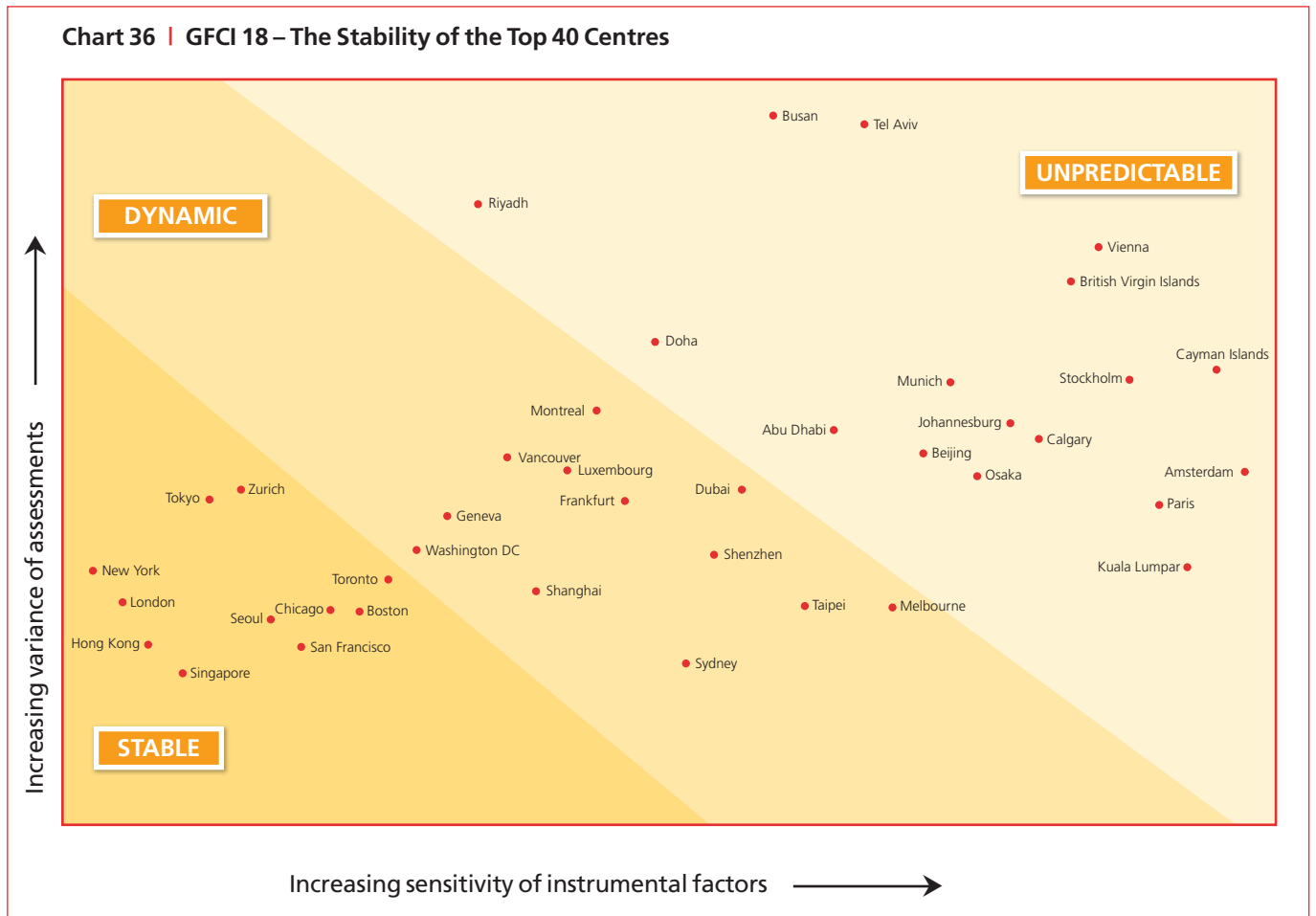
“The Icelandic banks collapsed in 2008. It takes a long time to re-build a reputation and I can’t see Reykjavik recovering soon.”

Asset Manager based in London

Stability

The GFCI 17 model allows for analysis of the financial centres with the most volatile competitiveness. Chart 36 below 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 36 shows three bands of financial centres. The 'unpredictable' centres in the top right of the chart have a high sensitivity to changes in the instrumental factors and a high variance of assessments. These centres have the highest potential volatility of the top GFCI centres.



The 'stable' centres in the bottom left of the chart (including all the top centres) have a relatively low sensitivity to changes in the instrumental factors and a low variance of assessments. These centres are likely to exhibit the lowest volatility in future GFCI ratings. Looking back at recent GFCI ratings, the stable centres are fairly consistently towards the top of the GFCI ratings.

The chart only shows the top 40 centres in the GFCI but several of the largest movers in the index remain unpredictable. Tel Aviv, Busan, Riyadh and Kuala Lumpur are all still fairly volatile and are in the unpredictable zone.

"The major financial centres seem mostly stable but can be unsettled by regulatory and taxation changes – it seems hard to imagine Paris regaining its standing."

M & A Consultant based in London



Appendix 1: Assessment Details

Table 16 | Details of Assessments by Centre

Centre	GFCI 18 Rank	GFCI 18 Rating	Number of assessments	Total Average assessment	Standard deviation of assessments
London	1	796	1291	834	168
New York	2	788	1216	837	177
Hong Kong	3	755	933	817	158
Singapore	4	750	772	826	151
Tokyo	5	725	558	772	193
Seoul	6	724	280	783	164
Zurich	7	715	675	750	194
Toronto	8	714	368	756	174
San Francisco	9	712	286	776	158
Washington DC	10	711	345	766	181
Chicago	11	710	369	758	166
Boston	12	709	458	747	166
Geneva	13	707	639	713	188
Frankfurt	14	706	710	724	191
Sydney	15	705	296	773	153
Dubai	16	704	593	720	195
Montreal	17	703	228	714	210
Vancouver	18	702	214	723	201
Luxembourg	19	700	505	737	198
Osaka	20	699	138	702	197
Shanghai	21	698	463	727	172
Doha	22	695	277	658	223
Shenzhen	23	694	261	726	180
Busan	24	690	298	808	261
Tel Aviv	25	687	179	677	260
Taipei	26	686	178	722	168
Melbourne	27	685	164	727	167
Abu Dhabi	28	679	476	684	206
Beijing	29	676	472	664	202
Vienna	30	674	242	668	240
Sao Paulo	31	672	158	715	167
Stockholm	32	671	190	627	216
Johannesburg	33	669	287	675	206
Cayman Islands	34	668	363	660	218
Rio de Janeiro	35	666	129	628	215
Amsterdam	36	665	596	662	198
Paris	37	664	787	661	191
Warsaw	38	663	211	643	233
Calgary	39	662	150	675	205
Munich	40	661	241	653	215
Dalian	41	660	211	752	161
Bermuda	42	659	169	644	214
British Virgin Islands	43	658	289	631	234
Casablanca	44	657	431	790	202
Kuala Lumpur	45	656	246	663	177
Dublin	46	654	512	640	193
Istanbul	47	653	277	622	204
Bangkok	48	651	269	641	197
Los Angeles	49	650	204	211	173
Bahrain	50	647	274	638	203
Almaty	51	640	147	627	246
Panama	52	638	124	624	216
Jersey	53	633	313	638	226
Guernsey	54	632	300	618	228
Manila	55	631	120	587	222
Gibraltar	56	630	191	596	212
Riyadh	57	629	156	577	247
Isle of Man	58	628	261	579	239
Mumbai	59	627	211	604	213
Liechtenstein	60	626	224	224	258
Copenhagen	61	625	238	593	217
Brussels	62	624	503	617	205
Prague	63	623	171	596	230
Mauritius	64	622	181	593	227
Milan	65	621	279	595	205
Lisbon	66	619	188	555	250
Oslo	67	618	165	588	239
Malta	68	617	228	566	232
Mexico City	69	616	140	606	230
Glasgow	70	615	214	564	217
Edinburgh	71	613	294	601	202
Monaco	72	612	310	596	228
Jakarta	73	610	181	582	224
Budapest	74	609	173	571	247
Bahamas	75	606	232	579	234
Rome	76	605	240	545	219
Helsinki	77	604	179	565	226
Moscow	78	598	347	502	250
Madrid	79	597	308	570	233
Cyprus	80	587	266	519	239
St Petersburg	81	552	149	474	262
Tallinn	82	550	141	588	217
Athens	83	540	201	453	239
Reykjavik	84	537	110	455	235

Appendix 2: Respondents' Details

Table 17 | Respondents by Industry Sector

Sector	Respondents
Banking	647
Professional Services	387
Investment	301
Insurance	161
Trading	133
Finance	136
Government & Regulatory	124
Trade Association	57
Other	231
Total	2,177

Table 19 | Respondents by Size of Organisation

Number of staff	Respondents
Fewer than 100	535
100 to 500	261
500 to 1,000	167
1,000 to 2,000	142
2,000 to 5,000	301
More than 5,000	771
Total	2,177

Table 18 | Respondents by Location

Regions	Respondents
Asia/Pacific	570
Eastern Europe & Central Asia	130
Latin America & the Caribbean	55
Middle East & Africa	160
North America	245
Western Europe	922
Other	95
Total	2,177



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 Institutional Effectiveness rating (supplied by the EIU) and the Corruption Perceptions Index (supplied by Transparency International) amongst others. A total of 105 instrumental factors are used in GFCI 18 (of which 37 were updated since GFCI 17 and ten 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 28,676 financial centre assessments drawn from 3,194 respondents in GFCI 18.

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 100 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).

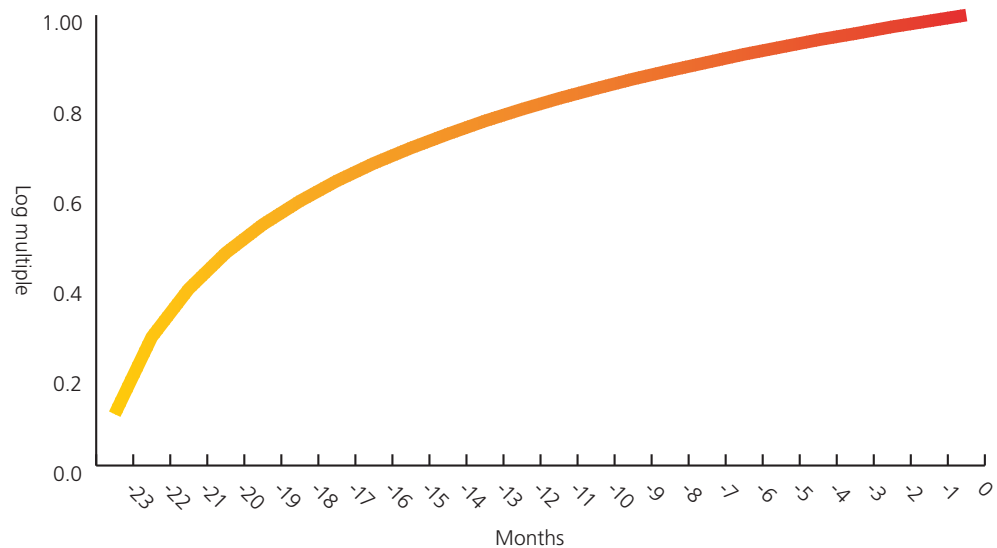
Creating the GFCI does not involve totaling or averaging scores across instrumental factors. An approach involving totaling and averaging would involve a number of difficulties:

- 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 3 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.

Chart 37 | Log Scale for Time Weightings



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:

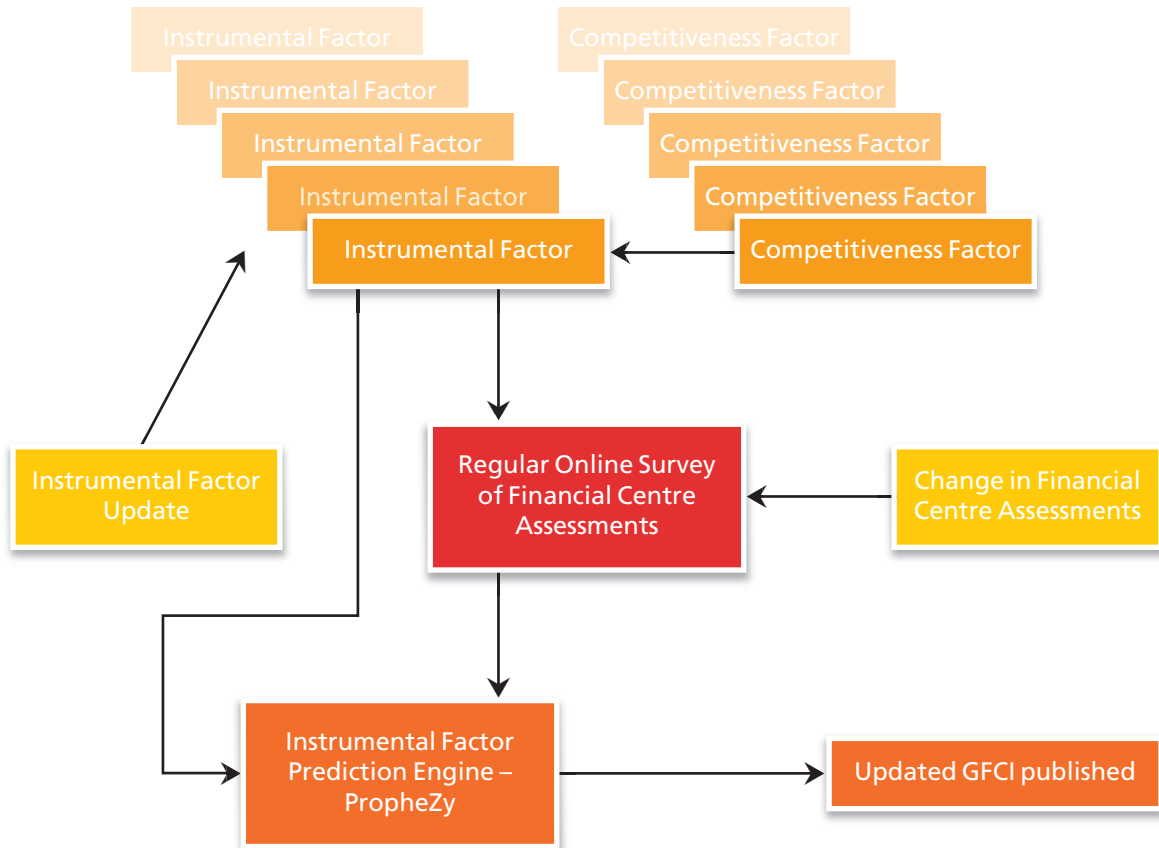
- If an investment banker gives Singapore and Sydney certain assessments then, based on the relevant data for Singapore, Sydney and Paris, how would that person assess Paris

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

Chart 38 | The GFCI Process



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.

The process of creating the GFCI is outlined diagrammatically below.

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 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 18

Instrumental Factors	R ² with GFCI 18
Global City Competitiveness	0.4958
Office Occupancy Costs	0.4709
Global Power City Index	0.4019
Banking Industry Country Risk Assessments	0.3205
Financial Secrecy Index	0.3175
World Competitiveness Scoreboard	0.3166
Global Competitiveness Index	0.3160
Cost of Living City Rankings	0.2998
Business Environment Rankings	0.2745
Institutional Effectiveness	0.2668
Global Cities Index	0.2630
IESE Cities in Motion Index	0.2411
Global Enabling Trade Report	0.2409
Office Space Around the World	0.2367
Citizens Domestic Purchasing Power	0.2355
Connectivity	0.2333
Innovation Cities Global Index	0.2318
Citywide CO2 Emissions	0.2318
Quality of Roads	0.2038
Top Tourism Destinations	0.2028
Liner Shipping Connectivity Index	0.1975
Human Capital	0.1956
City GDP Figures	0.1795
Networked Readiness Index	0.1747
Spatial Adjusted Liveability Index	0.1694



Table 21 | Business Environment Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 17
Banking Industry Country Risk Assessments	Standard & Poors	http://img.en25.com/Web/StandardPoorsRatings/BICRA_Update_10_10_13.pdf	Yes
Bilateral Tax Information Exchange Agreements	OECD	http://www.oecd.org/document/7/0,3343,en_2649_33767_38312839_1_1_1_1,00.html	
Business Environment Rankings	EIU	http://www.eiu.com/public/thankyou_download.aspx?activity=download&campaignid=bizenviro2014	
City GDP Figures	The Brookings Institution	http://www.brookings.edu/research/interactives/global-metro-monitor-3	Yes
Common Law Countries	CIA	https://www.cia.gov/library/publications/the-world-factbook/fields/2100.html	
Commonwealth Countries	The Commonwealth	http://thecommonwealth.org/member-countries	
Corporate Tax Rates	PWC	http://www.doingbusiness.org/reports/thematic-reports/paying-taxes/	
Corruption Perception Index	Transparency International	http://www.transparency.org/policy_research/surveys_indices/cpi	
Currencies	Swiss Association for Standardization (SNV)	http://www.currency-iso.org/en/home/tables/table-a1.html	Yes
Ease of Doing Business Index	The World Bank	http://www.doingbusiness.org/custom-query	
Economic Freedom of the World	Fraser Institute	http://www.freetheworld.com/release.html	
Employee Tax Rates	PWC	n/a	
Financial Secrecy Index	Tax Justice Network	http://www.financialsecrecyindex.com/	
Global Peace Index	Institute for Economics & Peace	http://www.visionofhumanity.org/	Yes
Global Services Location	AT Kearney	http://www.atkearney.com/research-studies/global-services-location-index	
Government Debt as % of GDP	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2186rank.html	Yes
Institutional Effectiveness	EIU	http://www.economistinsights.com/countries-trade-investment/analysis/hot-spots/	
Open Government	World Justice Project	http://worldjusticeproject.org/sites/default/files/files/wjp_rule_of_law_index_2014_report.pdf	Yes
Operational Risk Rating	EIU	http://www.viewswire.com/index.asp?layout=homePubTypeRK	Yes
Personal Tax Rates	OECD	http://www.oecd.org/tax/tax-policy/tax-database.htm	Yes
Political Risk	Exclusive Analysis	n/a	
Press Freedom Index	Reporters Without Borders (RSF)	http://rsf.org/index2014/en-index2014.php	Yes
Projected City Economic Growth 2010-2025	McKinsey Global Institute	http://www.foreignpolicy.com/articles/2012/08/13/the_most_dynamic_cities_of_2025	
Real Interest Rate	The World Bank	http://data.worldbank.org/indicator/FR.INR.RINR	Yes
Regulatory Enforcement	World Justice Project	http://worldjusticeproject.org/sites/default/files/files/wjp_rule_of_law_index_2014_report.pdf	Yes
Tax as Percentage of GDP	The World Bank	http://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS	Yes
Wage Comparison Index	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	

Table 22 | Financial Sector Development Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 17
Broad Stock Index Levels	The World Federation of Stock Exchanges	http://www.world-exchanges.org/statistics/monthly-reports	Yes
Capitalisation of Stock Exchanges	The World Federation of Stock Exchanges	http://www.world-exchanges.org/statistics/monthly-reports	Yes
City GDP composition (Business/Finance)	The Brookings Institution	http://www.brookings.edu/research/interactives/global-metro-monitor-3	
Domestic Credit Provided by Banking Sector (% of GDP)	The World Bank	http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS	Yes
External Positions of Central Banks as a share of GDP	The Bank for International Settlements	http://www.bis.org/statistics/bankstats.htm	Yes
Global Connectedness Index	DHL	http://www.dhl.com/en/about_us/logistics_insights/studies_research/global_connectedness_index/global_connectedness_index.html	
Islamic Finance	TheCityUK	http://www.thecityuk.com/research/our-work/reports-list/islamic-finance-2013/	
Liner Shipping Connectivity Index	The World Bank	http://data.worldbank.org/indicator/IS.SHP.GCNW.XQ	
Net External Positions of Banks	The Bank for International Settlements	http://www.bis.org/statistics/bankstats.htm	Yes
Percentage of Firms Using Banks to Finance Investment	The World Bank	http://data.worldbank.org/indicator/IC.FRM.BNKS.ZS	
Securitisation	TheCityUK	http://www.thecityuk.com/research/ZendSearchLuceneForm?Search=securitisation&action_ZendSearchLuceneResults=Go	
Total Net Assets of Mutual Funds	Investment Company Institute	http://www.icifactbook.org/	Yes
Value of Bond Trading	The World Federation of Stock Exchanges	http://www.world-exchanges.org/statistics/monthly-reports	Yes
Value of Share Trading	The World Federation of Stock Exchanges	http://www.world-exchanges.org/statistics/monthly-reports	Yes
Volume of Share Trading	The World Federation of Stock Exchanges	http://www.world-exchanges.org/statistics/monthly-reports	Yes



Table 23 | Infrastructure Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 17
Citywide CO2 Emissions	Carbon Disclosure Project	http://www.cdpcities2013.net/#!/index/	
Connectivity	EIU	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Energy Sustainability Index	World Energy Council	http://www.worldenergy.org/data/sustainability-index/	Yes
Environmental Performance	Yale University	http://epi.yale.edu/epi/country-rankings	
Global Sustainable Competitiveness Index	Solability	http://www.longfinance.net/images/reports/pdf/solability_sustcompetindex_2013.pdf	
ICT Development Index	United Nations	http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2014.aspx	
IPD Global Property Index	Investment Property Databank	http://www1.ipd.com/Pages/DNNPage.aspx?DestUrl=http%3a%2f%2fwww.ipd.com%2fsharepoint.aspx%3fTabId%3d425	
JLL Real Estate Transparency Index	Jones Lang LaSalle	http://www.jll.com/greti/Pages/Rankings.aspx	
Metro Network Length	Metro Bits	http://mic-ro.com/metro/table.html	
Networked Readiness Index	World Economic Forum	http://reports.weforum.org/global-information-technology-report-2015/network-readiness-index/	Yes
Office Occupancy Costs	DTZ	http://www.dtz.com/Global/Research/	Yes
Office Space Around the World	Cushman & Wakefield	http://www.cushmanwakefield.com/en/research-and-insight/2014/office-space-across-the-world-2014/	
Quality of Domestic Transport Network	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	Yes
Quality of Roads	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/	Yes
Railways per Land Area	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2121rank.html	
Roadways per Land Area	CIA	https://www.cia.gov/library/publications/the-world-factbook/rankorder/2085rank.html	
Telecommunication Infrastructure Index	United Nations	http://unpan3.un.org/egovkb/Data-Center	
The Web Index	The World Wide Web Foundation	http://thewebindex.org/about/the-web-index/	

Table 24 | Human Capital Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 17
Average Days with Precipitation per Year	Sperling's Best Places	http://www.bestplaces.net/climate/default.aspx	
Citizens Domestic Purchasing Power	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
Cost of Living City Rankings	Mercer	https://info.mercer.com/Talent_Mobility-2014-Cost-of-Living-Ranking.html	Yes
Crime Index	Numbeo	http://www.numbeo.com/crime/rankings.jsp#	New
Global Skills Index	Hays	http://www.hays-index.com/	
Global Talent Index	EIU	http://www.economistinsights.com/search/node/global%20talent%20index%202011%202015	
Global Terrorism Index	Institute for Economics & Peace	http://www.visionofhumanity.org/	
Graduates in social Science, Business and Law (as % of total graduates)	The World Bank	http://databank.worldbank.org/Data/Views/VariableSelection/SelectVariables.aspx?source=Education%20Statistics	Yes
Gross Tertiary Graduation Ratio	The World Bank	http://databank.worldbank.org/Data/Views/VariableSelection/SelectVariables.aspx?source=Education%20Statistics	Yes
Health Outcomes and Cost	EIU	http://www.eiu.com/Handlers/WhitepaperHandler.ashx?fi=Healthcare-outcomes-index-2014.pdf&mode=wp&campaignid=Healthoutcome2014	
Healthcare	EIU	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Homicide Rates	UN Office of Drugs & Crime	http://www.unodc.org/documents/gsh/pdfs/2014_GLOBAL_HOMICIDE_BOOK_web.pdf (Excel Data) http://www.unodc.org/gsh/en/data.html	
Human Capital	EIU	http://www.economistinsights.com/countries-trade-investment/analysis/hot-spots/	
Human Development Index	UN Development Programme	http://hdr.undp.org	
Linguistic Diversity	Ethnologue	http://www.ethnologue.com/statistics/country	
Number of High Net Worth Individuals	Capgemini	http://www.uk.capgemini.com/thought-leadership/world-wealth-report-2013-from-capgemini-and-rbc-wealth-management	Yes
Quality of Life Index	Numbeo	http://www.numbeo.com/quality-of-life/rankings.jsp	New
Spatial Adjusted Liveability Index	EIU	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Top Tourism Destinations	Euromonitor	http://blog.euromonitor.com/2015/01/top-100-city-destinations-ranking.html	Yes
Visa Restrictions Index	Henley Partners	http://www.henleyglobal.com/citizenship/visa-restrictions/	
World Talent Rankings	IMD	http://www.imd.org/wcc/news-talent-report/	

Table 25 | General & Reputation Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 17
Big Mac Index	The Economist	http://www.economist.com/content/big-mac-index	Yes
Business Confidence Index	Grant Thornton	http://www.grantthornton.ie/Publications/International-Business-Report-(IBR)	
City Initiatives for Technology, Innovation and Entrepreneurship	CITIE	http://citie.org/2015-results/	New
City Prosperity Index	United Nations	https://sustainabledevelopment.un.org/content/documents/745habitat.pdf	New
City to Country GDP Ratio	The Brookings Institution	http://www.brookings.edu/research/interactives/global-metro-monitor-3	
FDI Confidence Index	AT Kearney	http://www.atkearney.com/research-studies/foreign-direct-investment-confidence-index	Yes
Foreign Direct Investment Inflows	UNCTAD	http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx?sRF_ActivePath=P,5,27&sRF_Expanded=P,5,27	
GDP per Person Employed	The World Bank	http://data.worldbank.org/indicator/SL.GDP.PCAP.EM.KD	
Global Cities Index	AT Kearney	http://www.atkearney.com/research-studies/global-cities-index	
Global City Competitiveness	EIU	http://www.economistinsights.com/countries-trade-investment/analysis/hot-spots/	
Global Competitiveness Index	World Economic Forum	http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm	
Global Enabling Trade Report	World Economic Forum	http://www.weforum.org/issues/international-trade	
Global Innovation Index	INSEAD	http://www.globalinnovationindex.org/content.aspx?page=GII-Home	
Global Intellectual Property Index	Taylor Wessing	http://www.taylorwessing.com/ipindex/	
Global Power City Index	The Mori Memorial Foundation	http://www.mori-m-foundation.or.jp/gpci/index_e.html	New
Good Country Index	Good Country Party	http://www.goodcountry.org/overall	
IESE cities in motion index	IESE	http://citiesinmotion.iese.edu/indicecim/?lang=en	New
Innovation Cities Global Index	2ThinkNow Innovation Cities Project	http://www.innovation-cities.com/	
Legatum Prosperity Index	Legatum Institute	http://www.prosperity.com/#1/ranking	New
Number of International Association Meetings	World Economic Forum	http://www.weforum.org/en/initiatives/gcp/TravelandTourismReport/CompetitivenessIndex/index.htm	Yes
Price Levels	UBS	http://www.ubs.com/1/e/wealthmanagement/wealth_management_research/prices_earnings.html	
RPI (% change on year ago)	The Economist	http://www.economist.com/markets/indicators/	Yes
Sustainable Economic Development	Boston Consulting Group	https://www.bcgperspectives.com/content/interactive/public_sector_globalization_interactive_map_sustainable_economic_development/	Yes
World Competitiveness Scoreboard	IMD	http://www.imd.ch/research/publications/wcy/competitiveness_scoreboard.cfmue	Yes



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