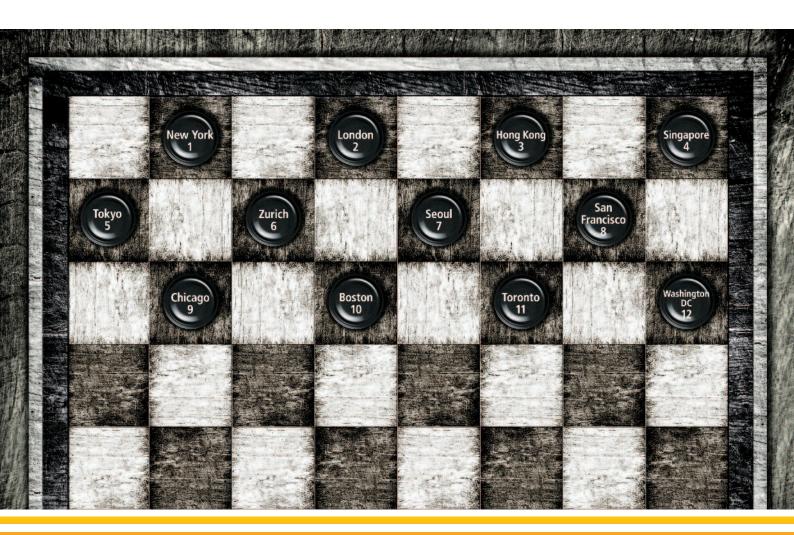




MARCH 2015





Financial Centre Futures



The Qatar Financial Centre Authority sponsors Long Finance's 'Financial Centre Futures' programme.

Qatar Financial Centre (QFC) is a financial and business centre established by the government of Qatar in 2005 to attract international financial services and multinational corporations to grow and develop the market for financial services in the region.

QFC consists of a commercial arm, the QFC Authority; and an independent financial regulator, the QFC Regulatory Authority. It also has an independent judiciary which comprises a civil and commercial court and a regulatory tribunal.

QFC aims to help all QFC licensed firms generate new and sustainable revenue streams. It provides access to local and regional investment opportunities. Business can be transacted inside or outside Qatar, in local or foreign currency. Uniquely, this allows businesses to operate both locally and internationally. Furthermore, QFC allows 100% ownership by foreign companies, and all profits can be remitted outside of Qatar.

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. One of the most important roles of QFCA is to approve and issue licences to individuals, businesses and other entities that wish to incorporate or establish themselves in Qatar with the Centre.

The QFC Regulatory Authority is an independent statutory body and authorises and supervises businesses that conduct financial services activities in, or from, the QFC. It has powers to authorise, supervise and, where necessary, discipline regulated firms and individuals.

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

With the 2008 global financial crisis in the USA that lead to the debt crisis of Europe, the weight of financial markets around the globe is shifting from North America and Europe to Asia. In such a transition of the world financial order, the GFCI (Global Financial Centres Index) produced by the Z/Yen group, a leading think tank in the City of London has been instrumental in suggesting future strategies for the world's major financial centres.

While the reputation of New York and London the traditional financial centres - remains unchanged, Hong Kong and Singapore are narrowing the gap, and the financial centres of Korea and China are also gearing up for a new leap forward. In January 2009, the Korean government assigned Seoul and Busan as its financial hubs in accordance with the Act on the Creation and Development of a Financial Hubs. The Act is set to promote mutual complementary growth by making Seoul a comprehensive financial hub, and making Busan a specialist financial hub for maritime finance and derivatives. The Korean government has been endeavoring to boost infrastructure for the advancement of the Korean financial industry. A leading example of this is the construction of international financial buildings in Seoul (2012) and Busan (2014). The Korean government has also initiated institutional improvement through the establishment of the Capital Market Act.

Busan is located at a crossroad of international logistics that connects the oceans and Asian Continent and boasts a reputation as a global logistics city. Busan is the world's third-largest trans-shipment port by volume and the fifth biggest in the world by annual container throughput. In the vicinity to Busan, Ulsan and Gyeongnam Province, there are several world class shipyards and industries such as shipbuilding and maritime are integrated. Moreover, Busan is situated in the center of Busan-Ulsan-Gyeongnam regional economic bloc that accounts for approximately 20% (based on production) of the Korean economy, and is endeavoring to create an ultra-wide economic bloc with Fukuoka in Japan. Soon, Busan's domestic and international location is expected to become even more essential with the opening of North Pole route and intercontinental railway connections.

Busan is adopting a strategy specializing in maritime finance and derivatives based on the region's industrial characteristics and the Korea Exchange. This will include the strength of the regional economic bloc and world-class derivatives trading. The development of the BIFC (Busan International Finance Center) has now been completed with public financial institutions moving into the center. The center has also worked aggressively toward the revitalization of maritime finance by establishing a MFC (Marine Finance Center), which comprises the shipping financial divisions of Korea's three public financial institutions (KEXIM, KSURE, and KDB). In addition, Korea Exchange's global competitiveness is increasing through business expansion such as the establishment of the Central Counter Party for over-the-counter derivatives transactions, CERS Exchange, and Gold Exchange.

With the promotion of the Busan Maritime Exchange, and the convergence of maritime, shipping, fisheries, finance, and relevant services, the city will sharpen its competitiveness edge as a financial centre. The Korean government and Busan Metropolitan City government offer incentives, such as tax exemptions and subsides to financial companies located within the BIFC, and are committed to fostering a prime destination for global financial companies by creating a favorable regulatory and business environment.

Brungsoo Suf

Suh Byung-soo Mayor, Busan Metropolitan City

GFCI 17 – 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 seventeenth edition (GFCI 17). 96 financial centres are actively researched. 82 financial centres appear in GFCI 17. 14 'associate centres' will 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 and 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 a global digital economy ranking (supplied by the Economist Intelligence Unit), a telecommunication infrastructure index (by the United Nations) and an IT industry competitiveness survey (by the World Economic Forum). 105 factors have been used in GFCI 17.

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 3,527 financial services professionals were collected in the 24 months to December 2014. These responses provided 28,494 financial centre assessments which were used to compute GFCI 17, with older assessments discounted according to age. Full details of the methodology behind GFCI 17 can be found on page 43.

The main headlines of GFCI 17 are:

New York, London, Hong Kong, and Singapore remain the four leading global financial centres. All four centres gained points and retain their relative ranks. New York remains the top centre, though by only one point on the 1,000 point scale. Tokyo, in fifth place, is 32 points behind the leaders.

Western European centres are a mixed bunch. The top five European centres are in the same rank order as in GFCI 16 – London, Zurich, Geneva, Luxembourg, and Frankfurt. Dublin sees the largest increase in ratings. The Channel Islands regain ground lost in GFCI 16. Athens, Rome, Madrid, Lisbon, and Reykjavik languish as the Euro-zone crisis continues.

Eastern European and Central Asian centres decline. Istanbul, Almaty, Prague and Warsaw all saw their ratings decline. Uncertainty in Ukraine has undoubtedly cast a shadow over this region.

Eleven of the top twelve Asia/Pacific centres see a rise in their ratings and rankings. Busan had the largest rise, followed by Shenzhen and Taipei. The Chinese centres all rose. Dalian, a new entry to the index, entered in 51st place.

Four of the top five North American centres were up in the ratings. San Francisco is slightly down, losing some of the 'fintech' gains made in GFCI 16. Chicago, Boston, and Toronto all showed small improvements in the ratings.

Caribbean islands are well ahead of Latin American mainlands. The top 'island' centres all rose but the Latin American centres of Sao Paulo, Rio de Janeiro, and Mexico City fell. The continuing economic problems in Argentina saw Buenos Aires leave the index with too few assessments. It joins the list of associate centres.

Middle East and Africa centres fluctuate.

Riyadh, Doha, and Bahrain rose in the ratings while Dubai and Abu Dhabi saw modest declines. Africa is 'hot' to perhaps 'overheated'. Johannesburg moved up six places to 32nd. Casablanca moved up nine places to 42nd.

GFCI ratings are slightly up overall and volatility in ratings remains low. The top financial centres have performed well in GFCI 17. Nine of the top ten centres increased their ratings – San Francisco being the exception. In GFCI 17, 43 financial centres climbed in the ranks, 30 centres declined and 8 centres experienced no change. Dublin climbed furthest, up 18 places to 52nd. This reverses some significant falls over past years. Prior to 2010, Dublin was always within the top 30 GFCI centres and in 2008 it was within the top 20 centres. Other notable rises include Bermuda up 17 places, the Cayman Islands up 15 places, and the British Virgin Islands up 13 places.

41 centres experienced a rise in their ratings and 38 saw a decline. Two centres retained the same rating as in GFCI 16. Wellington and Buenos Aires attracted too few assessments in the past 24 months and have left the index. The full set of GFCI 17 ranks and ratings are shown in Table 1 overleaf.

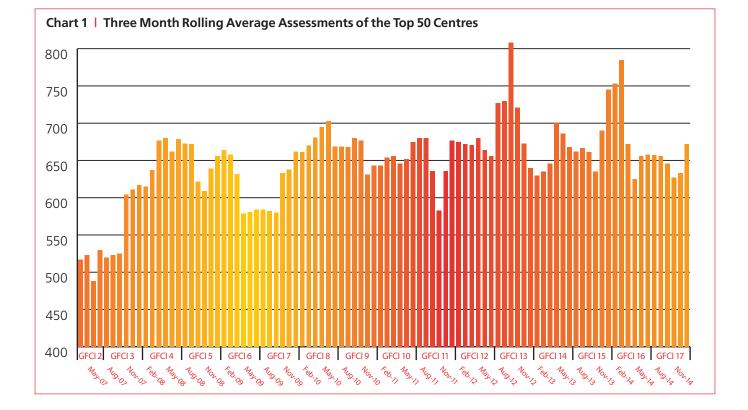


Table 1 | GFCI 17 Ranks and Ratings

	GE	CI 17	GE	CI 16	СНА	NGES
Centre	Rank	Rating	Rank	Rating	Rank	Rating
New York	1	785	1	778	-	▲ 7
London	2	784	2	777	-	▲ 7
Hong Kong	3	758	3	756	-	A 2
Singapore	4	754	4	746	-	▲ 8
Tokyo	5	722	6	718	A 1	▲ 4
Zurich	6	719	7	717	A 1	A 2
Seoul	7	718	8	715	A 1	▲ 3
San Francisco	8	708	5	719	▼ 3	▼11
Chicago	9	707	12	702	A 3	▲ 5
Boston	10	706	9	705	▼ 1	A 1
Toronto	11	704	11	703	-	▲ 1
Washington DC	12	703	10	704	▼ 2	▼ 1
Geneva	13	702	13	701	-	A 1
Riyadh	14	698	21	685	▲ 7	1 3
Vancouver	15	696	14	700	▼ 1	▼ 4
Shanghai	16	695	20	690	▲ 4	▲ 5
Luxembourg	17	694	15	697	▼ 2	▼ 3
Montreal	18	693	18	693	-	-
Frankfurt	19	692	16	695	▼ 3	▼ 3
Doha	20	691	22	684	A 2	▲ 7
Sydney	21	690	23	682	A 2	▲ 8
Shenzhen	22	689	25	680	A 3	A 9
Dubai	23	688	17	694	▼ 6	▼ 6
Busan	24	687	28	676	▲ 4	A 11
Таіреі	25	686	27	677	A 2	A 9
Abu Dhabi	26	685	19	692	▼ 7	▼ 7
Tel Aviv	27	684	36	664	A 9	A 20
Melbourne	28	677	24	681	▼ 4	▼ 4
Beijing	29	674	32	668	A 3	A 6
Munich	30	670	37	663	▲ 7	▲ 7
Osaka	31	668	33	667	A 2	A 1
Johannesburg	32	662	38	659	▲ 6	A 3
Calgary	33	661	26	678	▼ 7	▼17
British Virgin Islands	34	657	47	639	1 3	1 8
Vienna	35	656	30	673	▼ 5	▼17
Stockholm	36	655	35	665	▼ 1	▼10
Paris	37	653	31	669	▼ 6	▼16
Kuala Lumpur	38	652	41	656	▲ 3	▼ 4
Cayman Islands	39	650	54	632	1 5	1 8
Amsterdam	40	649	39	658	▼ 1	▼ 9
Bermuda	41	648	58	628	1 7	A 20
Dell'Iluua	41	040	50	020	— 17	A 20

Table 1 | GFCI 17 Ranks and Ratings continued

	GE	GFCI 17		CI 16	CHANGES	
Centre	Rank	Rating	Rank	Rating	Rank	Rating
Sao Paulo	43	644	34	666	▼ 9	▼ 22
Istanbul	44	643	42	655	▼ 2	▼12
Gibraltar	45	642	53	633	▲ 8	4 9
Bahrain	46	641	52	634	6	▲ 7
Rio de Janeiro	47	638	45	650	▼ 2	▼12
Panama	48	637	49	637	A 1	-
Almaty	49	634	43	653	▼ 6	▼ 19
Bangkok	50	633	46	646	▼ 4	▼13
Dalian	51	632	-	-	-	-
Dublin	52	627	70	607	1 8	A 20
Mumbai	53	626	61	625	▲ 8	A 1
Jersey	54	625	62	624	▲ 8	▲ 1
Guernsey	55	624	67	619	1 2	▲ 5
Mexico City	56	623	44	652	▼12	▼29
Jakarta	57	618	66	620	A 9	▼ 2
Isle of Man	58	617	64	622	A 6	▼ 5
Monaco	59	616	29	674	▼ 30	▼ 58
Prague	60	613	63	623	▲ 3	▼ 10
Copenhagen	61	612	60	626	▼ 1	▼ 14
Manila	62	611	59	627	▼ 3	▼16
Brussels	63	607	56	630	▼ 7	▼23
Warsaw	64	606	68	612	▲ 4	▼ 6
Oslo	65	601	57	629	▼ 8	▼28
Glasgow	66	600	50	636	▼16	▼ 36
Edinburgh	67	599	65	621	V 2	▼ 22
Mauritius	68	598	69	608	A 1	▼10
Bahamas	69	597	71	603	A 2	▼ 6
Milan	70	596	48	638	▼22	▼ 42
Malta	71	594	76	581	▲ 5	1 3
Rome	72	586	55	631	▼17	▼ 45
Madrid	73	582	74	585	A 1	▼ 3
Helsinki	74	581	75	582	A 1	▼ 1
Moscow	75	579	80	536	▲ 5	4 3
Budapest	76	575	77	566	A 1	A 9
Lisbon	77	570	78	555	▲ 1	1 5
St Petersburg	78	569	72	600	▼ 6	▼31
Cyprus	79	551	79	540	-	▲ 11
Tallinn	80	531	81	498	▲ 1	▲ 33
Athens	81	499	82	481	▲ 1	1 8
Reykjavik	82	484	83	465	▲ 1	1 9

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:

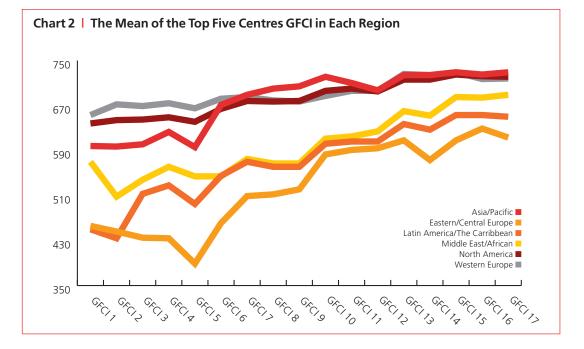
Table 2	Associate	Centres
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Centre	Number of assessments in last 24 months
Guangzhou	169
New Delhi	153
Liechtenstein	148
Los Angeles	135
Tianjin	124
Riga	100
Buenos Aires*	98
Baku	92
Nairobi	79
Santiago	66
Wellington*	63
Sofia	51
Trinidad and Tobago	38
Bratislava	32
Kuwait City	0

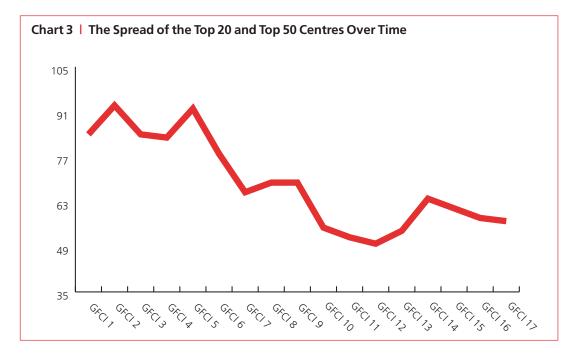
*Wellington and Buenos Aires were in GFCI 16 but have become Associate Members due to an insufficient number of assessments during the past 24 months.

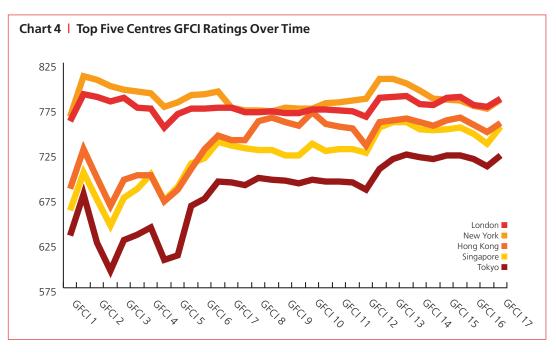


The average rating of the top five centres in each region shows that the historical dominance of the leading centres in Western Europe and North America has eroded over time and is now lower than the mean of the top five centres in the Asia/Pacific region. The top centres in other regions are also closing 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 1:





Nine of the top ten centres showed an increase in ratings. The performance over time of the top five is shown below:

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

Centre	Mentions within the last 24 months
Shanghai	153
Singapore	132
Busan	99
Gibraltar	69
Casablanca	64
Hong Kong	63
Seoul	55
Luxembourg	52
Dalian	40
Shenzhen	33

Table 3 | The Ten Centres Likely to Become More Significant

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 and General Factors – see Appendix 3). To assess how financial centres perform in each of these areas, the GFCI 17 factor assessment model is run with only one of the five groups of instrumental factors at a time.

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

Rank	Business environment	Financial sector development	Infrastructure	Human capital	Reputational and general
1	New York (-)	London (+1)	London (-)	New York (-)	New York (-)
2	London (-)	New York (-1)	New York (-1)	London (-)	London (-)
3	Singapore (+1)	Hong Kong (-)	Hong Kong (-)	Hong Kong (-)	Hong Kong (-)
4	Hong Kong (-1)	Singapore (-)	Tokyo (+1)	Singapore (-)	Singapore (-)
5	Tokyo (+1)	Tokyo (-)	Singapore (-1)	Tokyo (-)	San Francisco (-)
6	Zurich (+1)	Zurich (-)	Zurich (+1)	Chicago (-)	Tokyo (+1)
7	Sydney (+11)	Seoul (-)	Seoul (-1)	Washington DC (-)	Chicago (-)
8	Chicago (+2)	Shanghai (+6)	Toronto (+5)	Shenzhen (+7)	Boston (+1)
9	Abu Dhabi (+3)	Dubai (+11)	Sydney (+1)	San Francisco (+1)	Zurich (-1)
10	Washington DC (-2)	Frankfurt (+10)	Chicago (+5)	Zurich (-1)	Shenzhen (+9)

Table 4 | GFCI 17 Area of Competitiveness Sub-indices – Top Ten

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.

"Tokyo seems to be slowly regaining its reputation but it will take a while to catch up with Hong Kong and Singapore."

Investment Banker based in London

The GFCI questionnaire asks respondents to indicate which factors of competitiveness they consider the most important. 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	201	CorruptionRule of Law
Taxation	164	Simplicity and fairnessStability & transparency
Human Capital	146	 Centres becoming more competitive in attracting skilled people Diversity of nationalities is become more important
Reputation	116	 Security and safety are becoming more important Centres need to market themselves more – they are in a competitive marketplace
Infrastructure	106	 People are becoming less patient and don't want to wait for transportion ICT infrastructure is now a given – without it a centre cannot compete
Financial Sector Development	100	Professional services clusters are vitalPhysical proximity still very important

"Tax is becoming a more competitive issue and I'm sure that it plays a big part in location decisions"

Commercial property consultant based in Singapore



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 Speciality Diversity

> '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, 'Diversity' (Breadth) and 'Speciality' (Depth) are combined on one axis to create a two dimensional table of financial centre profiles. The 82 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:



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

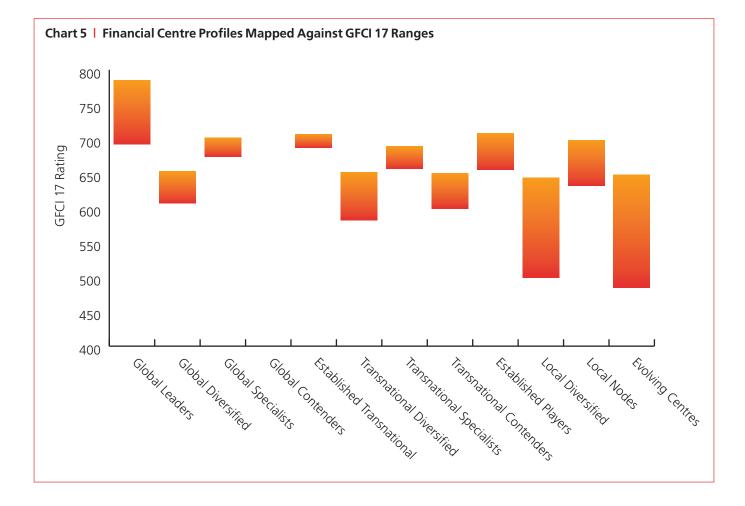
Table 6 | GFCI 17 Financial Centre Profiles

The nine 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 16 including:

• Boston is now an Established Transnational centre having been a Global Leader;

- Amsterdam has become a Global Diversified centre having been a Global Leader;
- The British Virgin Islands are now Transnational Specialists having been a Local Specialist;
- Dalian has entered the index as a Local Specialist.

The Chart 5 below shows the profiles mapped against the range of GFCI 17 ratings:



"Business over here is great – I can't see me moving home to UK any time soon!"

Insurance Broker based in Hong Kong

Western Europe

Table 6 shows the Western European financial centres in GFCI 17. The leading centres in Europe are London, Zurich and Geneva as in GFCI 16 and the top five are in the same order as previously. We have now listed the offshore centres around and in the Mediterranean as 'Western European' and there are now 27 Western European centres. 11 centres rose in the ranks and these included Gibraltar, Dublin, Jersey, Guernsey and the Isle of Man.

Dublin saw the largest increase followed by Lisbon and Malta. The Channel Islands made strong rises and regained the ground lost in GFCI 16.

	GFCI 17 rank	GFCI 17 rating	GFCI 16 rank	GFCI 16 rating	Change in rank	Change in rating
London	2	784	2	777	-	▲ 7
Zurich	6	719	7	717	▲ 1	▲ 2
Geneva	13	702	13	701	-	▲ 1
Luxembourg	17	694	15	697	V 2	▼ 3
Frankfurt	19	692	16	695	▼ 3	▼ 3
Munich	30	670	37	663	▲ 7	▲ 7
Vienna	35	656	30	673	▼ 5	▼ 17
Stockholm	36	655	35	665	▼ 1	▼ 10
Paris	37	653	31	669	▼ 6	▼ 16
Amsterdam	40	649	39	658	▼ 1	▼ 9
Gibraltar	45	642	53	633	▲ 8	A 9
Dublin	52	627	70	607	1 8	A 20
Jersey	54	625	62	624	▲ 8	▲ 1
Guernsey	55	624	67	619	1 2	▲ 5
Isle of Man	58	617	64	622	A 6	▼ 5
Monaco	59	616	29	674	▼ 30	▼ 58
Copenhagen	61	612	60	626	▼ 1	▼ 14
Brussels	63	607	56	630	▼ 7	▼ 23
Oslo	65	601	57	629	▼ 8	▼ 28
Glasgow	66	600	50	636	V 16	▼ 36
Edinburgh	67	599	65	621	V 2	▼ 22
Milan	70	596	48	638	▼ 22	▼ 42
Malta	71	594	76	581	▲ 5	1 3
Rome	72	586	55	631	▼ 17	▼ 45
Madrid	73	582	74	585	A 1	▼ 3
Helsinki	74	581	75	582	A 1	▼ 1
Lisbon	77	570	78	555	A 1	1 5
Reykjavik	82	484	83	465	A 1	1 9

Table 7 | Top 20 Western European Centres in GFCI 17

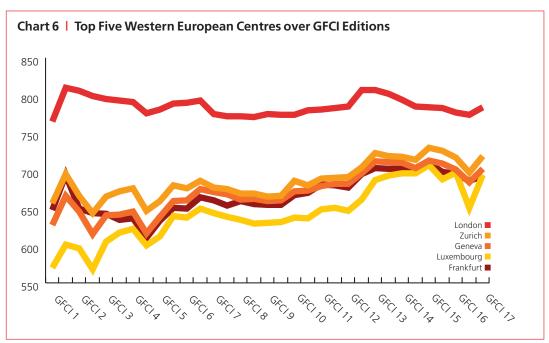
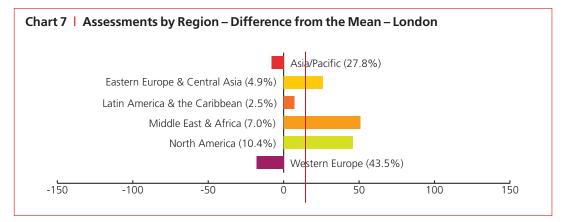
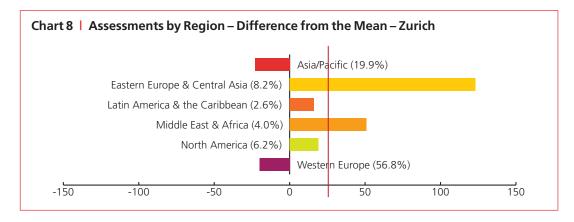


Chart 6 below shows that the Top Five European centres have shown an improvement in their competitiveness since GFCI 16:

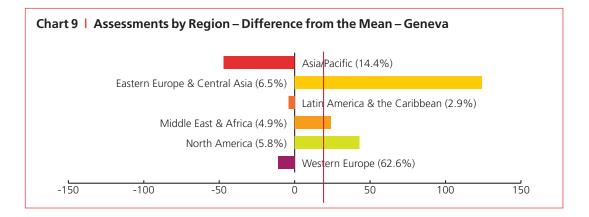
Examining the assessments given to each major centre is a useful means of assessing the relative strength and weakness of their reputations in different regions. It is important to note that assessments given to a centre by people based in that centre are excluded from the GFCI model to eliminate 'home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



London's overall average assessment (foreign assessments only) is 820, down from 829 in GFCI 16. Respondents from the Asia/Pacific region 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 742 down from 764 in GFCI 16. European respondents represent the largest respondent group by far and are less favourable than the mean.



Geneva's overall average assessment is 714, down from 741 in GFCI 16. Western Europeans are the largest regional group of respondents (63% of the total) and their assessments are slightly less favourable than the average.



"Switzerland finds itself in a very strong position at the moment. We have had to lose our US clients due to FATCA but Geneva is still a great place to operate from."

Fund Manager based in Geneva

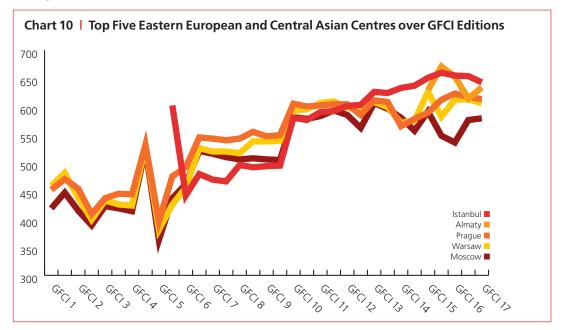
Eastern Europe and Central Asia

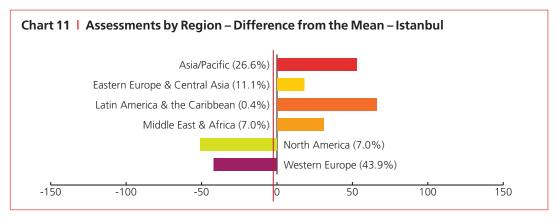
Table 8 shows the Eastern European and Central Asian financial centres in GFCI 17. The leading centre in this region is Istanbul. The top four centres all saw a decline in their ratings but the largest decline in this region is St Petersburg. Conversely Moscow showed an improvement and has regained some of the ground it lost in GFCI 16. There are no centres in this region within the GFCI top 40.

	GFCI 17 rank	GFCI 17 rating	GFCI 16 rank	GFCI 16 rating	Change in rank	Change in rating
Istanbul	44	643	42	655	V 2	▼ 12
Almaty	49	634	43	653	▼ 6	V 19
Prague	60	613	63	623	▲ 3	V 10
Warsaw	64	606	68	612	▲ 4	▼ 6
Moscow	75	579	80	536	▲ 5	4 3
Budapest	76	575	77	566	▲ 1	▲ 9
St Petersburg	78	569	72	600	▼ 6	▼ 31
Nicosia (Cyprus)	79	551	79	540	-	▲ 11
Tallinn	80	531	81	498	▲ 1	▲ 33
Athens	81	499	82	481	▲ 1	▲ 18

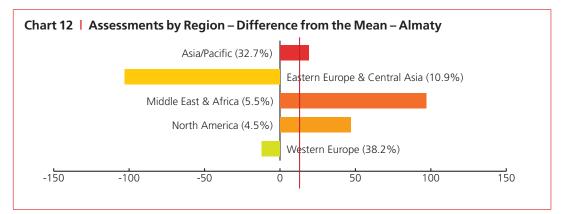
Table 8 | Eastern European and Central Asian Centres in GFCI 17

Chart 10 below shows the progress over time made by the top centres in this region:

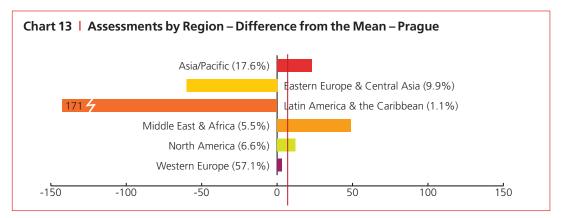




Istanbul's overall average assessment is 634, up slightly from 631 in GFCI 16. Western European and North American respondents are less favourable than the mean. Respondents from Asia/Pacific are significantly more favourable to Istanbul than the mean.



Almaty's overall average assessment is 653 the same as in GFCI 16. Western European respondents and those from Eastern Europe are less favourable than the mean. Respondents from the Americas and the Middle East and Africa are more favourable to Almaty than the mean.



Prague's overall average assessment is 571 significantly up from 543 in GFCI 16. Western European respondents and those from Asia/Pacific are more favourable than the mean.

Asia/Pacific

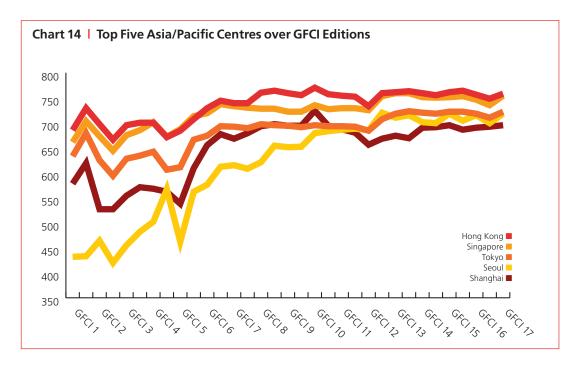
The top Asia/Pacific financial centres have seen their ratings increase in GFCI 17. Hong Kong, Singapore, Tokyo and Seoul remain in the GFCI Top 10.

	GFCI 17 rank	GFCI 17 rating	GFCI 16 rank	GFCI 16 rating	Change in rank	Change in rating
Hong Kong	3	758	3	756	-	▲ 2
Singapore	4	754	4	746	-	▲ 8
Токуо	5	722	6	718	▲ 1	▲ 4
Seoul	7	718	8	715	▲ 1	▲ 3
Shanghai	16	695	20	690	▲ 4	▲ 5
Sydney	21	690	23	682	▲ 2	▲ 8
Shenzhen	22	689	25	680	▲ 3	▲ 9
Busan	24	687	28	676	▲ 4	▲ 11
Таіреі	25	686	27	677	▲ 2	▲ 9
Melbourne	28	677	24	681	▼ 4	▼ 4
Beijing	29	674	32	668	▲ 3	▲ 6
Osaka	31	668	33	667	▲ 2	▲ 1
Kuala Lumpur	38	652	41	656	▲ 3	▼ 4
Bangkok	50	633	46	646	▼ 4	▼ 13
Dalian	51	632	-	-	-	-
Mumbai	53	626	61	625	▲ 8	▲ 1
Jakarta	57	618	66	620	▲ 9	V 2
Manila	62	611	59	627	▼ 3	▼ 16

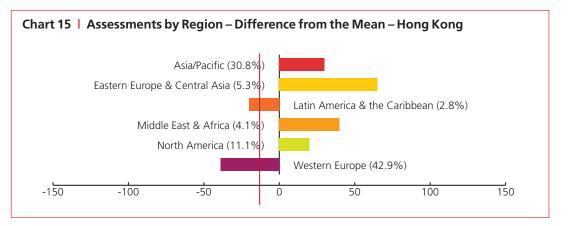
Table 9 | Asia/Pacific Centres in GFCI 17

The top nine Asia/Pacific centres all saw increases in their ratings. Five of the lower ranked centres moved down in the ratings with the largest fallers being Manila and Bangkok. Four Asia/Pacific centres are in the GFCI top seven.

Chart 14 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.

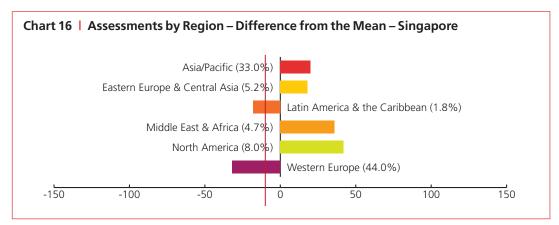


Hong Kong has an average assessment of 810 down from 827 in GFCI 16. Western Europeans, the largest group of respondents, were less positive than the mean.

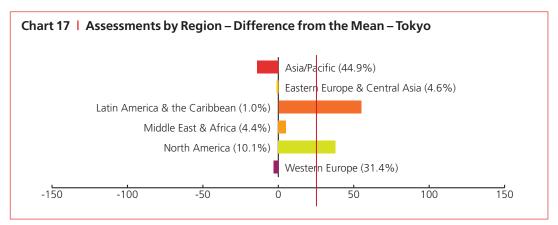




Singapore's average assessment is 811, down from 830 in GFCI 16. North Americans' ratings were the most favourable; Western European responses, the largest group of respondents gave lower than average assessments.



Tokyo is the third highest centre in Asia/Pacific and has an average assessment of 762, down from 788 in GFCI 16. Asia/Pacific and Europe, respectively the first and second largest groups of respondents gave slightly lower than average assessments for Tokyo.



"Business is booming here at the moment – long may it last. We are even winning business from Hong Kong right now."

Fund Manager based in Singapore

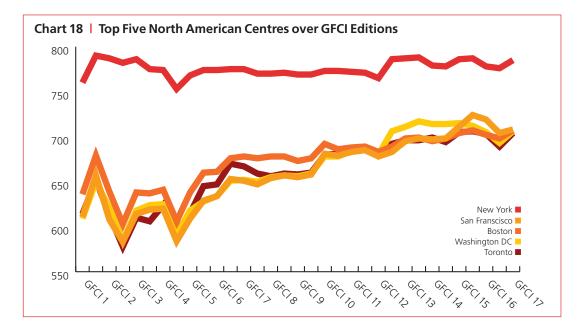
North America

New York gained seven points in the GFCI and retains its position as the top global centre just one point ahead of London. This single point difference is statistically insignificant on a scale of 1,000. San Francisco, despite a fall this time, remains the second placed North American centre although it is only one point ahead of Chicago and two ahead of Boston. Toronto remains the leading Canadian centre but only eight points ahead of Vancouver and ten ahead of Montreal. Eight North American financial centres are within the top 20 of GFCI 17.

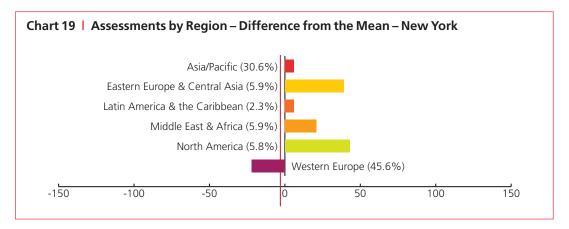
	GFCI 17 rank	GFCI 17 rating	GFCI 16 rating	GFCI 16 rating	Change in rank	Change in rating
New York	1	785	1	778	-	▲ 7
San Francisco	8	708	5	719	▼ 3	▼ 11
Chicago	9	707	12	702	▼ 3	▲ 5
Boston	10	706	9	705	▼ 1	▲ 1
Toronto	11	704	11	703	-	▲ 1
Washington DC	12	703	10	704	▼ 2	▼ 1
Vancouver	15	696	14	700	▼ 1	▼ 4
Montreal	18	693	18	693	-	-
Calgary	33	661	26	678	▼ 7	▼ 17

Table 10 | North American Centres in GFCI 17

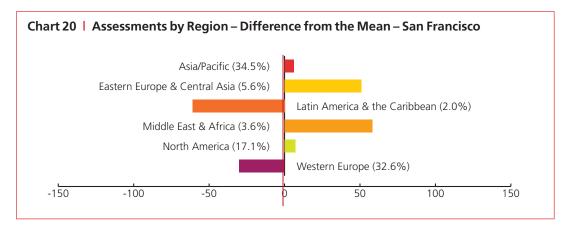
Chart 18 below shows leading American centres' performance. New York is still well ahead of the rest.



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

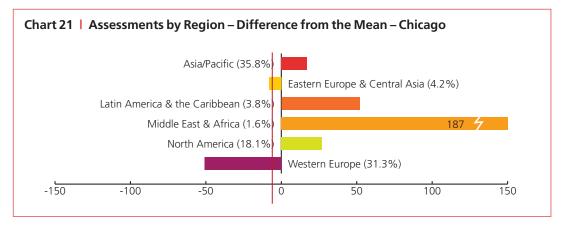


New York's overall average assessment is 834, down from 841 in GFCI 16. Respondents from Western Europe (45% of all respondents that assessed New York) were less favourable than the rest.



San Francisco has a global average assessment of 761, down from 764. Assessments from Western Europe are lower than the mean. In contrast Asian respondents are more favourable than the mean to San Francisco.

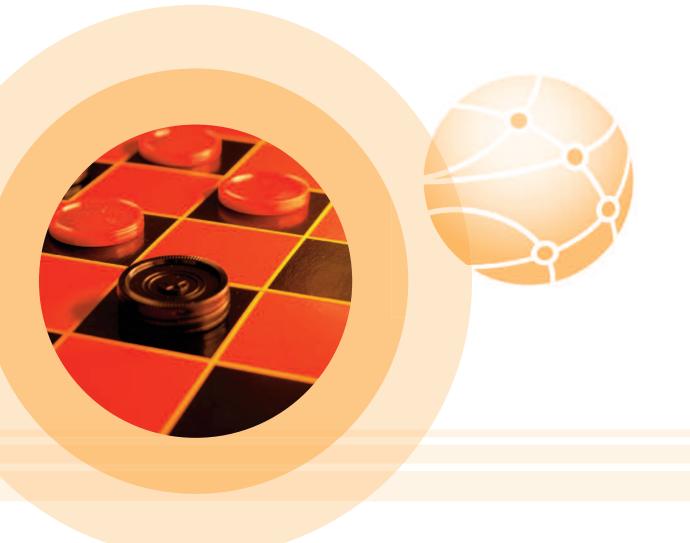




Boston's overall average assessment is 734 well down from 770 in GFCI 16. Respondents from the Americas and the Middle East & Africa were most positive in their ratings.

"We are doing more business with Toronto and Montreal now than we were doing last year – their regulatory system is fairly relaxed compared with here!"

Investment Banker based in New York



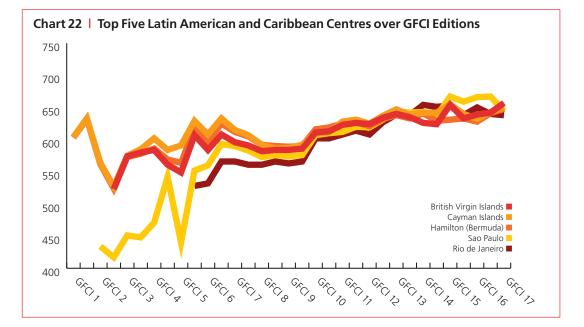
Latin America and the Caribbean

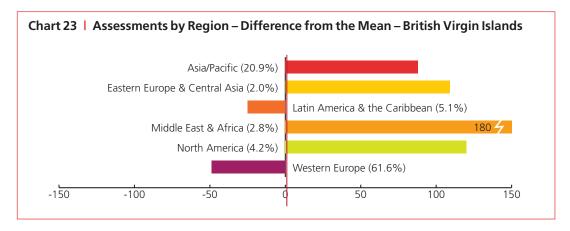
The British Virgin Islands, the Cayman Islands and Bermuda all show strong improvements following falls in GFCI 16. Sao Paulo remains the top Latin American centre in GFCI 17 despite falling 22 points. Rio de Janeiro and Mexico fell in the ratings and Buenos Aires has fallen out of the GFCI due to an insufficient number of assessments in the past 24 months.

	GFCI 17 rank	GFCI 17 rating	GFCI 16 rating	GFCI 16 rating	Change in rank	Change in rating
British Virgin Islands	34	657	47	639	1 3	1 8
Cayman Islands	39	650	54	632	1 5	1 8
Hamilton (Bermuda)	41	648	58	628	1 7	A 20
Sao Paulo	43	644	34	666	▼ 9	▼ 22
Rio de Janeiro	47	638	45	650	V 2	▼ 12
Panama	48	637	49	637	▲ 1	-
Mexico City	56	623	44	652	V 12	▼ 29
Bahamas	69	597	71	603	▲ 2	▼ 6

Table 11 | Latin American and Caribbean Centres in GFCI 17

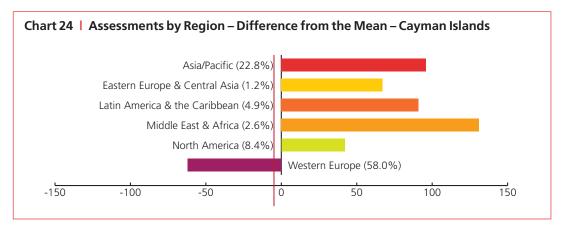
Chart 26 below shows the Latin American centres' performance since they joined the index. All centres have risen over time although Sao Paulo has seen the most dramatic rise.



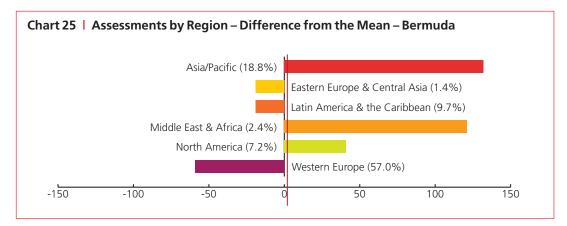


The difference between regional assessments for the top three centres in this region is shown below:

The British Virgin Islands has a global average assessment of 620, the same as in GFCI 16. Respondents from Western Europe give average assessments significantly lower than the mean.



The Cayman Islands has a global average score of 633, down slightly from 635. Again it is the Western European respondents that give average assessments significantly lower than the mean.



Bermuda has a global average assessment of 619, down slightly from 626.

"We are having to revise our Latin American investment strategy. Political interference continues to increase business risk."

Fund Manager based in San Francisco

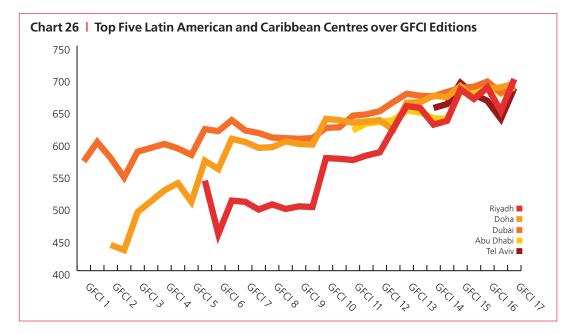


The Middle East and Africa

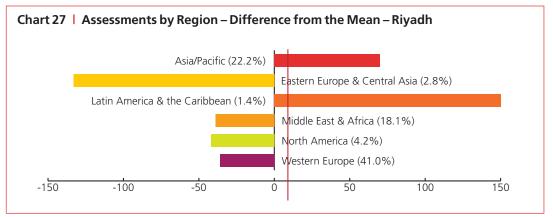
Riyadh, Tel Aviv and Casablanca showed the biggest gains in this competitive region. Dubai and Abu Dhabi were down in the ratings.

	GFCI 17 rank	GFCI 17 rating	GFCI 16 rating	GFCI 16 rating	Change in rank	Change in rating
Riyadh	14	698	21	685	▲ 7	1 3
Doha	20	691	22	684	▲ 2	▲ 7
Dubai	23	688	17	694	▼ 6	▼ 6
Abu Dhabi	26	685	19	692	▼ 7	▼ 7
Tel Aviv	27	684	36	664	▲ 9	A 20
Johannesburg	32	662	38	659	▲ 6	▲ 3
Casablanca	42	645	51	635	▲ 9	1 0
Bahrain	46	641	52	634	▲ 6	▲ 7
Mauritius	68	598	69	608	▲ 1	▼ 10

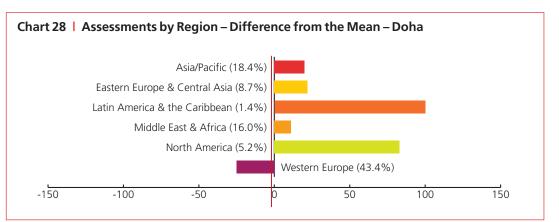
Table 12 | The Middle East and African Centres in GFCI 17



The chart shows the progress of the Middle Eastern centres over the past eight years. Doha in particular has made steady progress. The rise in popularity of Riyadh confounds many commentators but industry professionals continue to rate it well as a place to do business. Riyadh's global average assessment is 558, with respondents from the Asia/Pacific region giving the most favourable assessments.

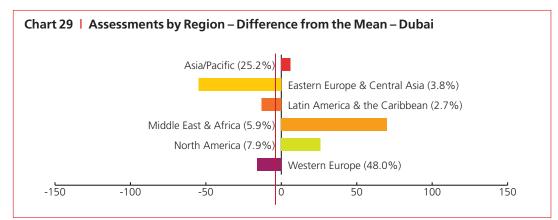


Doha's average global assessment is 650, down from 680 in GFCI 16. Western Europe gave below average assessments.



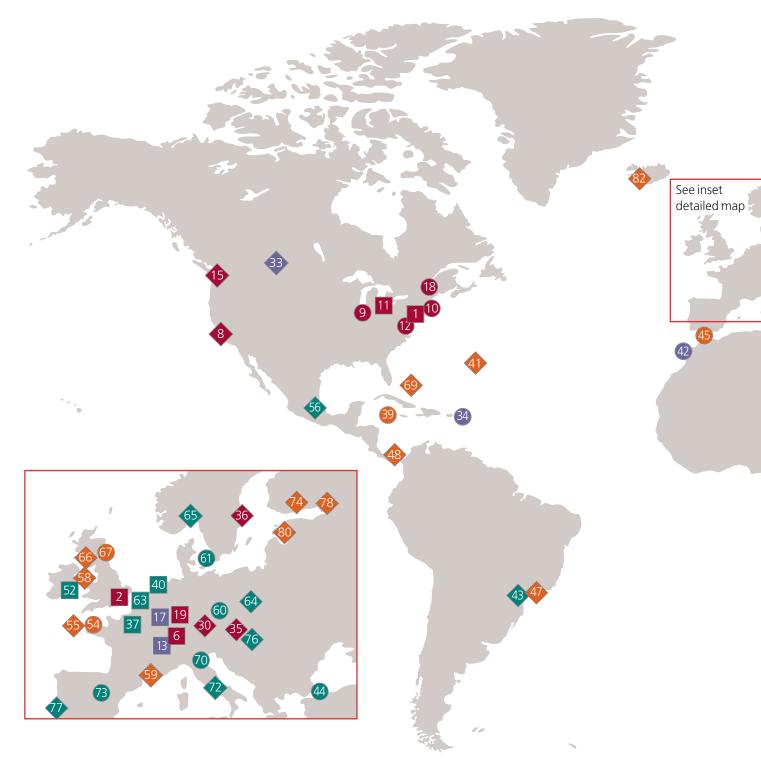
"Tel Aviv is a really lively and 'happening' centre. San Francisco is not the only place for hi-tech start-ups. Such a rapidly developing city provides great opportunities."

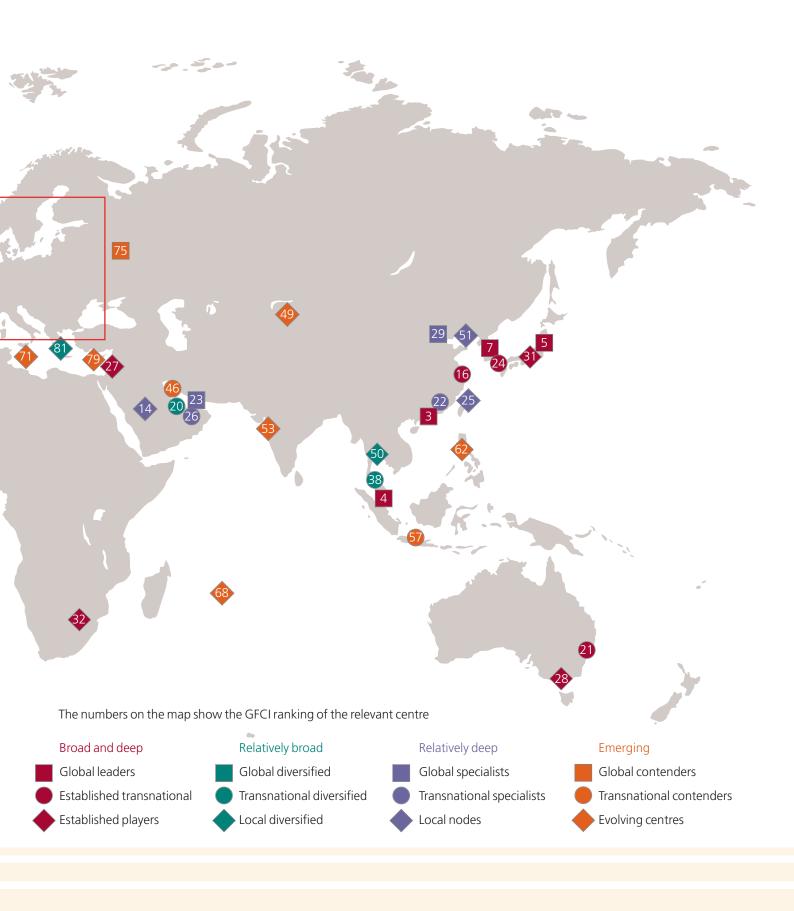
Dubai's overall average assessment is 707 down from 712 in GFCI 16. North American and other Middle Eastern respondents were the most positive about Dubai's competitiveness. Western Europe, the largest respondent group is less favourable than the mean.



Retail Banker based in Tel Aviv

The GFCI World





Industry Sectors

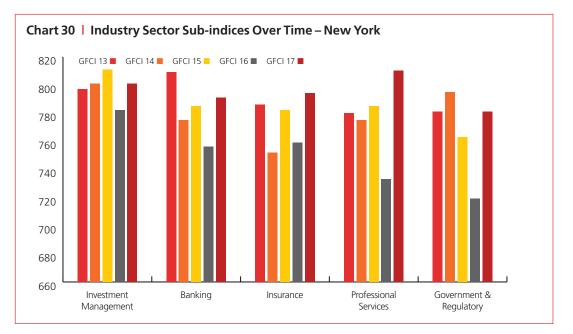
Industry sector sub-indices are created by building the GFCI statistical model using only the questionnaire responses from respondents working in the relevant industry sectors. The GFCI 17 dataset has been used to produce separate sub-indices for the Investment Management, Banking, Government & Regulatory, Insurance and Professional Services sectors.

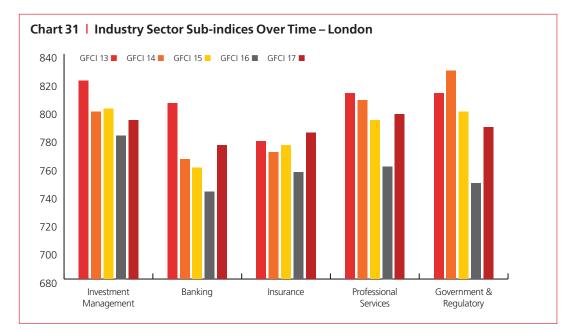
Table 13 below shows the Top Ten ranked financial centres in the industry sector sub-indices:

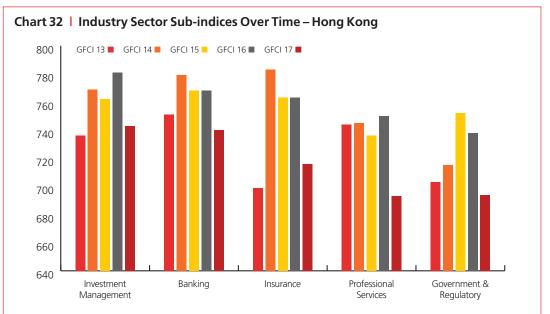
Rank	Investment Management	Banking	Government & regulatory	Insurance	Professional services
1	New York (-)	New York (-)	London (-)	New York (-)	London (-)
2	London (-1)	London (-)	New York (-)	London (-)	New York (-)
3	Hong Kong (-)	Hong Kong (-)	Singapore (+2)	Busan (-)	Hong Kong (-)
4	Singapore (-)	Singapore (-)	Hong Kong (-1)	Singapore (-)	Singapore (-)
5	Tokyo (-)	Seoul (-)	Busan (+69)	Hong Kong (-)	Tokyo (+6)
5	Zurich (-)	Tokyo (-)	Seoul (+4)	Seoul (-)	Zurich (-1)
7	Boston (-)	Zurich (+1)	Chicago (+4)	Chicago (+2)	Casablanca (+11)
8	Seoul (+7)	Shanghai (-)	Zurich (-4)	Tokyo (-)	Chicago (+5)
9	Toronto (+1)	Abu Dhabi (+12)	Tokyo (-2)	Washington DC (+2)	Toronto (-)
10	Shanghai (+5)	Chicago (+2)	Shanghai (+15)	San Francisco (+2)	Washington DC (+2)

Table 13 | GFCI 17 Industry Sector Sub-Indices Top Ten

The GFCI 17 top four centres make it into the top five of all industry sector sub-indices. The graphs below show how the GFCI 17 Top Five centres fared in the various industry sectors over the past five GFCI editions. It is notable that all these centres improved their ratings in all five industry sectors:

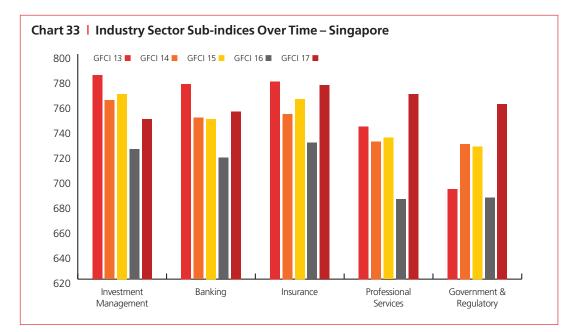


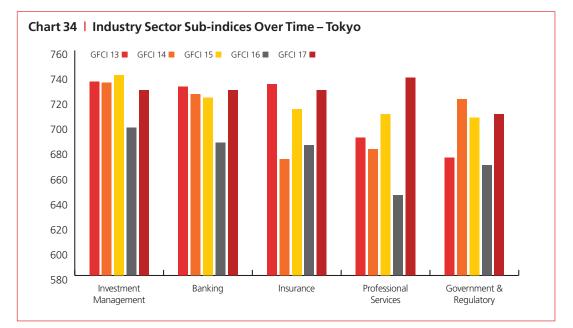




"Singapore remains a great place to operate from – even for a small firm like us. There is no problem in hiring good people although we often hire from London."

Partner of Tax Advisory Practice based in Singapore





Size of Organisation

It is useful to look at how the leading centres are viewed by respondents working for different sizes of organisation:

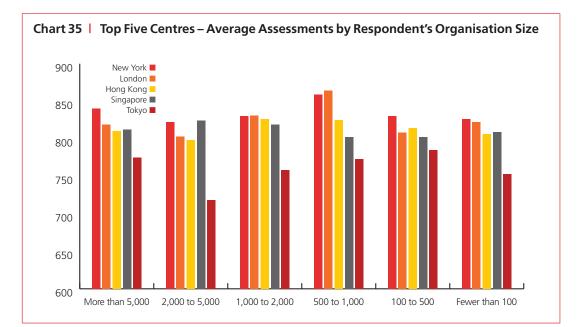


Chart 35 shows that for the first time New York and London are favoured by nearly all sizes of organisations although Hong Kong is favoured slightly higher than London in the 100 to 500 size band. Tokyo is well behind the other four in most size bands.

"Any reasonably large organisation in finance simply needs a presence in New York, London, and Hong Kong."

Investment banker based in New York



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 page 43 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 17 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 10 centres with the greatest positive difference between average assessment and the GFCI rating:

Centre – Top Ten	Average assessment	GFCI 17 rating	Reputational advantage
Casablanca	793	645	148
Busan	808	687	121
Dalian	752	632	120
Seoul	790	718	72
Singapore	821	754	67
Sydney	756	690	66
Sao Paulo	701	644	57
Hong Kong	814	758	56
San Francisco	761	708	53
New York	837	785	52

Table 14 | GFCI 17 Top Ten Centres Assessments & Ratings – Reputational Advantage

Of the top four financial centres in the GFCI, only London is outside the top ten for reputational advantage. Six of the top ten centres by reputational advantage are Asia/Pacific centres. The top three centres are the most 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 European centres are in the top ten. 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 17 Bottom Ten Centres Assessments & Ratings – Reputational Advantage

Centre – Top Ten	Average assessment	GFCI 17 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

Riyadh, Athens, Gibraltar Rome, and Moscow suffer from strong reputational disadvantages.

"Reputation is more important than reality. It is no real surprise to see Athens and Moscow at the bottom of the list."

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:

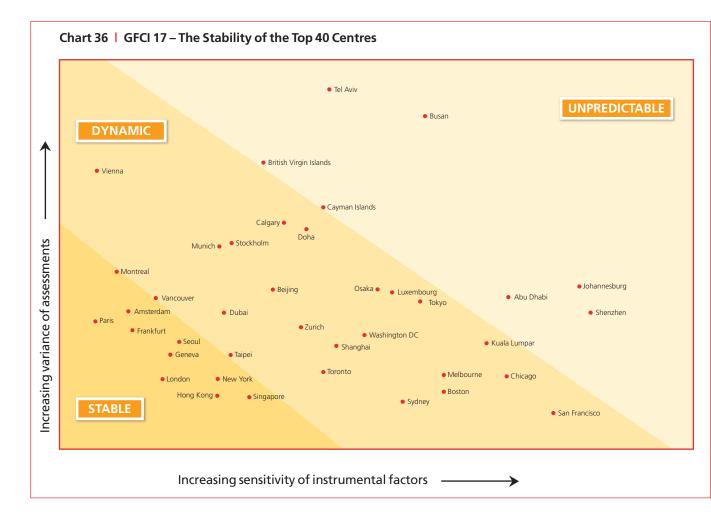


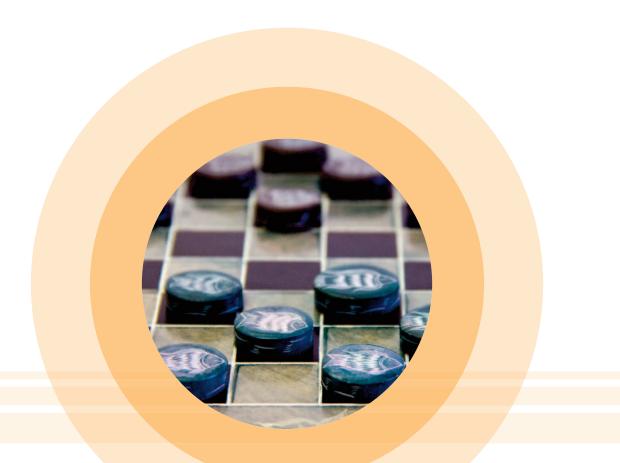
Chart 36 shows three bands of financial centres. The 'unpredictable' centres in the top right of the chart have a high sensitivity to changes in the instrumental factors and a high variance of assessments. These centres have the highest potential volatility of the top GFCI centres.

The 'stable' centres in the bottom left of the chart (including the top four 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 (e.g. Glasgow and Almaty) have been and remain unpredictable. Tel Aviv, Busan, Johannesburg and Abu Dhabi are all still fairly volatile and are in the unpredictable zone.

"The top centres seem very stable and resilient to changes – I guess that it would take a lot for them to be overtaken."

Regulatory Consultant based in Brussels



Appendix 1: Assessment Details

Table 16 | Details of Assessments by Centre

Centre	GFCI 17 Rank		Number of assessments	Total Average assessment	Standard deviation of assessments	Centre	GFCI 17 Rank		Number of assessments	Total Average assessment	Standard deviation or assessments
New York	1	785	1297	834	172	Casablanca	42	645	397	794	202
London	2	784	1356	820	172	Sao Paulo	43	644	161	694	180
Hong Kong	3	758	1036	810	165	Istanbul	44	643	244	634	203
Singapore	4	754	845	811	164	Gibraltar	45	642	180	570	238
Tokyo	5	722	612	762	202	Bahrain	46	641	267	633	216
Zurich	6	719	745	742	192	Rio de Janeiro	47	638	119	626	228
Seoul	7	718	371	796	187	Panama	48	637	131	608	237
San Francisco	8	708	304	761	157	Almaty	49	634	110	653	230
Chicago	9	707	425	742	173	Bangkok	50	633	292	621	203
Boston	10	706	515	734	166	Dalian	51	632	203	754	158
Toronto	11	704	377	743	175	Dublin	52	627	536	623	196
Washington DC	12	703	357	742	189	Mumbai	53	626	216	574	223
Geneva	13	702	689	714	182	Jersey	54	625	367	621	220
Riyadh	14	698	144	558	259	Guernsey	55	624	347	602	226
Vancouver	15	696	219	709	203	Mexico City	56	623	137	586	235
Shanghai	16	695	544	732	185	Jakarta	57	618	190	571	229
Luxembourg	17	694	478	713	205	Isle of Man	58	617	282	572	253
Montreal	18	693	228	687	212	Monaco	59	616	333	592	235
Frankfurt	19	692	795	718	191	Prague	60	613	182	571	227
Doha	20	691	288	650	226	Copenhagen	61	612	233	573	224
Sydney	21	690	332	750	162	Manila	62	611	127	577	225
Shenzhen	22	689	316	721	198	Brussels	63	607	555	596	211
Dubai	23	688	656	707	198	Warsaw	64	606	180	579	254
Busan	24	687	290	815	260	Oslo	65	601	155	567	236
Таіреі	25	686	199	696	182	Glasgow	66	600	210	564	229
Abu Dhabi	26	685	458	679	203	Edinburgh	67	599	319	587	205
Tel Aviv	27	684	173	670	267	Mauritius	68	598	214	566	245
Melbourne	28	677	172	707	174	Bahamas	69	597	258	571	236
Beijing	29	674	564	660	206	Milan	70	596	321	575	204
Munich	30	670	250	639	221	Malta	71	594	273	554	236
Osaka	31	668	178	698	206	Rome	72	586	261	532	211
Johannesburg	32	662	212	658	207	Madrid	73	582	351	559	220
Calgary	33	661	135	655	228	Helsinki	74	581	165	553	234
British Virgin Islands	34	657	354	620	246	Moscow	75	579	327	520	231
Vienna	35	656	252	638	244	Budapest	76	575	182	536	251
Stockholm	36	655	176	607	222	Lisbon	77	570	194	524	244
Paris	37	653	845	647	194	St Petersburg	78	569 551	134	498	250
Kuala Lumpur	38	652	246	648	186	Cyprus	79		290	493	249
Cayman Islands	39	650	429	633	233	Tallinn	80	531	100	494	230
Amsterdam	40	649	603	644	198	Athens	81	499	222	408	232
Bermuda	41	648	207	619	231	Reykjavik	82	484	100	428	241

Appendix 2: Respondents' Details

Table 17I Respondents byIndustry Sector

Sector	Respondents
Banking	749
Professional Services	413
Investment	330
Insurance	159
Trading	125
Finance	128
Government & Regulatory	113
Trade Association	53
Other	213
Grand Total	2,283

Table 19Respondents bySize of Organisation

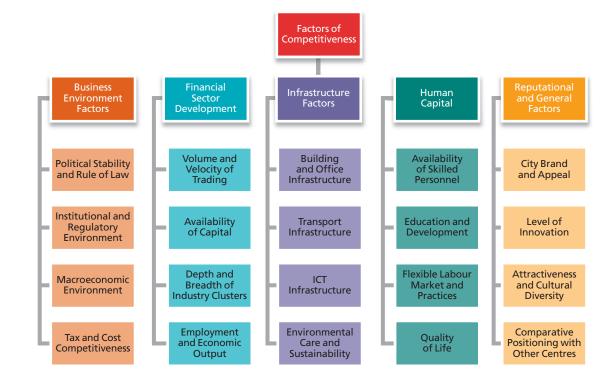
Number of staff	Respondents
Fewer than 100	510
100 to 500	282
500 to 1,000	157
1,000 to 2,000	148
2,000 to 5,000	321
More than 5,000	865
Grand Total	2,283

Table 18 Respondents by Location

Regions	Respondents
Asia/Pacific	664
Eastern Europe & Central Asia	132
Latin America & the Caribbean	57
Middle East & Africa	134
North America	215
Western Europe	1,006
Other	75
Grand Total	2,283



Appendix 3: Factors of Competetiveness



Appendix 4: 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 a global digital economy ranking (supplied by the Economist Intelligence Unit), a telecommunication infrastructure index (by the United Nations) and a Global Information Technology Index (by the World Economic Forum). Evidence about a business-friendly regulatory environment is drawn from an Ease of Doing Business Index (supplied by the World Bank) and an Institutional Effectiveness rating (from the EIU) amongst others. A total of 105 instrumental factors are used in GFCI 17 (of which 36 were updated since GFCI 16 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 28,494 financial centre assessments drawn from 3,527 respondents in GFCI 17.

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; nationbased 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:

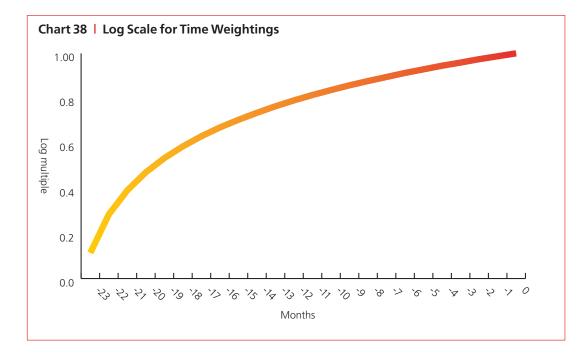
- indices are published in a variety of different forms: an average or base point of 100 with scores above and below this; a simple ranking; actual values (e.g. \$ per square foot of occupancy costs); a composite 'score';
- indices would have to be normalised, e.g. in some indices a high score is positive 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 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.

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.



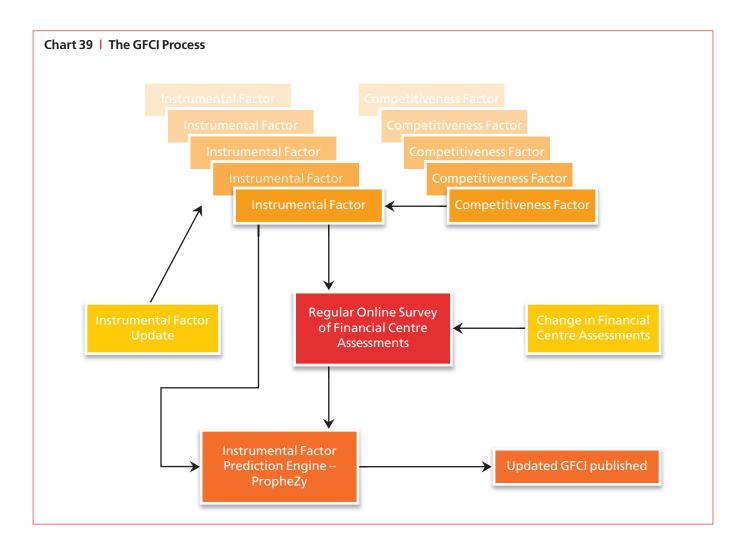
A factor assessment model is built using the centre assessments from responses to the online questionnaire. Assessments from respondents' home centres are excluded from the factor assessment model to remove home bias. The model then predicts how respondents would have assessed centres they are not familiar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

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 5: Instrumental Factors

Table 20 shows how closely instrumental factor rankings correlate with the GFCI 17 rankings for the top 25 instrumental factors:

A full list of the instrumental factors used in the GFCI 17 model is shown in tables 21–25.

Table 20Top 25 Instrumental Factors byCorrelation with GFCI 17

Instrumental Factors	R ² with GFCI 17
BE22 Number of Greenfield Investments	0.4034
RF01 World Competitiveness Scoreboard	0.3963
RF16 Global City Competitivesness	0.3918
BE15 Banking Industry Country Risk Assessments	0.3810
BE19 Financial Secrecy Index	0.3668
RF02 Global Competitiveness Index	0.3496
IF01 Office Occupancy Costs	0.2836
BE01 Business Environment Rankings	0.2602
FS13 Liner Shipping Connectivity Index	0.2532
IF12 Connectivity	0.2463
RF12 Global Cities Index	0.2451
IF02 Office Space Around the World	0.2382
RF05 FDI Confidence	0.2371
BE21 City GDP Figures	0.2299
IF20 Citywide CO2 Emissions	0.2213
FS02 Capitalisation of Stock Exchanges	0.2179
HC05 Citizens Domestic Purchasing Power	0.2154
RF19 Global Enabling Trade Report	0.2079
IF08 Quality of Roads	0.2003
FS01 Securitisation	0.1973
FS09 Total Net Assets of Mutual Funds	0.1965
IF17 Metro Network Length	0.1906
BE20 Institutional Effectiveness	0.1899
RF14 Innovation Cities Global Index	0.1888
FS03 Value of Share Trading	0.1873

Table 21 | Business Environment Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 16
Banking Industry Country Risk Assessments	Standard & Poor's	http://img.en25.com/Web/StandardPoorsRatings/ BICRA_Updatepdf	Yes
Bilateral Tax Information Exchange Agreements	OECD	www.oecd.org/document/7/0,3343,en_2649_33767_38312839_1_1_ 1_1,00.html	
Business Environment Rankings	Economist Intelligence Unit	www.eiu.com/public/thankyou_download.aspx?activity= download&campaignid=bizenviro2014	
City GDP Figures	Brookings Institute	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	New
Commonwealth Countries	The Commonwealth	http://thecommonwealth.org/member-countries	New
Corporate Tax Rates	Price Waterhouse Coopers	www.doingbusiness.org/reports/thematic-reports/paying-taxes/	Yes
Corruption Perceptions Index	Transparency International	www.transparency.org/policy_research/surveys_indices/cpi	Yes
Currencies	Swiss Association for Standardization	www.currency-iso.org/en/home/tables/table-a1.html	Yes
Ease of Doing Business Index	The World Bank	www.doingbusiness.org/custom-query	Yes
Economic Freedom of the World	Fraser Institute	www.freetheworld.com/release.html	Yes
Employee Effective Tax Rates	Price Waterhouse Coopers	Supplied direct by PwC	
Financial Secrecy Index	Tax Justice Network	www.financialsecrecyindex.com/	
Global Services Location Index	AT Kearney	www.atkearney.com/research-studies/global-services-location-index	Yes
Global Peace Index	Institute for Economics and Peace	www.visionofhumanity.org/	
Government Debt as Percentage of GDP	CIA World Fact Book	https://www.cia.gov/library/publications/the-world-factbook/ rankorder/2186rank.html	
Institutional Effectiveness	Economist Intelligence Unit	www.economistinsights.com/countries-trade-investment/analysis/ hot-spots/	
Number of Greenfield Investments	KPMG	www.kpmg.com/FR/fr/lssuesAndInsights/ArticlesPublications/ Documents/Observatoire-des-Investissements-Internationaux- principales-metropoles-mondiales-2013.pdf	Yes
Open Government	The World Justice Project	http://worldjusticeproject.org/sites/default/files/files/ wjp_rule_of_law_index_2014_report.pdf	
Operational Risk Rating	Economist Intelligence Unit	www.viewswire.com/index.asp?layout=homePubTypeRK	Yes
Personal Tax Rates	OECD	www.oecd.org/tax/tax-policy/tax-database.htm	
Political Risk Index	Exclusive Analysis Ltd	Supplied direct by Exclusive Analysis	
Press Freedom	Reporters Without Borders	http://en.rsf.org/press-freedom-index-2013,1054.html	
Projected City Economic Growth	McKinsey Global Institute	www.foreignpolicy.com/articles/2012/08/13/ the_most_dynamic_cities_of_2025	
Real Interest Rate	World Bank	http://data.worldbank.org/indicator/FR.INR.RINR	
Regulatory Enforcement	The World Justice Project	http://worldjusticeproject.org/sites/default/files/files/ wjp_rule_of_law_index_2014_report.pdf	
Total Tax Receipts (as % of GDP)	The World Bank	http://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS	
Wage Comparison Index	UBS	www.ubs.com/1/e/wealthmanagement/wealth_management_research/ prices_earnings.html	

Instrumental factor	Source	Website	Updated since GFCI 16
Broad Stock Index Levels	World Federation of Stock Exchanges	www.world-exchanges.org/statistics/monthly-reports	Yes
Capitalisation of Stock Exchanges	World Federation of Stock Exchanges	www.world-exchanges.org/statistics/monthly-reports	Yes
City GDP Composition (Business/Finance)	Brookings Institution	www.brookings.edu/research/interactives/global-metro-monitor-3	Yes
Domestic Credit Provided by Banks (% GDP)	World Bank	http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS	
External Position of Central Banks (as % GDP)	Bank for International Settlements	www.bis.org/statistics/bankstats.htm	Yes
Global Connectedness Index	DHL	www.dhl.com/content/dam/flash/g0/gci_2012/download/ dhl_gci_2012_complete_study.pdf	Yes
Islamic Finance	TheCityUK	www.thecityuk.com/research/our-work/reports-list/ islamic-finance-2013/	
Liner Shipping Connectivity	The World Bank	http://data.worldbank.org/indicator/IS.SHP.GCNW.XQ	Yes
Net External Position of Banks	Bank for International Settlements	www.bis.org/statistics/bankstats.htm	Yes
Percentage of Firms Using Bank Credit to Finance Investment	World Bank	http://data.worldbank.org/indicator/IC.FRM.BNKS.ZS	Yes
Securitisation	TheCityUK	www.thecityuk.com/research/ZendSearchLuceneForm?Search= securitisation&action_ZendSearchLuceneResults=Go	
Total Net Assets of Mutual Funds	Investment Company Institute	www.icifactbook.org/	Yes
Value of Share Trading	World Federation of Stock Exchanges	www.world-exchanges.org/statistics/monthly-reports	Yes
Value of Bond Trading	World Federation of Stock Exchanges	www.world-exchanges.org/statistics/monthly-reports	Yes
Volume of Share Trading	World Federation of Stock Exchanges	www.world-exchanges.org/statistics/monthly-reports	Yes

Table 22 Financial Sector Development Related Instrumental Factors

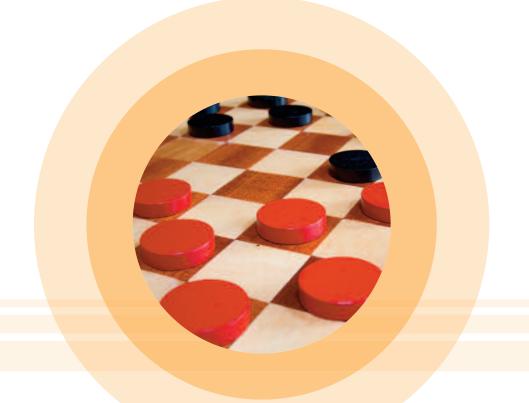


Table 23 Infrastructure Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 16
Citywide CO2 Emissions	Carbon Disclosure Project	www.cdpcities2013.net/#!/index/	
City Infrastructure	Economist Intelligence Unit	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Connectivity	Economist Intelligence Unit	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Energy Sustainability Index	World Energy Council	www.worldenergy.org/data/sustainability-index/	Yes
Environmental Performance	Yale University	http://epi.yale.edu//epi/country-rankings	
Global Information Technology	World Economic Forum	www.weforum.org/issues/global-information- technology/index.html	
Global Property Index	Investment Property Databank	http://www1.ipd.com/Pages/DNNPage.aspx?DestUrl=http%3a% 2f%2fwww.ipd.com%2fsharepoint.aspx%3fTabld%3d425	
Global Sustainable Competitiveness Index	SolAbility	www.longfinance.net/images/reports/pdf/ solability_sustcompetindex_2013.pdf	New
ICT Development Index	United Nations	www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/ MIS2014_without_Annex_4.pdf	New
ICT Network Readiness Index	World Economic Forum	www.weforum.org/reports/global-information-technology-report-2014	New
Metro Network Length	Metro Bits	http://mic-ro.com/metro/table.html	Yes
Office Occupancy Costs	DTZ	www.dtz.com/Global/Research/	
Office Space Across the World	Cushman & Wakefield	www.cushmanwakefield.com/en/research-and- insight/2014/office-space-across-the-world-2014/	
Physical Capital	Economist Intelligence Unit	www.economistinsights.com/countries-trade-investment/ analysis/hot-spots/	
Quality of Ground Transport Network	World Economic Forum	www.weforum.org/en/initiatives/gcp/TravelandTourismReport/ CompetitivenessIndex/index.htm	Yes
Quality of Roads	World Economic Forum	www.weforum.org/en/initiatives/gcp/TravelandTourismReport/ CompetitivenessIndex/index.htm	
Railways per Land Area	CIA World Fact Book	https://www.cia.gov/library/publications/the-world-factbook/ rankorder/2121rank.html	
Real Estate Transparency Index	Jones Lang LaSalle	www.joneslanglasalle.com/GRETI/en-gb/Documents/GRETI/docs/ TransparencyIndex_2012.pdf	
Roadways per Land Area	CIA World Fact Book	https://www.cia.gov/library/publications/the-world-factbook/ rankorder/2085rank.html	
Telecommunication Infrastructure Inde	x United Nations	www.unpan.org/egovkb/global_reports/08report.htm	
Urban Sprawl	Economist Intelligence Unit	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
The Web Index	The World Wide Web Foundation	http://thewebindex.org/about/the-web-index/	Yes

Table 24 | Human Capital Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 16
Average Days with Precipitation per Year	Sperling's Best Places	www.bestplaces.net/climate/default.aspx	
Citizens Purchasing Power	UBS	www.ubs.com/1/e/ubs_ch/wealth_mgmt_ch/research.html	
Cost of Living City Rankings	Mercer	https://info.mercer.com/Talent_Mobility-2014-Cost-of-Living- Ranking.html	New
Global Skills Index	Hays	www.hays-index.com/	Yes
Global Talent Index	Economist Intelligence Unit	www.managementthinking.eiu.com/global-talent-index-2011- 2015.html	
Global Terrorism Index	Institute of Economics and Peace	www.visionofhumanity.org/#/page/indexes/terrorism-index	New
Graduates in Social Science Business and Law	World Bank	http://databank.worldbank.org/Data/Views/VariableSelection/ SelectVariables.aspx?source=Education%20Statistics	
Gross Tertiary Education Ratio	World Bank	http://databank.worldbank.org/Data/Views/VariableSelection/ SelectVariables.aspx?source=Education%20Statistics	
Happy Planet Index	New Economics Foundation (NEF)	www.happyplanetindex.org/data/	
Healthcare	Economist Intelligence Unit	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Health Outcomes and Costs	Economist Intelligence Unit	www.eiu.com/Handlers/WhitepaperHandler.ashx?fi=Healthcare- outcomes-index-2014.pdf&mode=wp&campaignid= Healthoutcome2014	New
Homicide Rates	UN Office of Drugs and Crime	www.unodc.org/gsh/en/data.html	
Human Development Index	UN Development Programme	http://hdr.undp.org	Yes
Human Capital	Economist Intelligence Unit	www.economistinsights.com/countries-trade- investment/analysis/hot-spots/	
Linguistic Diversity	Ethnologue	www.ethnologue.com/statistics/country	
Number of High Net Worth Individuals	Capgemini	www.uk.capgemini.com/thought-leadership/world-wealth-report- 2013-from-capgemini-and-rbc-wealth-management	Yes
Spatial Adjusted Liveability Index	Economist Intelligence Unit	http://pages.eiu.com/rs/eiu2/images/EIU_BestCities.pdf	
Visa Restrictions Index	Henley & Partners	www.henleyglobal.com/citizenship/visa-restrictions/	Yes
World's Top Tourism Destinations	Euromonitor Archive	http://blog.euromonitor.com/2014/01/euromonitor-internationals- top-city-destinations-ranking.html	
World Talent Rankings	IMD	www.imd.org/wcc/news-talent-report/	New

Table 25 | General & Reputation Related Instrumental Factors

Instrumental factor	Source	Website	Updated since GFCI 16
Big Mac Index	The Economist	http://www.economist.com/content/big-mac-index	Yes
City to Country GDP Ratio	World Bank	http://www.brookings.edu/research/interactives/global-metro- monitor-3	Yes
City Global Appeal	Economist Intelligence Unit	http://www.economistinsights.com/countries-trade- investment/analysis/hot-spots/	
FDI Confidence	AT Kearney	http://www.atkearney.com/research-studies/foreign-direct- investment-confidence-index	
Foreign Direct Investment Inflows	UNCTAD	http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx?sRF _ActivePath=P,5,27&sRF_Expanded=,P,5,27	Yes
GDP per Person Employed	World Bank	http://data.worldbank.org/indicator/SL.GDP.PCAP.EM.KD	
Global City Competitiveness	Economist Intelligence Unit	http://www.economistinsights.com/countries-trade-investment/ analysis/hot-spots/	
Global Business Confidence	Grant Thornton	http://www.grantthornton.ie/db/Attachments/ Grant-Thornton-IBR-2014-Ireland-A-sense-of-place-and-pu.pdf	
Global Cities Index	AT Kearney	http://www.atkearney.com/research-studies/global-cities-index	
Global Competitiveness Index	World Economic Forum	http://www.weforum.org/en/initiatives/gcp/ Global%20Competitiveness%20Report/index.htm	Yes
Global Enabling Trade Report	World Economic Forum	http://www.weforum.org/issues/international-trade	
Global Innovation Index	INSEAD/WIPO	http://www.globalinnovationindex.org/ content.aspx?page=Gll-Home	Yes
Global Intellectual Property Index	Taylor Wessing	http://www.taylorwessing.com/ipindex/	
Good Country Index	Good country	http://www.goodcountry.org/overall	New
Innovation Cities Global Index	2thinknow Innovation Cities [™] Project	http://www.innovation-cities.com/	
Number of International Fairs & Exhibitions	World Economic Forum	http://www.weforum.org/en/initiatives/gcp/ TravelandTourismReport/CompetitivenessIndex/index.htm	
Price Levels	UBS	http://www.ubs.com/1/e/wealthmanagement/ wealth_management_research/prices_earnings.html	
Retail Price Index	The Economist	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/	
World Competitiveness Scoreboard	IMD	http://www.imd.ch/research/publications/wcy/ competitiveness_scoreboard.cfmue	



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