GPoC 2021
Global Powers of Construction

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Introduction

Global Powers of Construction analyzes the outlook for the construction industry worldwide and discusses the strategies and performance of the most representative listed global construction groups in 2021.

We are pleased to present the fifth edition of Global Powers of Construction, a publication in which we identify, rank and outline the world's major listed construction groups and provide insights in terms of expectations and innovation trends within the industry. In line with prior editions, the data included in GPoC is the product of an in-depth review of various external sources, which include mainly company annual reports, Euroconstruct, the European Commission, the International Monetary Fund, the World Bank, Forbes and Engineering News-Record (ENR) reports. The analysis also benefits from insightful comments and suggestions from Deloitte professionals throughout the world.

As has been the norm in prior years, this publication includes an analysis of the current macroeconomic outlook and expectations for the coming years in the global construction industry. After an uncertain 2020 due to the multiple impacts of the COVID-19 pandemic on the industry and the subsequent shift in investment priorities worldwide, 2021 saw sustained growth of the industry in all geographical areas. In this regard, construction was considered to be an essential activity in most countries, therefore lessening the impact of lockdowns and safety regulations still in force in 2021 in large areas of the world. From the policy-making point of view, construction has a great potential impact on economic recovery, since the industry is traditionally labor-intensive.

Looking at the prospects of the industry today, we must consider the challenges posed by the disruptions in the supply chain and the issues concerning raw materials and labor shortages that are causing upward pressures on construction costs. The war in Ukraine will likely also have a significant impact on the market, with rising energy and materials prices and higher uncertainty regarding spending decisions that will be impacted by inflation and interest rates.

The publication also analyses the main financial indicators of the major players within the industry. Performance in terms of revenue, market capitalization, international presence, diversification, profitability, indebtedness and other financial ratios are examined in this issue. In 2021 the aggregate USD sales of the Top 100 GPoC rose by 14.1% and market capitalization also increased by 13.3% (see Figure 1.1).

We also include a section in which we analyze certain industry trends that have been shaping construction over the past few years or are expected to have a major impact in the near future, taking into account the new post-pandemic priorities. In general, the industry has some way to go in terms of digitalization and sustainability, which appear to be winning trends in the years ahead.

We hope that you find our GPoC 2021 analysis of the global construction industry of interest and that the information detailed herein helps you to understand and assess the related challenges and opportunities for the coming years. As always, we welcome any thoughts and suggestions you may have about any of the topics covered.

Ranking of listed global construction companies

The total revenue obtained by the GPoC in 2021 (see Figure 1.2) amounted to USD 1.8 trillion, 14.1% higher than in 2020 and 24.5% higher than our 2019 ranking. By geographical area, almost 55% of revenue originates from companies based in China, with the remaining revenue mainly coming from Europe (particularly France and Spain), Japan, the United States and South Korea; these companies account for 20%, 10%, 8% and 4% of total sales, respectively (see Figure 1.1). As can already be noted from the overall sales increase of our Top 100 GPoC, 2021 was a very good year for the companies included in the ranking given that 71 companies recorded an increase in sales (as reported in US dollars) and 49 achieved double-digit increases. On the contrary, 17 companies reported revenue contractions of more than 10%.

As regards the stock market performance of the GPoC, total value increased from USD 584,642 million to USD 662,460 million (13.3%). The 2021 figure also exceeds the USD 597,537 at which our 2019 GPoC was valued. The main geographical areas experienced significant market cap growth with a noteworthy 28.4% and 20.4% increase in the United States (US) and Japan. Europe recorded a notable 8.4% increase, while the mixed performance of the Chinese companies in the stock markets resulted in an overall increase of 2.7%.

As in previous years, China State Construction Engineering, which reported over USD 293,000 million in revenue in 2021, leads the ranking. The podium, which is completed by two other Chinese companies, China Railway Group and China Railway Construction, accounts for approximately 34% of the total revenue of our GPoC (see Figure 1.2).

By number of companies, Europe has the largest presence in the industry, with 40 groups included in the Top 100 ranking. Aggregate sales of European GPoCs increased by 9.5% with respect to the previous year, amounting to USD 347,785 million, with market capitalization increasing along the same lines, by 8.4%. In terms of revenue, three French groups Vinci, Bouygues and Eiffage, together with the Spanish group ACS, which are ranked in 7th, 9th, 17th and 12th position, respectively, represent the largest European construction companies (see Figure 1.1). It is worth noting that the French company Vinci, which reported about one fifth of the sales obtained by the Top Chinese GPoC, leads the market capitalization ranking of the Top 100 GPoC companies (Figure 2.1) with a market value that is 1.8 times that of the first group in terms of sales.

Japan takes second place in the ranking by number of companies (14). Aggregate sales of the Japanese GPoC decreased by 3% to USD 189,185 million (see Figure 1.2). Out of these companies, six focus mainly on homebuilding, including the largest Japanese companies, Daiwa House Industry and Sekisui House, which placed in 11th and 16th position, respectively.

With 14 companies included in the Top 100 ranking, the United States also has an extensive presence within the industry (see Figure 1.1). Total revenue of the US GPoC grew by a notable 12%, while market capitalization jumped by 28.4%. Some of the largest US companies, such as D.R. Horton, Lennar and Pultegroup, ranked in 14th, 15th and 27th position, respectively, focus mainly on homebuilding (see Figure 1.2).

South Korean presence in the ranking is headed by Samsung C&T, Hyundai E&C and Doosan. Revenue in 2021 remained basically flat for the seven South Korean companies included in the ranking, while aggregate market capitalization suffered a sharp decline of 14.4%.

The remaining members of the ranking are medium-sized companies located in areas such as India, Australia, Canada, the United Arab Emirates, Turkey and Mexico. Aggregate sales represented approximately 3.5% of the total revenue of the GPoC. Among these companies, only the Indian company Larsen & Toubro reported sales exceeding USD 10,000 million.

Figure 1.1: Top 100 Global Construction Companies by Country

Country	Number of company	Sales 2021 (USD million)	%Change 2021 - 2020	% Change LC 2021 - 2020	MC (USD million)	% Change MC 2021 - 2020	% Change LC 2021 - 2020
AUSTRALIA	2	14,064	(17.3%)	(26.8%)	10,304	13.5%	8.5%
AUSTRIA	2	24,215	9.3%	5.5%	4,893	5.4%	11.8%
BELGIUM	1	4,302	16.9%	12.9%	3,539	36.8%	46.9%
BRAZIL	1	1,319	0.9%	5.5%	1,04	(40.9%)	(36.6%)
CANADA	2	9,054	13.9%	6.5%	5,102	35.7%	34.4%
CHILE	1	940	66.9%	78.1%	170	(34.2%)	(21.1%)
CHINA	11	990,930	23.2%	15.1%	112,762	2.7%	0.0%
DENMARK	1	2,360	18.3%	10.5%	777	(1.4%)	(0.2%)
FINLAND	1	3,382	(3.5%)	(6.8%)	1,027	(18.5%)	(12.5%)
FRANCE	3	125,054	16.2%	12.2%	83,611	(0.2%)	7.4%
GERMANY	1	1,819	54.8%	49.4%	260	(10.6%)	(11.7%)
GREECE	3	5,588	16.6%	12.6%	3,886	17.1%	22.8%
INDIA	1	18,520	(12.9%)	(8.8%)	27,24	80.9%	75.6%
ISRAEL	1	2,886	20.3%	20.3%	2,653	28.6%	24.4%
ITALY	1	7,752	35.1%	30.5%	2,369	47.3%	45.2%
JAPAN	14	189,185	(3.0%)	(5.3%)	89,863	20.4%	25.2%
MEXICO	1	6,141	39.8%	31.6%	7,295	(3.3%)	(0.8%)
NETHERLANDS	2	10,722	9.7%	5.9%	1,223	49.2%	60.2%
NORWAY	1	4,373	7.9%	(1.4%)	2,029	16.5%	19.5%
PORTUGAL	1	3,066	10.5%	6.7%	446	12.6%	20.8%
SOUTH KOREA	7	80,414	(0.5%)	(0.1%)	28,298	(14.4%)	(6.5%)
SPAIN	7	68,332	(3.9%)	(7.2%)	49,026	11.3%	19.4%
SWEDEN	4	31,559	(4.1%)	(6.5%)	19,511	7.4%	18.2%
SWITZERLAND	1	4,117	(3.1%)	(5.6%)	501	(33.2%)	(38.8%)
TAIWAN	1	2,525	33.9%	27.0%	1,025	(1.1%)	(2.6%)
THAILAND	1	1,875	8.4%	8.8%	363	85.5%	105.4%
TURKEY	2	4,690	40.8%	42.5%	6,94	8.8%	93.7%
U.A.E.	1	965	(71.4%)	5.1%	564	(7.2%)	(7.2%)
UK	11	51,067	21.5%	13.3%	51,078	19.8%	16.3%
USA	14	147,984	12.2%	12.2%	144,666	28.4%	28.4%
Grand Total	**100**	**1,819,201**	**14.1%**		**662,460**	**13.3%**	

Source: Global Powers of Construction (GPoC) 2021. (July 2022).Bloomberg and company financials.

Top 100 GPoC – ranking by sales

Figure 1.2: Top 100 Global Construction Companies by Sales

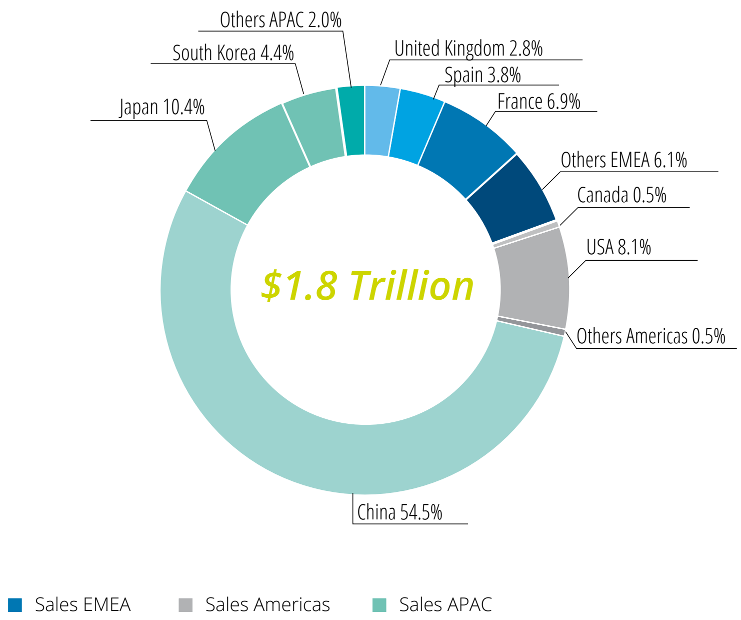
Rank 2021	Company	Country	Sales 2021 (MN $)	% change 2021-2020	% change in local currency 2021-2020	2021 market capitalization (USD million)	% change 2021-2020	% change in local currency 2021-2020
1	CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD. (CSCEC)	CHINA	293,194	25.3%	17.1%	32,133	2.3%	(0.4%)
2	CHINA RAILWAY GROUP LTD. CREC)	CHINA	166,378	17.8%	10.1%	12,983	(29.0%)	(30.9%)
3	CHINA RAILWAY CONSTRUCTION CORP. LTD. (CRCC)	CHINA	158,121	19.9%	12.0%	8,882	(41.0%)	(42.6%)
4	CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD. (CCCC)	CHINA	106,287	17.5%	9.8%	8,790	(41.3%)	(42.8%)
5	METALLURGICAL CORPORATION OF CHINA LTD (MCC)	CHINA	77,598	33.9%	25.1%	5,289	(33.7%)	(35.4%)
6	POWER CONSTRUCTION CORP OF CHINA (POWER CHINA)	CHINA	69,601	19.6%	11.7%	19,254	113.9%	108.2%
7	VINCI	FRANCE	58,437	18.3%	14.3%	60,043	2.2%	10.1%
8	CHINA ENERGY ENGINEERING CORP	CHINA	49,966	27.6%	19.2%	7,058	143.1%	136.7%
9	BOUYGUES	FRANCE	44,469	12.2%	8.3%	13,715	(12.4%)	(6.0%)
10	SHANGHAI CONSTRUCTION GROUP (SCG)	CHINA	43,569	30.0%	21.5%	5,033	22.8%	19.6%
11	DAIWA HOUSE INDUSTRY CO.	JAPAN	38,899	(3.4%)	(5.8%)	19,170	16.2%	19.3%
12	ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. (ACS)	SPAIN	32,932	(17.5%)	(20.3%)	7,401	(21.8%)	(16.0%)
13	SAMSUNG C&T CORP.	SOUTH KOREA	30,095	17.6%	14.0%	16,347	(21.1%)	(13.8%)
14	D.R. HORTON	USA	27,774	36.7%	36.7%	29,895	8.6%	8.6%
15	LENNAR CORP.	USA	27,131	20.6%	20.6%	31,456	32.6%	32.6%
16	SEKISUI HOUSE	JAPAN	23,008	3.9%	1.3%	13,565	3.3%	13.6%
17	EIFFAGE, S.A.	FRANCE	22,148	18.8%	14.7%	9,854	5.3%	13.1%
18	LARSEN & TOUBRO LTD. (L&T)	INDIA	18,520	(12.9%)	(8.8%)	27,240	80.9%	75.6%
19	STRABAG	AUSTRIA	18,099	7.4%	3.7%	4,281	2.2%	8.4%
20	KAJIMA CORP.	JAPAN	17,977	(2.8%)	(5.2%)	7,177	36.1%	39.7%
21	SKANSKA AB	SWEDEN	16,765	(8.0%)	(10.3%)	10,684	1.5%	11.7%
22	OBAYASHI CORP.	JAPAN	16,655	(12.7%)	(14.8%)	6,586	6.8%	9.6%
23	HYUNDAI ENGINEERING & CONSTRUCTION CO. LTD. (HDEC)	SOUTH KOREA	15,779	9.8%	6.5%	4,160	8.6%	18.7%
24	JACOBS ENGINEERING	USA	14,093	3.9%	3.9%	17,357	41.9%	41.9%
25	DAITO TRUST CONSTRUCTION	JAPAN	14,034	(3.8%)	(6.1%)	7,893	23.5%	26.7%
26	TAISEI CORP.	JAPAN	13,952	(13.4%)	(15.5%)	7,947	22.6%	25.9%
27	PULTEGROUP	USA	13,927	26.2%	26.2%	14,251	24.0%	24.0%
28	SHIMIZU CORP.	JAPAN	13,729	(12.1%)	(14.2%)	6,180	3.3%	6.0%
29	IIDA GROUP HOLDINGS	JAPAN	13,726	6.4%	3.9%	6,977	74.2%	78.8%
30	AECOM	USA	13,341	0.8%	0.8%	9,041	37.6%	37.6%
31	SICHUAN ROAD AND BRIDGE (GROUP) CO. LTD.	CHINA	13,184	41.0%	31.7%	9,046	180.0%	172.7%
32	SUMITOMO FORESTRY	JAPAN	13,063	28.6%	25.5%	3,868	65.9%	77.0%
33	FLUOR CORP.	USA	12,435	(20.6%)	(20.6%)	3,503	55.9%	55.9%
34	DOOSAN	SOUTH KOREA	11,533	(24.5%)	(26.8%)	1,341	106.0%	125.2%
35	BALFOUR BEATTY	UK	11,396	3.5%	(3.6%)	2,447	(3.9%)	(3.0%)
36	ACCIONA	SPAIN	9,587	29.7%	25.2%	10,499	34.2%	44.0%
37	NVR	USA	8,702	18.7%	18.7%	20,370	35.1%	35.1%
38	ROYAL BAM GROUP NV	NETHERLANDS	8,654	11.3%	7.4%	837	47.0%	57.8%
39	TOLL BROTHERS	USA	8,432	21.6%	21.6%	7,227	35.1%	35.1%
40	FERROVIAL	SPAIN	8,019	10.7%	6.9%	23,020	13.7%	22.1%
41	GS ENGINEERING & CONSTRUCTION	SOUTH KOREA	7,893	(8.0%)	(10.7%)	2,825	1.7%	11.1%
42	FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A.	SPAIN	7,878	(12.0%)	8.2%	5,364	21.9%	30.9%
43	SALINI IMPREGILO SPA	ITALY	7,752	35.1%	30.5%	2,369	47.3%	45.2%
44	DAEWOO ENGINEERING & CONSTRUCTION CO.	SOUTH KOREA	7,673	12.3%	6.7%	1,992	5.9%	15.7%
45	HASEKO	JAPAN	7,630	(1.9%)	(4.3%)	3,873	23.2%	26.4%
46	HEBEI CONSTRUCTION GROUP CO. LTD.	CHINA	7,414	27.5%	19.1%	305	(68.3%)	(68.1%)
47	KBR	USA	7,339	27.3%	27.3%	6,657	52.9%	52.9%
48	LENDLEASE	AUSTRALIA	7,301	(14.9%)	(26.5%)	5,885	1.0%	(6.6%)
49	PEAB AB	SWEDEN	6,867	0.9%	(1.6%)	3,727	15.8%	27.4%
50	WORLEY	Australia	6,763	(19.8%)	(27.1%)	4,419	36.1%	36.1%
51	DAELIM INDUSTRIAL CO. LTD.	SOUTH KOREA	6,666	(23.4%)	(25.7%)	1,071	(59.6%)	(55.9%)
52	BARRATT DEVELOPMENTS PLC	UK	6,485	50.5%	40.7%	9,770	56.3%	40.2%
53	NCC AB	SWEDEN	6,225	1.5%	(0.9%)	1,997	1.8%	12.0%
54	GRUPO CARSO	MEXICO	6,141	39.8%	31.6%	7,295	(3.3%)	(0.8%)
55	PORR AG	AUSTRIA	6,116	15.1%	11.1%	611	34.2%	44.1%
56	TAYLOR WIMPEY PLC	UK	5,898	64.8%	53.6%	8,667	5.0%	5.9%

Rank 2021	Company	Country	Sales 2021 (MN $)	% change 2021-2020	% change in local currency 2021-2020	2021 market capitalization (USD million)	% change 2021-2020	% change in local currency 2021-2020
57	SNC-LAVALIN INC.	CANADA	5,881	12.5%	5.2%	4,290	43.6%	42.2%
58	SINOMA INTERNATIONAL ENGINEERING CO. LTD.	CHINA	5,618	73.0%	61.7%	3,991	117.9%	112.2%
59	SACYR, S.A.	SPAIN	5,531	6.5%	2.8%	1,692	13.3%	21.7%
60	PERSIMMON PLC	UK	4,970	16.4%	8.5%	12,335	2.4%	3.3%
61	TODA CORP.	JAPAN	4,780	0.2%	(2.2%)	2,248	25.6%	28.9%
62	TUTOR PERINI CORP.	USA	4,642	(12.7%)	(12.7%)	632	(4.0%)	(4.0%)
63	KIER GROUP PLC	UK	4,486	2.4%	(4.2%)	808	312.4%	410.9%
64	PENTA-OCEAN CONSTRUCTION CO. LTD.	JAPAN	4,440	(15.9%)	(17.9%)	2,239	48.6%	52.5%
65	MORGAN SINDALL PLC	UK	4,422	13.6%	5.9%	1,582	63.2%	64.6%
66	VEIDEKKE ASA	NORWAY	4,373	7.9%	(1.4%)	2,029	16.5%	19.5%
67	CFE GROUP	BELGIUM	4,302	16.9%	12.9%	3,539	36.8%	46.9%
68	BELLWAY PLC	UK	4,239	50.9%	40.3%	5,629	36.8%	29.0%
69	IMPLENIA AG	SWITZERLAND	4,117	(3.1%)	(5.6%)	501	(33.2%)	(38.8%)
70	SUMITOMO MITSUI CONSTRUCTION CO. LTD.	JAPAN	3,974	(8.5%)	(10.7%)	709	1.4%	4.0%
71	PRIMORIS SERVICES CORP.	USA	3,498	0.2%	0.2%	1,276	(4.0%)	(4.0%)
72	YIT OYJ	FINLAND	3,382	(3.5%)	(6.8%)	1,027	(18.5%)	(12.5%)
73	HAZAMA ANDO CORP.	JAPAN	3,318	(4.6%)	(6.9%)	1,432	16.0%	19.1%
74	OBRASCON HUARTE LAIN, S.A.	SPAIN	3,288	1.7%	(1.8%)	687	217.7%	241.0%
75	AECON GROUP INC.	CANADA	3,173	16.7%	9.1%	812	5.2%	4.2%
76	MYTILINEOS HOLDINGS	GREECE	3,152	45.3%	40.3%	2,329	17.1%	25.7%
77	MOTA ENGIL SGPS	PORTUGAL	3,066	10.5%	6.7%	446	12.6%	20.8%
78	KELLER GROUP PLC	UK	3,061	15.7%	7.8%	964	40.1%	41.3%
79	BERKELEY GROUPS HOLDINGS	UK	3,031	23.0%	14.7%	8,462	17.7%	7.0%
80	GRANITE CONSTRUCTION INC.	USA	3,010	(15.4%)	(15.4%)	1,774	45.4%	45.4%
81	ELECTRA LTD.	ISRAEL	2,886	20.3%	20.3%	2,653	28.6%	24.4%
82	ENKA INSAAT VE SANAYI AS	TURKEY	2,859	72.4%	72.4%	6,374	14.8%	104.3%
83	CTCI CORP.	TAIWAN	2,525	33.9%	(27.0%)	1,025	(1.1%)	(2.6%)
84	PER AARSLEFF HOLDING	DENMARK	2,360	18.3%	10.5%	777	(1.4%)	(0.2%)
85	INFRASTRUCTURE & ENERGY ALTERNATIVES INC.,	USA	2,078	18.6%	18.6%	442	26.9%	26.9%
86	HEIJMANS NV	NETHERLANDS	2,068	3.7%	0.1%	386	54.3%	65.8%
87	ITALIAN-THAI DEVELOPMENT PUBLIC CO. LTD.	THAILAND	1,875	8.4%	8.8%	363	85.5%	105.4%
88	TEKFEN HOLDING AS	TURKEY	1,831	9.5%	38.3%	566	(31.5%)	22.0%
89	BAUER AG	GERMANY	1,819	54.8%	49.4%	260	(10.6%)	(11.7%)
90	JM AB	SWEDEN	1,702	(2.7%)	(5.1%)	3,104	26.1%	38.7%
91	STERLING CONSTRUCTION CO. INC.	USA	1,582	10.8%	10.8%	785	50.9%	50.9%
92	COSTAIN GROUP PLC	UK	1,562	24.5%	(16.0%)	199	(10.6%)	(9.8%)
93	GALLIFORD TRY PLC	UK	1,516	7.3%	0.3%	216	32.5%	18.9%
94	GEK TERNA	GREECE	1,354	(15.5%)	(18.4%)	1,042	18.6%	16.9%
95	MRV ENGENHARIA	BRAZIL	1,319	0.9%	5.5%	1,040	(40.9%)	(36.6%)
96	GRUPO EMPRESARIAL SAN JOSE SA	SPAIN	1,098	(0.1%)	(3.5%)	363	(6.1%)	(10.2%)
97	ELLAKTOR SA	GREECE	1,083	6.3%	2.6%	515	14.0%	22.4%
98	ORASCOM CONSTRUCTION LTD.	U.A.E.	965	(71.4%)	5.1%	564	(7.2%)	(7.2%)
99	SALFACORP SA	CHILE	940	66.9%	78.1%	170	(34.2%)	(21.1%)
100	HANJINHEAVY	SOUTH KOREA	776	(46.0%)	(47.6%)	563	0.5%	9.8%
	TOTAL		**1,819,201**	**14.1%**		**662,460**	**13.3%**	

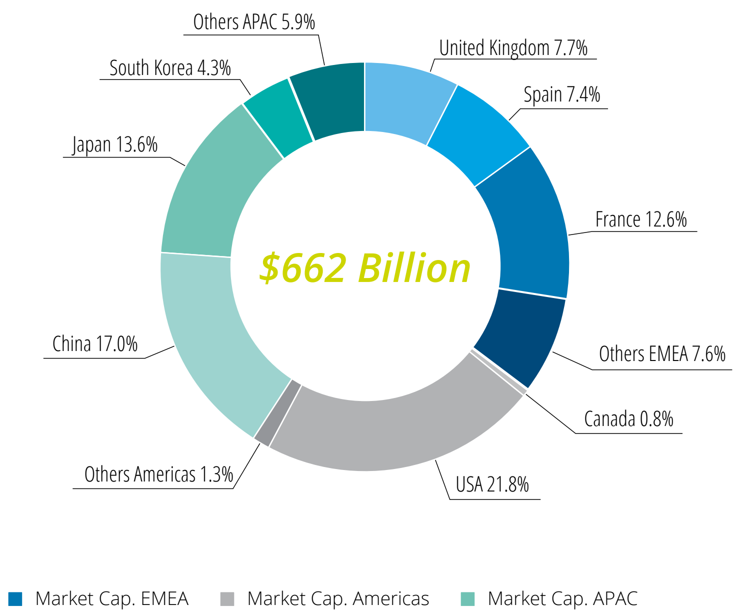
Source: Global Powers of Construction (GPoC) 2021. (July 2022).
Bloomberg and company financials.

Figure 1.3: Top 100 Global Construction Company Sales and Market Capitalization

Sales



Market capitalization



Top 30 GPoC – ranking by market capitalization

In 2021 our Top 100 GPoC reported an overall 13.3% increase in their market capitalization value after the poor performance of the markets during the COVID-19 pandemic in 2020. Stock market performance varied by area, with spectacular growth observed in the United States and notable growth in Europe. The performance of the Asian groups was mixed, especially among the Chinese companies.

The aggregate market capitalization of the companies in our Top 30 ranking increased by 10.7% in 2021 to USD 487,362 million (see Figure 2.1). In terms of geographical distribution, both the United States and China have six companies on the list, while Japan is represented by four companies. As in the prior year, 11 European groups are included in this ranking. Change in market value varies significantly by geographical area, with all the US groups included in the Top 30 ranking increasing their aggregate market capitalization by an astounding 26.7% and all the Japanese groups included in this Top 30 increasing their market value by 14.3% in the aggregate. On the contrary, the mixed performance of the Chinese groups has led to a 1% decline in market value.

Given the heterogeneity of the stock market performance of our GPoC, we performed a more in-depth analysis by geographical area, which is included below:

Figure 2.1: Top 30 Global Construction Companies by Market Capitalization

Rank MC	Company	Country	2021 Market Capitalization (USD million)	2020 Market Capitalization (USD Million)	% Change	% Change in LC
1	VINCI	FRANCE	60,043	58,756	2.2%	10.1%
2	CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD. (CSCEC)	CHINA	32,133	31,413	2.3%	(0.4%)
3	LENNAR CORP.	USA	31,456	23,721	32.6%	32.6%
4	D.R. HORTON	USA	29,895	27,529	8.6%	8.6%
5	LARSEN & TOUBRO LTD. (L&T)	INDIA	27,240	15,059	80.9%	75.6%
6	FERROVIAL	SPAIN	23,020	20,249	13.7%	22.1%
7	NVR	USA	20,370	15,077	35.1%	35.1%
8	POWER CONSTRUCTION CORP OF CHINA (POWER CHINA)	CHINA	19,254	9,003	113.9%	108.2%
9	DAIWA HOUSE INDUSTRY CO.	JAPAN	19,170	16,496	16.2%	19.3%
10	JACOBS ENGINEERING	USA	17,357	12,227	41.9%	41.9%
11	SAMSUNG C&T CORP.	SOUTH KOREA	16,347	20,718	(21.1%)	(13.8%)
12	PULTEGROUP	USA	14,251	11,490	24.0%	24.0%
13	BOUYGUES	FRANCE	13,715	15,663	(12.4%)	(6.0%)
14	SEKISUI HOUSE	JAPAN	13,565	13,131	3.3%	13.6%
15	CHINA RAILWAY GROUP LTD. CREC)	CHINA	12,983	18,297	(29.0%)	(30.9%)
16	PERSIMMON PLC	UK	12,335	12,048	2.4%	3.3%
17	SKANSKA AB	SWEDEN	10,684	10,521	1.5%	11.7%
18	ACCIONA	SPAIN	10,499	7,826	34.2%	44.0%
19	EIFFAGE, S.A.	FRANCE	9,854	9,358	5.3%	13.1%
20	BARRATT DEVELOPMENTS PLC	UK	9,770	6,251	56.3%	40.2%
21	SICHUAN ROAD AND BRIDGE (GROUP) CO. LTD.	CHINA	9,046	3,230	180.0%	172.7%
22	AECOM	USA	9,041	6,571	37.6%	37.6%
23	CHINA RAILWAY CONSTRUCTION CORP. LTD. (CRCC)	CHINA	8,882	15,058	(41.0%)	(42.6%)
24	CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD. (CCCC)	CHINA	8,790	14,975	(41.3%)	(42.8%)
25	TAYLOR WIMPEY PLC	UK	8,667	8,251	5.0%	5.9%
26	BERKELEY GROUPS HOLDINGS	UK	8,462	7,192	17.7%	7.0%
27	TAISEI CORP.	JAPAN	7,947	6,480	22.6%	25.9%
28	DAITO TRUST CONSTRUCTION	JAPAN	7,893	6,391	23.5%	26.7%
29	ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. (ACS)	SPAIN	7,401	9,461	(21.8%)	(16.0%)
30	GRUPO CARSO	MEXICO	7,295	7,546	(3.3%)	(0.8%)
	TOTAL		**487,362**	**440,060**	**10.7%**	

Source: Bloomberg.

Asian companies

The six Chinese groups included in our Top 30 showed highly diverse stock market performance in 2021. Aggregate value decreased by 1% due to a small 2.3% increase in the largest GPoC in terms of sales and in the largest Chinese group China State Construction Engineering in terms of market value, which was combined with the double digit decrease in the China Railway Group, China Railway Construction and China Communications Construction. The amazing increase in market value achieved by the two remaining groups was insufficient to offset the decrease noted in these groups.

All four Japanese companies included in our Top 30 increased their market value and, with the exception of Sekisui, obtained double digit growth figures.

The South Korean company Samsung C&T registered a notable 21% decline in market value, which saw the group descend to 11th position in our 2021 ranking (ranked in the fifth position in 2020). On the other hand, Larsen & Toubro, ranked tenth in our 2020 Top 30, achieved an amazing 81% increase in market value causing the group to climb to fifth position in our 2021 Top 30.

European companies

The total market value of the European groups included in our Top 30 increased by 5.4% in the aggregate. Mention should be made of the positive evolution of all the groups, with the exception of the French group Bouygues that showed a 12.4% decrease in its market value (6% in local currency) and the significant 21.8% decrease shown by the Spanish group ACS (16% in local currency) following the sale of their relevant industrial business line (Cobra) to Vinci at the end of 2021.

All the UK groups showed excellent performance, especially Barratt and Berkeley, as did the remaining Spanish groups Ferrovial and more notably Acciona, which achieved over 30% growth for the second year in a row.

Despite a modest 2% increase in its market value in 2021 (10.1% in local currency), Vinci still holds its position as the top construction company in terms of market value, with a significant advantage over its closest rival China State Construction Engineering, which is the leading construction company by sales.

US companies

US groups recorded a staggering 26.7% increase in market capitalization in 2021. All six groups included in the Top 30 showed market value growth during 2021 and all but one showed double digit growth rates (see Figure 2.1). The positive evolution of the homebuilders Lennar and D.R. Horton in recent years, in which they benefited from a US strong housing market, allowed them to maintain third and fourth position, respectively, in our 2021 ranking. NVR, Jacobs Engineering and AECOM achieved growth rates of over 35% in their market values.

Despite the diverse scenarios described, our Top 30 GPoC by market capitalization have been able to recover the levels achieved in 2019, before the impact of COVID-19 on stock markets started to be noted.

Top 30 GPoC – ranking by international sales

In 2021, as a result of the ongoing economic disruption caused by the COVID-19 pandemic and the resulting supply constraints, revenue obtained by our GPoC from international sales fell an additional 2% to 15%, down from 17% in the prior year and 19% in 2019.

Although 2021 saw the recovery of economic activity in a wide range of areas, and despite the fact that construction has been considered as an essential activity in most countries, the COVID-19 pandemic and the resulting travel and supply difficulties continued to hinder construction groups to varying degrees depending on the location of their main projects. Throughout 2021 the pandemic's deep impact on the global economy affected the availability of goods and labor, restricted travel and, in general, caused delays in project execution and even in the tender and award of new major projects.

Although the construction market is projected to grow over the next few years, current growth estimates have already been adjusted to consider the deep impacts of the ongoing war in Ukraine and global price increases. As discussed in our "Outlook for the construction industry" article, each geographical area will have different prospects that will depend on their infrastructure needs balanced against the impact of inflation and economic policy decisions.

This environment is probably not the best scenario for those companies that developed internationalization strategies in the past and rely heavily on international sales. The current circumstances may lead to a reassessment of the risks now associated with the markets they chose as a priority in a very different and less disruptive environment.

In this context, in 2021 our Top 30 GPoC obtained around 15% of total revenue outside their respective domestic markets, down from 17% of international sales in 2020 and 19% back in 2019.

As in prior years, the most internationalized companies are the European groups (56%), followed by the Indian group Larsen & Toubro, with 37% of its revenue obtained in international markets, and the South Korean GPoC (34%). The US-based GPoC reduced the percentage of revenue obtained abroad from 15% to only 9% due to the significance of the two domestic homebuilders, Lennar and D.R. Horton, included in the ranking. ACS remained the largest international contractor among our GPoC (89% of total revenue obtained outside Spain, an increase on the 86% noted in 2019, which is consistent with the divestment of the industrial business). Other European groups -Vinci, Bouygues and Strabag- also make the Top 5 (see Figure 3.1).

Lastly, and in line with prior years, the Chinese and Japanese groups under analysis have a marked focus on their domestic markets and, accordingly, international revenue represents just 7% and 9% of their total sales, respectively.

The most internationalized companies are the European groups with 56% of sales obtained abroad. ACS remains the largest international contractor

Figure 3.1: Top 30 Global Construction Companies by 2021 international and domestic sales

Rank	Company	Country	International sales (USD million)	Domestic sales (USD million)	International sales as % of total sales
1	ACS	SPAIN	29,397	3,535	89.3%
2	VINCI	FRANCE	27,302	31,136	46.7%
3	BOUYGUES	FRANCE	17,738	26,731	39.9%
4	STRABAG	AUSTRIA	15,524	2,574	85.8%
5	CCCC	CHINA	14,702	91,585	13.8%
6	CSCEC	CHINA	13,841	279,353	4.7%
7	SKANSKA	SWEDEN	12,635	4,130	75.4%
8	SAMSUNG C&T	SOUTH KOREA	10,504	19,591	34.9%
9	POWER CHINA	CHINA	10,471	59,130	15.0%
10	CREC	CHINA	8,493	157,885	5.1%
11	CRCC	CHINA	7,281	150,841	4.6%
12	CEEC	CHINA	7,170	42,795	14.4%
13	L&T	INDIA	6,860	11,660	37.0%
14	EIFFAGE,	FRANCE	5,980	16,167	27.0%
15	HDEC	SOUTH KOREA	5,184	10,595	32.9%
16	KAJIMA	JAPAN	4,623	13,354	25.7%
17	JACOBS	USA	4,422	9,671	31.4%
18	OBAYASHI	JAPAN	3,548	13,107	21.3%
19	SEKISUI	JAPAN	3,486	19,523	15.2%
20	MCC	CHINA	3,119	74,480	4.0%
21	AECOM	USA	3,113	10,228	23.3%
22	TAISEI	JAPAN	1,395	12,557	10.0%
23	SCG	CHINA	1,041	42,528	2.4%
24	PULTEGROUP	USA	550	13,377	3.9%
25	SHIMIZU	JAPAN	210	13,519	1.5%
26	LENNAR	USA	168	26,963	0.6%
27	DAIWA	JAPAN	-	38,899	0.0%
28	D.R. HORTON	USA	-	27,774	0.0%
29	DAITO	JAPAN	-	14,034	0.0%
30	IIDA	JAPAN	-	13,726	0.0%
	TOTAL		**218,757**	**1,237,414**	**14.9%**

Source: Global Powers of Construction (GPoC) 2021. (July 2022).
Bloomberg and company financials.

Outlook for the construction industry

Economic prospects have slowed down over the past year because of rebounds in COVID-19 and the Russian invasion of Ukraine. Global growth is projected to decelerate from 6.1% in 2021 to 3.6% in 2022 and 2023. The construction industry remains resilient, but it must still address the challenges posed by a shortage of supply, increasing prices and the global shift to sustainable infrastructure.

Construction is a major global industry, accounting for a sizeable proportion of most countries' gross domestic product (GDP). The aggregate size of the construction market was valued at USD 7.28 trillion in 2021 and is predicted to reach USD 14.41 trillion by 2030, with a CAGR of 7.3% from 2022 to 2030[1]. Within this market, the infrastructure segment is valued at USD 2.7 trillion at present and is expected to reach USD 3.3 trillion by 2030[2].

The industry is especially sensitive to fluctuations in the global economic outlook: strong economic growth usually leads to a rapid acceleration of construction activity and vice versa. The construction industry is an investment-led sector where governments typically show high levels of interest since it is essential to the prosperity of any nation. This procyclicality in the construction industry is due basically to the dependency of civil infrastructure projects on public funds, which are assigned in greater measure to social spending during times of crisis, usually causing infrastructure investment to decrease. In addition, residential construction is also very procyclical.

Although impacted by the lockdowns and safety guidelines implemented by governments during the initial stages of the COVID-19 pandemic, global construction industry output still expanded in 2020 and 2021 as it was considered to be an essential

activity in most countries. However, the industry is currently facing other collateral disruption related to the pandemic. Building materials are in short supply and, accordingly, have seen price spikes, driving up project costs. Also, mobilizing private capital has become even more critical to close projects' financing gap since the pandemic has restricted governments' investment capacity. In this context, it should be considered that ESG considerations are playing an ever-greater role in how and why capital is invested, prompting the construction sector to transform itself through innovation and financial commitments to sustainable net-zero policies.

Russia's invasion of Ukraine has triggered turmoil in the markets related to construction activity, although these markets were already under some strain. The importance of Ukraine and Russia from an economic standpoint is demonstrated by the numbers: the two countries hold some of the largest iron reserves in the world and are consequently among the largest iron exporters. Economic damage from the conflict will contribute to a significant slowdown in global growth in 2022 and add to inflation[6].

Global growth is projected to slow from 6.1% in 2021 to 3.6% in 2022 and 2023. This is 0.8 and 0.2 percentage points lower for 2022 and 2023[3] than projected in January 2022 by the International Monetary Fund. Beyond 2023, global growth is forecast to decline to about 3.3% over the medium term. War-induced commodity price increases and broader price pressure have led to 2022 inflation projections of 5.7% in advanced economies and 8.7% in emerging market and developing economies[3].

In any case, the outlook for the global construction industry remains positive. A more in-depth analysis of the global construction industry by geographical area is as follows:

The Americas

When analyzing the economic growth of the continent and the forecasts for the coming years, we must distinguish between North America and Latin America due to the significant differences between the two areas.

North America

The pace of US GDP growth is expected to weaken from its recent very high levels (5.7% in 2021) to 2.5% in 2022 and 1.2% in 2023. Supply disruptions may take some time to fully ease, especially given the impacts of the war in Ukraine and COVID-related lockdowns in China. Inflation will remain above the Federal Reserve's 2% target at the end of 2023[4].

In 2022 the industry has a big role in supporting the nation's growth. The Infrastructure Investment and Jobs Act, with investments across healthcare, public safety, and other public infrastructure, is expected to bode well for the main players across the non-residential segment. The residential segment is expected to stay strong and exhibit similar levels of activity as in 2021[5].

Canadian economic activity remained strong in 2021. From an economic perspective, the impact of Russia's invasion of Ukraine will be modest and concentrated on three main areas: elevated levels of global uncertainty and risk, further pressure on global supply chains, and inflation[6]. The Bank of Canada is forecasting growth of about 4.25% in 2022, easing to 3.25% in 2023[7].

The construction industry in Canada registered annual growth of 6.1% in real terms in 2021, compared to a decline of 2% in 2020. The Canadian construction industry is expected to expand by 4% in real terms in 2022, as strong building permit data points to strong growth in 2022. The value of building permits issued rose by 8.3% in 2021, with the value of residential buildings and non-residential buildings rising by 9.1% and 6.8%, respectively. However, the rise

in construction material prices, labor shortages and the recent hike in interest rates could pose a downside risk to the industry's outlook in the initial part of the projection period[8].

Latin America
Latin America and the Caribbean, with fewer direct connections to Europe, is also expected to be affected by inflation and policy tightening. Brazil has responded to higher inflation by increasing interest rates by 975 basis points over the past year, which will weigh on domestic demand. To a lesser extent, this is also the case in Mexico. The downgrades of the forecasts for the United States also weigh on the outlook for trading partners in the region. Overall growth for the region is expected to moderate to 2.5% in 2022–2023[9] (6.8% growth in 2021).

Construction output in Latin America is forecast to grow by 5% in 2022 and is expected to reach USD 545.6 billion, up from USD 519.4 billion in 2021. The region's largest country, Brazil, performed strongly in 2021 with output levels higher than they were before the pandemic. Argentina and Peru also performed strongly, while Mexico's performance was sluggish, with the country struggling to regain output lost in 2020. It is not expected to reach pre-pandemic levels until 2025[10].

Europe
The outlook for the EU economy before the outbreak of the war was for a prolonged and robust expansion. But Russia's invasion of Ukraine has posed new challenges, just as the Union had recovered from the economic impacts of the pandemic. By exerting further upward pressure on commodity prices, causing renewed supply disruptions and increasing uncertainty, the war is exacerbating pre-existing headwinds for growth, which were previously expected to subside. Real GDP growth in both the EU and the euro area is now expected to be 2.7% in 2022 and 2.3% in 2023[11]. The UK recovery is losing steam as activity was hit by disruptions in supplies of energy and labor, the imposition of 'Plan B' restrictions in response to the omicron wave and the inflationary effects of the war in Ukraine. Real GDP is expected to grow by 3.4% and 1.6% in 2022 and 2023, respectively (7.4% in 2021).

Significant government spending has supported the recovery in the construction sector across Western Europe. However, high materials prices and product shortages hampered work on projects, and the situation is set to worsen in 2022 in view of the repercussions of Russia's invasion of Ukraine. Russia and Ukraine are key suppliers of steel to the region, and disruptions to oil and gas supplies are having a major impact on energy costs. In the same way, construction markets in Eastern Europe face risks arising from the impact of the Russia-Ukraine war, which is expected to stoke inflation and weaken investor confidence in the region. Construction in Ukraine will be completely halted while the Russian invasion continues. Economies that are heavily interlinked with Russia will suffer as trade and supply chains will be disrupted[12].

Asia
Growth in the East Asia and Pacific (EAP) region is projected to decelerate to 4.4% in 2022 as slower growth in China more than offsets a rebound in the rest of the region. The region's output and inflation have so far been less affected than the rest of the world by the spillovers from the Russian invasion of Ukraine. However, the war's effects on commodity prices and global demand are expected to dampen the recovery, especially in commodity-importing economies. In South Asia, growth is expected to slow from 7.6% in 2021 to 6.8% in 2022 (0.8 percentage points below previous projections). The external environment has worsened markedly, with soaring energy and agricultural prices, slowing global growth, and rising financing costs[13].

Due to the slowdown in China's real estate industry, amid a tightening of regulatory controls to limit borrowing by developers, the Chinese construction industry registered relatively low growth of 2.1% in 2021, its lowest level since 2007. The Chinese construction industry is expected to expand by 4.5% in 2022, supported by investments in fixed-asset projects in the transport and energy sectors. In 2021, the National Development and Reform Commission approved 90 fixed-asset investment projects, worth USD 120.2 billion, mainly in the transport, energy, water conservation, and computerization sectors[14].

The Indian construction industry recorded growth of 17.1% in 2021, which was supported by a continued relaxation of restrictions and increasing construction activity in the road and highways sector. India is expected to see 5.8% growth in 2022[15].

Construction industry growth in South-East Asia moderated further in the final quarter of 2021. This was caused by a weaker than expected rebound in Q4 2021 in the Vietnamese construction industry, following a significant contraction in Q3, and the continued downturn of Malaysian construction activity. Construction output in Southeast Asia is likely to remain at the same levels in 2022. Risks to the outlook in the region include rising oil and energy prices due to the conflict in Ukraine and their impact on both the cost of construction materials and inflation.

Oceania
The expansion of the Australian economy is expected to continue in the coming years, despite the slowdown in global growth. The domestic outlook is supported by the substantial boost to national income of high commodity prices and growth in private consumption and investment. After slowing in Q1 2022 in response to the Omicron outbreak, activity is forecast to regain momentum over 2022. GDP is forecast to grow by 4.25% this year, and by 2% in 2023[16].

The Australian 10-year infrastructure investment pipeline has been increased to an unprecedented AUD 120 billion in the 2022-2023 budget, which includes AUD 17.9 billion of new commitments to priority rail and road projects across the country[17].

After reaching 5% in 2021, New Zealand's real GDP growth will ease to 3% in 2022 and 2% in 2023. Inflation will decline in 2023 but remain high, as firms pass on global commodity price inflation and workers demand higher wages[18].

In its 30-year infrastructure strategy, Te Waihanga estimated the cost of building the current and future infrastructure requirements would require almost doubling current spending, from 5.5% of GDP to 9.6% (equivalent to NZD 31 billion annually to close the gap). Thus, New Zealand´s budget for 2022 lifts infrastructure investment over the next four years from NZD 57.3 billion to NZD 61.9 billion[19].

Africa and the Middle East

GDP in the Middle East and North Africa (MENA) increased by 5.8% in 2021 but is projected to slow to 5.0% and 3.6% in 2022 and 2023, respectively. In the MENA countries, spill overs from tighter global financial conditions and reduced tourism will hold back growth, especially for oil importers. For oil exporters, higher fossil fuel prices may provide some offsetting gains. In sub-Saharan Africa, higher food prices will hurt consumers' purchasing power and weigh on domestic demand. Social and political turmoil, most notably in West Africa, will also weigh on the outlook. The increase in oil prices has however lifted growth prospects for the region's oil exporters, such as Nigeria. Overall, growth in sub-Saharan Africa is projected at 3.8 percent in 2022[20].

In the MENA region, the need to meet the expectations of growing populations is driving investment in transport infrastructure, housing, and power and water capacity. At the same time, governments are investing in industrial, digital and logistics capacity to support growth and diversification of the regional economy. In 2021, global construction output rose by 4.1%[21]. Growth continued to accelerate in the region in Q1 2022. In sub-Saharan Africa, the focus is on South Africa. The construction industry in South Africa is expected to rebound in 2022 and expand by 9.1% in real terms. The industry is expected to stabilize at an annual average growth of 3.1% between 2023-2025[22].

Figure 4.1: Real GDP growth (Annual percentage change, 2021)

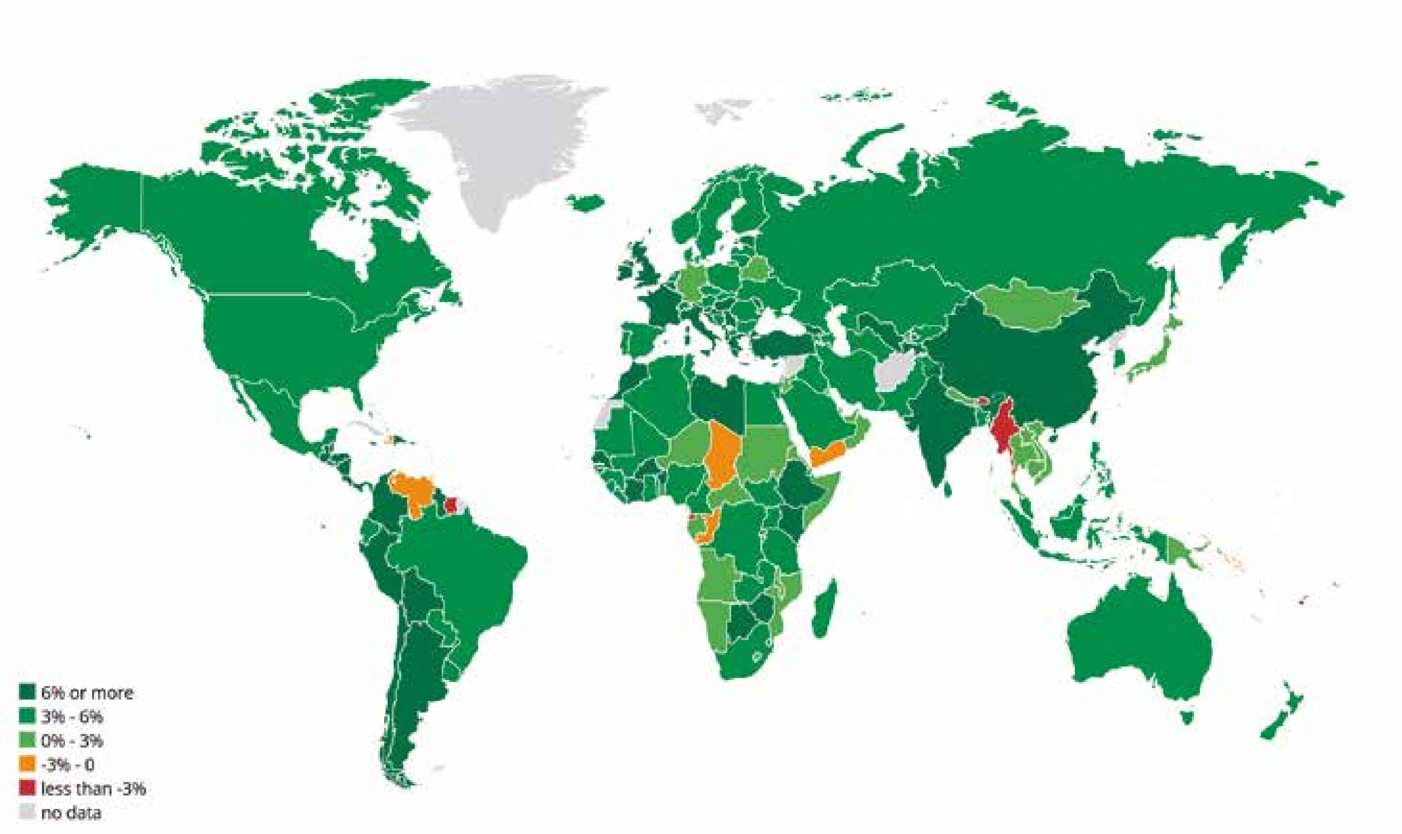


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Figure 4.2: Real GDP growth (Annual percentage change, 2022)

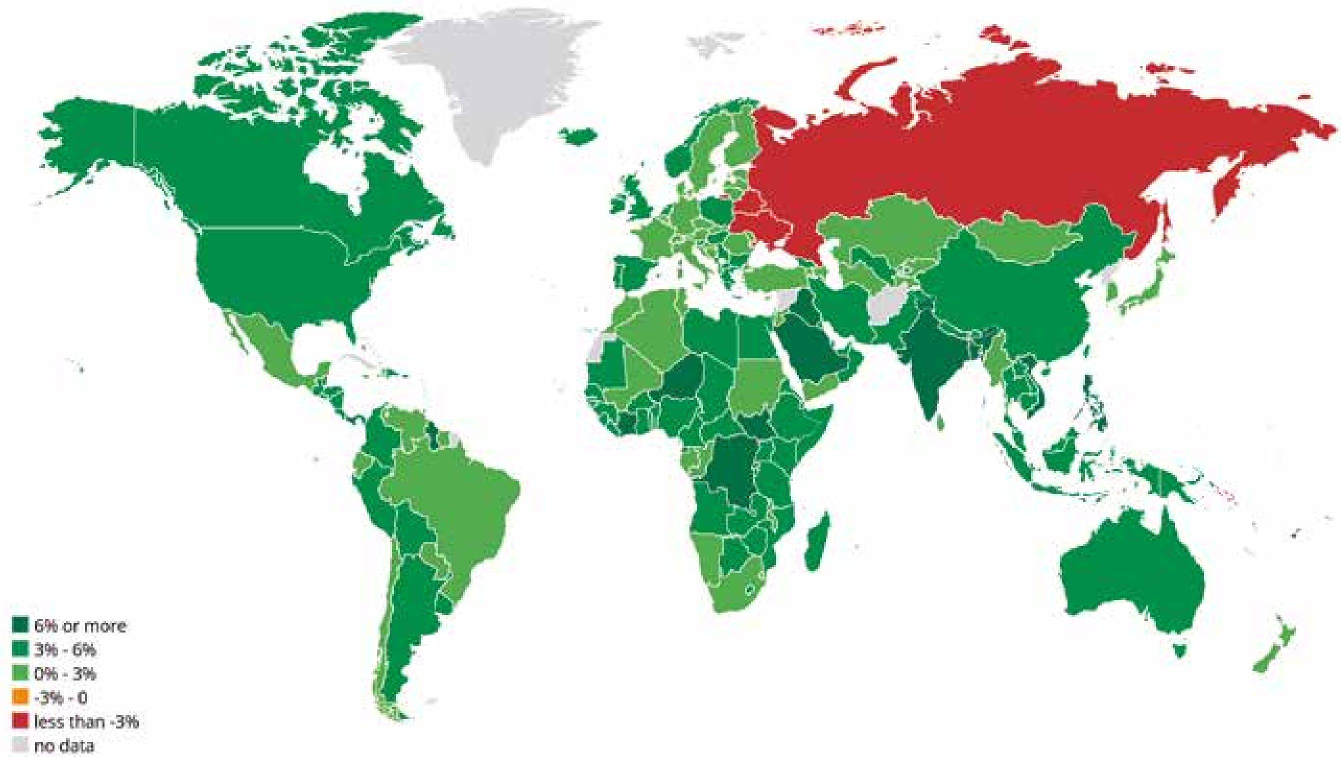

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Figure 4.3: Total forecast infrastructure investment gaps

Source: Global Infrastructure Outlook. Global Infrastructure Hub.

Key trends that will shape the construction sector

The transformation of the construction industry, in which digitalization will play a key role in changing the way construction firms operate, together with changes in risk controls and contracting models, ESG-related investments and increased public-private cooperation will enable companies to meet the increasing demand for infrastructure while achieving sustainable long-term profitability.

Global infrastructure GAP

Population growth in emerging countries, ageing in developed countries, greater urbanization and concentration in megacities, the decarbonization of the economy, and technology and digital transformations will be the main growth drivers for the industry in the coming decades, as they will require significant investment in transport, water, waste management, social infrastructure, renewable energies, telecommunications and adaptation to new technologies.

It is estimated that only 20% of the infrastructure needed for 2050 has been built and that annual infrastructure expenditure will increase from USD 2.7 trillion at present to USD 3.3 trillion by 2030. This global infrastructure gap represents a challenge for governments and for the construction industry. Almost two thirds of the infrastructure investment forecasted for the next decade will center on emerging countries, where infrastructure has a clear transformational impact on the lives of citizens and the development of businesses. However, even the more developed countries will need to invest in infrastructure to improve competitiveness, meet increasing demand, sustain economic development, decarbonize the economy and digitalize[2].

Industry profile

The construction industry has been characterized by slim margins, high risk and low productivity. It has also lagged behind in the technology race compared to other industries.

Industry margins

As shown in this report, in 2021 the profit margins of our GPoC slightly increased but indebtedness levels also increased across the board. Having experienced margins which were already narrow pre-COVID and a significant increase in borrowings in recent years, the current crisis could exacerbate the financial position of many global construction companies. This low profitability of construction worldwide is a result of the industry's current competitive dynamics, both in the residential sector, due to the low barriers to entry for competitors, and in civil engineering, where we can observe global excess capacity, fierce price competition, inadequate distribution of the risks involved in projects and international expansion of companies in certain geographical areas outside their domestic markets -where they manage to be profitable-. Also, this situation has been exacerbated in recent months by the sharp increase in the cost of many materials which, in certain countries, cannot be adequately passed on to customers.

Industry risk

These shrinking margins are already below the objective profitability that should be obtained considering the risk inherent to the construction business. Historically, the difficulty inherent in the estimation of income and expenses of construction contracts has caused a trend of greater volatility in the earnings of construction companies, which in the past have featured significant profit warnings, and also makes it more difficult to correctly estimate the conversion of EBITDA into cash by construction companies, a matter which analysts pay very close attention to.

To all of the above factors we can add the highly litigious nature of the industry, often leading to protracted and expensive contractual claims in the courts or through arbitration or mediation.

In the past, as long as a low profitability was compensated by moderate investment in non-current assets and reduced working capital, the ROI in the industry managed to stay above the cost of capital.

However, in recent years the increased complexity of the projects has increased the need for working capital expenditure and investment in current assets has also grown due to the increase in the number

of unresolved claims, which in many cases means that companies are reporting profitability that is less their cost of capital on a recurring basis, thereby destroying value for shareholders and making the sector less attractive to investors.

Productivity and technology investment
Construction has been the sector of the economy that has experienced the lowest growth in productivity in the last 30 years. From 1996 to 2019 productivity in manufacturing industry grew 1.7 times that of the construction industry, which may be related to the fact that for many years investment in technology in the construction industry (as a percentage of net earnings) was approximately one third of the amount invested by the manufacturing companies[2].

Therefore, with the current model it is hard to see whether the industry will be able to obtain funds to finance growth, close the infrastructure gap and meet the growing demand for infrastructure in the next few years.

Digitalization and technology investment can act as fundamental drivers for meeting demand and bringing radical change to the industry and leading construction companies are committed to transforming the way they operate.

Transformation of the industry
Over the last few years, leading construction companies have been making significant investments in new technologies and are undertaking a transformation process in order to improve their profitability by means of the following levers:

Operational efficiency ("Smart Construction")
Data and advanced analytics
Data and advanced analytics are becoming the core enablers of future success in the construction industry. They can move business decisions from reactive to predictive and enable construction firms to outpace their competition. For example, use of data analytics can significantly improve estimates of costs used in tenders, and technologies such as digital twin use 3D data to generate building profiles and blueprints of building parts/components in real-time, but integrating these technologies with scheduling and maintenance systems could provide visibility and operational improvements across the building lifecycle. It is with advanced analytics, artificial intelligence, and machine learning that construction companies can embark on the journey to becoming insight-driven organizations.

Connected construction
Construction firms and owners alike are increasingly looking to deploy and integrate technologies to enable data-driven decisions, drive dynamic scheduling, and reduce budget and schedule variances, often across multiple sites. These technologies range from building information management (BIM) and digital twins to remote project monitoring using sensors and drones. 76% of construction executives in a Deloitte survey indicated they are investing in digital technologies to address broader cost and margin challenges, and 24% are investing in drones and robotics at job sites to increase worker productivity and efficiency[23].

Strategic sourcing
Despite many construction firms altering their cost structures, most are suffering due to increasing material costs, contract extensions and even extended schedules leading to cost overruns. There is a shift from tactical procurement 'to meet budgets' towards strategic sourcing to reduce complexity, drive value, integrate key suppliers in the value change and enable ecosystems of strategic vendors and partners. This is primarily due to the continued cost pressures and supply chain risks, heightened customer demands, and a need for labor, material, and technology

partners. This ecosystem approach could be a key enabler in adjusting to new market realities, helping to better respond to or drive future disruptions.

Prefabrication and modular construction

The industry's traditional decentralized management approach may be affected by a change in the paradigm if there is a consolidation of the trends towards the industrialization of processes and the standardization, modularization and prefabrication of components due to the application of new technologies and materials in construction processes.

Borrowing from cost-efficiencies and studies in manufacturing, construction companies and owners are increasingly attracted to the improvements in costs that could be enabled through offsite construction. Besides material costs, modularization and prefabrication can also help reduce labor costs, ensure better design and quality control, contribute towards reducing pollutant emissions and accidents, and shorten project schedules to help minimize overruns due to changes in construction budgets. There is an increased appetite to rethink how this is done through process redesign, the development of a strategic ecosystem of collaborative vendors and partners, and the evaluation of long-term manufacturing operations. In fact, about a quarter of construction executives in a Deloitte survey indicated increasing their use of prefabrication and modular products, and that number is expected to grow in coming years[23].

Smart Construction. Deloitte's Visión

Future of projecto business will look radically different from the traditional projecto business - Integrated, Collabortive, On-time, On-budget, High quality and Safe

Bid Management & Intelligence Tool
- BOM rationalization
- Optimum bid price estimation
- Market Intelligence
- HD Digital mapping through 3D laser scanning
- Access to metadata of previous projects
- Insights & comparison to previous projects

5% - 10% *increase in probability of winning bids + better project contingencies.*

BIM Integrated Engineering Management
- 5D BIM
- 3D Scanning - LIDIAR/Infrared
- Integration with GIS
- Simulation & Virtual reality
- Modular design and prefabrication

5% - 15% *reduction in facilities engineering hours*

Digital Twin

Combines different technologies to create a `live' digital replica of a physical asset Both are dynamically connected, so the digital twin provides ongoing visualization and analysis of the asset's performance.

Supplier management and collaboration
- Real time visibility of E2E supply chain
- Spend analytics
- Screening & risk assessment
- Collaboration platform

Future of cosntruction site
- **Connected Site and Equipment** through sensors and mobile technologies
- **Field force mobility** for real time collaboration and communication
- **Predictive Project analytics**
- **Augmented worker** with wereables and exoskeleton
- **Augmented reality** for maintenance, inspection
- **Drone assited site monitoring**
- **Robotics** applications to increase productivity
- **Safety management** through wearables
- **Modern Methods of Construction (MMC)** assisted by 3D printing to reduce lead time

4% - 8% *reduction in build cost*

Integrated project management
- Smart dashboard and itelligent reporting
- Real time tracking, collaboration platform
- Dynamic scheduling
- Connected with all the back-end systems - ERP Engineering systems
- Digital Twin
- Virtual reality for distance project view and monitoring by head office

Control of risks and contracting
Gains in operational efficiency must go hand in hand with improved risk control in tender processes. In addition, the current contracting models in place in many countries do not guarantee an adequate distribution of risks between the customer and the contractor, and often involve perverse incentives as they place a disproportionate emphasis on economic criteria, causing withdrawals from the award process and the subsequent claims process which ends up causing delays and increasing costs and legal disputes. These processes ultimately affect companies' profitability and the execution of investments in accordance with the agreed-upon timescales and costs and, therefore, certain jurisdictions are beginning to implement contracting models that reduce the contractors' risk levels and regulate the parties' obligations more strictly, limiting particularly aggressively priced bids and increasing legal certainty in relation to issues such as possible modifications, penalties or faster resolution of contractual conflicts through arbitration or mediation. Furthermore, ESG criteria (relating to environmental, social and corporate governance matters) will become an increasingly important fixture in contracting in the coming years.

ESG
Many governments are driving regulatory advances in relation to environmental, sustainability and social issues, which lead to changes in the dynamics of fund raising and financing, reporting requirements and the classification of investments based on their sustainability and are even establishing terms and conditions that companies are required to comply with in order to be able to access infrastructure project tender processes.

In addition, stakeholders are increasingly aware of the social aspects, with institutional investors excluding sectors, companies and geographies with a high level of exposure to climate change or with a potentially negative reputational impact with respect to ESG

The global transition to sustainable infrastructure, integrating circularity in the construction process and guaranteeing environmental protection in the performance of their activities, the increased emphasis on prioritizing the health and safety of employees and subcontractors, the need to train specialist and diverse talent, the provision of services to local communities and maintenance of a system of corporate governance committed to sustainability will require significant investment by companies in the industry, which must be addressed within the framework of the transformation process described above.

Public-private cooperation
The impact of the crisis on public finances could trigger a reduction in investment in the long term. Although increasing infrastructure investment is a clear countercyclical economic policy in times of crisis, emerging countries and some developed economies lack the budgetary leeway to undertake this investment and, at the same time, sustain their public finances, which have been heavily affected by the crisis. In certain countries, the high debt-to-GDP ratio, and the need to allocate more of the budget to pensions and to funding the increased healthcare expense arising from the ageing of the population will significantly curb infrastructure investment. Additionally, this situation will foreseeably prevent infrastructure investment from being subject to stable, predictable long-term planning that addresses investment requirements and provides adequate resources to maintain the current infrastructure.

In this context, public-private cooperation is an appropriate instrument for channeling the liquidity existing in the financial markets towards infrastructure investment. However, for this to happen, there need to be reliable and predictable regulatory frameworks that enable the risks and rewards of the projects to be shared fairly between the governments and the contractors, as well as appropriate monitoring of the contracts that affords private investors the possibility of obtaining a reasonable return on their investment.

Closure

In short, the constraints of the current industry model could make it hard for the industry to close the global infrastructure gap envisaged in the coming decades unless construction firms radically transform the way they operate and improve their efficiency. This transformation –in which digitalization will play a key role in changing the way construction firms operate, together with changes in risk controls and contracting models, ESG-related investments and increased public-private cooperation– will enable companies to meet the increasing demand for infrastructure while achieving sustainable long-term profitability.

Financial performance of the GPoC 2021

The financial performance of the Top 30 GPoC was uneven in 2021. Aggregate market capitalization grew by 9% to USD 430,637 million, slightly above pre-COVID figures. Profitability remained stable as the average EBIT margin has been in the range of 5.7%-6.1% since 2017. Net debt rose by 11%, particularly driven by our Asian- and US-based GPoC.

Financial performance among the Top 30 GPoC varied according to the nationality and activities developed by the entities reviewed. As a result, the analysis of the aggregate ratios shows the following highlights (see Figure 5.0):

- In terms of profitability, the aggregate EBIT margin reached 5.8%, in line with that in 2020. The US-based GPoC continued to benefit from a robust domestic housing market and, accordingly, the EBIT margin jumped from 11.3% to 16.1%. European groups also reported higher profitability (6.8% in 2021 compared to 5.4% in 2020) mainly driven by the strong performance in the concession business as the restrictions to mobility that affected 2020 results were removed in 2021. On the other hand, Asian-based GPoC reported an average EBIT margin of 4.8%, 0.5 percentage points below that in 2020. Net income as a percentage of total sales showed the same trend; while the US and European groups reported above-average figures, the Asian GPoC were not able to improve the figures reported in 2020.

  In terms of dividend yield, a 9% increase in market capitalization, together with a 27% increase in dividends paid by the GPoC, resulted in an aggregate dividend yield of 4.8% in 2021 (2020: 4.1%). Asian groups dominate the ranking in terms of dividend yield. Lastly, US companies, some of them being considered as homebuilders, obtained the highest ROE (21.6%), while European and Asian companies reported an average ratio of approximately 10%.

- Aggregate net debt increased by 11% in 2021 to USD 295,507 million. However, while the Asian companies reported similar net debt-to-equity ratios to those achieved in 2020, the European GPoC were able to reduce the average ratio to 31.9% (2020: 35.1%). The Spanish group ACS has improved to achieve a net cash position of USD 2,274 million due to the cash obtained from the divestment of Cobra. On the other hand, the US-based GPoC reported a net debt-to-equity ratio of 16%, 2.3 percentage points above that in the prior year.

  The net debt/EBITDA ratio of the GPoC in 2021 was 2.8x, but the differences between the regions are evident: the US companies reported ratios of around 0.6, the European GPoC reached 1.4 and the net debt of the Asian groups represented 3.9x total EBITDA.

- The 9% increase reported by our GPoC in the stock markets combined with a 15% increase in book value resulted in a market capitalization to book value ratio of 0.9, slightly below that in 2020. By region, the US- and European-based GPoC were able to reach ratios of 2.0 and 1.6, respectively, while the Asian GPoC traded at a discount in the stock markets.

Figure 5.0: Top 30 GPoC Financial Ratios

Types	EBIT/ Sales	Net Income/ Sales	Net Debt/ Net Debt Equity	Net Debt/ Market Cap	Market Cap/ Book Value	EV/ EBITDA	Net Debt/ EBITDA	Capex / Sales	Dividend Yield	ROE
ASIAN COMPANIES	4.8%	3.8%	34.2%	1.1	0.6	7.3	3.9	3.8%	6.7%	9.9%
US COMPANIES	16.1%	11.6%	16.0%	0.1	2.0	6.9	0.6	0.7%	0.8%	21.6%
EUROPEAN COMPANIES	6.8%	5.5%	31.9%	0.3	1.6	6.2	1.4	4.2%	4.8%	11.0%
TOTAL 2021	**5.8%**	**4.5%**	**32.7%**	**0.7**	**0.9**	**7.0**	**2.8**	**3.6%**	**4.8%**	**11.3%**

Source: Global Powers of Construction (GPoC) 2021. (July 2022).
Bloomberg and company financials.

A more in-depth analysis, by company, of the financial ratios and indicators summarized above allows us to draw the following conclusions:

EBIT margin

Based on the figures obtained in 2021 and 2020 (see Figure 5.1), the following conclusions may be drawn:

- EBIT from construction activities represented 5.8% of sales, while operating profitability from non-construction activities averaged 6.1%, resulting in a combined average EBIT margin of 5.8%, in line with that in 2020. While operating profitability from construction activities has remained stable since 2017 (5.2%-5.8%), non-construction operations has reported higher volatility (see Figure 5.2). None of the Top 30 GPoC reported operating losses in 2021 and 2020.

- Regarding construction activities, the Top 5 were dominated by companies that could be classified as "homebuilders", such as Lennar, D.R. Horton, PulteGroup, Sekisui and Daiwa. This activity tends to have higher margins than others, such as civil works. Excluding homebuilders, average sales from construction activities stood at 4.7% (0.1 p.p. above the 2020 figure). The Japanese company Taisei, which reported a construction EBIT of 9.0% in 2021, is the first non-homebuilder in the ranking, followed by China State Construction Engineering and Obayashi. Eiffage, which reported a construction EBIT margin of 8.5% in 2021, leads the European team. None of our GPoC reported construction losses in 2021.

- The company with the highest non-construction EBIT margin is the American homebuilder Lennar. Operating results include the profit from the divestment of the solar business as well as mark-to-market gains as some technology investments (Opendoor, Hippo and SmartRent) held by the group went public. The Top 3 were completed by D.R. Horton and PulteGroup. None of our GPoC reported non-construction losses in 2021.

Figure 5.1: Top 30 GPoC EBIT/Sales

	EBIT* / Sales					
	Construction activities		Other activities		Total	
Company	2021	2020	2021	2020	2021	2020
LENNAR CORP. ***	19.7%	14.2%	78.6%	32.7%	23.1%	15.5%
D.R. HORTON ***	18.1%	13.6%	45.4%	47.7%	19.3%	14.7%
PULTEGROUP ***	16.7%	14.3%	63.6%	56.1%	18.0%	15.7%
SEKISUI HOUSE ***	12.2%	12.8%	6.2%	6.8%	7.6%	8.5%
DAIWA HOUSE INDUSTRY CO. ***	9.2%	9.1%	3.0%	4.8%	8.7%	8.7%
TAISEI CORP.	9.0%	9.6%	6.9%	9.9%	8.8%	9.6%
CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD. (CSCEC)	8.8%	7.4%	0.0%	-2.0%	5.3%	5.9%
OBAYASHI CORP.	8.6%	7.0%	2.9%	12.9%	7.0%	7.4%
EIFFAGE, S.A.	8.5%	1.4%	10.7%	17.0%	10.2%	7.7%
DAITO TRUST CONSTRUCTION ***	8.1%	14.0%	5.0%	4.9%	5.8%	8.1%
LARSEN & TOUBRO LTD. (L&T)	7.7%	7.5%	13.0%	15.2%	10.5%	11.2%
IIDA GROUP HOLDINGS ***	7.3%	6.1%	51.4%	2.3%	8.3%	6.0%
SHIMIZU CORP.	6.9%	7.6%	15.3%	10.3%	7.8%	7.9%
AVERAGE	**5.8%**	**5.4%**	**6.1%**	**7.3%**	**5.8%**	**5.8%**
KAJIMA CORP.	5.2%	5.7%	16.9%	13.4%	6.7%	6.6%
JACOBS ENGINEERING	5.1%	4.8%	4.5%	2.5%	4.9%	4.0%
STRABAG	5.1%	4.8%	8.9%	2.1%	5.9%	4.3%
CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD. (CCCC)	4.5%	5.2%	1.1%	8.5%	4.2%	5.5%
CHINA ENERGY ENGINEERING CORP	4.1%	4.5%	11.7%	10.7%	5.8%	6.1%
SKANSKA AB	3.8%	2.5%	29.1%	45.8%	5.8%	7.9%
VINCI	3.7%	1.0%	16.2%	9.2%	9.6%	6.6%
CHINA RAILWAY GROUP LTD. CREC)	3.6%	3.8%	3.0%	2.3%	3.5%	3.7%
POWER CONSTRUCTION CORP OF CHINA (POWER CHINA)	3.5%	3.2%	4.8%	8.2%	3.7%	4.0%
ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. (ACS)	3.2%	3.5%	11.9%	7.0%	3.7%	4.2%
BOUYGUES	3.0%	1.8%	7.9%	7.6%	4.5%	3.5%
METALLURGICAL CORPORATION OF CHINA LTD (MCC)	2.5%	2.0%	6.8%	12.4%	2.8%	3.0%
SAMSUNG C&T CORP.	2.3%	4.5%	4.0%	1.8%	3.5%	2.8%
CHINA RAILWAY CONSTRUCTION CORP. LTD. (CRCC)	2.2%	2.0%	10.8%	12.8%	3.4%	3.4%
AECOM	1.9% **	1.7% **	4.7%	2.9%	4.7%	2.9%
AVERAGE ASIAN COMPANIES	**5.1%**	**5.2%**	**3.8%**	**5.6%**	**4.8%**	**5.3%**
AVERAGE US COMPANIES	**16.9%**	**12.7%**	**13.2%**	**7.3%**	**16.1%**	**11.3%**
AVERAGE EUROPEAN COMPANIES	**3.7%**	**2.6%**	**12.7%**	**10.4%**	**6.8%**	**5.4%**
AVERAGE EXCLUDING HOMEBUILDERS	**4.7%**	**4.6%**	**5.5%**	**6.8%**	**4.9%**	**5.0%**

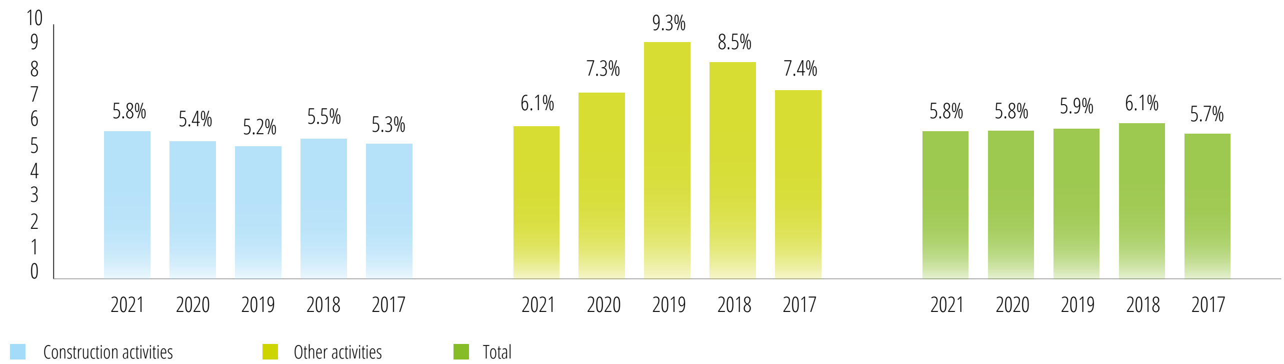
(*) EBIT figures, as reported by these Groups, correspond to operating income from ordinary activities.

(**) In the first quarter of 2020 AECOM's construction segment was classified as discontinued operations.

(***) Companies with significant homebuilding activity.

Shanghai Construction Group, and Hyundai E&C were not included in the analysis since these companies do not disclose construction EBIT from other activities.

Figure 5.2: Top 30 GPoC EBIT Margin



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Net income

Average net income as a percentage of sales rose from 4.0% to 4.5% mainly as a result of the strong performance of US companies as well as some extraordinary gains from disposals at ACS and L&T.

The analysis of the net income obtained by the Top 30 GPoC in 2021 (see Figure 5.3) enables us to reach the following conclusions:

- While aggregate net income in 2021 increased by 31% to USD 66,361 million, revenues grew by 16%. This resulted in an average net margin of 4.5% (2020: 4.0%). The US-based GPoC reported the highest net income margin in 2021 and 2020 (11.6% and 8.3%, respectively). While the average margin for the Asian groups remained in line with that in 2020 (3.8%), the net income to total sales ratio for European companies grew from 2.9% to 5.5%. None of our GPoC reported net losses in 2021.

- The ranking was headed by Lennar, D.R. Horton and PulteGroup, all of which are considered "homebuilders" that benefited from the robust housing market in the United States. ACS, ranked fourth, reported significant profits in 2021 as a result of the sale of Cobra to VINCI. The Top 5 was completed by L&T, which increased its net income margin to 10.5% (2020: 6.4%) due to the profits reported through the divestment of its electrical & automation business.

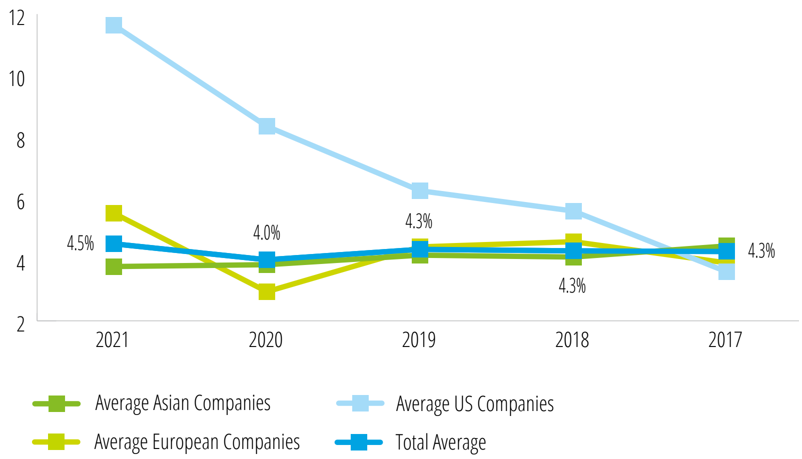
- Only two groups reported margins below 2%: AECOM and Shanghai Construction Group. In particular, AECOM was still affected by the negative impacts arising from the decision adopted in 2020 to discontinue its management services and construction businesses.

Figure 5.3: Top 30 GPoC Net income as a percentage of total sales

	Net Income / Total Sales	
Company	**2021**	**2020**
LENNAR *	16.3%	11.4%
D.R. HORTON *	15%	12%
PULTEGROUP *	14.0%	12.7%
ACS	10.9%	2.7%
L&T	10.5%	6.4%
DAIWA *	8.2%	8.4%
SEKISUI *	6.7%	6.1%
TAISEI	6.3%	7.0%
EIFFAGE	6.2%	3.8%
IIDA *	5.8%	3.9%
OBAYASHI	5.7%	5.7%
SHIMIZU	5.3%	5.8%
SAMSUNG C&T	5.3%	3.8%
KAJIMA	5.2%	5.2%
SKANSKA	4.8%	6.2%
AVERAGE	**4.5%**	**4.0%**
VINCI	4.4%	2.3%
DAITO *	4.2%	5.7%
CSCEC	4.1%	4.5%
STRABAG	3.9%	2.7%
BOUYGUES	3.5%	2.2%
CCCC	3.4%	3.1%
HDEC	3.1%	1.3%
JACOBS	3.1%	3.9%
POWERCHINA	3.0%	3.2%
CEEC	3.0%	3.2%
CRCC	2.9%	2.8%
CREC	2.8%	2.8%
MCC	2.3%	2.3%
AECOM	1.5%	(1.2%)
SCG	1.3%	1.4%
AVERAGE, ASIAN COMPANIES	**3.8%**	**3.8%**
AVERAGE, US COMPANIES	**11.6%**	**8.3%**
AVERAGE EUROPEAN, COMPANIES	**5.5%**	**2.9%**
AVERAGE EXCLUDING HOMEBUILDERS	**3.8%**	**3.4%**

(*) Companies with significant homebuilding activity.
Source: Global Powers of Construction (GPoC) 2021.

Figure 5.4: Net income as a percentage of total sales



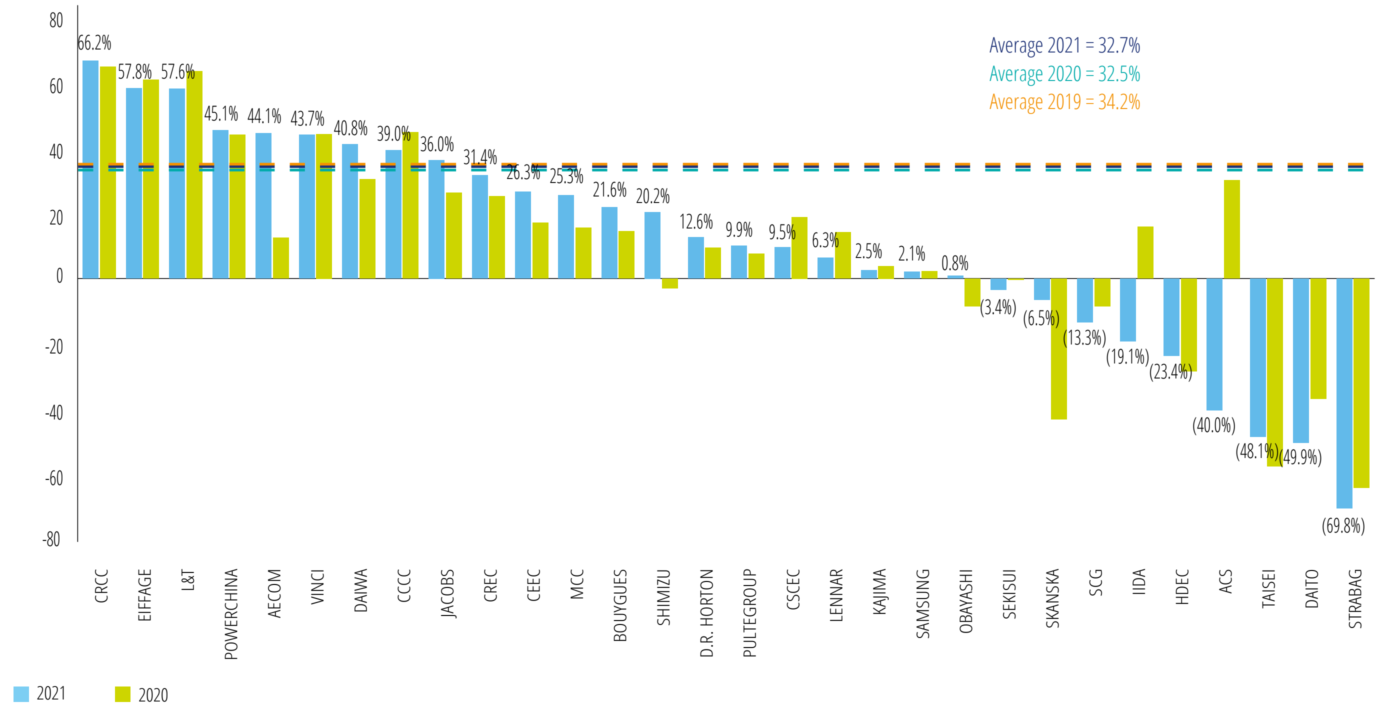
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Net debt/Net debt + Equity

The most noteworthy matters arising from the analysis of the net debt/(net debt +equity) ratio (see Figure 5.5) were as follows:

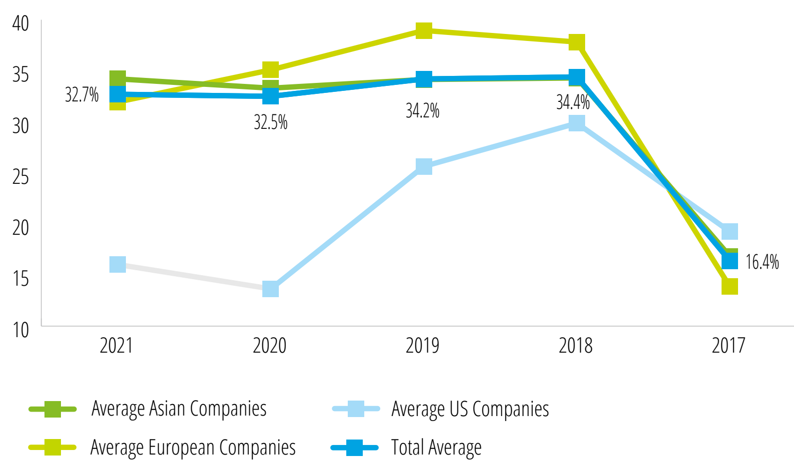
- Aggregate shareholders' equity and net debt increased by 10% and 11%, respectively, resulting in a 33% net debt/(net debt + equity) ratio in 2021 (2020: 32%). Nine GPoC reported positive net cash positions in 2021, Taisei being the company with the largest cash surplus (USD 2,480 million).
- ACS reported one of the largest improvements due to the cash received from the sale of Cobra.
- Certain of the companies with the highest ratios have a significant presence in non-construction businesses (such as concessions), which traditionally require major capital investments that in most cases are financed by external borrowings.

Figure 5.5: Top 30 GPoC, Net debt/(Net debt + Equity)



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.6: Net debt/(Net debt + Equity)



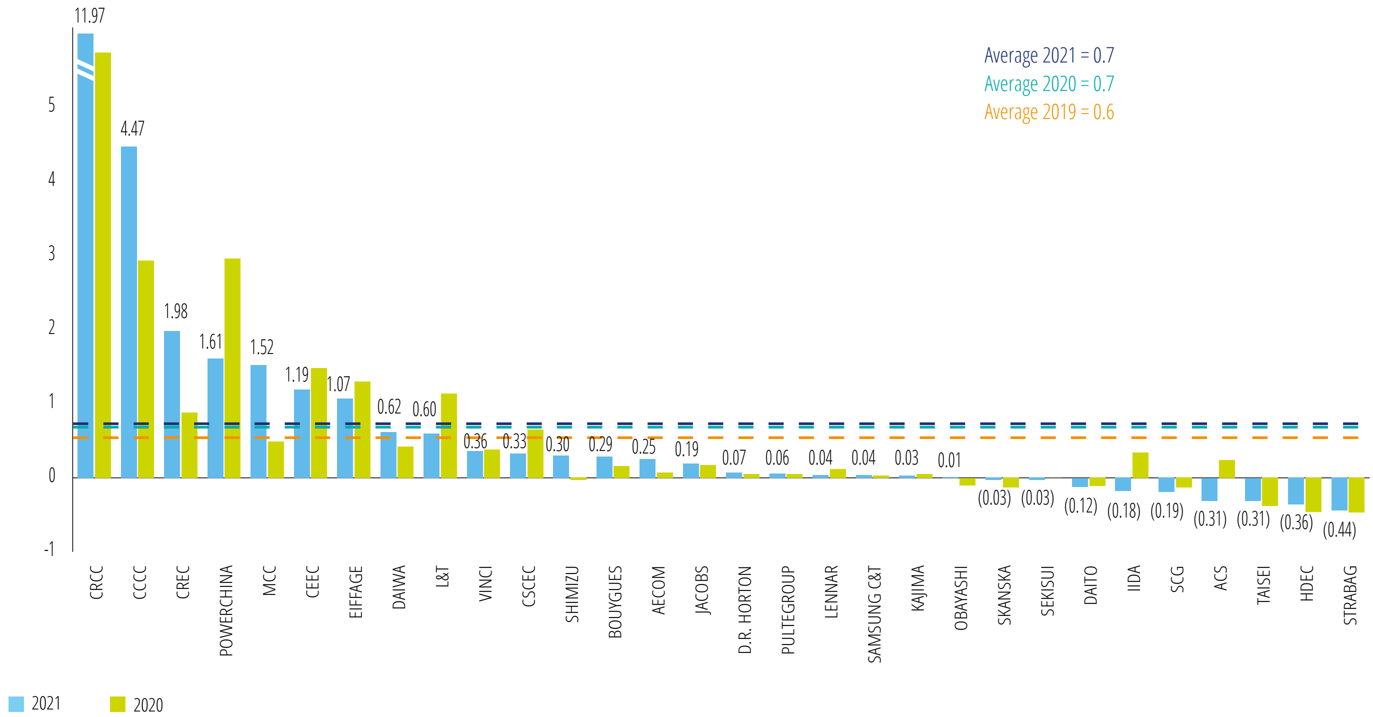
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Net debt/Market capitalization

The following conclusions can be drawn from the analysis of the data shown in Figure 5.7:

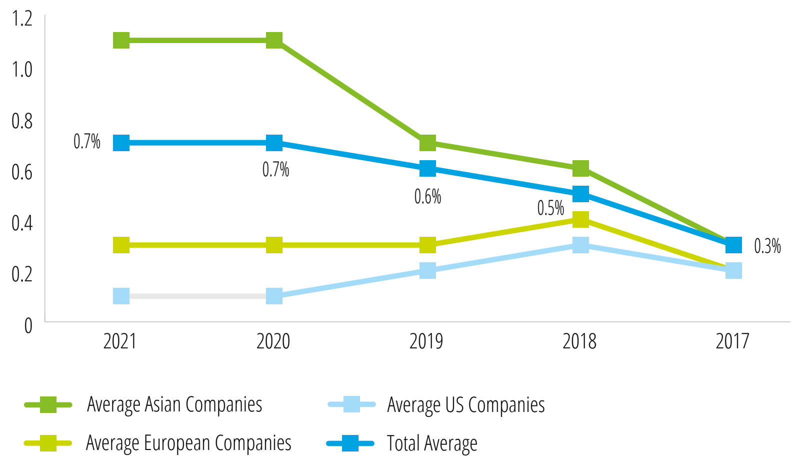
- The net debt to market capitalization ratio worsened to 0.68 in 2021 (2020: 0.67) as a result of an 11% increase in net debt combined with a 9% increase in market value. The aggregate ratio has been worsening since 2017 (Figure 5.8); however thirteen companies managed to improve their ratios when compared to 2020.
- By geographical area, the US- and European-based GPoC reported an average ratio of 0.1 and 0.3, respectively, while the Asian GPoC reported higher net debt than market value.
- The highest ratios were reported by China Railway Construction, China Communications Construction and China Railway. At the other end of the spectrum, nine groups reported negative ratios because of the net cash position achieved.

Figure 5.7: Top 30 GPoC Net debt / Market capitalization



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.8: Net debt / Market capitalization



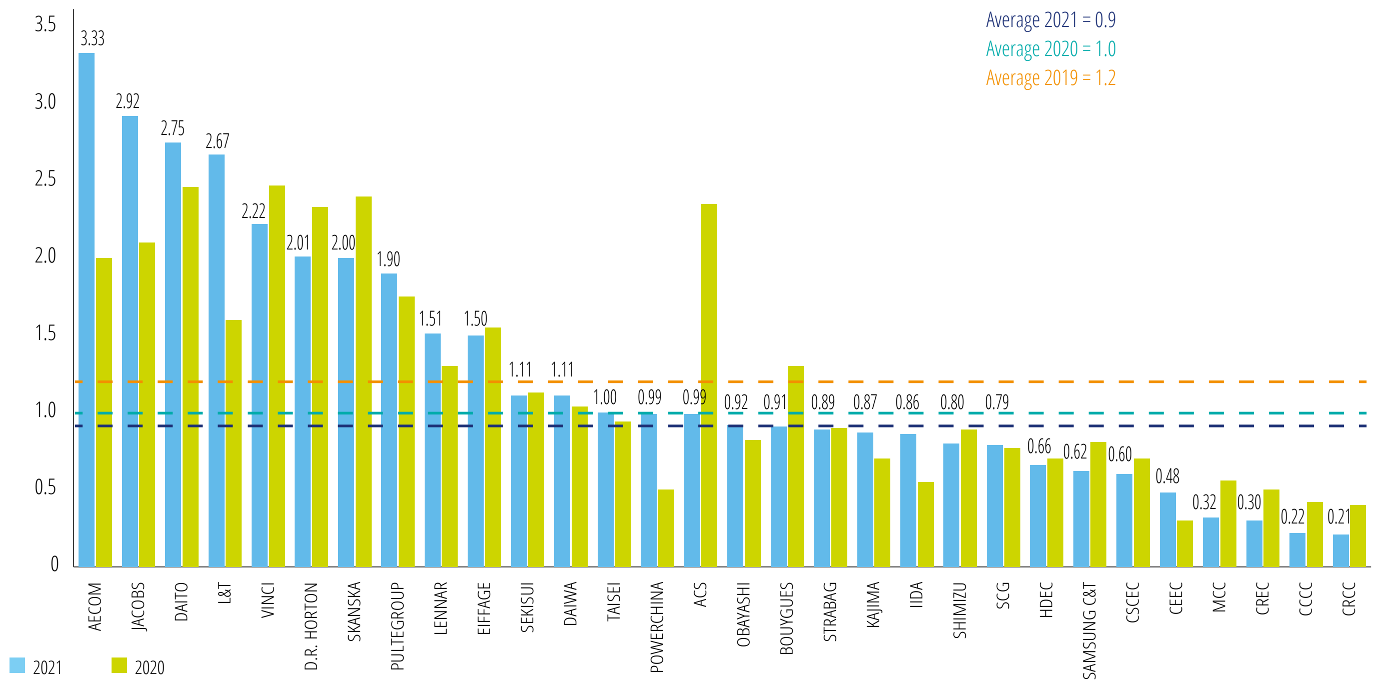
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Market capitalization/Book value

The analysis of the market capitalization to book value ratio (see Figure 5.9) enables us to draw the following conclusions:

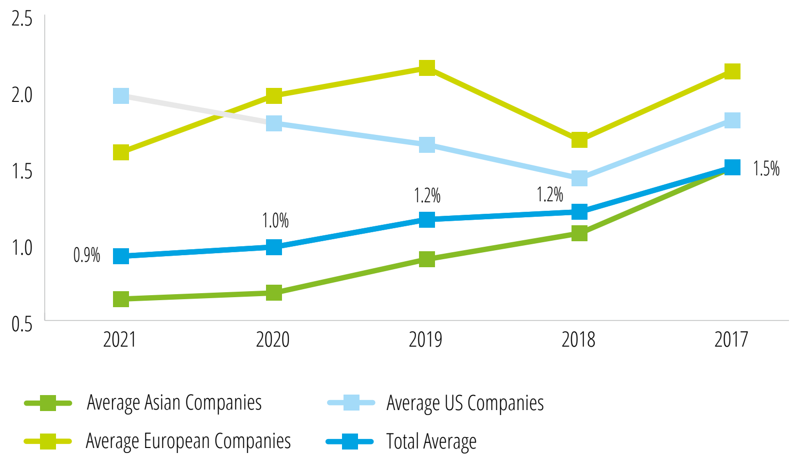
- The 9% increase in market value combined with a 15% increase in book value, resulted in a market capitalization to book value ratio of 0.9 in 2021, 0.1 below that in 2020. With respect to the last five years, on average the Top 30 GPoC only traded at a discount to book value in 2021 (see Figure 5.10).
- The US-based GPoC reported an aggregate market value representing 2x book value, while the European GPoC reported 1.6. On the other hand, the average ratio for the Asian-based GPoC amounted to 0.6.
- In 2021 this ranking was headed by AECOM. Exiting its non-profitable management services and construction businesses strengthened AECOM's position in the stock markets. The Top 3 were completed by Jacobs and Daito, that reported 2.9 and 2.8, respectively.
- The Top 5 GPoC, by sales, all of them from China, reported ratios of 0.3 or even less. Aggregate market value for these companies fell by 22%, while book value grew by 17%.

Figure 5.9: Market Capitalization / Book Value



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.10: Market Capitalization / Book Value



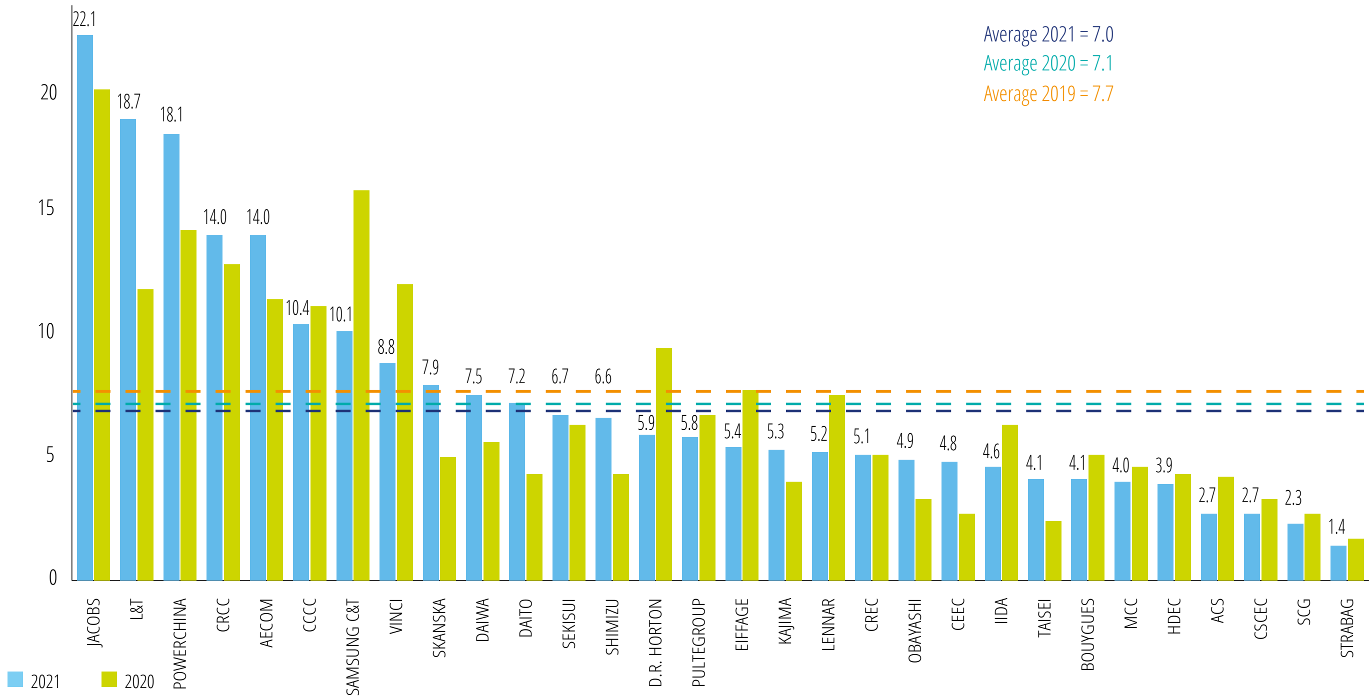
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Enterprise value/EBITDA

The average enterprise value/EBITDA multiple (see Figure 5.11) decreased by 0.2 to 7.0 in 2021 as a result of a 10% increase in enterprise value combined with a 12% increase in EBITDA. Seven groups reported ratios above 10, 12 between 5 and 10 and 11 GPoC reported enterprise value to EBITDA ratios below 5.

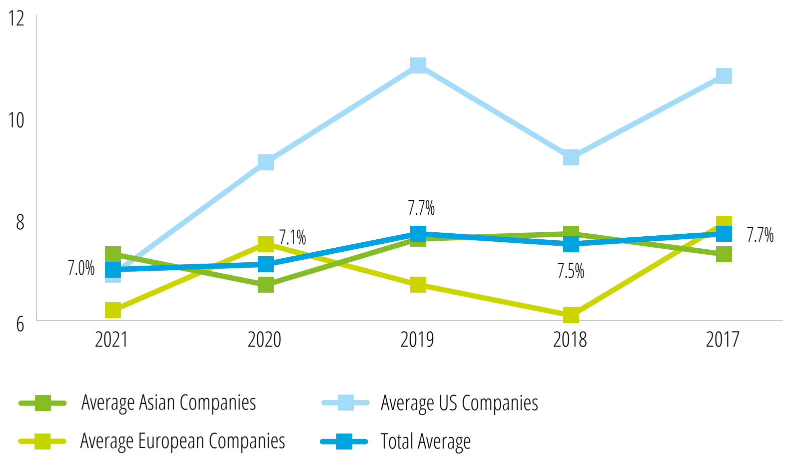
By geographical area, the US-based GPoC used to report higher ratios, but in 2021 there were no notable differences compared to the figures reported by the European and the Asian GPoC on average (see Figure 5.12). By company, Jacobs, Larsen & Toubro and PowerChina reported the highest ratios, all of which were above 18. None of our GPoC reported higher EBITDA than enterprise value.

Figure 5.11: Top 30 GPoC, Enterprise value/EBITDA



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.12: Enterprise value/EBITDA



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

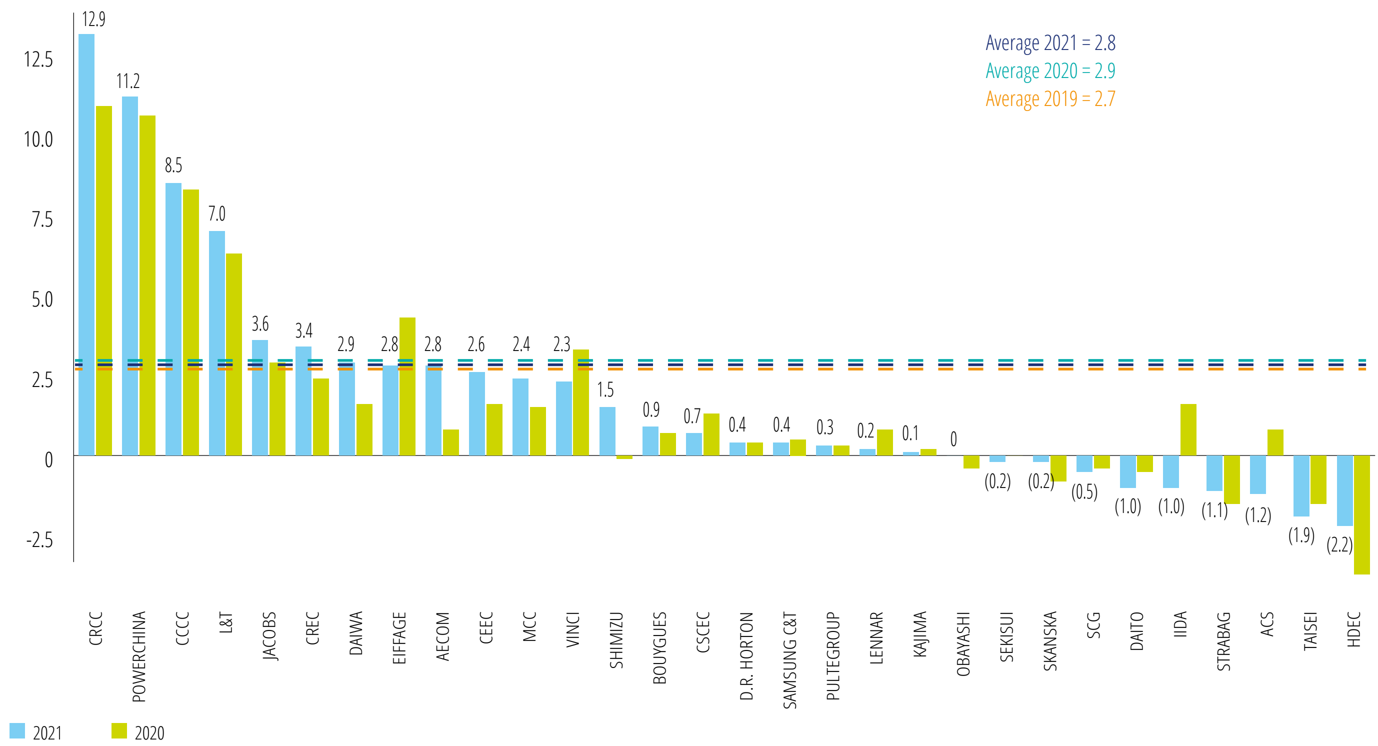
Net debt/EBITDA

The average net debt/EBITDA ratio amounted to 2.8 in 2021 (see Figure 5.13) in line with that in 2020 but 0.4 points above 2017 (see Figure 5.14).

China Railway Construction led this ranking in 2021 (13.4) and also reported the highest ratio in 2020 (10.9). The Top 3 was completed by other Chinese companies such as PowerChina and China Communications Construction.

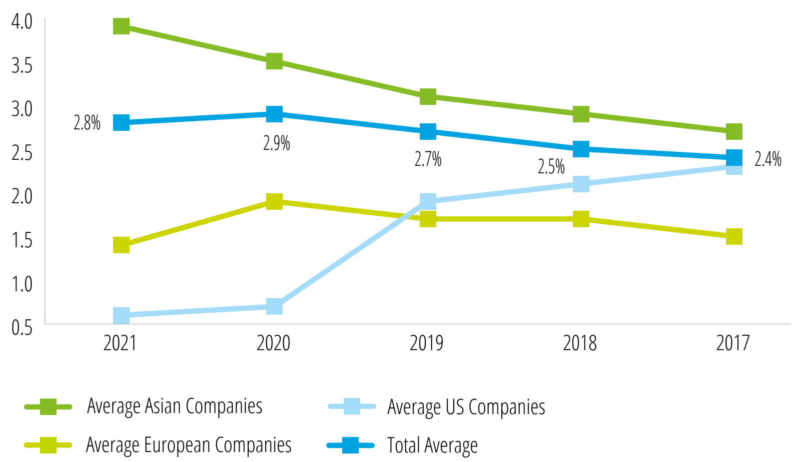
Nine groups achieved ratios below zero as a result of the cash surpluses reported at the end of the year. None of the entities under review obtained negative EBITDA.

Figure 5.13: Top 30 GPoC, Net debt/EBITDA



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.14: Net debt/EBITDA



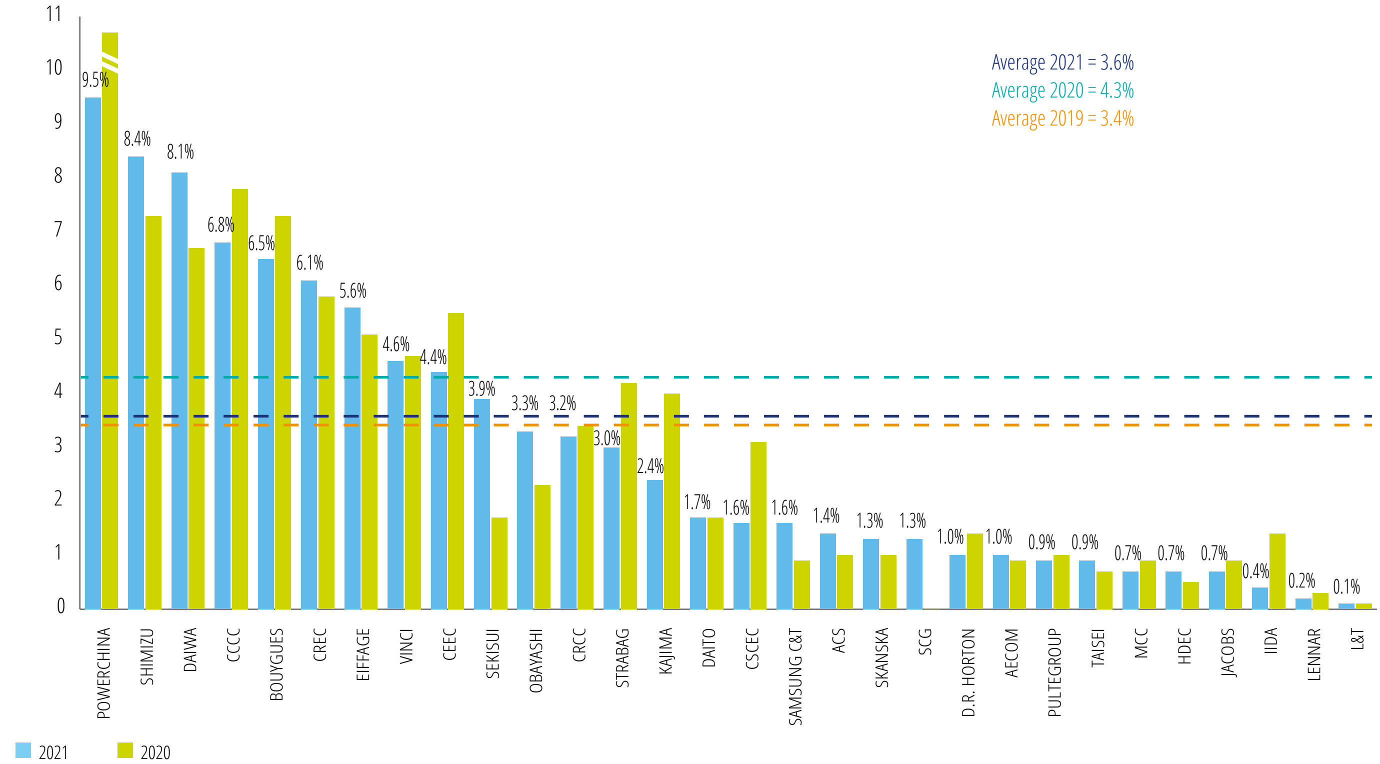
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Capital expenditure/Sales

In 2021 the average capital expenditure/sales ratio reported was 3.6% compared to 4.3% in 2020. Ten groups achieved above-average ratios, while capital expenditure for eight entities, all of them from Asia and the United States, represented less than 1% of total income (see Figure 5.15).

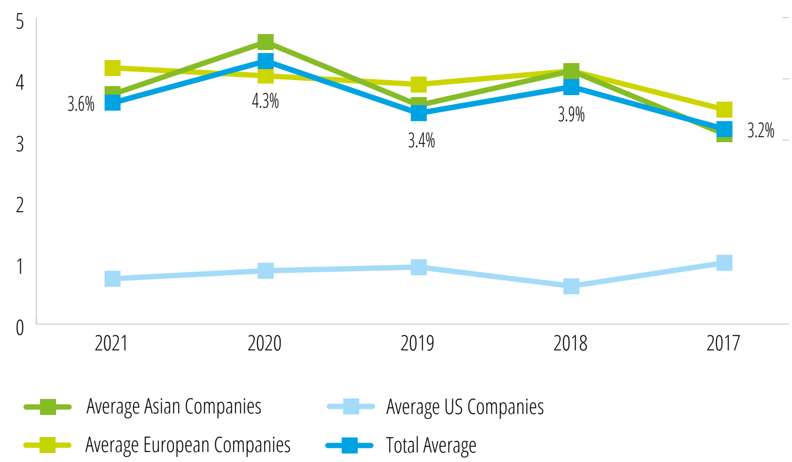
In comparison with other activities, these ratios were, in general, low among the Top 30 GPoC, since the construction business does not usually require significant levels of capital expenditure as construction contracts are usually financed through downpayments. Capital expenditure requirements are traditionally higher in more diversified groups, since certain non-construction activities, such as concessions and real estate projects, are more capital intensive. Accordingly, the French companies VINCI, Bouygues and Eiffage, which are considered to be some of the most diversified GPoC, were ranked within the Top 8, as they have been able to diversify the traditional construction business into other activities such as concessions and telecommunications.

Figure 5.15: Top 30 GPoC, Capital expenditure/Sales



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.16: Capital expenditure/Sales



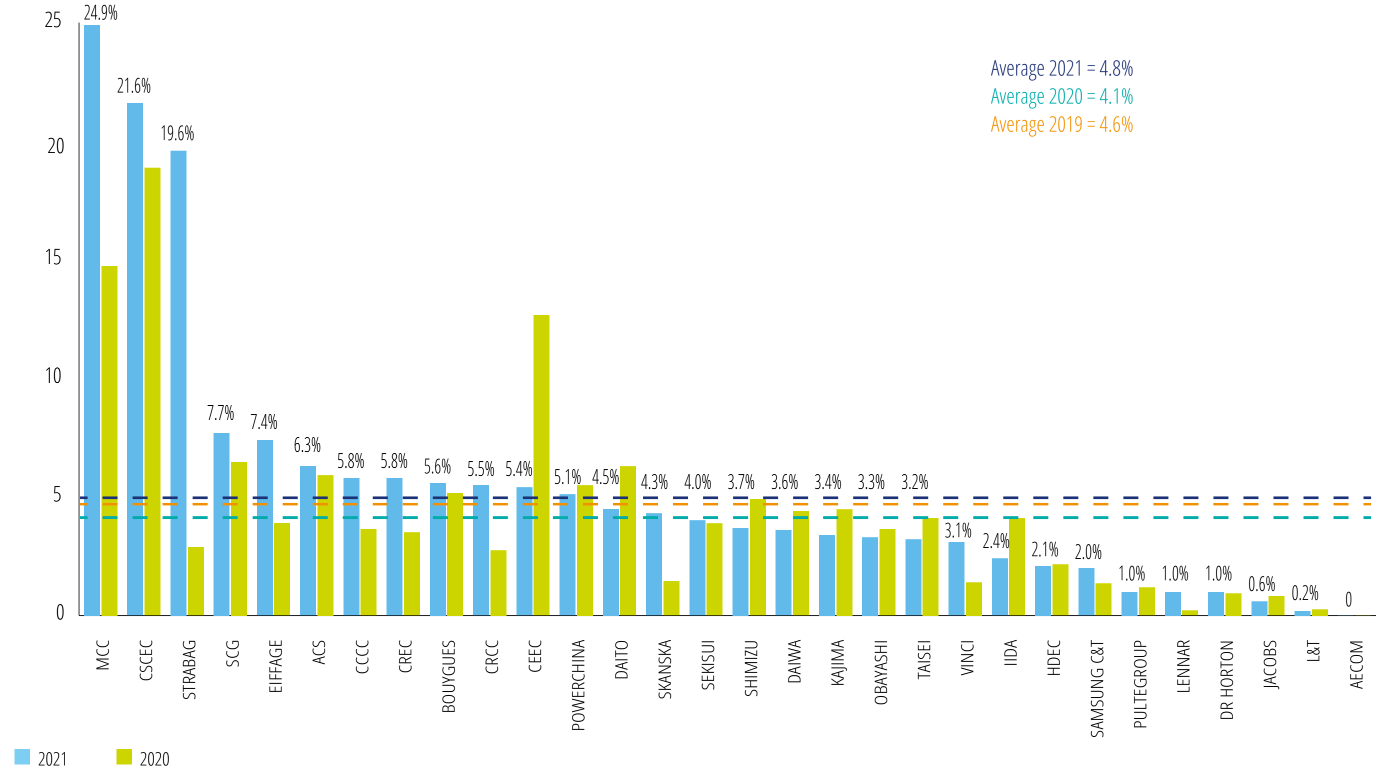
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Dividend yield

The dividend yield increased from 4.1% in 2020 to 4.8% in 2021 (see Figure 5.17) as a result of a 27% increase in dividends paid which was partially offset by a 9% increase in market capitalization. Dividend yield has been increasing since 2017 (see Figure 5.18).

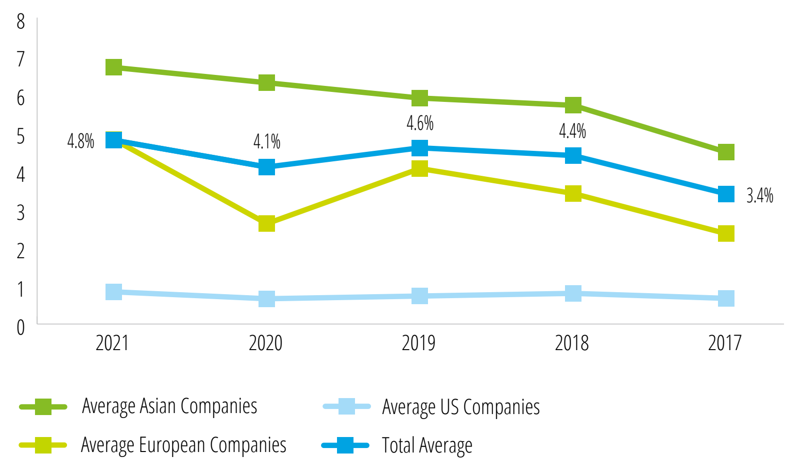
Twenty-one groups paid higher dividends in 2021 compared to prior years. Metallurgical Corporation of China reported the highest ratio among our Top 30 GPoC. On the other hand, AECOM did not pay any dividend in 2021 or 2020.

Figure 5.17: Top 30 GPoC, Dividend Yield



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.18: Dividend Yield



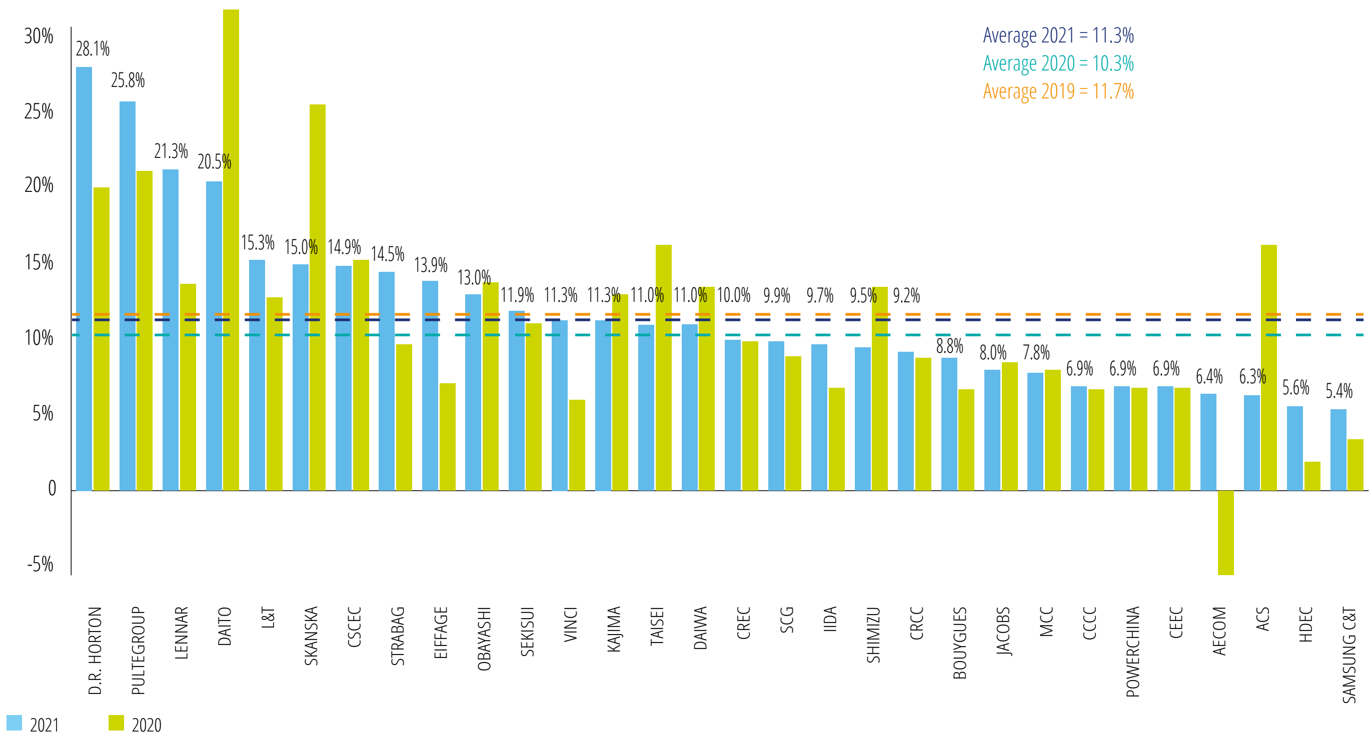
Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Return on Equity (ROE)

Average ROE (see Figure 5.19) for the Top 30 GPoC in 2021 grew by 1 percentage point to 11.3%, which was closer to the pre-pandemic figures reported from 2017 to 2019 (see Figure 5.20). Twelve groups reported above-average ROE. With respect to the last five years, 2018 and 2021 were the only years in which none of our GPoC reported net losses.

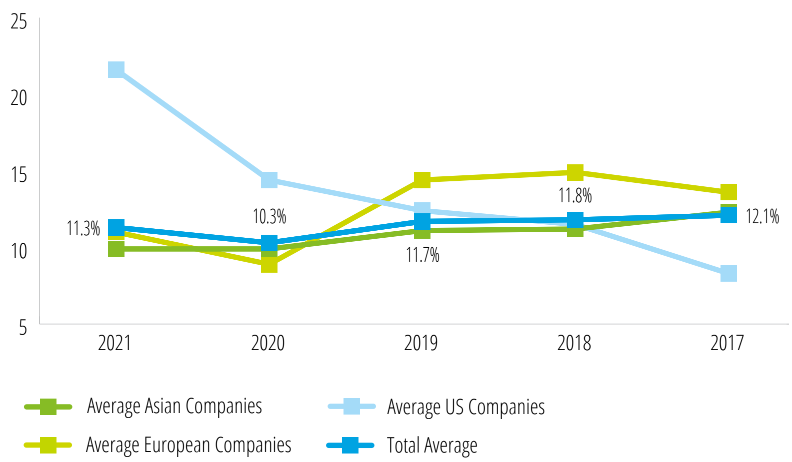
In addition, since their businesses are not as capital intensive, it can be deduced that the "pure" construction groups (including homebuilders) have a higher ROE than conglomerates. This view is supported by the fact that the top 3 was made up of D.R. Horton, PulteGroup and Lennar.

Figure 5.19: Top 30 GPoC, Return on Equity



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Figure 5.20: Return on Equity



Source: Global Powers of Construction (GPoC) 2021. (July 2022).

Geographical and portfolio diversification of our GPoC

The global infrastructure gap, mainly in emerging economies, represents a huge opportunity for the construction industry. Accordingly, overseas market expansion and global operations deployment have become a strategic choice for many construction enterprises. Also, the narrow margins obtained from pure construction activities have boosted the portfolio diversification of our GPoC into activities throughout the entire infrastructure cycle that could yield higher profitability. Internationalization and diversification have made it possible to balance risks, which is critical given the instability surrounding the macroeconomic scenario.

Internationalization

Almost two thirds of the infrastructure investment forecasted for the next decade will center on emerging countries; thus, international expansion represents a pillar on which to base the achievement of sustainable growth and the consolidation of the position of our GPoC. However, international expansion presents its own specific risks as many groups have discovered, with difficulties in adapting their business models to foreign markets frequenly resulting in significant losses from construction contracts.

The GPoC's international expansion has been achieved through a combination of organic growth and mergers and acquisitions. This process has been led by European companies, although in recent years Chinese and Korean companies have used significant acquisitions to expand their presence not only in Asia, but also in Europe and the Americas.

In 2021, around 15% of total sales reported by our GPoC were obtained beyond their domestic markets (17% in 2020). The Top 5 is made up exclusively of European companies, ACS, Strabag, Skanska, VINCI and Bouygues, all of which obtain in the range of 40% to 90% of their revenues abroad. China Communications Construction Group obtained 86% of its sales in China, but international sales amounted to approximately USD 15,000 million, ranking it 5th in absolute terms (see Figure 3.1). Among the groups reviewed, notable differences can be identified in the various geographical areas: while the European GPoC obtained almost 60% of revenue abroad, the international sales of US and Asian-based GPoC do not generally exceed 10% of total income.

A summary of the presence of our GPoC by region (excluding companies that only operate in their domestic markets) is as follows (see Figure 6.0):

The Americas
The presence of the Top 30 GPoC 2021 in the Americas is led by ACS, Skanska and VINCI:

- ACS is once again the largest international contractor among our GPoC. International sales exceeded USD 29,000 million in 2021, almost 90% of total sales. Operations in America, which reported sales of approximately USD 18,500 million, are focused on the United States and Canada through HOCHTIEF Americas. The HOCHTIEF companies in America focus primarily on the areas of building and transportation infrastructure development. The main HOCHTIEF Americas companies are Turner, Clark Builders, Flatiron and E.E. Cruz. On the other hand, the Group has reduced its presence in Latin America as a result of the sale of its industrial division (Cobra) to VINCI, which was completed in December 2021. The backlog in the region amounts to USD 38,000 million.

- Skanska obtained about 40% of its sales in the United States, mainly from construction activities. The United States represents the Group's largest single market. Revenue in the area fell in 2021 due to COVID-19 disruptions and decisions by customers to postpone the ramp-up of new projects but the backlog remains strong: USD 11,400 million, about 25% above 2020. Skanska does not operate in Latin America.

- VINCI reported revenue of almost USD 5,800 million in the region (about 10% of total revenue) but it is expected to expand its operations in 2022 due to the acquisition of Cobra which has a significant presence in Brazil, Peru and Mexico, among other Latin American countries. Current activities in the region are mainly carried on by the VINCI Energies, VINCI Airports and VINCI Construction divisions.

Middle East, Asia and Oceania
The companies with the most significant presence in the region are China Railway Group, Samsung C&T and ACS:

- Overseas operations reported by China Railway Group amounted to approximately USD 8,500 million, mainly in Oceania and Southeast Asia, but also in Africa and South America. Some of the flagship projects in the region in recent years are the Hanoi Metro Line 2A (Vietnam), the Ulaanbaatar New International Airport Highway Project (Mongolia) and the Jakarta-Bandung High-speed Railway (Indonesia).

- Samsung C&T reported revenue of approximately USD 8,200 million in the region, about 25% above 2020. The company has a large and varied portfolio of impressive construction achievements in the area, from the tallest building in the world, Burj Khalifa, to Korea´s longest cable-stayed bridge, Incheon Bridge.

- ACS operates in the region mainly through CIMIC, an Australian-based listed subsidiary. Total revenue in 2021 exceeded USD 6,800 million, about 12% above 2020. The presence in the region for the coming years is supported by an extraordinary backlog of USD 23,900 million, significantly above that of the preceding year due to the entry of major new projects such as the North East Link concession in Melbourne and the M6 highway in Sydney.

Africa
The presence of our GPoC in Africa is still limited. Hyundai E&C and VINCI lead the presence in the region while the operations reported by the other GPoC are not significant:

- Hyundai E&C has a strong presence in Africa, a market that accounted for about 12% of its total sales in 2021. The conversion of the Azito Power Plant from a simple cycle power plant to a combined cycle facility represents the first contract executed by the Group in sub-Saharan Africa.

- VINCI reported sales in Africa amounting to approximately USD 1,700 million, 12% above 2020. Operations are led by Sogea-Satom, a major subsidiary focused on the building and public works sector in Africa. It is present in over 20 countries and employs more than 15,000 people.

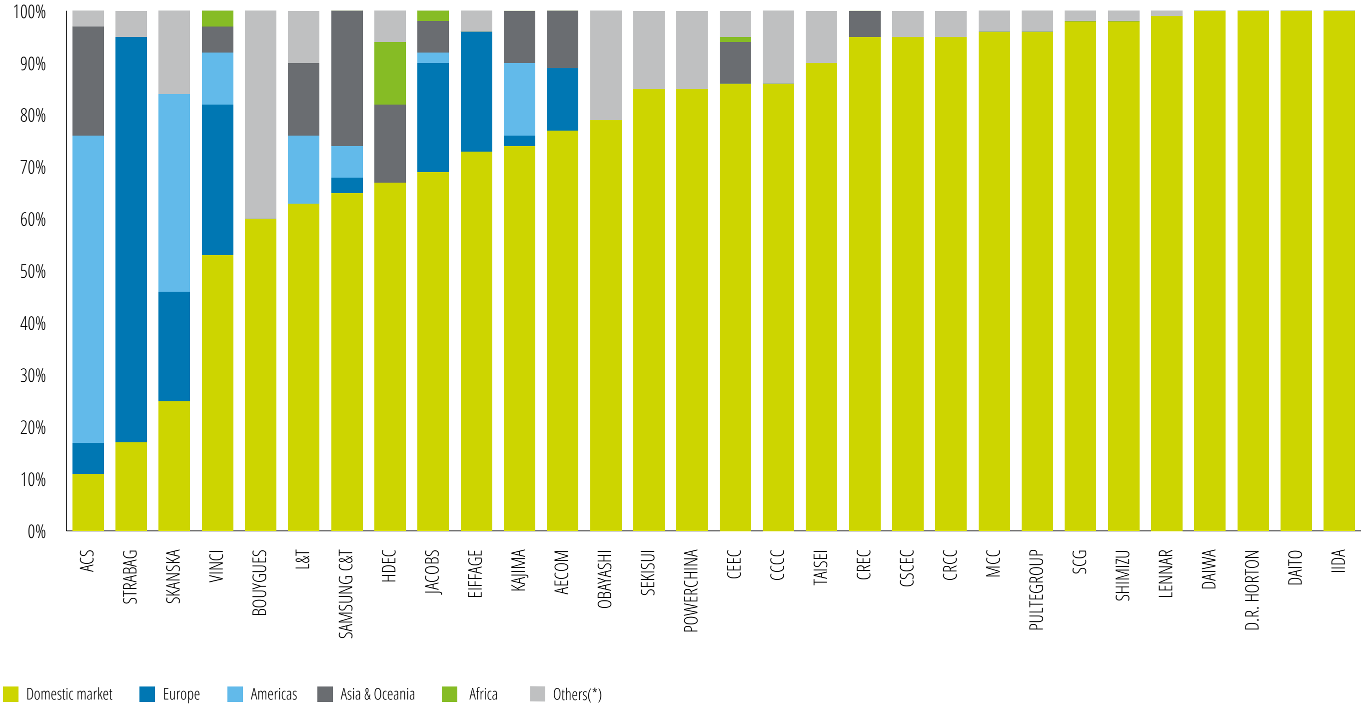
Europe
Strabag, VINCI and Eiffage lead the presence of our Top 30 GPoC in Europe, with 78%, 28% and 23% of their total income, respectively, originating from this region excluding their home markets:

- Germany represents the most relevant market for Strabag. Sales in Germany amounted to USD 7,800 million in 2021, about 2.6 times the income obtained in Austria, the Group´s domestic market. It is also present in most European countries, except for France, Spain and Portugal.

- VINCI obtained revenue of USD 15,700 million in Europe (excluding France with USD 31.883 million in revenues), 13% above 2020. Germany and the United Kingdom represent the largest markets within the region but, as a result of the acquisition of Cobra at the end of 2021, Spain will become one of the largest European markets for the Group in 2022.

- Eiffage reported revenues in Europe of approximately USD 4,800 million, 20% above 2020 thanks to the dynamism of the transport infrastructure market in Germany and the ramp-up of the HS2 high-speed line in the United Kingdom. Also, the energy business recorded strong growth in 2021 in Benelux, Germany and Spain.

Figure 6.0: Top 30 GPoC Sales by region



(*) The percentages included in the 'Other' segment were taken from figures that the companies did not disclose in their annual reports or in their financial statements.

Diversification

Non-construction activities performed by the GPoC are characterized by high operating margins and more predictable revenue, but higher diversification usually leads to higher indebtedness as construction is traditionally a sector of low capital intensity since projects are financed by down payments and efficient management of working capital.

In 2021, 25% of total revenues reported by our GPoC were obtained from non-construction activities (20% in 2020). European GPoC are the most diversified (about 32% of total sales) while non-construction activities represent about 24% of total sales for US and Asian companies.

The analysis of the presence of our GPoC in non-construction activities enables us to highlight the following conclusions:

Real estate

Real estate is one of the segments into which GPoC have diversified the most. As a result of the analysis performed, the following key players can be identified:

- Among the US-based GPoC, D.R. Horton, Lennar and PulteGroup represent the largest players in the real estate business. D.R. Horton, closed 81,965 homes in 2021, completing its 20th consecutive year as the largest homebuilder in the United States. Lennar delivered 59,825 new homes in 2021 (13% above 2020) at an average selling price of USD 424,000. Despite the ongoing challenges created by the pandemic in 2021, PulteGroup generated a 26% increase in home sale revenues to USD 13.4 billion, making 2021 one of the highest revenue years in the history of the company.

- Regarding the Asian GPoC, three Japanese companies have an extensive presence in the real estate sector. Daito's real estate segment represents 68% of total income and reported a 10.7% gross profit margin in 2021, 0.7 percentage points above 2020. Sekisui House's development business segment, which includes sales of houses, land and condominiums, grew by 19.8% to approximately USD 3,600 million. Daiwa House Group, both in Japan and overseas, builds, manages, and helps maintain single-family houses, condominiums, and rental housing. It provides support for owners and residents throughout the entire lifespan of their homes. Lastly, China Estate Construction Engineering, which is ranked first in the Top 100 ranking by total sales (see Figure 1.2), also invests in real estate development through its subsidiary China Overseas Property.

- Skanska has a significant presence in the real estate business through its residential (4,084 homes sold in 2021) and commercial property development (36 ongoing projects) business lines. Bouygues Immobilier, focused on commercial and residential property, reported sales of USD 2,400 million in 2021, 4% above 2020.

Engineering and Energy

This segment covers a diverse range of services, from design and development to the construction, maintenance and operation of energy, industrial and mobility infrastructure. Among the GPoC, there are players within this sector in all geographical areas, some of the most significant being the following:

- The majority of our Asian GPoC are involved in these activities. Samsung C&T is now becoming a major value creator beyond the level of a simple EPC contractor completing tasks in development planning and plant operations. Power China is focused on, among other activities, the construction of hydroelectric, thermal and nuclear plants, as well as transmission lines. China Energy Engineering Corporation provides solutions and full-chain services in areas such as energy and power. From gas, cogeneration, nuclear power, geothermal, solar, wind and biomass power plants to electricity transmission and substation facilities, Hyundai E&C has extensive experience in the execution of a full range of energy infrastructure projects.

- The American-based GPoC AECOM provides services that include, among others, planning, consulting, architectural and engineering design, program management and construction management for industrial and energy clients worldwide.

- In 2021, VINCI strengthened its position in the engineering and energy sector through the acquisition of Cobra, a global leader with more than 75 years' experience in all fields related to the engineering, installation and industrial maintenance of infrastructure. This acquisition represents a powerful growth driver and will complement VINCI Energies' business. Total revenue reported by Cobra in 2021 exceeded USD 5,000 million.

Concessions

This sector is characterized by recurrent and predictable cash flows, but also by strong capital investment requirements to build infrastructure. Public-private partnerships (PPPs) are a mechanism for government to finance, procure and implement public infrastructure using the resources and expertise of the private sector. PPPs are becoming even more critical as mobilizing private capital is essential to closing the financing gap of projects as the pandemic has limited the spending capacity of governments.

The presence of the GPoC in the concessions business is dominated by European groups and the presence of US and Asian-based companies is still limited:

- VINCI and Eiffage have significant concessions segments, focused particularly on the operation of transport infrastructure in France. In 2021, both groups increased their revenues from concession activities by more than 15% as the mobility restrictions arising from the pandemic were less stringent than in 2020.

- ACS could also be considered to be a major player through its non-controlling interest in Abertis, a Spanish-based company that operates around 8,000 kilometers of transport infrastructure in Europe, the Americas and Asia.

- Concession activities represent a major area of Strabag's businesses, with global project development activities in transportation infrastructure in particular. The portfolio comprises 37 PPP projects with a total investment volume of USD 11.6 billion.

Other

Some of the groups under review have also been able to develop businesses that, at first glance, are not related to the construction cycle:

- Bouygues has a major presence in the media and telecom sectors. In media, TF1 group increased revenues by 17% during 2021 due to sustained demand for advertising slots and the strong performance of Newen Studios' production activities. With more than 25 million customers, Bouygues Telecom's sales increased by 14% in the year.

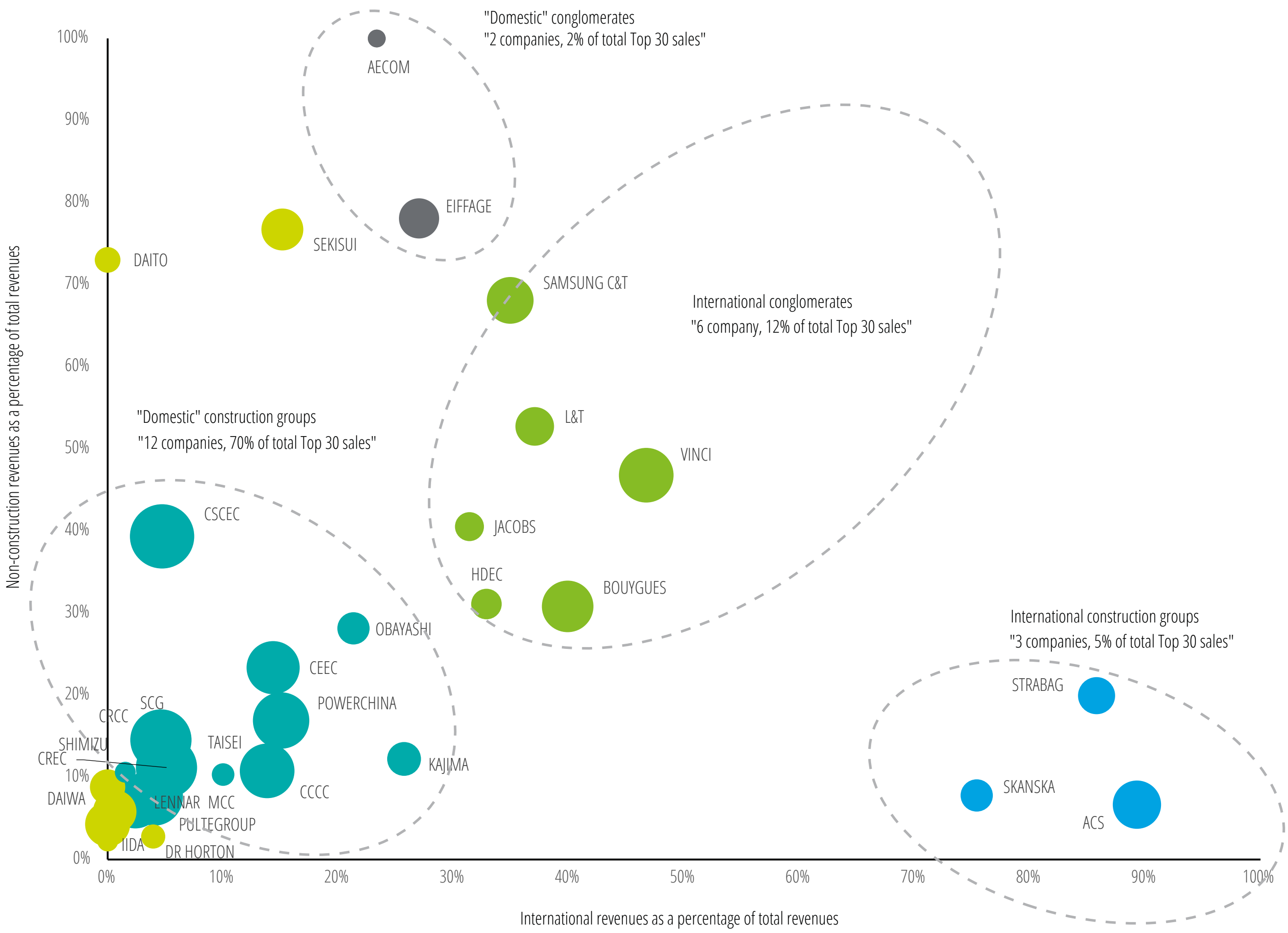
- Samsung C&T's fashion segment works with an extensive line of brands that has enabled it to successfully cement its leading status in the fashion industry in Korea. This segment represents about 5% of the group's total revenue. In addition, the Korean group is also present in other activities such as the operation of resorts and golf courses and food and beverages.

- Larsen & Toubro's financial services segment, which represents about 10% of its total income, offers a diverse set of financial products and services encompassing mutual funds, infra finance and home loans, among others.

Internationalization vs Diversification
In view of the varying levels of internationalization and diversification achieved by the most significant GPoC in terms of total sales, we have identified four main categories for analysis (see Figure 6.1). In addition, companies with significant homebuilding activity have also been considered as a single category. According to our analysis, there seems to be a direct correlation between the degree of diversification and the margins achieved, but diversification also leads to higher indebtedness. A more in-depth analysis gives rise to the following conclusions:

- Pure construction activity is a business characterized by narrow operating margins. Those GPoC focused on construction reported operating margins below 5% in 2021, while companies classified as domestic and international conglomerates reported operating margins of 8.2% and 6.8%, respectively. The highest margins in 2021 were reported by those GPoC with significant homebuilding activity (13.4%). In terms of net income, the conclusions are similar: Net income as a percentage of total sales amounted to 4.7% in the most diversified GPoC, 1.3 percentage points above the groups with a large presence in the construction business. Homebuilders reported a net income to sales ratio of 10.5% in 2021.
- On the other hand, non-construction activities usually led to higher indebtedness given that some of these activities (real estate, concessions, etc.) are capital intensive. While net debt to equity ratios amounted to 24.5% among the international and domestic construction groups, the most diversified GPoC reported an average ratio of 34.9% in 2021. Homebuilders reported the lowest ratio among the five categories identified (13.9%). Among the nine GPoC that reported a cash surplus in 2021, five companies are focused on construction activities while three groups are considered as homebuilders. Hyundai E&C is the only diversified group that reported a net cash position.

Figure 6.1: Internationalization vs Diversification



Study methodology and data sources

Companies were included in the Top 100 Global Powers of Construction based on their total sales for financial years ended in 2021. To be included in the ranking, a company must be publicly traded and the portion of revenue arising from building and civil works must be significant enough to qualify. The Top 100 GPoC ranking by sales was prepared based on information taken from the ENR "Top 250 Global Contractors" ranking and the Forbes "Global 2000" list, filtered by "Construction Services". We have excluded from these rankings non-listed groups. Listed entities consolidated into a larger group were also excluded from the ranking. Several sources are consulted to prepare the GPoC publication. All the data in this edition were gathered from external sources, such as annual company reports, Euroconstruct, the European Commission, the International Monetary Fund, the World Bank, Forbes and ENR reports. The main data sources for financial and other company information are annual reports and information found in company press releases and fact sheets or on company websites. In order to provide a common base from which to rank companies by their revenue figures, the revenue of non-US companies is converted to US dollars. Exchange rates, therefore, have an impact on the results. The average daily exchange rate corresponding to each company's fiscal year is used to convert that company's results to US dollars (see "Appendix - Exchange rates"). Group financial results are based only on companies with data. Not all items of data are available for all companies. It should also be noted that the financial information used for each company in a given year is accurate at the original date of issue of the financial report. Although a company may have restated prior year results to reflect a change in its operations or as a result of a change in accounting policy, such restatements are not reflected in this data. This study is not an accounting report. It is intended to provide an analysis of the main financial indicators of the major players within the construction industry and reflect market dynamics and their impact on the industry over a period of time. As a result of these factors, growth rates for individual companies may not correspond to other published results.

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Appendix - Exchange rates

2021			2020		
Currency	**Date**	**Exchange rate**	**Currency**	**Date**	**Exchange rate**
AED	From 01.01.2021 to 31.12.2021	3.67	AED	From 01.01.2020 to 31.12.2020	3.67
AUD	From 01.07.2020 to 30.06.2021	1.34	AUD	From 01.07.2019 to 30.06.2020	1.55
BAHT	From 01.01.2021 to 31.12.2021	32.01	BAHT	From 01.01.2020 to 31.12.2020	31.32
BRL	From 01.01.2021 to 31.12.2021	5.40	BRL	From 01.01.2020 to 31.12.2020	5.16
CAD	From 01.01.2021 to 31.12.2021	1.25	CAD	From 01.01.2020 to 31.12.2020	1.34
CHF	From 01.01.2021 to 31.12.2021	0.91	CHF	From 01.01.2020 to 31.12.2020	0.94
CLP	From 01.01.2021 to 31.12.2021	758.25	CLP	From 01.01.2020 to 31.12.2020	790.88
CNY	From 01.01.2021 to 31.12.2021	6.45	CNY	From 01.01.2020 to 31.12.2020	6.90
	31.12.2021	6.37		31.12.2020	6.53
DKK	From 01.10.2020 to 30.09.2021	6.23	DKK	From 01.10.2019 to 30.09.2020	6.66
EUR	From 01.01.2021 to 31.12.2021	0.85	EUR	From 01.01.2020 to 31.12.2020	0.88
	31.12.2021	0.88		31.12.2020	0.81
GBP	From 01.01.2021 to 31.12.2021	0.73	GBP	From 01.01.2020 to 31.12.2020	0.78
	From 01.05.2020 to 30.04.2021	0.76		From 01.05.2019 to 30.04.2020	0.79
	From 01.07.2020 to 30.06.2021	0.74		From 01.07.2019 to 30.06.2020	0.79
	From 01.08.2020 to 31.07.2021	0.74		From 01.08.2019 to 31.07.2020	0.79
HKD	From 01.01.2021 to 31.12.2021	7.77	HKD	From 01.01.2020 to 31.12.2020	7,755906
INR	From 01.04.2020 to 31.03.2021	74.25	INR	From 01.04.2019 to 31.03.2020	68.19
	31.03.2021	73.14		31.03.2020	75.39
JPY	From 01.04.2020 to 31.03.2021	106.09	JPY	From 01.04.2019 to 31.03.2020	108.72
	31.03.2021	110.61		31.03.2020	107.53
	From 01.02.2020 to 31.01.2021	106.35		From 01.02.2019 to 31.01.2020	109.04
	31.01.2021	104.64		31.01.2020	108,5
KRW	From 01.01.2021 to 31.12.2021	1,144.89	KRW	From 01.01.2020 to 31.12.2020	1180.56
	31.12.2021	1,188.59		31.12.2020	1086.11
KWD	From 01.01.2021 to 31.12.2021	0.30	KWD	From 01.01.2020 to 31.12.2020	0.31
MXN	From 01.01.2021 to 31.12.2021	20.28	MXN	From 01.01.2020 to 31.12.2020	21.55
NOK	From 01.01.2021 to 31.12.2021	8.60	NOK	From 01.01.2020 to 31.12.2020	9.41
SEK	From 01.01.2021 to 31.12.2021	8.58	SEK	From 01.01.2020 to 31.12.2020	8.79
	31.12.2021	9.05		31.12.2020	8.21
TRY	From 01.01.2021 to 31.12.2021	8.86	TRY	From 01.01.2020 to 31.12.2020	7.02
TWD	From 01.01.2021 to 31.12.2021	27.94	TWD	From 01.01.2020 to 31.12.2020	29.46

* All Exchange rates used are to convert the value of one Dolar. Fred.stlouisfed.org is the source for the exchange rates.

Endnotes

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