



GPoC 2023

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 2022.

We are pleased to present the sixth edition of Global Powers of Construction, a publication in which we identify, rank and outline the world's major listed construction groups and gather data that serves as a basis for a financial analysis and intends to provide insights in terms of challenges 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 and International Monetary Fund, World Bank, Euroconstruct, European Commission, Forbes and ENR reports. We also channel into our analysis insightful comments and suggestions received from Deloitte professionals.

As has been the case in prior years, this publication includes an analysis of the current macroeconomic outlook and expectations for the coming years in the global construction industry. The conflicts in Europe in early 2022 disrupted the expected recovery from the multiple impacts of the

COVID-19 pandemic on the industry and inaugurated a period of commodity price surges, supply chain disruptions and the re-emergence of significant inflation in areas where prices and interest rates had remained low and stable for a long period.

Looking at the prospects of the industry today, construction is expected to record sluggish growth in 2023, mainly due to the weak economic situation and negative conditions represented by increased construction material costs and significant labor shortages. However, with improvements in economic stability, certain areas such as investment in the infrastructure and energy and utilities sectors could be major drivers of overall construction output growth.

The publication analyzes the main financial indicators of the major players within the industry. Performance in terms of revenue, market capitalization, international presence, diversification, profitability, debt and other financial ratios are examined in

this issue. In 2022 the aggregate USD sales of the Top 100 GPoC rose by 6.3%, while market capitalization fell by 14.9% (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 a ways to go in terms of profitability, digitalization and sustainability, which will foreseeably be winning trends in the years ahead.

We hope that you find our GPoC 2022 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 are grateful for any thoughts and suggestions you may have.



Ranking of listed global construction companies

The total revenue obtained by the GPoC in 2022 (see Figure 1.2) amounted to US\$ 1,940 trillion, 6.3% higher than in 2021. From the geographical distribution point of view, 54% of revenue originates from companies based in China, with the remaining revenue 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). These percentages remain fairly consistent with sales achieved in the prior year. Due to the negative evolution of the exchange rate against the US dollar (USD) of the currencies of the main geographical areas indicated, the increase in sales in local currency was greater, with an overall rise of 20.9% with respect to the 2021 sales figure.

Regarding the stock market performance of the GPoC, its total value decreased from US\$ 703,174 million to US\$ 598,577 million (-14.9%), reflecting an uncertain year marked by the effects of rising inflation and tightening of financial markets. The aggregate market value of our Top 100 still remains above the US\$ 591,543 million recorded in pre-pandemic 2019.

The main geographical areas experienced a significant market cap decline with noteworthy decreases of 19% and 9% in the United States and Europe/Middle East/Africa (EMEA), respectively (see figure 1.1).

As in previous years, China State Construction Engineering, which reported over US\$ 305,000 million in revenue in 2022, heads the ranking. The podium, which includes two other Chinese companies, China Railway Group and China Railway Construction, accounts for approximately 33% of the total revenue of our GPoC (see Figure 1.2).

By number of companies, Europe has the largest presence in the industry, with 41 groups included in the Top 100 ranking. Aggregate sales of European GPoCs increased by 6% with respect to the previous year, amounting to US\$ 373,627 million, while market capitalization decreased by an astounding 21.6%. In terms of revenue, three French groups, Vinci, Bouygues and Eiffage, together with the Spanish group ACS, which are ranked 7th, 9th, 17th and 12th, respectively, are 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 (see Figure 2.1) with a market value that is 1.7 times that of the first group in terms of sales.

Japan takes second place in the ranking by number of companies (14). Aggregate US\$ sales of the Japanese GPOC remained fairly stable with a 0.9% increase to US\$ 190,871 million (see Figure 1.1). Of these companies, six focus mainly on homebuilding, including the largest Japanese companies included in our Top 30, Daiwa House Industry, Sekisui House and Daito Trust Construction, placed 11th, 16th and 27th, respectively.

With 13 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 13.2%, but market

capitalization followed the predominant trend and declined by 18.9%. Some of the largest US companies, such as D.R. Horton, Lennar and PulteGroup, ranked 13th, 14th and 24th, respectively, focusing mainly on homebuilding (see Figure 1.2).

South Korean presence in the ranking is headed by Samsung C&T and Hyundai E&C, which are among the Top 30 companies in terms of revenue. Revenue in 2022 grew by 8.3% for the seven South Korean companies included in the ranking, while aggregate market capitalization suffered a sharp decline of 19.2%.

The other entities included in 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, with a remarkable performance in terms of sales and market value, reported sales exceeding US\$ 10,000 million.

Figure 1.1: Top 100 Global Construction Companies by Country

Country	Number of companies	Sales 2022 (USD million)	%Change 2022 - 2021	% Change LC* 2022 - 2021	Market cap (USD million)	% Change Market cap 2022 - 2021	% Change LC* 2022 - 2021
AUSTRALIA	2	13,547	(3.7%)	(3.3%)	9,464	(8.2%)	(11.5%)
AUSTRIA	2	24,031	(0.8%)	11.5%	4,782	(2.3%)	3.9%
BELGIUM	1	1,230	(7.6%)	3.7%	259	(92.7%)	(92.2%)
BRAZIL	1	1,285	(2.6%)	(6.8%)	695	(33.2%)	(36.6%)
CANADA	2	9,411	3.9%	7.9%	3,510	(31.2%)	(26.4%)
CHILE	1	952	1.3%	16.4%	137	(19.7%)	(20.0%)
CHINA	11	1,048,844	5.8%	10.4%	136,220	(9.9%)	(3.5%)
DENMARK	1	2,630	11.4%	23.3%	468	(39.7%)	(28.9%)
FINLAND	1	2,531	(25.2%)	(16.0%)	552	(46.3%)	(42.9%)
FRANCE	3	133,643	6.8%	20.0%	76,830	(8.1%)	(2.1%)
GERMANY	1	1,717	(5.6%)	6.0%	161	(38.1%)	(34.2%)
GREECE	3	11,288	112.8%	139.0%	4,723	21.5%	29.2%
INDIA	1	21,314	15.1%	15.5%	32,716	20.1%	24.6%
ISRAEL	1	3,230	16.3%	20.9%	2,170	(18.2%)	(11.6%)
ITALY	2	19,048	23.1%	38.2%	3,883	(12.7%)	(7.2%)
JAPAN	14	190,871	0.9%	7.8%	75,779	(15.7%)	(5.8%)
MEXICO	1	9,022	46.9%	45.7%	9,432	29.3%	23.2%
NETHERLANDS	2	8,880	(17.2%)	(7.0%)	878	(28.1%)	(23.7%)
NORWAY	1	4,021	(8.1%)	2.8%	1,330	(34.5%)	(26.9%)
PORTUGAL	1	4,007	27.5%	43.2%	384	(13.8%)	(8.2%)
SOUTH KOREA	7	87,787	8.3%	25.3%	22,479	(19.2%)	(14.6%)
SPAIN	7	75,097	9.9%	23.4%	42,817	(12.7%)	(5.8%)
SWEDEN	4	29,225	(7.4%)	9.2%	10,183	(47.8%)	(39.9%)
SWITZERLAND	1	3,731	(9.4%)	(5.4%)	760	51.7%	83.3%
TAIWAN	1	3,192	26.4%	34.8%	1,075	4.9%	16.4%
THAILAND	1	1,914	2.1%	14.0%	291	(19.7%)	(16.2%)
TURKEY	2	5,622	19.9%	80.5%	11,602	67.2%	130.5%
U.A.E.	1	4,177	17.9%	17.9%	453	(19.8%)	(19.8%)
UK	11	51,945	1.7%	9.3%	29,345	(42.6%)	(36.7%)
USA	13	165,183	13.2%	13.2%	117,024	(18.9%)	(18.9%)
Grand Total	100	1,939,979	6.3%	20.9%	598,577	(14.9%)	(10.8%)

* Local currency

Source: Global Powers of Construction (GPOC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Top 100 GPoC – ranking by sales

Figure 1.2: Top 100 Global Construction Companies by Sales

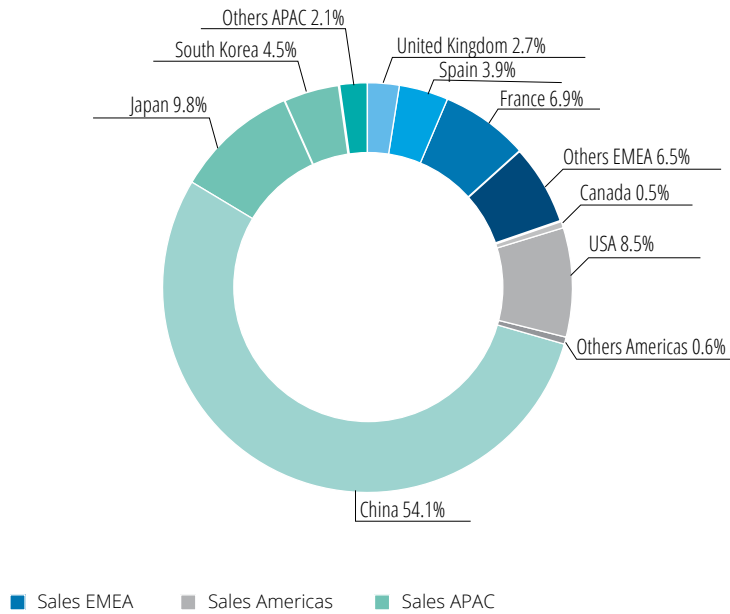
Rank 2022	Company	Country	Sales 2022 (MN \$)	% change 2022-2021	% change in local currency 2022-2021	2022 market capitalization (USD million)	% change 2022-2021	% change in local currency 2022-2021
1	CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD. (CSCEC)	CHINA	305,402	4.2%	8.7%	33,007	0.0%	8.6%
2	CHINA RAILWAY GROUP LTD. (CREC)	CHINA	171,549	3.1%	7.6%	18,780	(9.6%)	(1.9%)
3	CHINA RAILWAY CONSTRUCTION CORP. LTD. (CRCC)	CHINA	162,923	3.0%	7.5%	14,132	(8.7%)	(0.9%)
4	CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD. (CCCC)	CHINA	107,040	1.0%	5.0%	15,832	(13.3%)	(5.9%)
5	METALLURGICAL CORPORATION OF CHINA LTD (MCC)	CHINA	88,077	13.5%	18.4%	8,866	(22.8%)	(16.3%)
6	POWER CONSTRUCTION CORP OF CHINA	CHINA	85,096	(3.0%)	1.2%	15,544	(20.1%)	(13.3%)
7	VINCI	FRANCE	64,970	11.2%	24.9%	56,316	(6.2%)	(0.3%)
8	CHINA ENERGY ENGINEERING CORP	CHINA	54,450	9.0%	13.7%	11,845	(23.6%)	(17.0%)
9	BOUYGUES	FRANCE	46,690	5.0%	17.9%	11,192	(18.4%)	(13.2%)
10	SHANGHAI CONSTRUCTION GROUP (SCG)	CHINA	42,508	(2.4%)	1.8%	3,356	(33.5%)	(27.8%)
11	DAIWA HOUSE INDUSTRY CO.	JAPAN	39,523	1.6%	7.6%	17,265	(9.9%)	(1.0%)
12	ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. (ACS)	SPAIN	35,412	7.5%	20.8%	7,405	0.1%	6.4%
13	LENNAR CORP.	USA	33,671	24.1%	24.1%	25,454	(19.1%)	(19.1%)
14	DR HORTON	USA	33,480	20.5%	20.5%	23,165	(22.5%)	(22.5%)
15	SAMSUNG C&T CORP.	SOUTH KOREA	33,413	11.0%	25.3%	14,652	(10.4%)	(5.4%)
16	SEKISUI HOUSE	JAPAN	26,464	15.0%	19.7%	12,464	(8.1%)	13.6%
17	EIFFAGE, S.A.	FRANCE	21,982	(0.7%)	11.5%	9,322	(5.4%)	0.6%
18	LARSEN & TOUBRO LTD. (L&T)	INDIA	21,314	15.1%	15.5%	32,716	20.1%	24.6%
19	SICHUAN ROAD AND BRIDGE (GROUP) CO. LTD.	CHINA	20,085	26.3%	31.8%	10,036	11.0%	20.4%
20	KAJIMA CORP.	JAPAN	18,514	3.0%	9.0%	6,040	(15.8%)	(7.5%)
21	STRABAG	AUSTRIA	17,936	(0.9%)	11.3%	4,297	0.4%	6.7%
22	OBAYASHI CORP.	JAPAN	17,118	2.8%	8.8%	5,308	(19.4%)	(11.4%)
23	HYUNDAI ENGINEERING & CONSTRUCTION CO. LTD. (HDEC)	SOUTH KOREA	16,442	4.2%	17.6%	3,094	(25.6%)	(21.5%)
24	PULTEGROUP	USA	16,229	16.5%	16.5%	10,283	(27.8%)	(27.8%)
25	SKANSKA AB	SWEDEN	16,128	(3.8%)	13.4%	6,513	(39.0%)	(29.7%)
26	JACOBS ENGINEERING	USA	14,923	5.9%	5.9%	13,821	(20.4%)	(20.4%)
27	DAITO TRUST CONSTRUCTION	JAPAN	14,093	0.4%	6.3%	7,287	(7.7%)	1.5%
28	FLUOR CORP.	USA	13,744	10.5%	10.5%	4,933	40.8%	40.8%
29	TAISEI CORP.	JAPAN	13,739	(1.5%)	4.3%	5,828	(26.7%)	(19.4%)
30	SHIMIZU CORP.	JAPAN	13,202	(3.8%)	1.8%	4,463	(27.8%)	(20.6%)
31	DOOSAN	SOUTH KOREA	13,157	14.1%	28.7%	870	(35.1%)	(29.6%)
32	AECOM	USA	13,148	(1.4%)	(1.4%)	8,499	(6.0%)	(6.0%)
33	ACCIONA	SPAIN	12,863	34.2%	50.7%	10,100	(3.8%)	2.3%
34	SUMITOMO FORESTRY	JAPAN	12,701	(2.8%)	20.5%	3,558	(8.0%)	4.8%
35	IIDA GROUP HOLDINGS	JAPAN	12,348	(10.0%)	(4.8%)	5,017	(28.1%)	(21.0%)
36	BALFOUR BEATTY	UK	11,049	(3.1%)	7.9%	2,402	(1.9%)	9.9%
37	SAIPEM SPA	ITALY	10,525	36.2%	52.9%	2,409	15.9%	23.2%
38	NVR	USA	10,364	19.1%	19.1%	14,848	(27.1%)	(27.1%)
39	TOLL BROTHERS	USA	10,276	21.9%	21.9%	4,723	(34.7%)	(34.7%)
40	GS ENGINEERING & CONSTRUCTION	SOUTH KOREA	9,521	20.6%	36.1%	1,429	(49.4%)	(46.6%)
41	GRUPO CARSO	MEXICO	9,022	46.9%	45.7%	9,432	29.3%	23.2%
42	WEBUILD SPA	ITALY	8,523	10.0%	23.5%	1,474	(37.8%)	(33.8%)
43	FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A.	SPAIN	8,118	3.0%	15.7%	3,866	(27.9%)	(12.1%)
44	HASEKO	JAPAN	8,099	6.1%	12.4%	3,440	(11.2%)	(9.8%)
45	DAEWOO ENGINEERING & CONSTRUCTION CO.	SOUTH KOREA	8,066	6.3%	20.0%	1,367	(31.4%)	(27.6%)
46	FERROVIAL	SPAIN	7,954	(0.8%)	11.4%	19,066	(17.2%)	(12.0%)
47	WORLEY	AUSTRALIA	9,705	43.5%	1.9%	5,164	16.9%	10.1%
48	BARRATT DEVELOPMENTS PLC	UK	7,011	8.1%	9.5%	5,695	(41.7%)	(33.7%)
49	ROYAL BAM GROUP NV	NETHERLANDS	6,972	(19.4%)	(9.5%)	623	(25.6%)	(20.9%)
50	MYTILINEOS HOLDINGS	GREECE	6,643	110.8%	136.7%	2,953	26.8%	34.8%
51	KBR	USA	6,564	(10.6%)	(10.6%)	7,207	8.3%	8.3%
52	LENLELEASE	AUSTRALIA	6,505	(10.9%)	(8.3%)	4,300	(26.9%)	(20.7%)
53	SACYR, S.A.	SPAIN	6,165	11.5%	25.2%	1,820	7.6%	18.2%
54	PEAB AB	SWEDEN	6,121	(10.9%)	5.1%	1,631	(56.2%)	49.6%
55	PORR AG	AUSTRIA	6,095	(0.3%)	11.9%	485	(20.7%)	(15.7%)
56	HEBEI CONSTRUCTION GROUP CO. LTD.	CHINA	5,945	(19.8%)	(16.4%)	199	(34.8%)	(29.3%)

Rank 2022	Company	Country	Sales 2022 (MN \$)	% change 2022-2021	% change in local currency 2022-2021	2022 market capitalization (USD million)	% change 2022-2021	% change in local currency 2022-2021
57	DL E&C (antes DAELIM INDUSTRIAL CO. LTD)	SOUTH KOREA	5,803	(12.9%)	(1.8%)	986	(7.9%)	(2.8%)
58	SNCLAVALLIN INC.	CANADA	5,802	(1.3%)	2.4%	3,096	(27.8%)	(22.8%)
59	SINOMA INTERNATIONAL ENGINEERING CO. LTD.	CHINA	5,769	1.9%	6.3%	2,798	(29.9%)	(23.9%)
60	TAYLOR WIMPEY PLC	UK	5,468	(7.3%)	3.1%	4,374	(49.5%)	(43.5%)
61	NCC AB	SWEDEN	5,357	(13.9%)	1.5%	911	(53.4%)	(47.4%)
62	PERSIMMON PLC	UK	4,721	(5.0%)	5.7%	4,700	(61.9%)	(57.4%)
63	BELLWAY PLC	UK	4,655	9.8%	13.3%	3,676	(34.7%)	(25.4%)
64	MORGAN SINDALL PLC	UK	4,469	1.1%	12.4%	876	(44.6%)	(38.0%)
65	TODA CORP.	JAPAN	4,465	6.6%	(1.1%)	1,879	(16.4%)	(8.2%)
66	PRIMORIS SERVICES CORP.	USA	4,421	26.4%	26.4%	1,166	(8.6%)	(8.6%)
67	KIER GROUP PLC	UK	4,334	3.4%	(2.2%)	369	(54.3%)	(48.5%)
68	ORASCOM CONSTRUCTION LTD.	U.A.E.	4,177	17.9%	17.9%	453	(19.8%)	(19.8%)
69	GEK TERNA	GREECE	4,148	206.5%	244.2%	1,117	7.0%	14.0%
70	VEIDEKKE ASA	NORWAY	4,021	(8.1%)	2.8%	1,330	(34.5%)	(26.9%)
71	MOTA ENGIL SGPS	PORTUGAL	4,007	27.5%	43.2%	384	(13.8%)	(8.2%)
72	PENTA-OCEAN CONSTRUCTION CO. LTD.	JAPAN	3,987	(10.2%)	(4.9%)	1,438	(35.8%)	(29.4%)
73	TUTOR PERINI CORP.	USA	3,791	(18.3%)	(18.3%)	389	(38.5%)	(38.5%)
74	ENKA INSAAT VE SANAYI AS	TURKEY	3,770	31.9%	31.9%	10,625	66.7%	129.4%
75	IMPLENIA AG	SWITZERLAND	3,731	(9.4%)	(5.4%)	760	51.7%	83.3%
76	KELLER GROUP PLC	UK	3,643	19.0%	32.4%	704	(27.0%)	(18.3%)
77	AECON GROUP INC.	CANADA	3,609	13.8%	18.1%	414	(49.0%)	(45.4%)
78	SUMITOMO MITSUI CONSTRUCTION CO. LTD.	JAPAN	3,590	(9.7%)	(4.4%)	536	(24.4%)	(16.9%)
79	OBRASCON HUARTE LAIN, S.A.	SPAIN	3,434	4.4%	17.3%	284	(58.7%)	(56.0%)
80	ELECTRA LTD.	ISRAEL	3,230	16.3%	20.9%	2,170	(18.2%)	(11.6%)
81	CTCI CORP.	TAIWAN	3,192	26.4%	34.8%	1,075	4.9%	16.4%
82	BERKELEY GROUPS HOLDINGS	UK	3,191	5.3%	6.6%	6,188	(26.9%)	(19.6%)
83	HAZAMA ANDO CORP.	JAPAN	3,029	(8.7%)	(3.3%)	1,257	(12.2%)	(3.5%)
84	GRANITE CONSTRUCTION INC.	USA	2,804	(6.8%)	(6.8%)	1,534	(13.5%)	(13.5%)
85	PER AARSLEFF HOLDING	DENMARK	2,630	11.4%	23.3%	468	(39.9%)	(28.9%)
86	YIT OYJ	FINLAND	2,531	(25.2%)	(15.9%)	552	(46.3%)	(42.9%)
87	ITALIAN-THAI DEVELOPMENT PUBLIC CO. LTD.	THAILAND	1,914	2.1%	14.2%	291	(19.7%)	(16.2%)
88	HEIJMANS NV	NETHERLANDS	1,909	(7.7%)	3.7%	255	(33.9%)	(29.7%)
89	TEKFEN HOLDING AS	TURKEY	1,852	1.1%	89.0%	977	94.4%	143.4%
90	STERLING CONSTRUCTION CO. INC.	USA	1,769	11.8%	11.8%	1,003	27.8%	27.8%
91	COSTAIN GROUP PLC	UK	1,758	12.6%	25.2%	131	(34.1%)	(26.2%)
92	BAUER AG	GERMANY	1,717	(5.6%)	6.0%	161	(38.1%)	(34.2%)
93	GALLIFORD TRY PLC	UK	1,647	8.6%	10.0%	230	6.6%	20.8%
94	JM AB	SWEDEN	1,619	(4.9%)	12.2%	1,128	(63.7%)	(58.1%)
95	HJ Shipbuilding & Construction (antes HanjinHeavy)	SOUTH KOREA	1,385	(7.1%)	4.9%	81	(11.4%)	(6.5%)
96	MRV ENGENHARIA	BRAZIL	1,285	(2.6%)	(6.8%)	695	(33.2%)	(36.6%)
97	CFE	BELGIUM	1,230	(7.6%)	3.7%	259	(92.7%)	(92.2%)
98	GRUPO EMPRESARIAL SAN JOSE SA	SPAIN	1,150	4.8%	17.7%	276	(24.0%)	(19.2%)
99	ELLAKTOR SA	GREECE	1,099	1.5%	14.0%	653	26.7%	34.7%
100	SALFACORP SA	CHILE	952	1.0%	16.0%	137	(18.0%)	(20.0%)
TOTAL			1,939,979	6.3%	20.9%	598,577	(14.9%)	(10.8%)

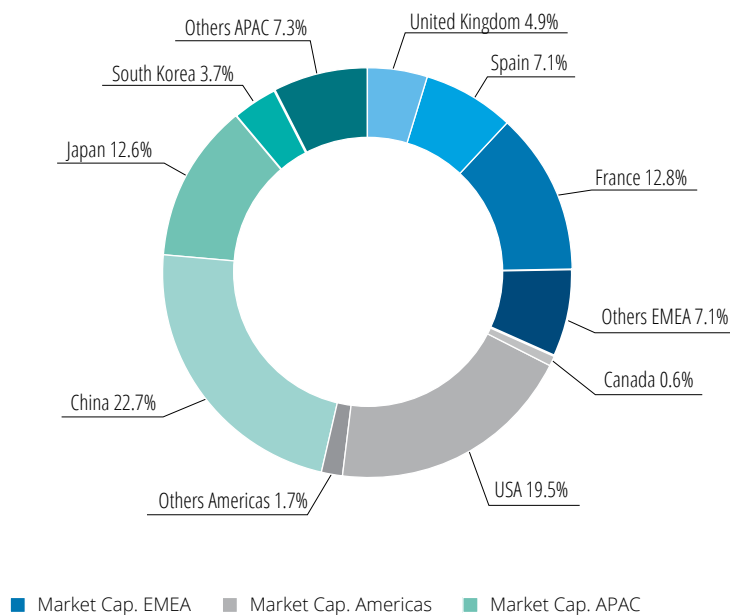
Source: Global Powers of Construction (GPOC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

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

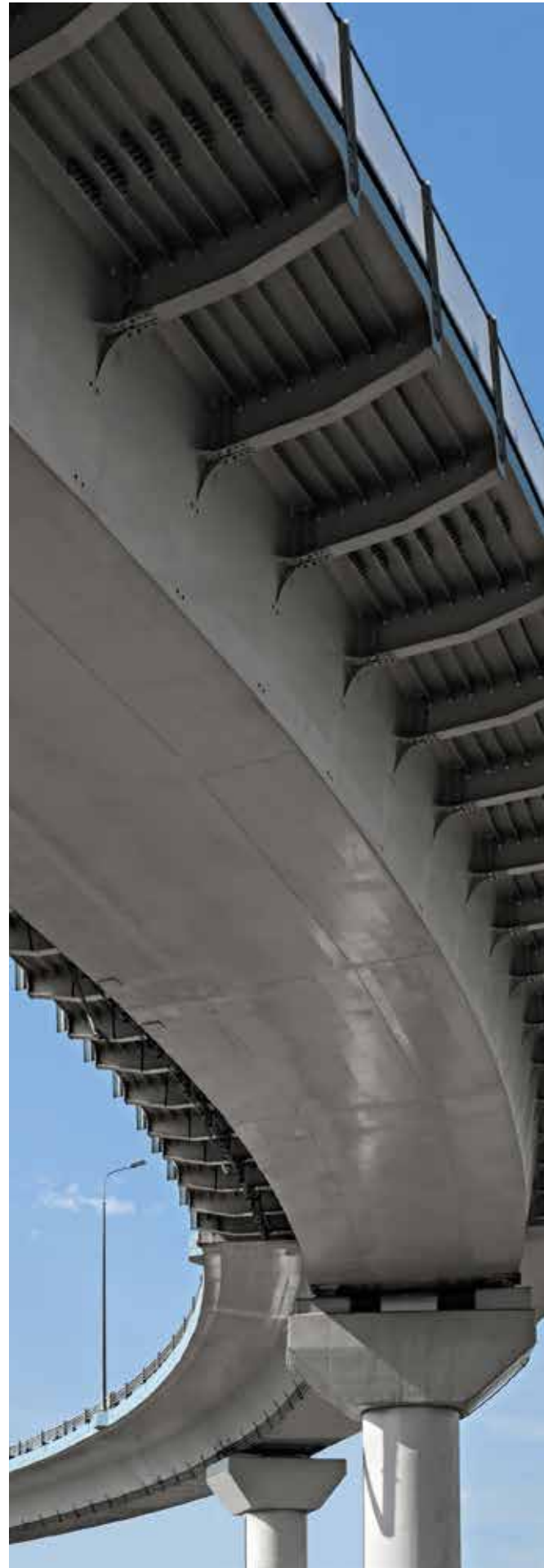
Sales



Market capitalization



Source: Global Powers of Construction (GPOC) 2022 analysis; Bloomberg, accessed April 2023 and company financials



Top 30 GPoC – ranking by market capitalization

In 2022 our Top 100 GPoC reported a 14.9% overall decline in their market capitalization after the good recovery shown by the markets in 2021 following the upheaval caused by the COVID-19 pandemic in 2020. Stock market performance consistently dropped in all regions, with heavy losses.

The aggregate market capitalization of the companies in our Top 30 ranking fell by 10.1% in 2022 to US\$ 461,865 million (see Figure 2.1). In terms of geographical distribution, China has eight companies on the list, while the United States has added KBR to the six companies already included in 2021. On the other hand, Europe only contributes eight companies to this year's ranking.

The decrease in market value can be observed in all geographical areas, ranging from a 20% drop recorded by the US groups included in the Top 30, to the relatively moderate 6.5% decrease of the Asian companies. Overall, only 7 of the 30 companies included in our ranking saw their market value rise in 2022. Worth noting are the 66.7% increase seen by the

Turkish company Enka and the 29.3% rise recorded by the Mexican Grupo Carso.

To better understand the stock market performance of our GPoC, we performed a more in-depth analysis by geographical area, which is as follows:

Figure 2.1 Top Global Construction Companies by Market Capitalization

Rank MC	Company	Country	2022 Market Capitalization (USD million)	2021 Market Capitalization (USD Million)	% Change	% Change in LC*
1	VINCI	FRANCE	56,316	60,043	(6.2%)	(0.3%)
2	CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD. (CSCEC)	INDIA	33,007	32,998	0.0%	8.6%
3	LARSEN & TOUBRO LTD. (L&T)	CHINA	32,716	27,240	20.1%	24.6%
4	LENNAR CORP.	USA	25,454	31,456	(19.1%)	(19.1%)
5	DR HORTON	USA	23,165	29,895	(22.5%)	(22.5%)
6	FERROVIAL	SPAIN	19,066	23,020	(17.2%)	(12.0%)
7	CHINA RAILWAY GROUP LTD. (CREC)	CHINA	18,780	20,773	(9.6%)	(1.9%)
8	DAIWA HOUSE INDUSTRY CO.	JAPAN	17,265	19,170	(9.9%)	(1.0%)
9	CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD. (CCCC)	CHINA	15,832	18,260	(13.3%)	(5.9%)
10	POWER CONSTRUCTION CORP OF CHINA	CHINA	15,544	19,448	(20.1%)	(13.3%)
11	NVR	USA	14,848	20,370	(27.1%)	(27.1%)
12	SAMSUNG C&T CORP.	SOUTH KOREA	14,652	16,347	(10.4%)	(5.4%)
13	CHINA RAILWAY CONSTRUCTION CORP. LTD. (CRCC)	CHINA	14,132	15,474	(8.7%)	(0.9%)
14	JACOBS ENGINEERING	CHINA	13,821	17,357	(20.4%)	(20.4%)
15	SEKISUI HOUSE	USA	12,464	13,565	(8.1%)	3.9%
16	CHINA ENERGY ENGINEERING CORP	JAPAN	11,845	15,496	(23.6%)	(17.0%)
17	BOUYGUES	FRANCE	11,192	13,715	(18.4%)	(13.2%)
18	ENKA INSAAT VE SANAYI AS	TURKEY	10,625	6,374	66.7%	129.4%
19	PULTEGROUP	USA	10,283	14,251	(27.8%)	(27.8%)
20	ACCIONA	SPAIN	10,100	10,499	(3.8%)	2.3%
21	SICHUAN ROAD AND BRIDGE (GROUP) CO. LTD.	CHINA	10,036	9,046	11.0%	20.4%
22	GRUPO CARSO	CHINA	9,432	7,295	29.3%	23.2%
23	EIFFAGE, S.A.	MEXICO	9,322	9,854	(5.4%)	0.6%
24	METALLURGICAL CORPORATION OF CHINA LTD (MCC)	FRANCE	8,866	11,490	(22.8%)	(16.3%)
25	AECOM	USA	8,499	9,041	(6.0%)	(6.0%)
26	ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. (ACS)	SPAIN	7,405	7,401	0.1%	6.4%
27	DAITO TRUST CONSTRUCTION	JAPAN	7,287	7,893	(7.7%)	1.5%
28	KBR	USA	7,207	6,657	8.3%	8.3%
29	SKANSKA AB	SWEDEN	6,513	10,684	(39.0%)	(29.7%)
30	BERKELEY GROUPS HOLDINGS	UK	6,188	8,462	(26.9%)	(19.6%)
TOTAL			461,865	513,572	(10.1%)	(1.6%)

* Local currency

Source: Bloomberg.

Asian companies

Of the eight Chinese groups included in our Top 30, four showed double digit declines in their stock market value in 2022. Aggregate value contracted by 10.5% with the sole exceptions of Sichuan Road and Bridge (Group), which saw its market capitalization rise by almost 11%, and the slight increase of the Chinese group with the largest market value, China State Construction Engineering. These positive figures were insufficient to offset the decreases recorded by the other groups. In local currency terms, overall performance is still negative, although the depreciation of the exchange rate has worsened the picture for these groups.

The three Japanese companies in our list recorded declines in the range of 8-10%. The negative performance of the exchange rate also contributed to a worse performance in terms of USD value.

The South Korean company Samsung C&T Corp registered a notable 10.4% decline

in market value, while Larsen & Toubro continued its amazing market performance and after recording an 81% increase in 2021 was able to further increase its market value by 20.1% in 2022, taking the group straight into third place in our 2022 Top 30.

European companies

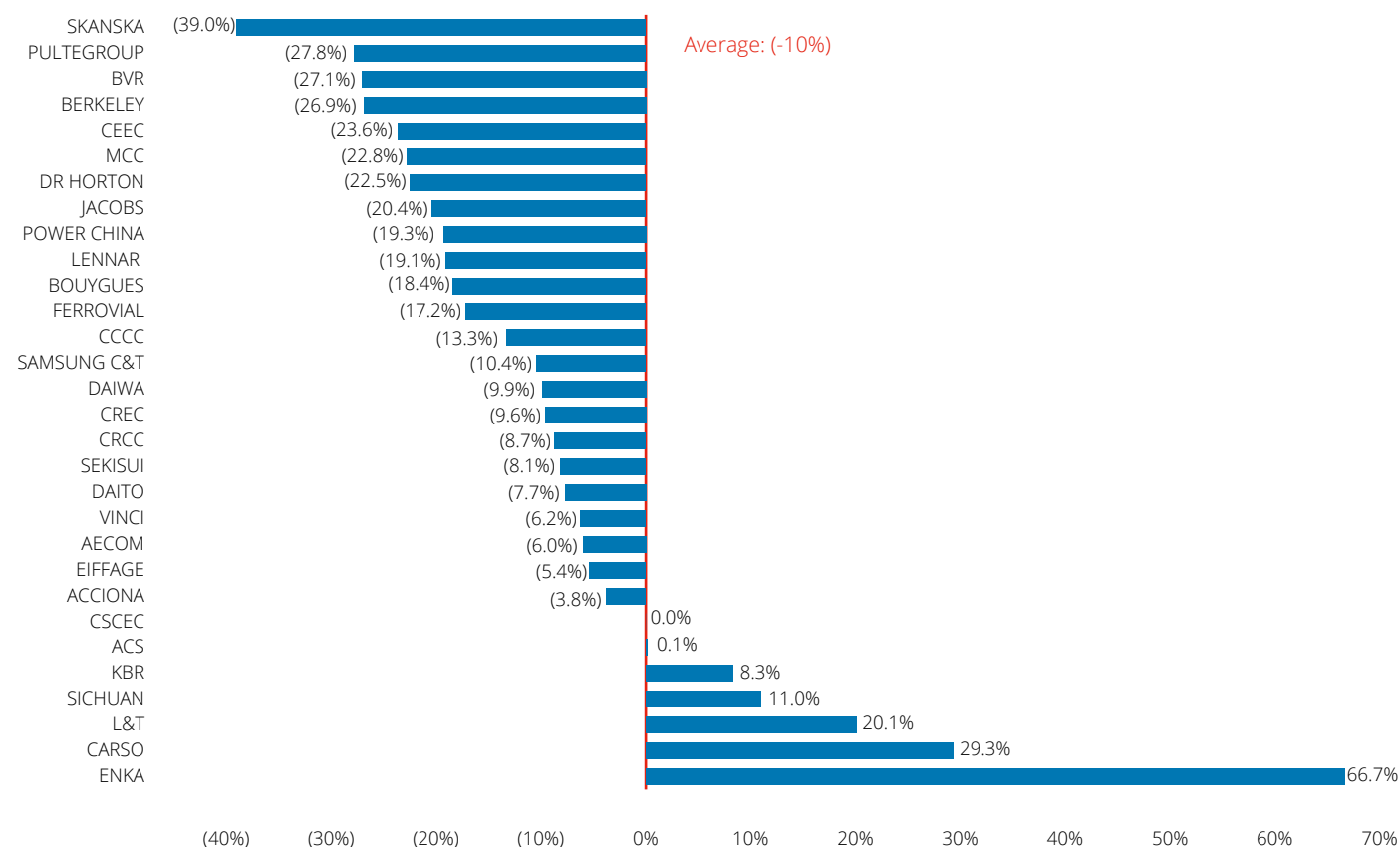
The total market value of the European groups included in our Top 30 decreased by 8.9% on aggregate. With the exception of the Turkish company Enka, which recorded an impressive 66.7% increase in its market value, and the Spanish ACS Group, which was able to maintain the same value as the previous year, all the other companies saw significant declines in their market capitalization figures. This situation was worsened in the case of the euro area companies by the adverse change in the EUR-USD exchange rate in 2022. In this regard, Vinci, which remains the top construction company by market value, maintained its euro value while losing 6.2% of its USD figure.

US companies

US groups recorded a 20% average decrease in market capitalization in 2022. Except for KBR, a new entry to our Top 30 list, which was able to increase its market value by 8.3%, the other six groups in the Top 30 saw their market values decline in 2022, at double-digit rates in all but one case (see Figure 2.2). The positive performance of the homebuilders Lennar and D.R. Horton in previous years, in which they benefited from a strong US housing market, allowed them to maintain fourth and fifth position, respectively, in our 2022 ranking, despite seeing their market values plunge at double-digit rates.

Due to the negative scenarios described, our Top 30 GPoC by market capitalization has again lost the value figures that they recovered in 2021 and were comparable to the levels achieved in 2019, i.e. before the impact of COVID-19 on stock markets started to be noted.

Figure 2.2 Market Capitalization change FY 2022 vs FY 2021



Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023

Top 30 GPoC – ranking by international sales

In 2022, revenue obtained by our GPoC from international sales rose to 16% from the 15% obtained in the prior year (see figure 3.1). The new economic scenario has not allowed companies to attain once again the percentage of 19% that international sales represented in 2019 before the pandemic hit their business.

The construction industry has always been characterized as a very local industry and its production processes have not changed much over the centuries. Construction activities are carried out in a number of disconnected locations and on a temporary basis, and its basic processes have not evolved significantly, projects are made to measure and therefore require a major logistical effort to transport the materials and human resources needed for construction to the site and then the vast majority of the construction activities, supervision and decommissioning of projects are carried out on site.

This feature of the industry has created a sector with a distinctly local character, in which knowledge of clients, suppliers and local subcontractors plays a key role. There are clear barriers to entry for non-local construction companies, which have found it difficult to compete with local firms, particularly on small- and medium-sized projects where differentiation in terms of technical and financial capability is difficult. In addition, some of the larger construction companies incurred significant losses on projects in certain markets outside their country of origin, giving rise to the saying “construction does not travel well” and a relative retreat from international activities.

In this context, until relatively recently, virtually all the activities of the largest construction companies were based in their country of origin.

However, in recent decades, attracted by the ambitious infrastructure investment plans of many countries, many companies in this sector, particularly European construction companies, have significantly increased their presence outside their country of origin, especially in complex projects where their technical capabilities or financial strength give them a competitive advantage over the local construction companies.



In this context, in 2022 our Top 30 GPoC obtained around 16% of total revenue outside their respective domestic markets, a slight improvement on the 15% obtained in 2021, but still down from the 19% that international sales represented back in 2019 (see figure 3.1).

In line with prior years, European groups continue to be the most internationalized with 61% of their sales obtained outside of their domestic markets. The Indian group Larsen & Toubro and the South

Korean GPoC have been able to maintain noteworthy percentages of 37% and 34% of international revenue.

In line with 2021, the US-based GPoC only achieved 10% of revenue abroad due to the relevance of the two domestic homebuilders, Lennar and D.R. Horton, included in the ranking. ACS remains the most internationalized contractor among our GPoC with 91% of total revenue obtained outside Spain, an increase on the 89% registered in 2021. However, the

French group Vinci leads for the first time our ranking of international sales, with US\$ 35,529 or 56% of its revenue (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 13% of their total sales, respectively.

Figure 3.1. Top 30 Global Construction Companies by 2022 international and domestic sales

Rank	Company	Country	International sales (USD million)	Domestic sales (USD million)	International sales as % of total sales
1	VINCI	FRANCE	35,529	29,441	55.7%
2	ACS	SPAIN	32,072	3,339	90.6%
3	BOUYGUES	FRANCE	21,231	25,459	45.5%
4	CSCEC	CHINA	16,045	289,357	5.3%
5	STRABAG	AUSTRIA	15,497	2,439	86.4%
6	CCCC	CHINA	14,661	92,379	13.7%
7	SKANSKA	SWEDEN	12,559	3,569	77.9%
8	POWER CHINA	CHINA	11,120	73,976	13.1%
9	SAMSUNG C&T	SOUTH KOREA	10,770	22,642	32.2%
10	CREC	CHINA	8,684	162,865	5.1%
11	CRCC	CHINA	8,037	154,886	4.9%
12	L&T	INDIA	7,792	13,522	36.6%
13	CEEC	CHINA	6,952	47,498	12.8%
14	EIFFAGE,	FRANCE	6,901	15,081	31.4%
15	HDEC	SOUTH KOREA	6,409	10,032	39.0%
16	KAJIMA	JAPAN	5,557	12,958	30.0%
17	JACOBS	USA	5,048	9,875	33.8%
18	FLUOR	USA	4,925	8,819	35.8%
19	SEKISUI	JAPAN	4,709	21,755	17.8%
20	OBAYASHI	JAPAN	3,826	13,292	22.4%
21	MCC	CHINA	3,421	84,656	3.9%
22	SHIMIZU	JAPAN	3,420	9,782	25.9%
23	TAISEI	JAPAN	1,374	12,365	10.0%
24	LENNAR	USA	987	32,684	2.9%
25	SCG	CHINA	811	41,697	1.9%
26	PULTEGROUP	USA	455	15,774	2.8%
27	SICHUAN R&B	CHINA	257	19,828	1.3%
29	DAIWA	JAPAN	-	39,523	0.0%
28	DR HORTON	USA	-	33,480	0.0%
30	DAITO	JAPAN	-	14,093	0.0%
TOTAL			253,010	1,313,104	16.2%

Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Outlook for the construction industry

The major forces that shaped the economy in 2022 seem set to continue into 2023. Interest rates continue to escalate, inflation remains elevated and geopolitical tensions persist. In addition, the rapid rise in interest rates stressed parts of the financial system, raising financial stability concerns. Growth is expected to fall from 3.4% in 2022 to 2.8% in 2023, before rising slowly and settling at 3% in five years' time,¹ the lowest medium-term forecast in decades.

The short-term outlook for the global construction industry is clouded by the uncertainties that surround the global economic situation. Many factors, ranging from demographics to broader economic growth to government spending priorities, had considerable impacts on construction activity, but one dependable pattern lurking under these crosscurrents is that large changes in interest rates signal eventual turning points for this sector. Construction activity has already slowed in both the United States and Europe as the Federal Reserve and the European Central Bank slammed the brakes on low-cost debt financing. Global construction output growth saw a moderate 1.3% increase in 2022, and it is expected to rise to 1.9% in 2023 (see Figure 4.1), far below the figures reported in prior years.

However, the industry remains resilient in the medium and long-term. Global construction work done will grow over US\$ 4.2 trillion over the next 15 years, from US\$ 9.7 trillion in 2022 to US\$ 13.0 trillion in 2037. The top 10 global construction markets will account for 70% of all construction work by 2037 and they will constitute a market worth over US\$ 9.7 trillion, the same size as all global construction work done today.²

Infrastructure investment will drive construction activity as governments continue to promote major infrastructure projects to boost their economies'

production potential and drive the post-COVID-19 economic recovery. Civil engineering is expected to be the fastest-growing activity in the industry, with forecast growth of 6.5% in 2023 (see Figure 4.1).

However, a shadow could be cast over the long-term outlook for civil engineering because of the position of public finances in many countries, with additional medium-term restrictions arising from the need to earmark ever more income to pension payments, healthcare costs and defense costs.

As regards non-residential building construction, the expectations for commercial real estate are not positive, since supply and demand are being rebalanced in shopping centers and offices as a result of growth in online shopping and remote working. However, many niche opportunities are appearing as a result of the great macrotrends towards the digitalization and decarbonization of the economy, which will give rise to huge investments in infrastructure: telecommunications networks, data centers, battery plants, electric vehicle factories, etc.

In the global residential housing market, prices have fallen rapidly in several economies, while worries are mounting of a repeat of the price crash seen during the 2008 global financial crisis. However,

several factors are expected to prevent a steep dive in house prices this time, such as better lending standards during the upturn. This subsector is expected to fall by 0.9% in 2023 and recovery is expected to take place from 2024 onwards (see Figure 4.1).²

Other disruptions that have recently impacted the outlook for the construction industry relate to the shortage of supply of building materials. Supply-side constraints are expected to ease but not dissipate in 2023, while building material costs remain above prepandemic prices. Overall, the industry has adapted to this new normality and since 2022 most new contracts have contained escalation clauses which enable contractors to pass on a significant portion of price increases.

In addition, labor shortage has become a serious challenge to delivering projects in developed markets. The lack of skilled workers increases wage costs for contractors and in areas such as Europe this could become a structural problem. Nominal wage inflation continued to lag far behind price inflation in 2022, but given the tightness in labor markets, real wages should recover in the medium-term.¹

Environmental, social and governance (ESG) considerations are playing an ever-greater role in how and why capital is invested, prompting the construction sector to use innovation and financial commitments to sustainable net-zero policies to transform itself. The global push towards a less carbon-intensive future will continue in 2023 and beyond, with further investment opportunities in renewable energy generation and other infrastructure.¹⁹

In any case, despite the turbulence that the industry is facing in the short-term, the outlook for the global construction industry remains positive. A more in-depth analysis by geographical area is as follows:

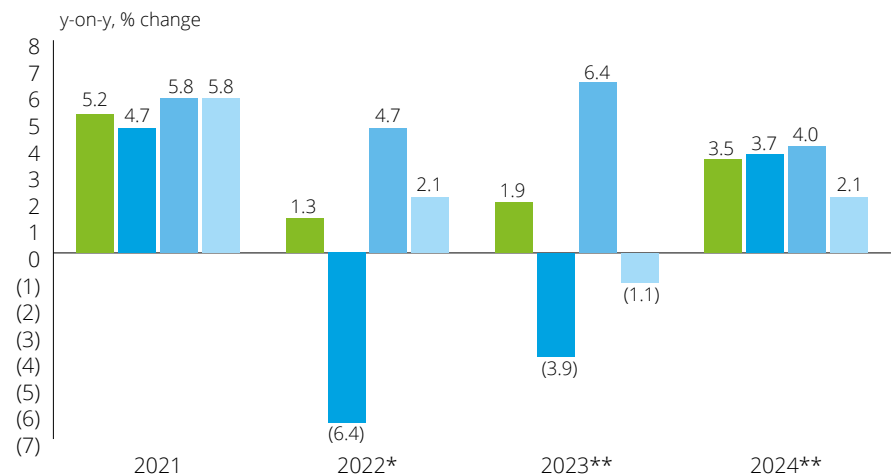
The Americas

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.

Figure 4.1: Global construction output

Construction output: global and per region

Emerging economies in Asia are driving global construction growth, while aggregated activity in developed markets is contracting



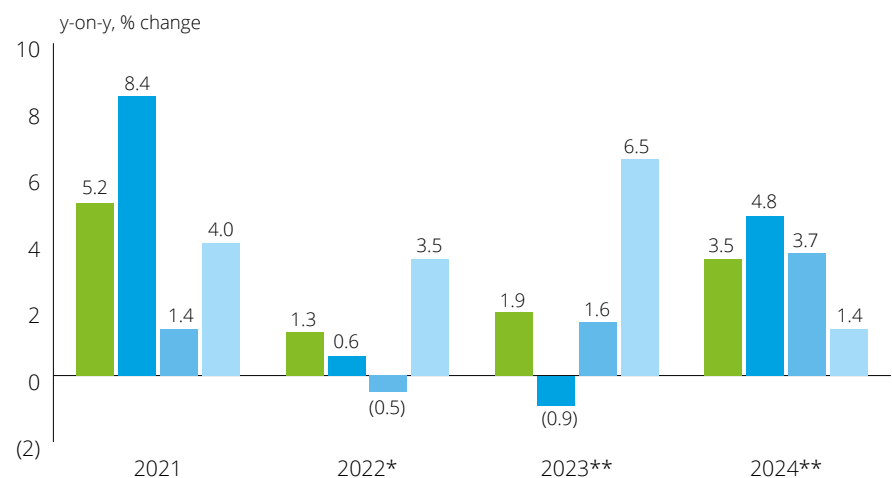
* estimate ** forecast

■ World ■ Americas ■ Asia-Pacific ■ Europe

Source: Oxford Economics

Construction output - subsectors output

Civil engineering sustains the sector's growth in 2023, driven by public infrastructure building projects



* estimate ** forecast

■ Construction overall ■ Residential building ■ Non-residential building ■ Civil engineering

Source: Oxford Economics

North America

The pace of US GDP growth is expected to weaken from its recent 2.7% in 2022 to 1.3% in 2023 and 1.4% in 2024. The deceleration of the economy is expected to result in a decrease in inflation from 8% in 2022 to 4.5% and 2.3% in 2023 and 2024, respectively.¹

US construction output is forecasted to contract by 5.1%³ in 2023, mainly due to a slump in residential construction. Rising interest rates have led to higher project financing costs, while inflation has increased construction material costs. The shortage of supply of skilled workers and supply chain disruptions have led to longer lead times and project delays. The lack of skilled labor and an ageing workforce could curtail potential construction output in the future.

Non-residential construction remains more resilient due to government stimulus. The Infrastructure Investment and Jobs Act is expected to provide stimulus for investments in aged infrastructure. Additionally, the Inflation Reduction Act encourages spending on energy-efficient and sustainable building activities as well as on manufacturing construction related to semiconductors, electric battery plants and data centers. Manufacturing construction rose 152% year on year to April 2023 to 9.9% of total construction spending in the United States. This makes the second largest construction category after residential housing.¹²

Despite the contraction expected for 2023, US construction work done will grow by almost 30% over the next 15 years to reach over US\$ 1.8 trillion by 2037—up by almost US\$ 400 billion.²

Canada's real GDP grew by 3.4% in 2022, but this percentage is expected to decline to 1.5% in 2023 and 2024.¹ Inflation has remained below that of the United States, reaching 6.8% in 2022, but is expected to fall to 3.9% and 2.4% over the next two years.¹

Canadian construction market volume was US\$ 355.9 billion in 2022. The market is projected to achieve an AAGR of more than 2% in 2024-2027.⁴ However, the Canadian labor shortage will continue to challenge the industry. Not enough people are joining

construction, which will mean a continued labor shortage in 2023. According to the Canadian Construction Association, 22% of the Canadian construction workforce will be retiring by 2028, with the loss of that experience and knowledge being a significant concern. However, technology is expected to continue to help construction organizations achieve more with the workers they have. Streamlining processes with technology will reduce the time spent on non-productive tasks out in the field.

Latin America and the Caribbean

The Latin America and the Caribbean region has proved to be relatively resilient in the face of increased debt stress, stubborn inflation, and uncertainty arising from the geopolitical scenario. Income and employment have largely recovered from the pandemic, poverty has receded, and markets remain guardedly optimistic about the near future. This resulted in GDP growth of 4% in 2022,¹ above the figures reported by the United States and Canada.

However, headwinds have picked up, and the short-term outlook is substantially bleaker than it was in 2022. GDP growth for the region is expected to be 1.6% and 2.2% in 2023 and 2024, respectively, but performance in the largest economies will be even weaker. Growth in Brazil and Argentina is forecasted to be below 1%, while in Chile a 1% contraction is expected.¹

Inflation remained high in the region, reaching 14%¹ (excluding Venezuela) in 2022, and growth in consumer prices is expected to be above 10% until 2024.

The Latin American infrastructure construction market currently amounts to US\$ 230 billion, but is expected to reach US\$ 255 billion in 2026 (3.8% CAGR). Brazil, Mexico, Colombia and Argentina represent about 70% of this market.⁵

Europe

Europe faces the difficult task of simultaneously bringing down inflation, sustaining economic growth, and preserving financial stability. While declining, inflation remains very high. Growth has tumbled since the middle of last year as inflation lowered households' real incomes. An all-out recession was avoided this winter thanks to sharply lower energy prices and government relief

measures. Following the fastest tightening in decades, monetary policy is starting to bite, and financial sector risks have materialized.

Annual growth is expected to rebound from 0.7% in 2023 to 1.4% in 2024 in advanced European economies, and from 1.1% to 3.0% in emerging economies (excluding Belarus, Russia, Turkey, and Ukraine).⁶

Average inflation is projected to decline to 5.6% in 2023 and 3.0% in 2024 in advanced European economies, and to 11.7% in 2023 and 5.5% in 2024 in emerging European economies.⁶

The next five years is expected to be buoyed by large infrastructure programs designed to push the region to net-zero carbon emissions. Funds from the EUR 800 billion EU Next Generation fund have already begun flowing, with Spain and Italy being key beneficiaries. The EU Renovation Wave is a second important program that should impact construction activity, as it aims to double the renovation rate of both residential and non-residential buildings with a target of reducing their greenhouse gas emissions 60% by 2030. These large programs should help construction work done to expand nearly 1 percentage point faster than GDP for the next five years.²

Asia

The pace of emerging and developing Asian GDP growth is expected to accelerate from 4.4% in 2022 to 5.3% in 2023 and 5.1% in 2024. Inflation is expected to be below 4% in those years.¹

Construction activity in China, the largest economy in the region, will continue to be supported by government infrastructure investment. The government plans to expand China's transport infrastructure by building 200,000 kilometres of railways, 460,000 kilometres of highways, and 25,000 kilometres of high-level sea lanes by 2035.¹³ Significant investment in renewable energy solutions, with a key focus on wind and solar power, is also needed for China to achieve its 2060 carbon neutrality target. On the other hand, the residential building market continues to fall following the introduction of tighter regulations to curb speculation in the real estate market and the 2021 default of Evergrande.

The residential segment also faces the challenge of a falling population. Even considering these negative drivers, growth in residential construction work is expected to exceed US\$ 500 billion over the next 15-year period.²

In India, civil engineering is expected to be the fastest growing sector. Utility construction will be supported by ambitious programs such as the Jal Jeevan Mission, which aims to ensure access to piped water for every Indian household by 2024, and the Revamped Distribution Sector Scheme, which aims to improve power supply to the Punjab region. Programs such as these should not only boost the construction sector but drive significant quality of life improvements across the country.

Among the most developed Asian countries, Japan's GDP grew by 1.1% in 2022 and it is expected to keep the same pace over the next two years. Consistently, inflation is one of the lowest among the world's most developed economies (below 3%).

The Japanese construction market was valued at US\$ 552.6 billion in 2022 and is expected to achieve an AAGR of 1% in 2023-2027. The industry's growth during the period covered by the forecast is expected to be supported by investment in renewable energy infrastructure, telecommunication, and manufacturing.⁷

Oceania

As the largest economy in the region, Australia is expected to slow down from growth of 3.7% in 2022 to 1.6% and 1.7% in 2023 and 2024, respectively. Inflation will remain high in 2023 (5.3%) before going down to a more moderate 3.2% in 2024.¹

In 2023, Australian construction output is expected to slow somewhat, to about 3%.³ Residential building is impacted by elevated inflation and increasing interest rates, which have led to falls in property prices, while construction costs have surged.

Australia is rich in mineral and energy resources, and so the mining sector creates significant demand for construction activity.¹⁴ Indeed, Australia's most recent mining investment boom boosted

transportation construction activity as mining companies invested heavily in railway and harbor infrastructure. The move towards net-zero will also create several challenges and opportunities, as high carbon energy exports are replaced by new minerals needed to support the renewable energy transition.

The Australian government is maintaining a strong commitment to a 10-year AUD 120 billion⁸ infrastructure pipeline, while ensuring land transport infrastructure projects are truly significant and nation-shaping.

Middle East and Africa (MENA)

GDP in the MENA region (including central Asia) grew by 5.3% in 2022 above the figures reported by the most developed economies. A slowdown is expected for 2023 and 2024 (growth of 2.9% and 3.5%, respectively).¹ On the other hand, inflation remains extremely high (above 15%).

Across MENA, the need to meet the expectations of growing populations is driving investment in transport

infrastructure, housing, and power and water capacity. The population across the wider MENA region is set to grow by almost 120 million people and total construction work done will exceed US\$ 1.1 trillion by 2037.²

Saudi Arabia is the largest economy in the MENA region and 17th largest in the world with GDP of over US\$ 1 trillion in 2022.² Saudi Arabia has ambitious climate goals, such as the Saudi Green Initiative, which is a nationwide strategy to ensure 50% of Saudi Arabia's energy will be generated from renewables by 2030. In this context, the current pipeline of supersized giga projects that are planned or under construction is worth US\$ 1 trillion.²

In sub-Saharan Africa, GDP growth reached 3.9% in 2022 and will remain stable over the next two years. Inflation is forecasted to be 14% in 2023 and 10.5% in 2024.¹ Within the region, the construction industry in South Africa was valued at US\$ 25.1 billion in 2022⁹ and is expected to grow by 5.0% to ZAR 232.3 million in 2023. A CAGR of 5.8% is forecasted for 2023-2027.¹⁰

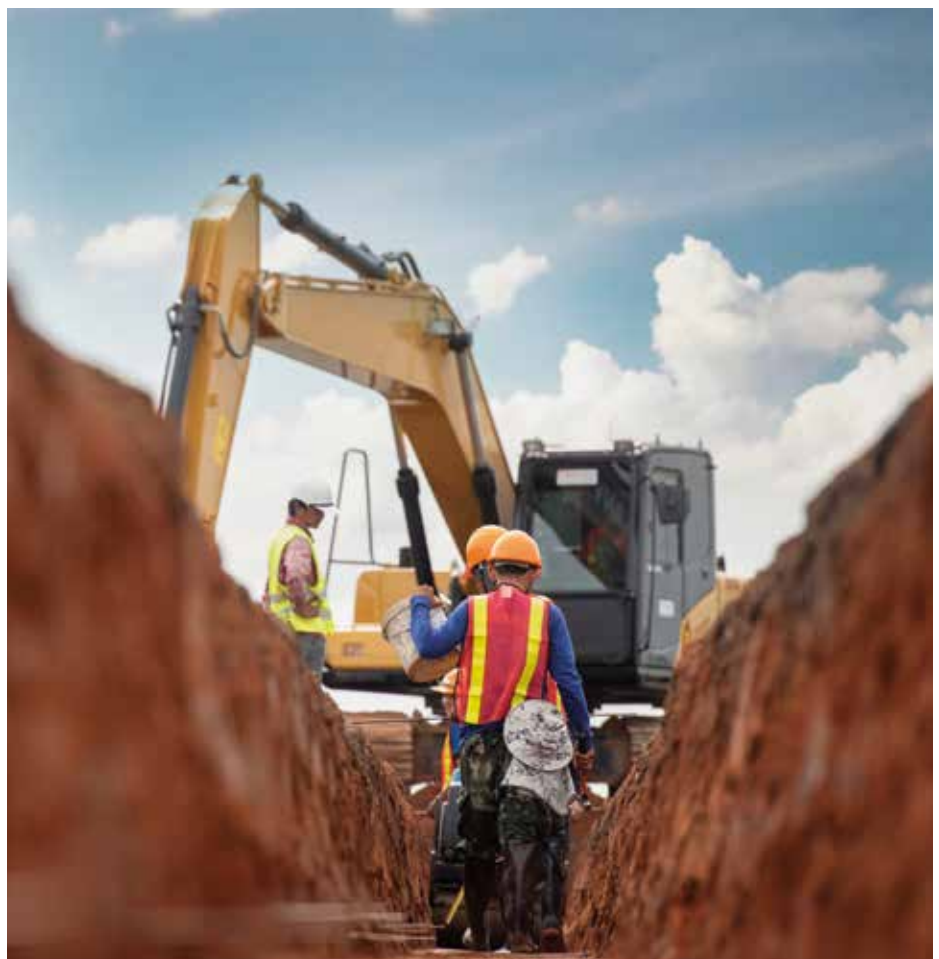
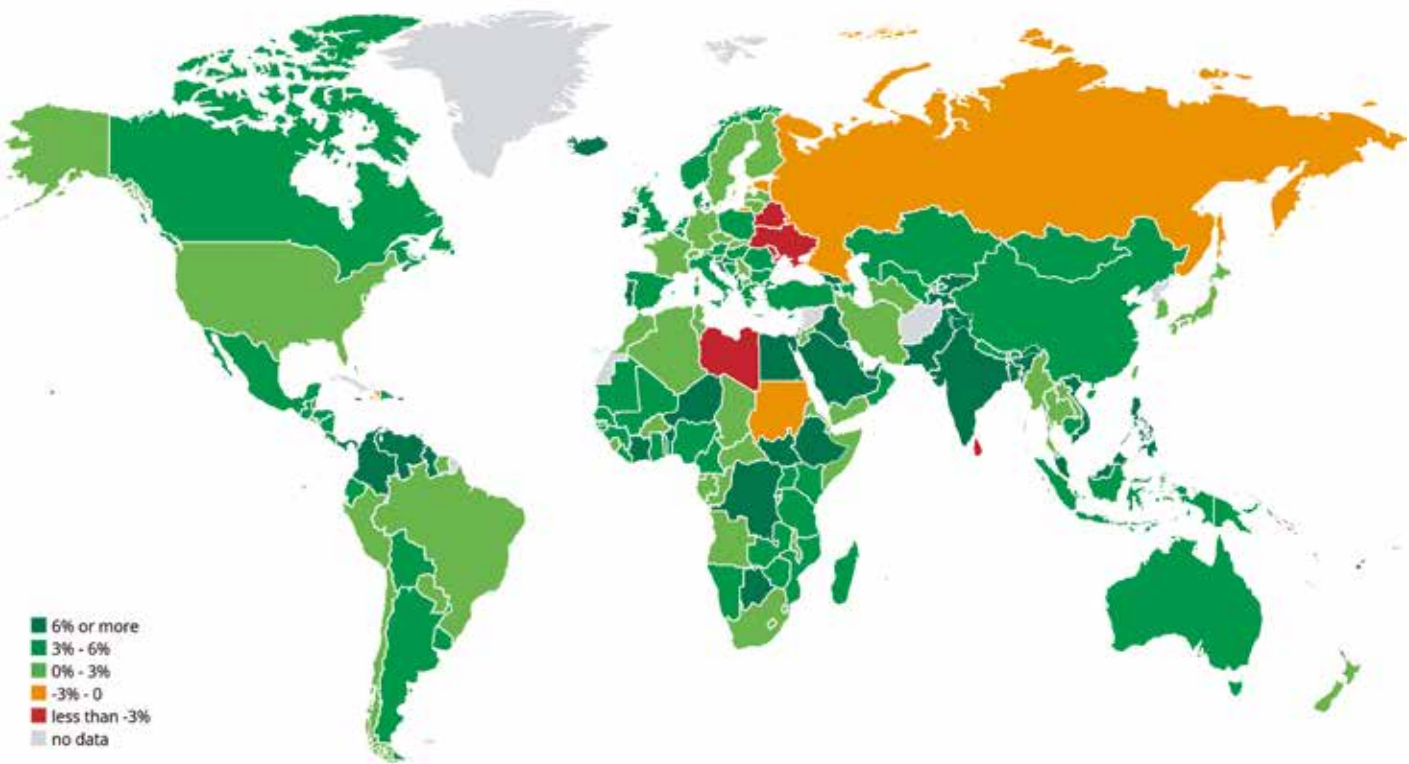
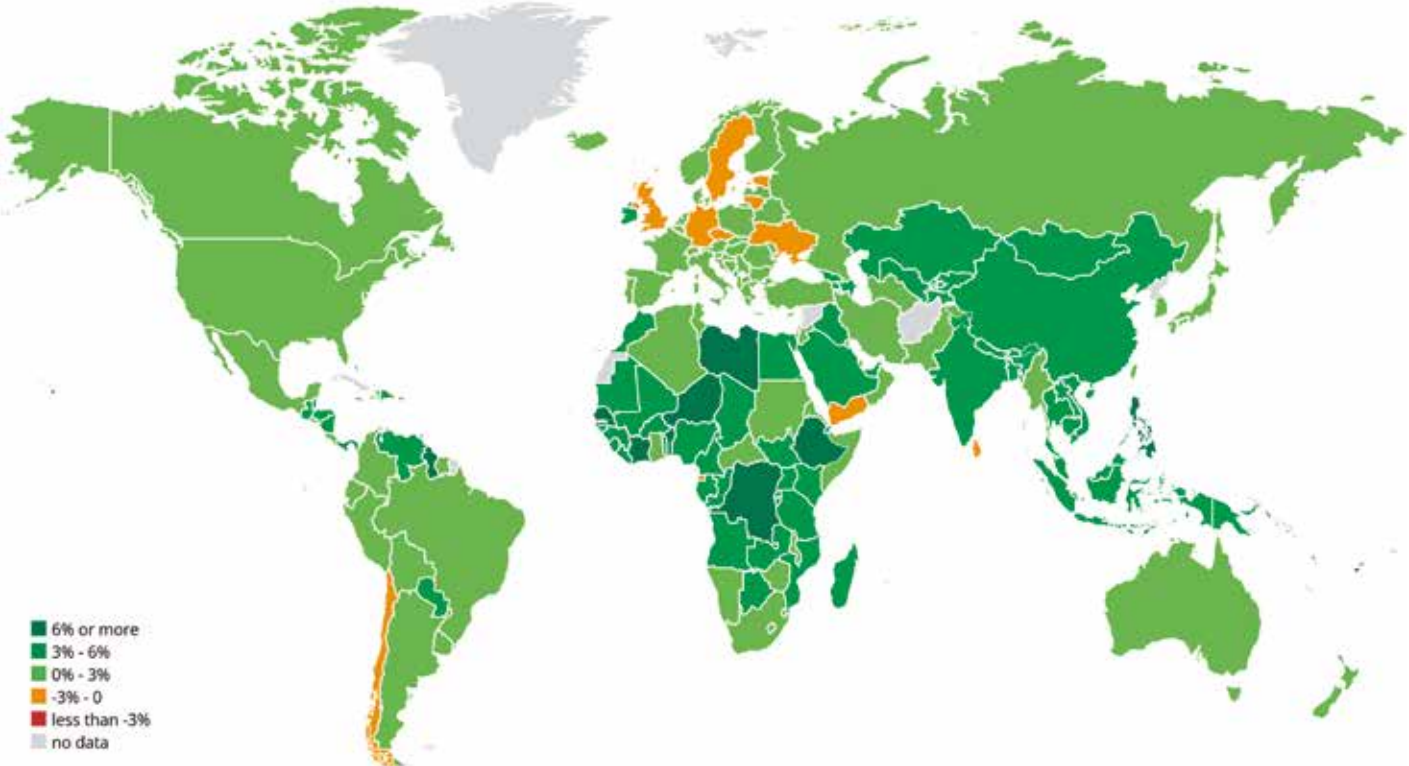


Figure 4.2: Real GDP growth (Annual percentage, 2022)



© IMF, World Economic Outlook (April 2023).

Figure 4.3: Real GDP growth (Annual percentage, 2023)



© IMF, World Economic Outlook (April 2023).

Figure 4.4: Total forecast infrastructure investment gaps

Source: Global Infrastructure Outlook, Global Infrastructure Hub.

The challenges facing the construction industry

Globally, the situation in the construction industry is posing companies significant challenges. The great megatrends of our time, such as demographics, increasing urbanization and concentration of people in megacities, the decarbonization of the economy and technological and digital transformation will be the great drivers of the construction industry in the next few decades, since they will require significant investments to be made in transport, water, waste management, social infrastructure, renewable energies and telecommunications.

A global survey conducted by Deloitte¹⁸ of more than 800 public officials working in the infrastructure industry concluded that in the next few years public-sector customers will require ever more civil engineering projects with more multimodality in the modes of transport, with advanced signalling and communications systems, smart, energy efficient buildings and more digital, secure and sustainable infrastructure. In addition, enormous investments will also be needed in telecommunications networks and data management centers, factories for electric vehicles and their components and even, at medium term, infrastructure for autonomous vehicles and air taxis.

However, although the outlook for the industry is positive and the demand for infrastructure will increase faster than growth in gross domestic product over the next few years, there are certain challenges outstanding that the companies in the industry need to resolve to enable them to harness this greater demand. The most noteworthy of these challenges include:

Transformation to improve profitability

The construction industry is noted for having low recurring operating margins,

which have become an obstacle to most construction companies investing in transforming their operations and business models. This has led the construction industry to be the economic sector with the lowest productivity growth in the last 30 years. However, the disruption created by the pandemic put the industry in a critical situation, accelerating change to such an extent that, for the first time in decades, business transformation through innovation, investment in technology and increased efficiency is a priority on the agendas of the industry's CEOs.

Against this backdrop, construction companies must undertake a transformation process with the aim of improving their profitability, roll out and integrate technologies such as BIM (Building Information Modelling), remote supervision of projects using sensors and drones, the digital twins that use 3D data to enable information to be generated in real time and decisions to be taken based on data and advanced analytics to reduce variances in costs and construction periods. Also, 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 through standardization, modular construction of buildings, the prefabrication of components using new technologies and materials in the construction processes.

Cost pressure

In recent years, the growth in construction costs, in both civil engineering and building work, has been highly significant. In 2021 the most significant materials in the construction cost structure (iron and steel products, bituminous materials, cement, energy, aluminium, etc.) experienced considerable increases in almost all countries, which, together with significant

growth in staff costs because of the effect of inflation, has led to a highly significant increase in construction costs throughout the world, with the notable exception of China. The moderate downward correction in the price of basic materials in 2022 and the first few months of 2023 has not enabled a return to pre-crisis price levels, which has impacted the profitability of many projects.

This cost pressure is causing companies in the industry to move away from traditional tactical procurement aimed at meeting the budget towards strategic procurement to reduce complexity, increase value added and establish a system of alliances, integrating key suppliers and subcontractors in the value chain. There is a growing appetite for analyzing improvements and redesigning current processes in the supply chain in order to reduce labor costs, improve product design and quality control, reduce accidents and improve sustainability.

ESG

The industry's carbon dioxide emissions are mainly produced not so much in specific construction activities, but rather in the production of the construction materials that are required in the construction process (cement, iron and steel products, other materials). In this regard, the largest perceived barriers to the industry complying with ESG criteria are a reluctance to invest in new technologies to reduce emissions the returns on which are not clear and the scant regulatory incentives to encourage steps throughout the entire value chain.

Historically, the industry has always focused on matters relating to the cost and operational efficiency of projects, but sustainability and the circular economy, as well as accident rates and other



ESG criteria, will acquire even greater importance in governments' procurement models and the views on the companies in the industry held by investors, financiers and other stakeholders. The transition towards sustainable infrastructure, the integration of circularity in construction processes, the prioritization of employee and subcontractor safety objectives, and the achievement of ESG objectives by the companies in the industry are going to be key factors for the industry's future success.

Talent management

The construction industry has been characterized in the past as being one of the industries that invests the least in talent and an industry with structural problems regarding the attraction of talent, as it is generally perceived to be an industry with few opportunities for professional development, low diversity and low job security. Increasing diversity, encouraging the capacity to attract and retain young workers by incentivising their progress and undertaking the necessary generational renewal to reduce workers' average age, which is rather higher than that of other industries, should be priorities on the agendas of the industry's CEOs. In this connection, making a commitment to digitalization as part of the framework of the operational transformation described above is not only key to resolving the challenges of the future, but also incentivizing the use of technology makes

the industry more attractive to young people, thus squaring the talent and innovation circle.

To these internal challenges facing the companies in the industry can be added other external factors that might have a considerable impact:

Contracting

The current contracting models in many countries are not appropriately distributing risks between contractor and government, as they give excessive weight to the price factor without allowing an assessment of alternatives or improvements. This contributes to the industry habitually suffering from delays, cost overruns and litigation, which causes considerable damage to both parties in terms of variances in costs and non-compliance with completion dates. It is necessary to implement new contracting models that balance the distribution of risks, limit reckless bids and increase the legal certainty of contracts through arbitration or mediation. In this regard, collaborative target costing, or similar models that clearly establish the rules of the game for the parties and the governance during the execution of the project, should be more widely used at global level.

Public-private partnerships

The impact of the crisis on public finances may affect governments' ability to undertake infrastructure investments,

so cooperation between the public and private sectors may be an appropriate instrument to finance investment in infrastructure. For this to happen, governments must establish a stable, predictable regulatory framework that allows risks to be appropriately distributed between the public and private sectors, contracts to be duly supervised and appropriate profits to be obtained on private-sector investment.

In short, in order to manage to satisfy the increasing demand for infrastructure, and, at the same time, achieve sustainable long-term profitability, companies in the construction industry should radically transform how they operate and improve their efficiency, both of which are areas in which digitalization and investment in new technologies will play a fundamental role, and redesign and integrate the supply chain and make substantial investments in sustainability and improving talent management. Furthermore, the transition towards contracting models in which risks are appropriately distributed and the enhancement of public-private partnerships in the financing of infrastructure are key factors that might have a considerable impact on the companies in the industry.

Financial performance of the GPOC 2022

The uncertainties that surround the global economic situation also impacted the financial performance of the Top 30 GPOC in 2022. Sales increased by 6% in 2022, a figure partially explained by the appreciation of the USD against other currencies, but their aggregate market capitalization dropped by 11% to US\$ 415,099 million, while their net debt rose by 10%. Building material costs remain above pre-pandemic prices, but our GPOC managed to keep profitability stable at 5.7% , mainly driven by non-construction and homebuilding activities. However, EBIT margins from construction activities, other than homebuilding, fell to 4.2%.

The Top 30 GPOC's financial performance varied according to the nationality and the activities carried on by the entities reviewed. As a result, the analysis of the aggregate ratios shows the following highlights (see Figure 5.0):

- Average net income as a percentage of sales decreased to 4.3% (4.5% in 2021). Excluding homebuilders, net income margins fell to 3.4%, down from 3.8% in 2021.

The performance of our GPOC in terms of net income margin is consistent with the EBIT margins reported. In terms of operating profitability, aggregate EBIT margin amounted to 5.7%, which is in line with 2021. The US-based GPOC dominate the ranking (16.9% in 2022 compared to 16.1% in 2021) as higher margins are usually obtained from homebuilding, rather than other construction activities.

The European groups also report high profitability (7.1% in 2022 compared to 6.8% in 2021) as this segment is formed by companies that have been able to diversify their portfolios to highly profitable activities such as concessions. On the other hand, the Asian-based GPOC reported an average EBIT margin of 4.5%, 0.3 percentage points below that observed in 2021.

As discussed later, EBIT from construction activities significantly fell in 2022. Excluding homebuilders average EBIT margin decreased to 4.2%, 5 percentage points below the 2021 figure.

In terms of dividend yield, an 11% decrease in market capitalization, partially offset by a 6% decrease in dividends paid, resulted in an aggregate dividend yield of 3.3% in 2022 (3.1% in 2021). European groups dominate the Top 30 by dividend yield.

Lastly, US companies, some of which were deemed to be homebuilders, obtained the highest ROE (22.9%), while European and Asian companies reported average ratios of 12.9% and 10.1%, respectively.

- Aggregate net debt rose by 10% to US\$ 328,465 million in 2022, but significant differences could be seen in the various different regions: US-based GPOC reported a net debt-to-equity ratio of 9.9% while European and Asian GPOC reported ratios above 30%. Debt in terms of EBITDA and market value is significantly higher among the Asian-based entities (4.4x and 1.2x) compared to their European (1.4x and 0.3x) and US competitors (0.3x and 0.1x, respectively).
- The weak stock market performance (down 11%), combined with 3% increase in book value took the market capitalization to book value ratio to 0.9.

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	4.5%	3.5%	37.4%	1.2	0.7	8.0	4.4	4.1%	3.4%	10.1%
US COMPANIES	16.9%	12.5%	9.9%	0.1	1.3	4.3	0.3	0.8%	1.4%	22.9%
EUROPEAN COMPANIES	7.1%	4.6%	31.5%	0.3	1.5	5.5	1.4	5.1%	4.7%	12.9%
GPOC 2022	5.7%	4.3%	34.8%	0.8	0.9	6.8	3.0	4.0%	3.3%	12.1%
Ranking 31-100 2022	6.8%	4.3%	24.6%	0.3	1.2	6.7	1.5	2.8%	3.6%	9.5%

Source: Global Powers of Construction (GPOC) 2022 analysis; Bloomberg, accessed April 2023 and company financials



The Asian-based GPoC are traded at a discount in the stock markets.

In general, the main financial ratios of the construction companies placed from 31 to 100 in the ranking show profitability levels exceeding those of the Top 30 GPoC and debt levels that are significantly lower. This is due mainly to the significant weight of Chinese companies in the Top 30 and to the lower specific weight of non-construction activities and homebuilders among the companies ranked from 31 to 100. Excluding these effects, the profitability and debt figures of these groups (the Top 30 and the companies ranked from 31 to 100) are very similar.

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 2022 and 2021 (see Figure 5.1), the following conclusions may be drawn:

- EBIT from construction activities represented 5.6% of sales, while operating profitability from non-construction activities averaged 6.0%, resulting in a combined EBIT margin of 5.7%, similar to 2021. While operating profitability from construction activities has remained relatively stable at between 5.3% and 5.7% for the last five years, non-construction operations reported higher volatility (see Figure 5.2). None of the Top 30 GPoC reported operating losses in 2022 or 2021.
- The Top 3 in construction activities were D.R. Horton, Lennar and PulteGroup, all US-based companies considered to be homebuilders. 2022 was characterized by a strong housing market in the United States, but the increase in interest rates, the still stressed supply chain and high labor and material costs could lead to a deterioration in the situation in 2023. Excluding homebuilders, average profitability from construction activities stood at 4.2% (0.5 p.p. below the 2021 figure). The Chinese company Sichuan Road and Bridge, which reported a construction EBIT of 10% in 2022, is the first non-homebuilder in the ranking, followed by Larsen & Toubro and Jacobs Engineering. None of our GPoC reported construction losses in 2022.
- The company with the highest non-construction EBIT margin is the Swedish company Skanska. Its operating results include the profits from several successful divestments in the investment properties business stream. On the other hand, Lennar reported operating losses due to mark-to-market losses on strategic technology investments.

Figure 5.1. Top 30 GPOC EBIT/Sales

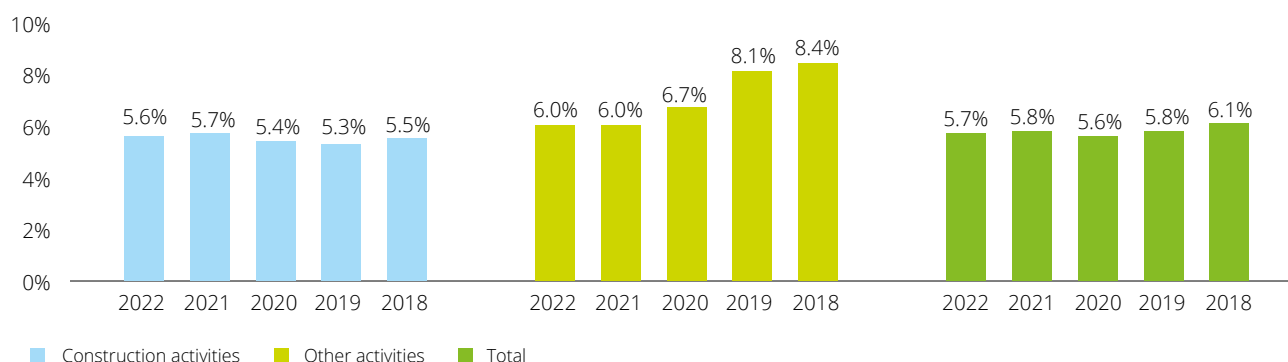
Company	EBIT* / Sales					
	Construction activities		Other activities		Total	
	2022	2021	2022	2021	2022	2021
DR HORTON (**)	21.7%	18.1%	44.2%	45.4%	22.8%	19.3%
LENNAR CORP. (**)	21.2%	19.7%	(16.4%)	78.6%	19.3%	23.1%
PULTEGROUP (**)	20.6%	16.7%	49.5%	63.6%	21.2%	18.0%
SEKISUI HOUSE (**)	15.6%	12.2%	6.2%	6.2%	7.9%	7.6%
SICHUAN ROAD AND BRIDGE (GROUP) CO. LTD.	10.0%	7.6%	10.7%	10.3%	10.1%	8.1%
DAIWA HOUSE INDUSTRY CO. (**)	9.7%	9.6%	0.5%	2.1%	8.6%	8.7%
DAITO TRUST CONSTRUCTION (**)	8.2%	8.1%	5.6%	5.0%	6.3%	5.8%
LARSEN & TOUBRO LTD. (L&T)	7.5%	7.7%	12.9%	13.0%	10.3%	10.5%
JACOBS ENGINEERING	7.3%	5.1%	4.6%	4.5%	6.2%	4.9%
CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD. (CSCEC)	7.1%	8.8%	0.5%	0.0%	4.2%	5.3%
SAMSUNG C&T CORP.	6.0%	2.3%	5.8%	4.0%	5.9%	3.5%
TAISEI CORP.	5.9%	9.0%	9.1%	6.9%	6.2%	8.8%
AVERAGE	5.6%	5.7%	6.0%	6.0%	5.7%	5.8%
STRABAG	4.8%	5.1%	1.7%	8.9%	4.1%	5.9%
CHINA COMMUNICATIONS CONSTRUCTION GROUP LTD. (CCCC)	4.4%	4.5%	6.4%	1.2%	4.7%	4.2%
KAJIMA CORP.	3.9%	5.2%	19.0%	17.0%	5.9%	6.7%
CHINA RAILWAY GROUP LTD. (CREC)	3.9%	3.6%	2.5%	3.0%	3.7%	3.5%
VINCI	3.8%	3.7%	17.7%	16.2%	11.1%	9.6%
EIFFAGE, S.A.	3.8%	3.7%	12.4%	12.1%	10.6%	10.3%
SKANSKA AB	3.7%	3.8%	59.3%	29.1%	6.1%	5.8%
CHINA ENERGY ENGINEERING CORP	3.4%	4.1%	11.8%	11.7%	5.2%	5.8%
FLUOR CORP.	3.1%	3.1%	3.2%	2.7%	3.1%	2.9%
BOUYGUES	3.0%	3.0%	7.0%	7.9%	4.4%	4.5%
SHIMIZU CORP.	2.7%	6.9%	5.5%	15.4%	3.0%	7.8%
ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. (ACS)	2.7%	3.2%	12.0%	11.9%	3.3%	3.7%
CHINA RAILWAY CONSTRUCTION CORP. LTD. (CRCC)	2.6%	2.2%	8.4%	10.8%	3.4%	3.4%
METALLURGICAL CORPORATION OF CHINA LTD (MCC)	2.6%	2.5%	2.9%	6.8%	2.6%	2.8%
POWER CONSTRUCTION CORP OF CHINA	2.3%	3.5%	12.5%	4.8%	3.3%	3.7%
OBAYASHI CORP.	1.0%	8.6%	18.2%	2.9%	2.1%	7.0%
AVERAGE ASIAN COMPANIES	4.6%	5.1%	4.0%	3.8%	4.5%	4.8%
AVERAGE US COMPANIES	18.3%	15.4%	7.1%	17.7%	16.9%	15.7%
AVERAGE EUROPEAN COMPANIES	3.6%	3.7%	13.2%	12.7%	7.1%	6.8%
AVERAGE EXCLUDING HOMEBUILDERS	4.2%	4.7%	6.0%	5.5%	4.7%	4.9%

(*) The EBIT figures reported by these groups are operating income from ordinary activities

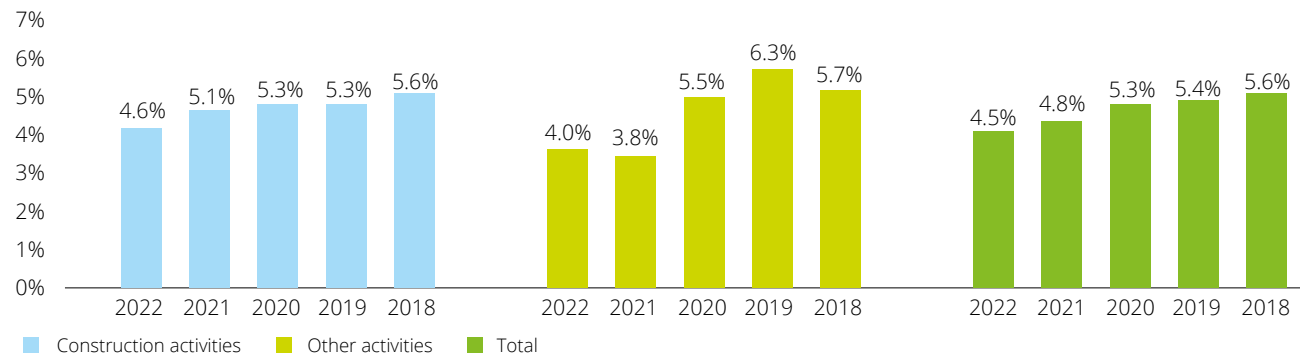
(**) Companies with significant homebuilding activity.

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

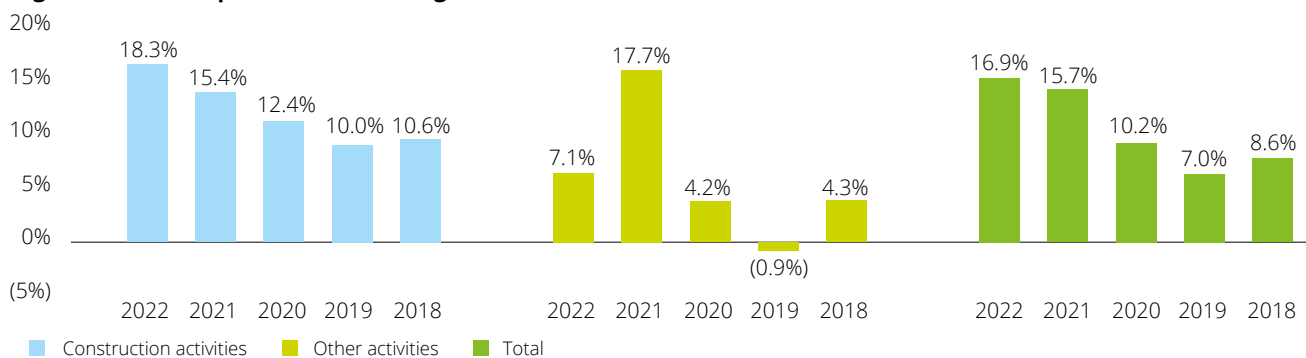
Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.2: Top 30 GPOC EBIT Margin


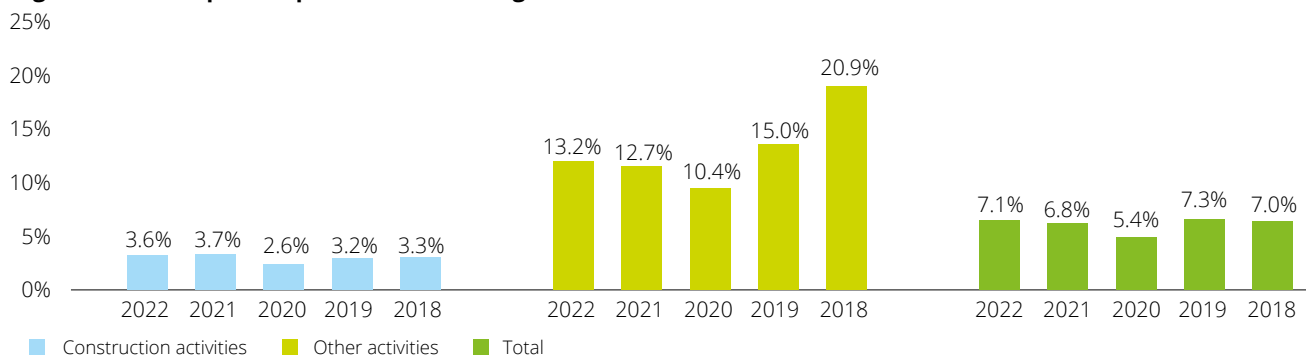
Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.2.1 Asian Top 30 GPoC EBIT Margin

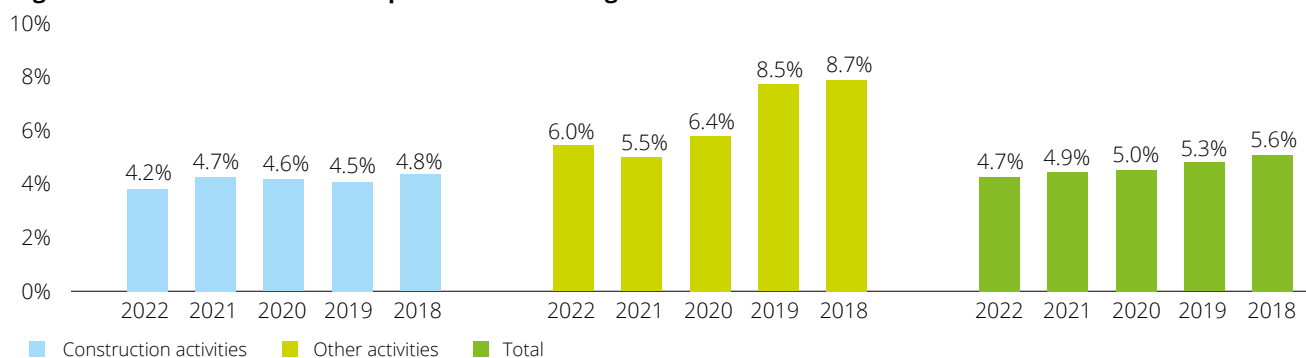
Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.2.2: US Top 30 GPoC EBIT Margin

Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.2.3: European Top 30 GPoC EBIT Margin

Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.2.4: Non-homebuilder Top 30 GPoC EBIT Margin

Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

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

Company	Net Income / Total Sales	
	2022	2021
DR HORTON *	17.6%	15.1%
PULTEGROUP *	16.1%	14.0%
LENNAR *	13.8%	16.3%
DAIWA *	8.5%	8.2%
SICHUAN R&B	8.4%	6.7%
VINCI	7.2%	4.4%
L&T	6.8%	10.5%
SEKISUI *	6.5%	6.7%
EIFFAGE	6.5%	6.2%
SAMSUNG C&T	5.9%	5.3%
SKANSKA	5.1%	4.8%
KAJIMA	4.8%	5.2%
JACOBS	4.8%	3.1%
TAISEI	4.6%	6.3%
DAITO	4.4%	4.2%
AVERAGE	4.3%	4.5%
CCCC	3.4%	3.4%
CSCEC	3.4%	4.1%
SHIMIZU	3.2%	5.3%
CREC	3.0%	2.8%
CRCC	2.9%	2.9%
CEEC	2.8%	3.0%
STRABAG	2.8%	3.9%
POWERCHINA	2.7%	2.6%
BOUYGUES	2.6%	3.5%
HDEC	2.2%	3.1%
MCC	2.2%	2.3%
OBAYASHI CORP.	2.2%	5.7%
ACS	2.0%	10.9%
FLUOR	0.5%	(2.8%)
SCG	0.6%	1.4%
AVERAGE - ASIAN COMPANIES	3.5%	3.8%
AVERAGE - US COMPANIES	12.5%	10.9%
AVERAGE - EUROPEAN COMPANIES	4.6%	5.5%
AVERAGE - EXCLUDING HOMEBUILDERS	3.4%	3.8%

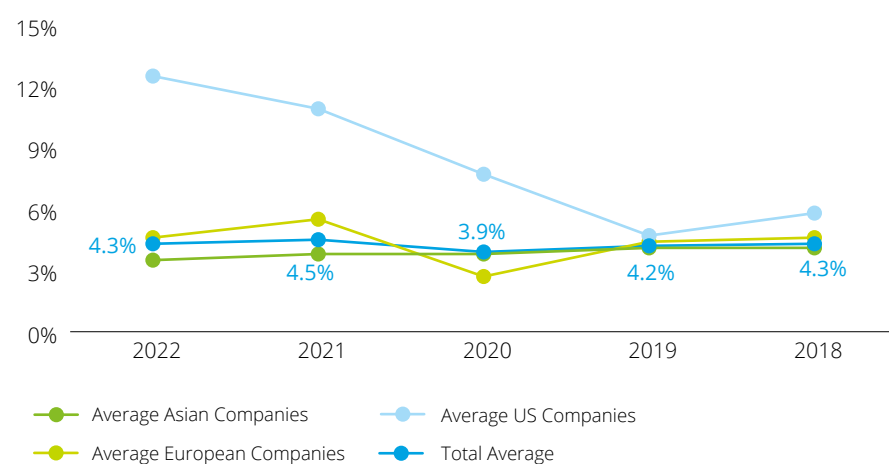
(*) Companies with significant homebuilding activity

Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Net income

While sales grew by 6%, aggregate net income remained steady in 2022 at US\$ 65,850 million, which resulted in an average net margin of 4.3% (2021: 4.5%). A more in-depth analysis of the net income obtained by the Top 30 GPOC in 2022 (see Figure 5.3) enables us to reach the following conclusions:

- The US-based GPOC reported the highest net income margin in 2022 and 2021 (12.5% and 10.9%, respectively) as the local housing market has remained strong in both years. While the net income to sales margin remained relatively stable for the Asian groups, aggregate profitability for the European GPOC dropped to 4.6% due to the non-recurring profits obtained in 2021 by ACS from the sale of its industrial and engineering business (Cobra) to VINCI. None of our GPOC reported net losses in 2022.
- As in the EBIT margin (Figure 5.1), this ranking is also led by D.R. Horton, PulteGroup and Lennar. VINCI is the top non-Asian company. The French group was able to improve profitability in 2022 due to the strong performance of its concessions business (traffic levels above prepandemic numbers) and the contribution made by Cobra.
- Fluor, which reported net losses in 2021, improved its results in 2022 as it reduced debt and de-risked its construction backlog.

Figure 5.4: Net income as a percentage of total sales

Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Net debt/Net debt + Equity

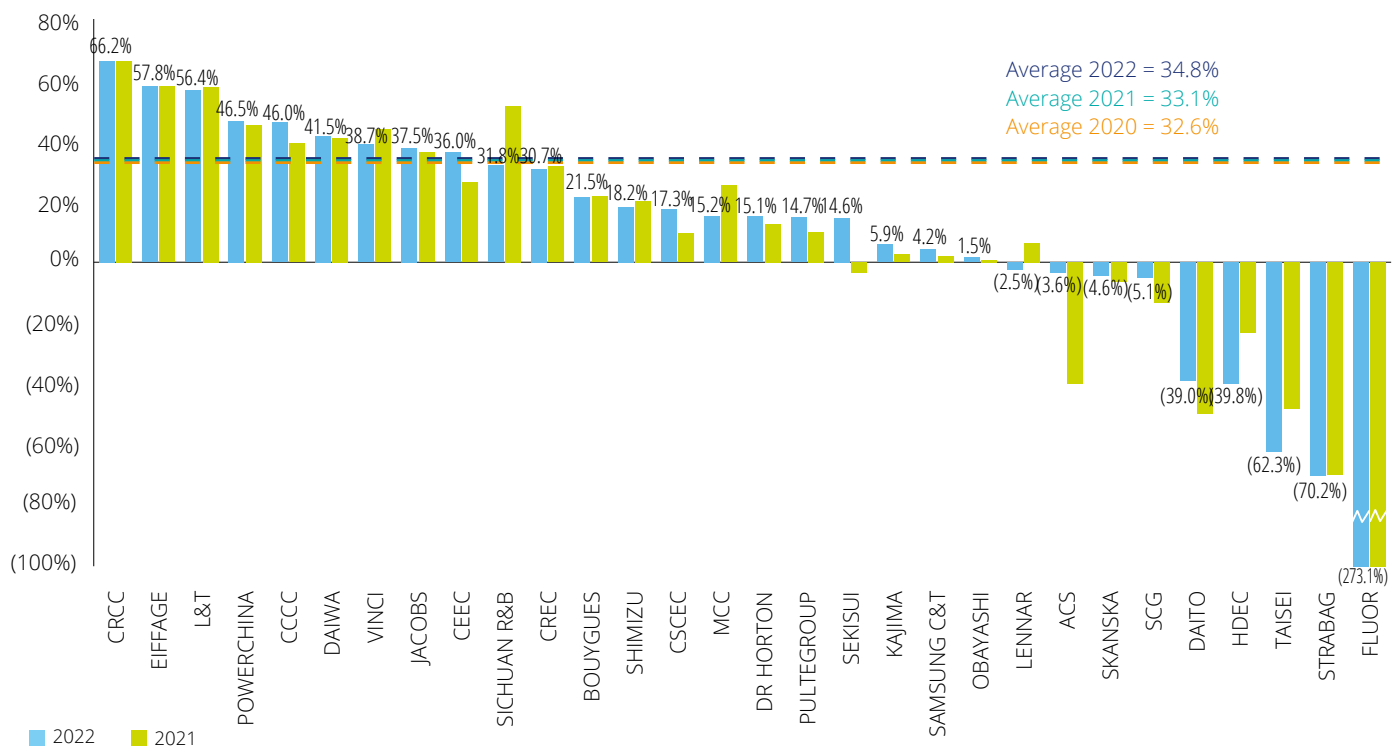
The most noteworthy matters arising from the analysis of the net debt/(net debt + equity) ratio (see Figure 5.5) are as follows:

- Aggregate equity and net debt increased by 2% and 10%, respectively, resulting in a 34.8% net debt/net debt + equity
- Some of the companies that reported the highest ratios have a significant presence in non-construction businesses

ratio in 2022 (2021: 33.1%). Nine GPoC reported positive net cash positions in 2022 of which Taisei reported the largest cash surplus (US\$ 2,758 million).

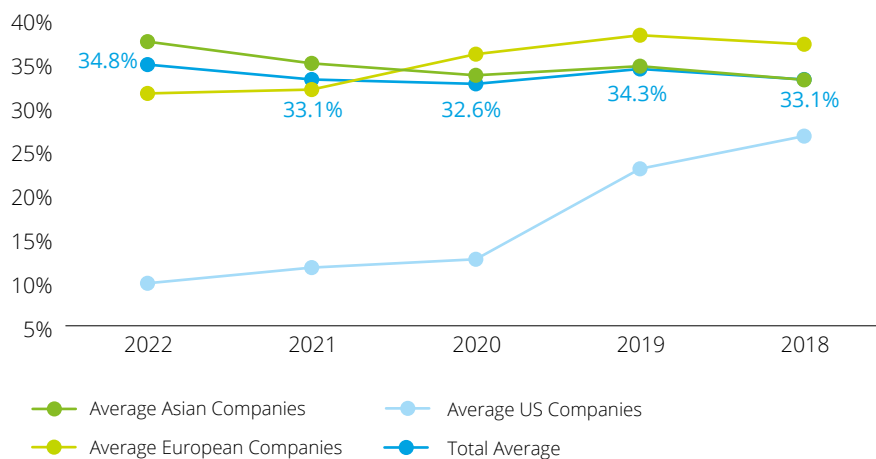
(such as concessions), which traditionally require major capital investments that in most cases are financed by external borrowings.

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



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

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



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Net debt/Market capitalization

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

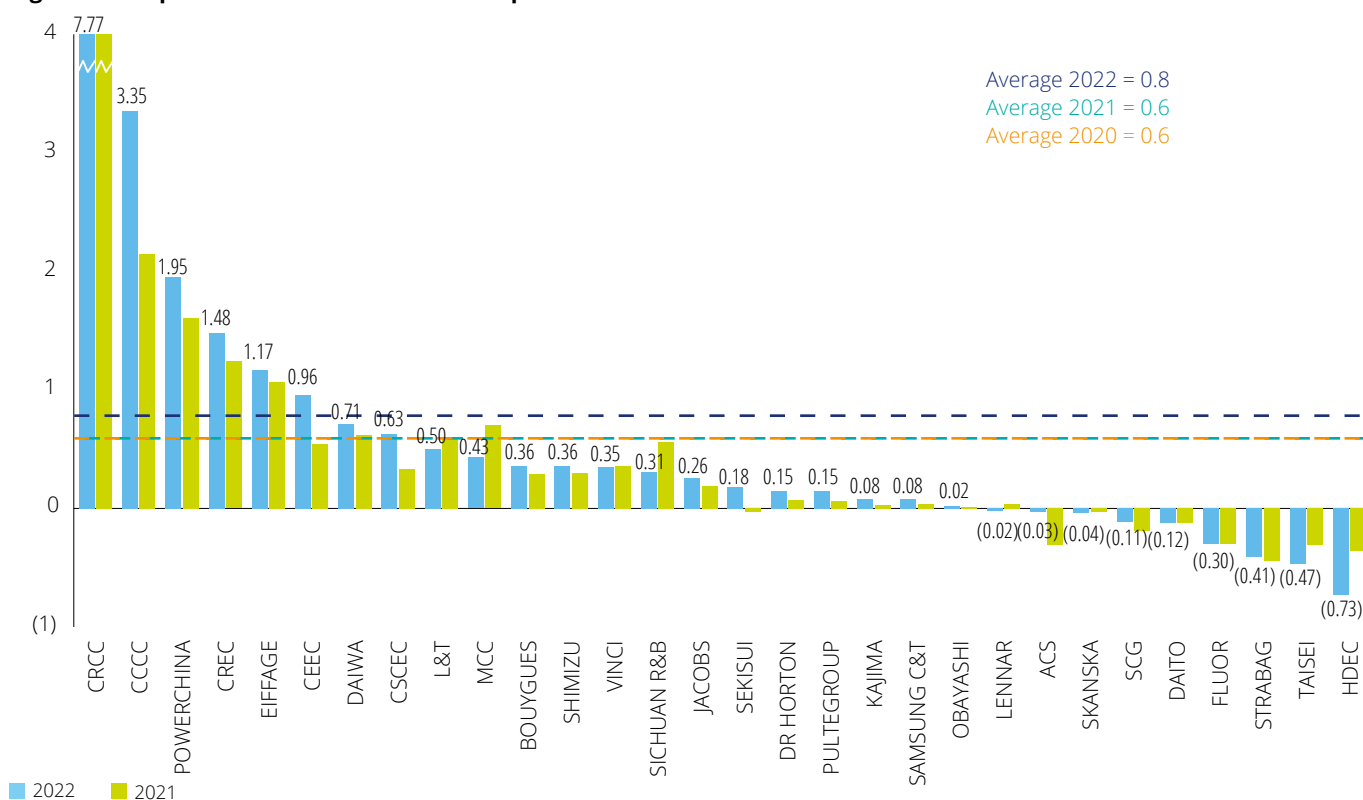
- The net debt to market capitalization ratio worsened to 0.8 in 2022 (2021: 0.6) as a result of the combination of a 10% increase in net debt and an 11% decline in market value. The aggregate ratio has

been worsening since 2018 (Figure 5.8), although nine companies managed to improve their ratios in 2022.

- By geographical area, the US- and European-based GPoC reported steady average ratios of 0.1 and 0.3, respectively, while the Asian GPoC reported higher net debt than market value (1.2 in 2022 vs 1.0 in 2021).

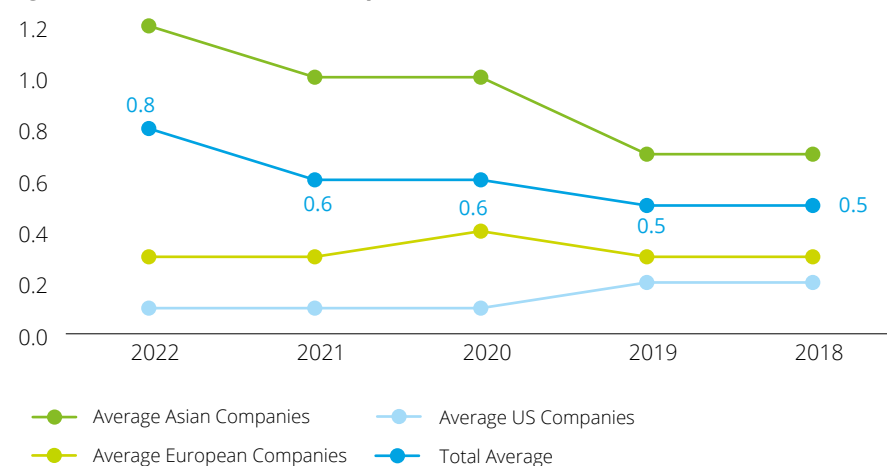
- The ranking is headed by Chinese companies: China Railway Construction leads the way, followed by China Communications Construction, Power Construction and China Railway, with the French company Eiffage completing the Top 5. At the other end of the spectrum, nine groups reported negative ratios because of their net cash positions.

Figure 5.7: Top 30 GPoC Net debt / Market capitalization



Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Figure 5.8: Net debt / Market capitalization



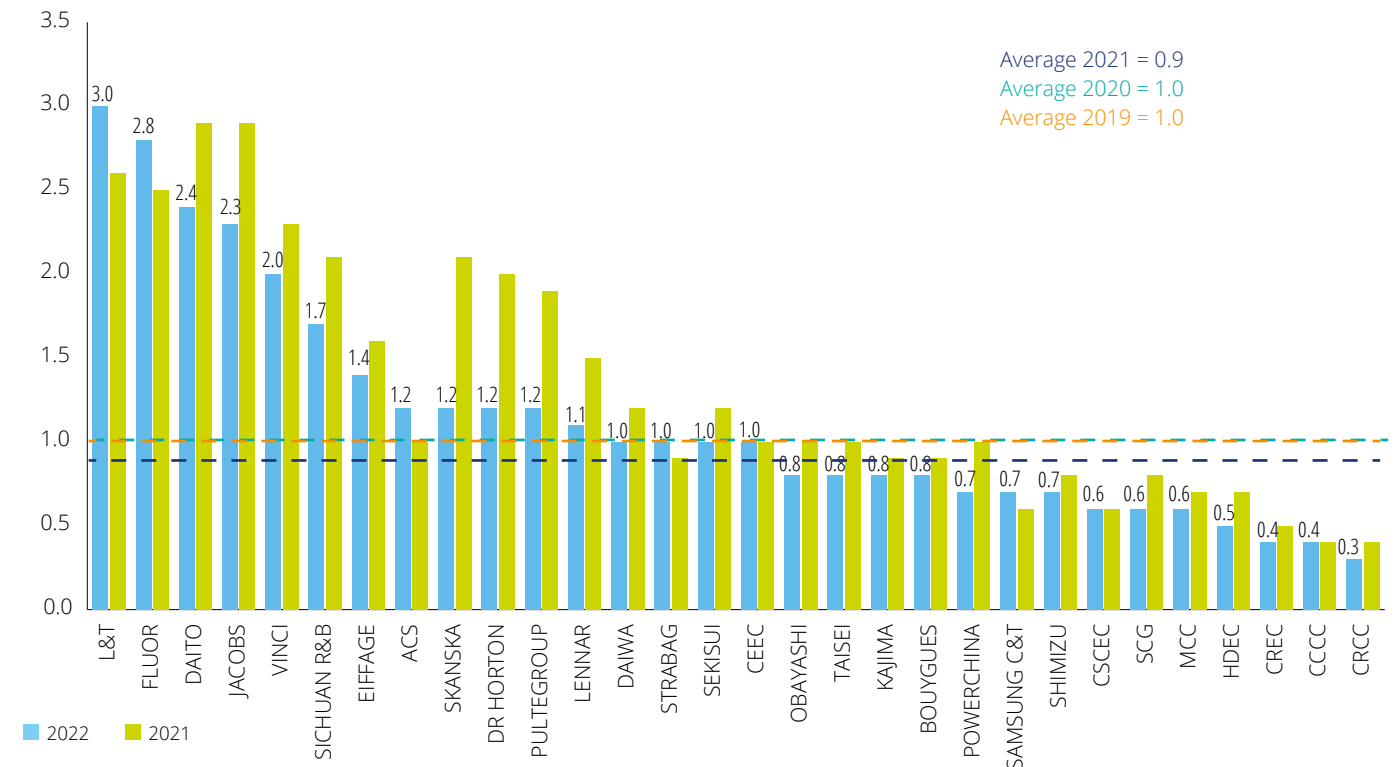
Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

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:

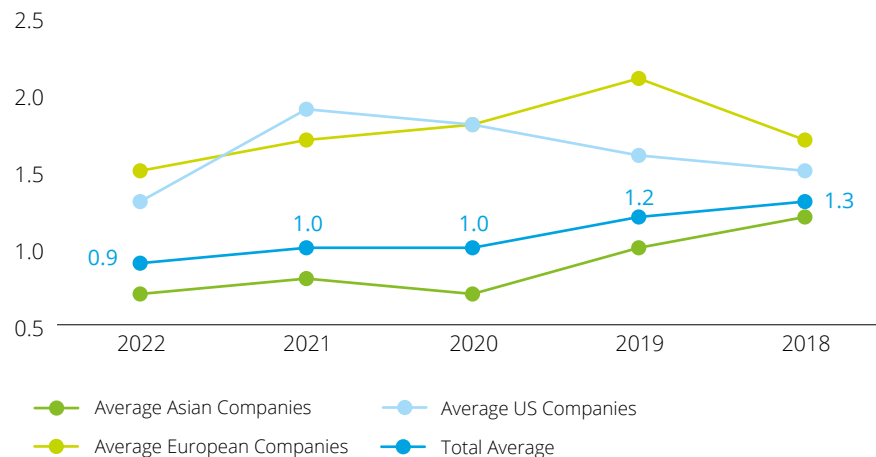
- The 11% decrease in market value combined with a 3% increase in book value resulted in a market capitalization to book value ratio of 0.9. In 2022, the Top 30 GPoC traded at a discount to book value for the first time in the last five years (see Figure 5.10).
- The US-based GPoC reported a market capitalization to book value of 1.3x, 0.6 points below the 2021 figure as a result of weak performance in the stock markets. The European GPoC remained relatively stable at 1.5x. On the other hand, the Asian-based GPoC have traded at discount to book value since 2019.
- In 2022 this ranking is headed by Larsen & Toubro (L&T) due to a strong performance in the stock markets
- (capitalization went up by 20%). The Top 5 was formed by the same companies in both 2022 and 2021, although the order did change.
- Fourteen companies traded at a discount in 2022. The Top 5 GPoC by sales, all from China, reported market capitalization to book value ratios of 0.6 or less.

Figure 5.9: Market Capitalization / Book Value



Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Figure 5.10: Market Capitalization / Book Value



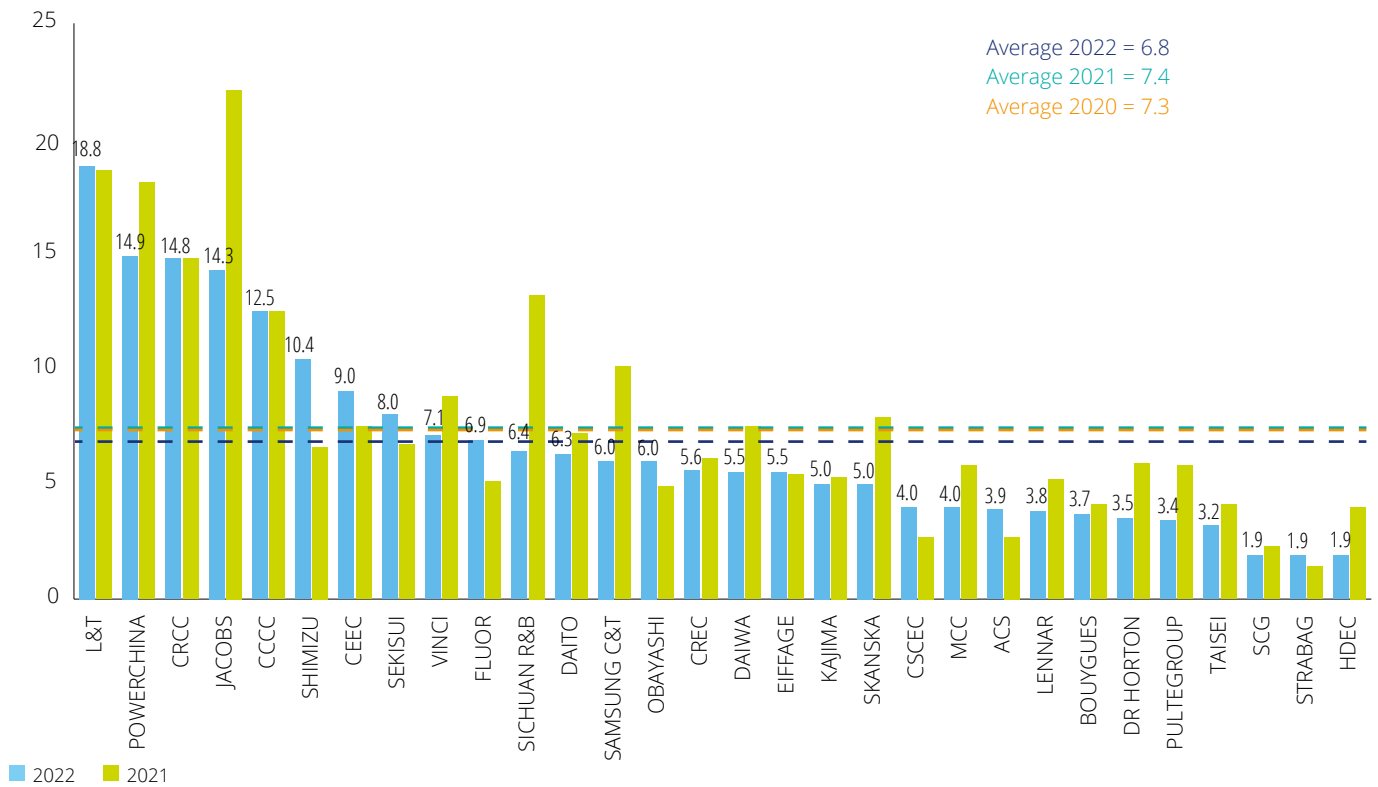
Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Enterprise value/EBITDA

The average enterprise value/EBITDA multiple (see Figure 5.11) fell by 0.6 to 6.8 in 2022. This was due to a 3% decline in enterprise value together with a 5% increase in EBITDA. Six groups reported ratios above 10, 13 between 5 and 10 and 11 GPoC reported enterprise value to EBITDA ratios below 5.

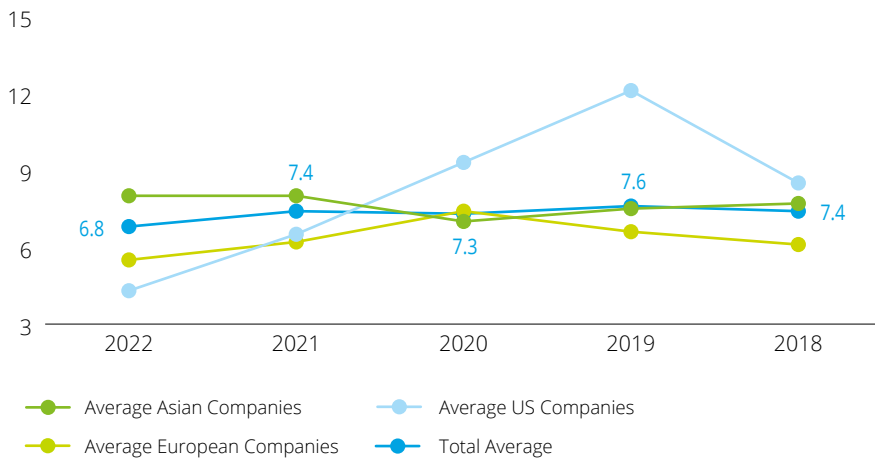
By geographical area, only the Asian-based GPoC reported above average ratios (see Figure 5.12). By company, L&T, PowerChina, China Railway Construction and Jacobs reported the highest ratios, all of which were above 14. None of our GPoC reported higher EBITDA than enterprise value.

Figure 5.11: Top 30 GPoC, Enterprise value/EBITDA



Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Figure 5.12: Enterprise value/EBITDA



Source: Global Powers of Construction (GPoC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Net debt/EBITDA

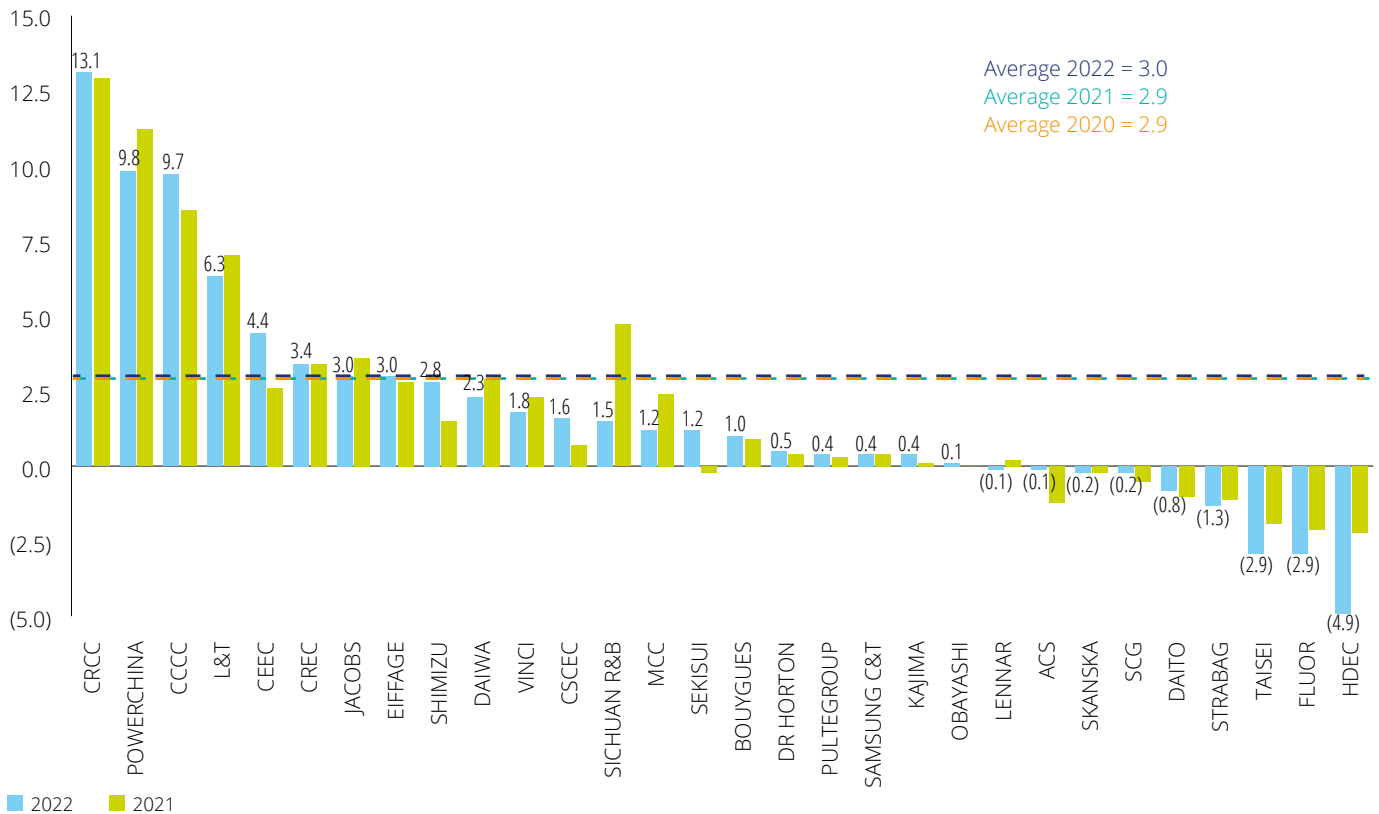
The average net debt/EBITDA ratio stood at 3.0 in 2022 (see Figure 5.13). It has been continuously increasing since 2018 (see Figure 5.14).

China Railway Construction Corporation has led this ranking in both 2022 and 2021.

Other Chinese companies, PowerChina and China Communications Construction, completed the Top 3 in 2022.

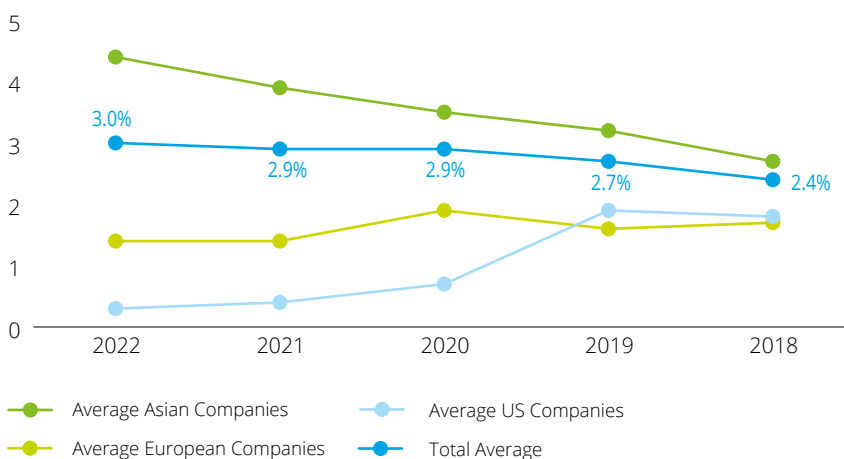
Nine groups achieved ratios below zero as a result of the cash surpluses they held at the end of the year. None of the entities under review reported negative EBITDA.

Figure 5.13: Top 30 GPoC, Net debt/EBITDA



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.14: Net debt/EBITDA



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

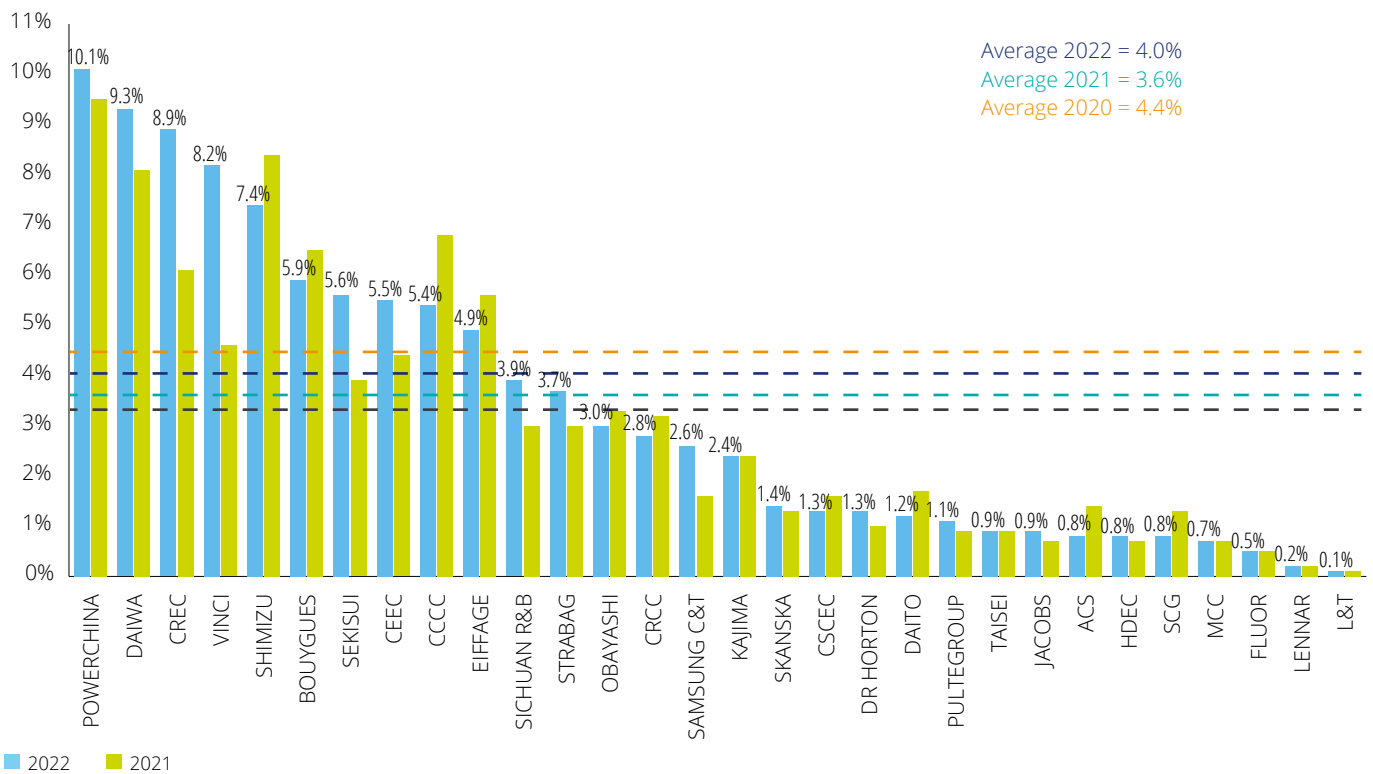
Capital expenditure/Sales

In 2022 the average capital expenditure/sales ratio reported was 4.0% compared to 3.6% in 2021. Ten groups achieved above-average ratios, while capital expenditure for nine entities represented less than 1% of total income (see Figure 5.15).

In comparison with other activities, these ratios are, in general, low among the Top 30 GPoC, since the construction business does not usually require significant levels of capital expenditure because construction contracts are usually financed through down payments. Capital expenditure requirements are traditionally higher in more diversified groups, since certain non-construction activities, such as concessions

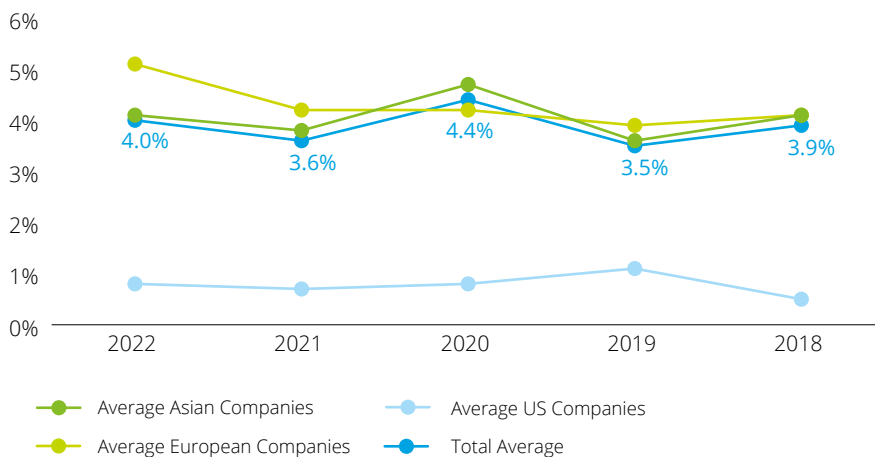
and real estate projects, are more capital intensive. Accordingly, the French companies VINCI, Bouygues and Eiffage, which are considered to be among the most widely diversified GPoC, were ranked in the Top 10 while the US-based GPoC, which are basically companies focused on homebuilding activities, reported the lowest ratios (Figure 5.16).

Figure 5.15: Top 30 GPoC, Capital expenditure/Sales



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.16: Capital expenditure/Sales



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Dividend yield

The dividend yield increased from 3.1% in 2021 to 3.3% in 2022 (see Figure 5.17) as a result of the combination of a 6% fall in dividends paid and an 11% decrease in market capitalization. After three years of steady increases, the dividend yield returned to its 2018 level (see Figure 5.18).

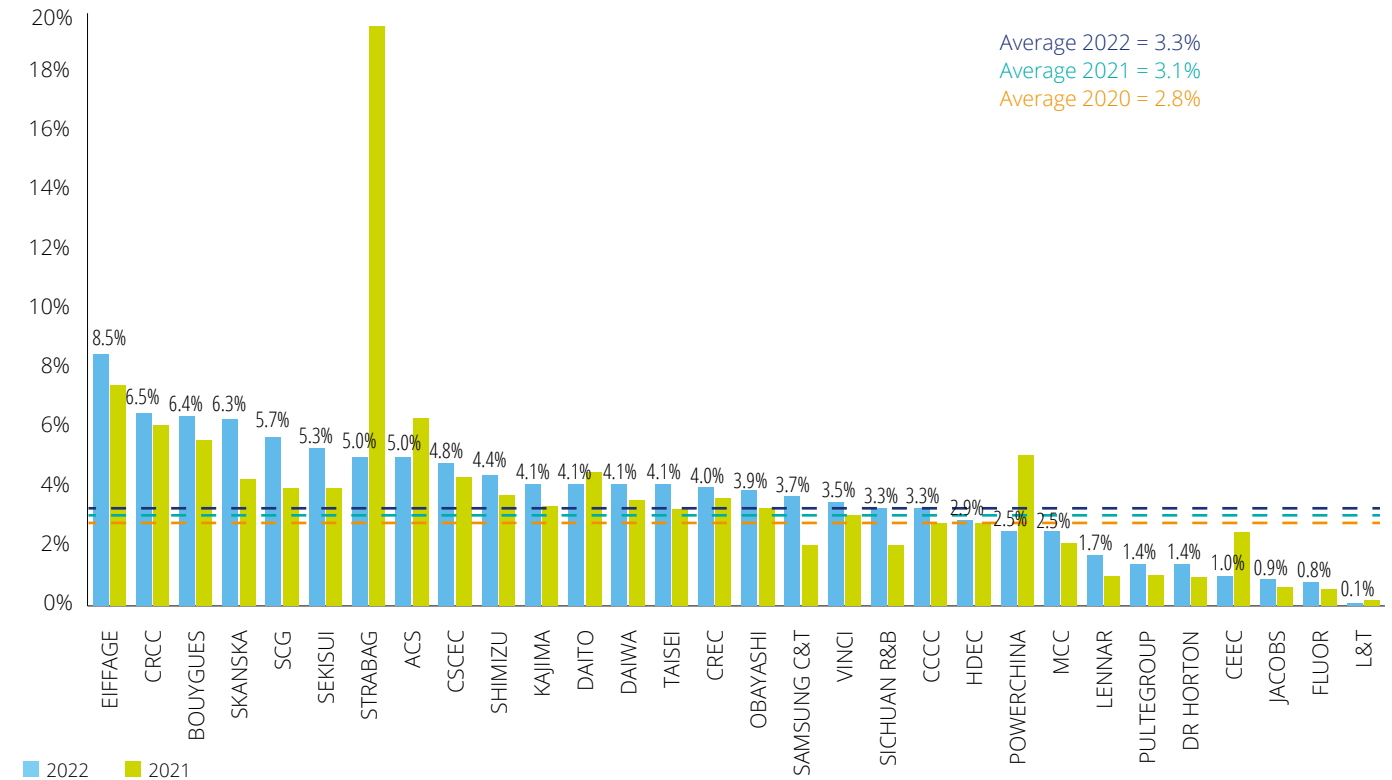
All of the entities under review paid dividends in 2022 and 2021 but for 17 groups the dividends paid were lower than in 2021.

By geographical area, the US-based GPoC have remained stable at approximately 1% since 2018, while European and Asian

groups reported dividend yields of 4.7% and 3.4%, respectively, in 2022 (Figure 5.18)

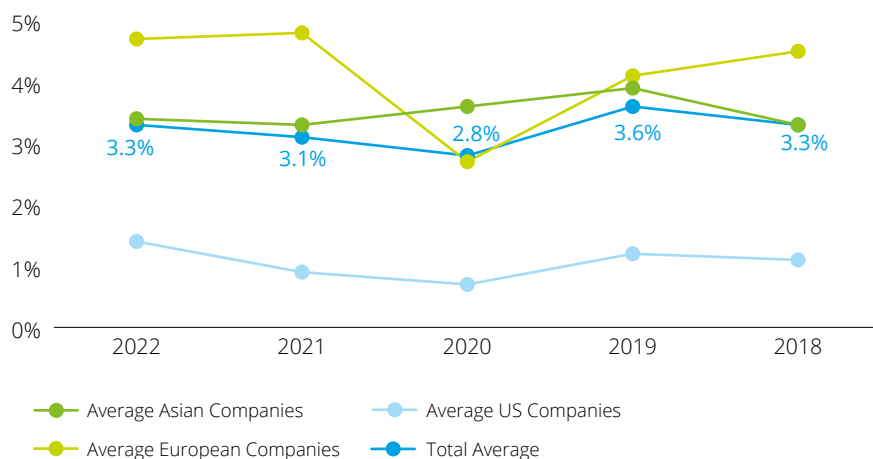
2021 figures reflect the payment of an unusually high dividend declared by Strabag when the company distributed excess liquidity.

Figure 5.17: Top 30 GPoC, Dividend Yield



Source: Global Powers of Construction (GPOC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

Figure 5.18: Dividend Yield



Source: Global Powers of Construction (GPOC) 2022 analysis; Bloomberg, accessed April 2023 and company financials

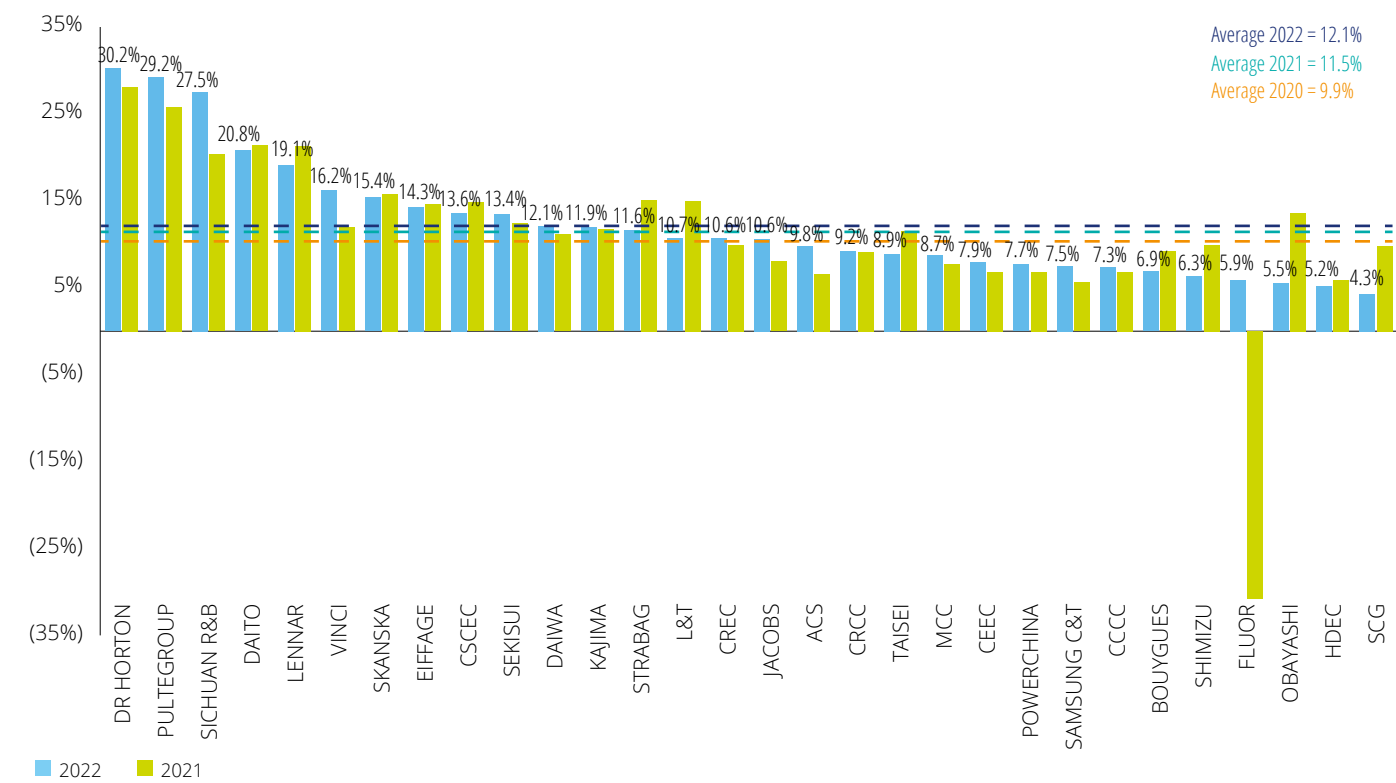
Return on Equity (ROE)

Average ROE (see Figure 5.19) of the Top 30 GPoC grew by 0.6 percentage points to 12.1% in 2022 (see Figure 5.20). Ten groups reported above-average ROE, while none of our GPoC reported net losses.

In addition, since their businesses are not as capital intensive, “pure” construction groups (including homebuilders) traditionally report higher ROE than conglomerates. This view is supported by the fact that D.R. Horton, PulteGroup, Daito and Lennar are all in the Top 5.

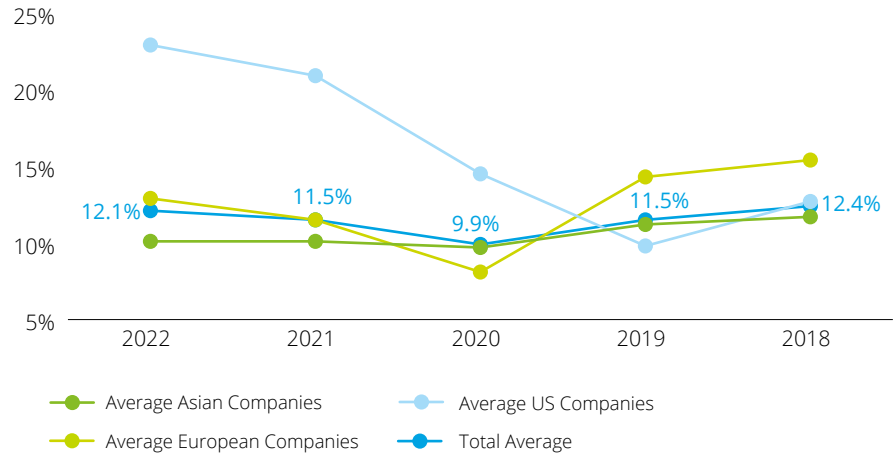
By geographical area, the US-based GPoC groups showed a 22.9% return on equity in 2022 (20.9% in 2021), while European and Asian groups reported 12.9% and 10.1%, respectively (11.5% and 10.0% in 2021) (Figure 5.16).

Figure 5.19: Top 30 GPoC, Return on Equity



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Figure 5.20: Return on Equity



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

Return on investment in the construction industry

The infrastructure industry in general, and construction in particular, represent one of the basic cornerstones underpinning the structure of the economy. In this regard, investment in infrastructure is of vital importance, both in maintaining competitiveness in advanced economies and in boosting emerging economies. However, the competitive dynamics the industry finds itself immersed in, with excess capacity at a global level, are leading to a situation of narrower margins, which is giving rise to a decline in the profitability of many global construction companies.

The purpose of this article is to analyze the evolution of profitability in the construction industry in recent years and compare it with the cost of capital, i.e., the return theoretically expected by the market for investments in this industry. The evolution of the two metrics shows that the return on assets in the industry is clearly below the weighted average cost of capital and that, although the return on equity had remained above the return expected by the shareholders, the two converged in 2022.

In the current climate of rising interest rates, it is highly probable that this trend will become more pronounced in the coming years and if companies are not capable of generating the returns expected by the shareholders from their new investments, the companies will most likely have to resize and perform only those projects that enable them to obtain the desired return, which will put pressure on the firms in the industry to increase their efficiency, and facilitate the technological transformation.

To carry out our analysis, we started with a sample consisting of the 30 companies in the construction industry with the highest sales (see Figure 1.2) and we analyzed the relationship between their returns and the cost of capital for the historical period of 2017-2022.

We have measured profitability using these indicators:

- Return on Assets (ROA), which is defined as the ratio of a company's operating profit to the assets used to generate that profit. ROA is an indicator of how companies manage their existing assets and the return they obtain from them.
- Return on Equity (ROE), which is defined as the ratio of a company's net profit to the equity used to generate it. Accordingly, ROE shows the return that shareholders obtain from a company from their investment in its share capital.

In an initial approach, we obtained references of both ROA and ROE from *S&P Capital IQ*¹¹ for all the companies selected for the historical period of 2017-2022. Also, in order to avoid the distortive effect that the existence of atypical data on any company might have on the analysis, in each period we excluded the observations outside the range resulting from adding and subtracting the standard deviation from the mean to and from the mean once.

In relation to the cost of capital, we also considered two indicators:

- Weighted Average Cost of Capital (WACC), which is defined as the average cost of a company's various sources of financing, each of which is weighted by its relative weight in its financing structure. Thus, it represents the average return expected by the company's various financing parties. In accordance with financial theory, the ROA generated by a company must at least equal the WACC, that is, the assets must generate the return expected by the economic agents who have invested in financing it.
- Cost of Equity (Ke), which is defined as the return expected by the company's shareholders. Although there are several approximations to the Ke estimate in financial literature, the most widely used one in both the academic and business world is the Capital Asset Pricing Model¹² (CAPM).

The CAPM parameters were estimated as follows:

- Risk-free rate Kf: spot price of a 20-year US bond, obtained from *S&P Capital IQ*.
- Beta (β) and market financial leverage structure (D/E), obtained from *S&P Capital IQ* for each company analyzed.
- Equity Risk Premium (ERP or $(K_m - K_f)$): estimated by Deloitte United States on the basis of a cash flow discount model using the current level of the market index, the return from dividends and the projected earnings growth rate.

– Country Risk Premium (CRP): Average of the CRP estimates published by Dr. Aswath Damodaran using the rating methodologies of the Damodaran Country Risk Premium Guide and the Damodaran CDS Spread Guide.¹⁵

We used two levels of analysis on the results:

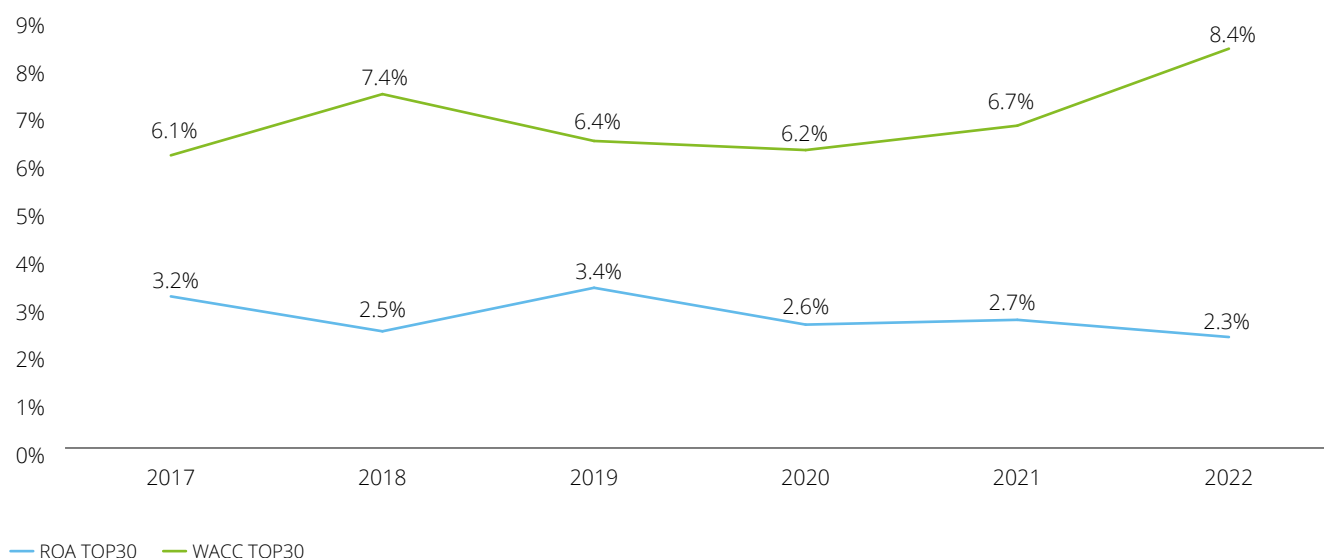
– Sample made up of the Top 30 construction companies with the highest sales worldwide; and

– Sample made up of the construction companies in Top 30 whose construction revenue is higher than or equal to 50% of their total revenue (excluding US housebuilders from the analysis since the profitability of the home construction business is higher, which could lead to misleading conclusions if it were applied to companies not operating in this business segment).

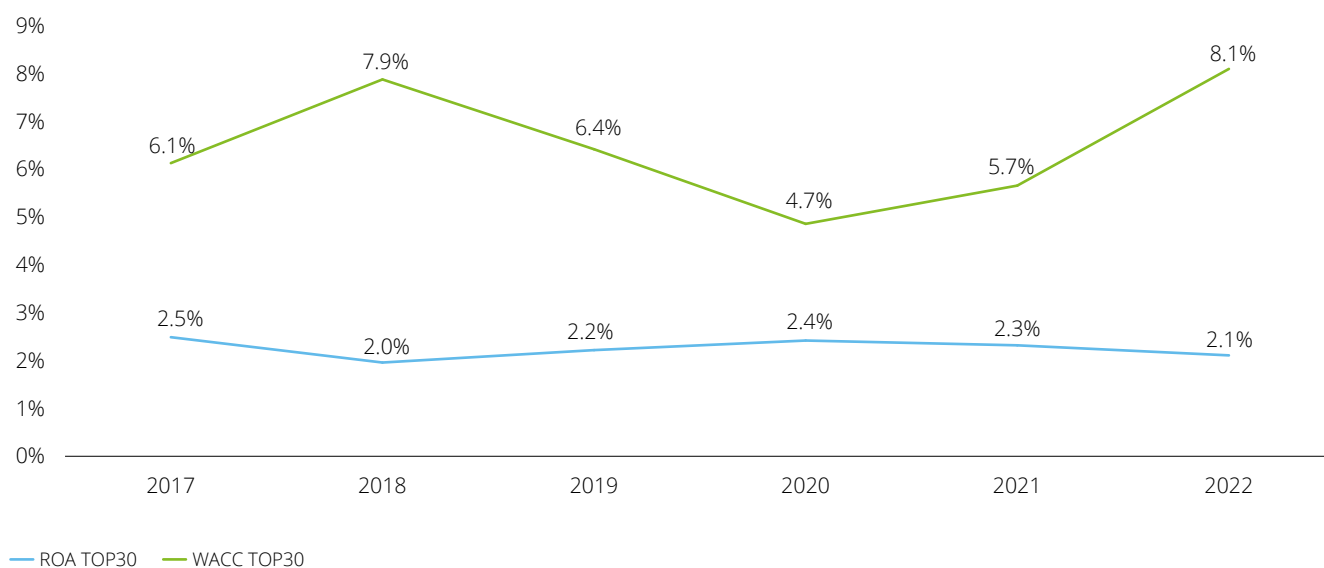
Once the references of historical returns and discount rates for each company for the historical period defined were obtained, the relationships between the two variables were shown in charts on a customized basis in order to be able to analyse the trend in the two variables.

Following are the relationships between the return on assets and the weighted average cost of capital of the companies selected for the two levels of analysis:

ROA vs WACC (Median) - TOTAL TOP 30



ROA vs WACC (Median) TOP30 Construction companies (*)



(*) Excluding homebuilders and companies with over 50% of their revenues coming from non-construction activities.

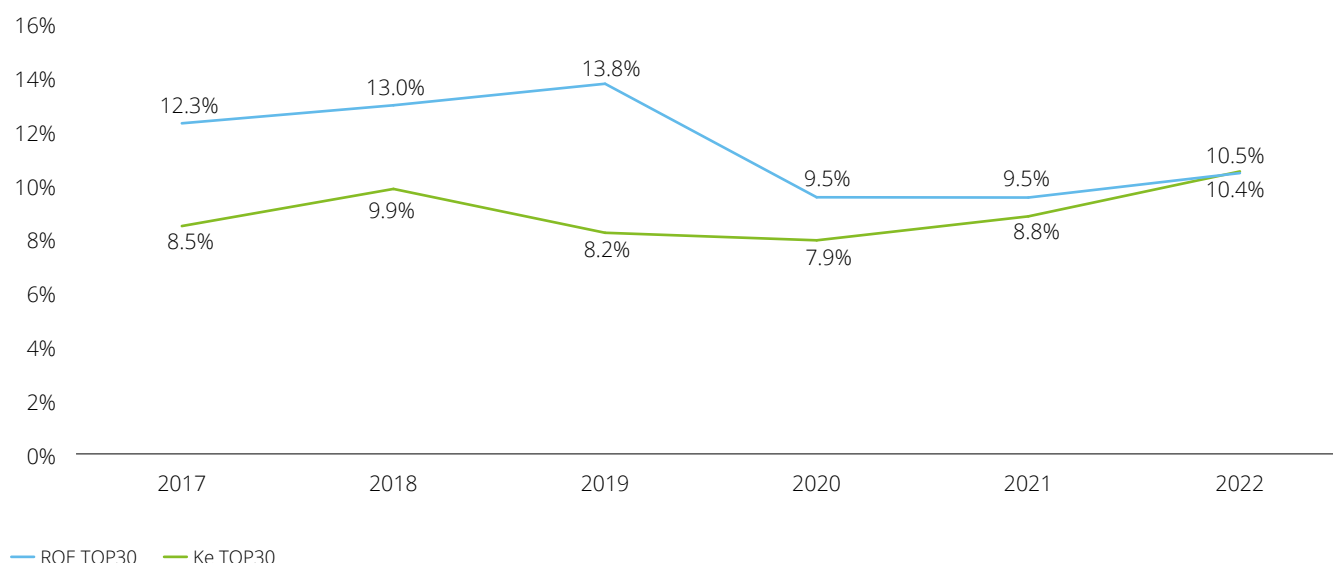
The results show that, irrespective of the sample of companies selected, the construction industry's return on assets was lower than the cost of capital in the period under analysis, and that this gap has widened in recent years. This

development can be explained by a trend in the market towards increasingly complex projects, which has led to increases in the investments the projects require, delays in the collection of trade receivables (where, in many cases, the customers are public bodies) and litigation. In turn, the cost of

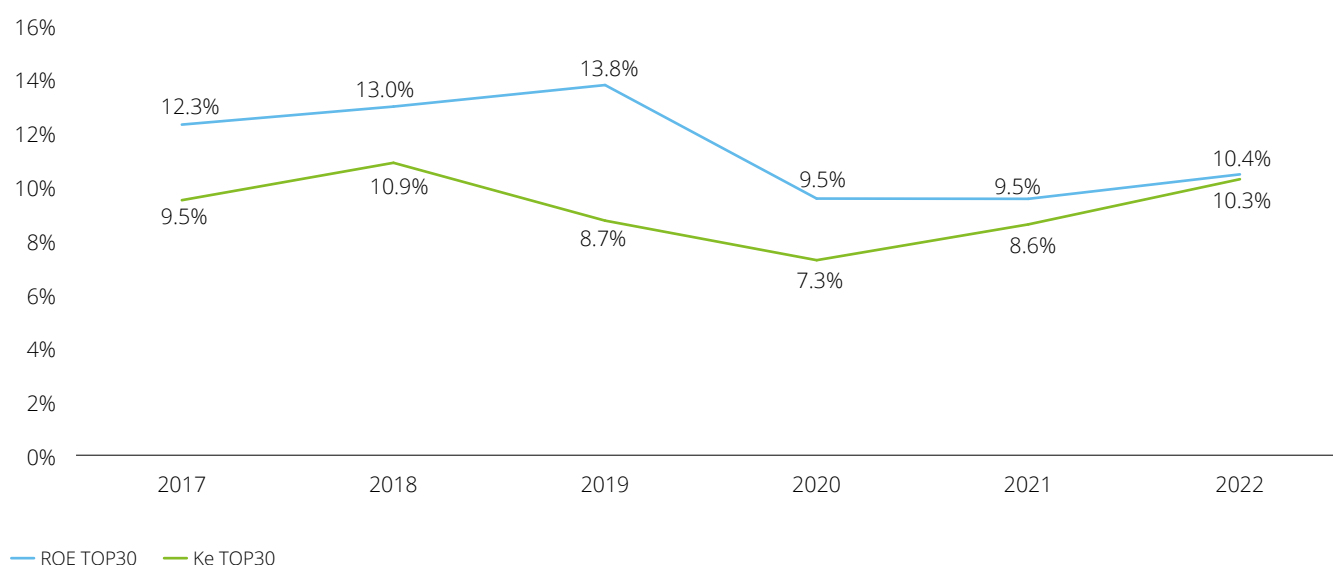
capital has risen in recent years, mainly due to the increases in interest rates, thus widening the aforementioned gap.

If we look at the change in return on equity and the cost of equity, the results obtained are as follows:

ROE vs Ke (Median) - TOTAL TOP30



ROE vs Ke (Median) TOP30 Construction companies (*)



(*) Excluding homebuilders and companies with over 50% of their revenues coming from non-construction activities.

Source: Prepared in-house.

As can be observed, until 2019 the returns shareholders received from construction companies clearly exceeded the theoretical cost of equity. But from 2020 the situation started to change and returns and the cost of capital started to converge, which is what happened in 2022. The analysis yields similar results for both the Top 30 construction companies by sales and all the companies in the Top 30 more than 50% of whose revenue originates in the construction industry. This development seems to sustain the perception of the main players in the market, which consider these companies are currently experiencing difficulties to generate value and, consequently, have reduced their capacity to attract investment.

It is striking that ROA was lower than WACC, while ROE was higher than Ke. This shows that these companies' leverage implicit in the cost of capital is above the average for the industry as a whole. In this regard, it is important to underline that in recent years there has been a considerable amount of liquidity in the industry and very low interest costs, particularly for large companies, which has led to additional advantages in leverage to improve returns for shareholders. However, in the current and recent environment of rising interest rates, this situation has been difficult

to sustain, as shown by the fact that ROE and Ke are at similar levels at the main companies in the industry, and it is foreseeable that, if the current trends are maintained, in the coming years returns on equity will be below the levels expected by the market.

There could be significant consequences in the construction industry in the coming years if the trends shown by these results are confirmed, and this in some cases would confirm the trends already seen in the market. These possible consequences include most notably the following:

- Transfer of investments to other industries that offer better risk-return ratios. An example of this trend is the increasing exposure of infrastructure funds to renewable energies and, recently, also to the telecommunications industry (fiber networks).
- The investments in the construction industry will be more selective, both geographically and by type of activity. In this regard, from the theoretical standpoint, large construction companies may find higher returns in emerging or developing economies (Middle East or East Asia) than in their traditional markets of Europe and the United

States. However, based on our analysis, in practice many large construction companies, especially those with headquarters in Europe and America, are opting for precisely the opposite and showing a clear preference for developed markets with plans for investment in significant infrastructure, proven public procurement practices and an institutional system that guarantees the legal certainty of investments.

- Need for the industry to become more efficient. In order to turn this situation around, construction companies must undertake a process of transformation to improve their profitability through levers such as investment in new technologies, smart operations and control of risks and contracting. This situation may lead to a process of technological transformation which the construction industry has not been among the first to join.

Accordingly, companies in the construction industry should address these challenges in the coming years in order to retain their value in an economic environment that has not been favorable to the industry and that requires measures to be taken to improve investors' returns.



Geographical and portfolio diversification of our GPoC

Long-term global infrastructure demand, particularly in emerging economies, combined with a growing need for sustainable investments across the most developed economies represent a huge opportunity for the geographical and portfolio diversification of our GPoC. Internationalization and diversification make it possible to balance risks, which is critical given the instability of the macroeconomic scenario. In 2022 international sales and non-construction revenue of our GPoC represented 15% and 24%, respectively, in line with 2021. European groups continued to be the most internationalized and diversified, as opposed to China- and US-based GPoC.

Internationalization

Sustained growth could be achieved through internationalization as emerging countries forecast multitrillion investments in basic infrastructure for the next decade and developed countries are eager to initiate a green transition to a more sustainable economy by embracing renewable energy.

However, international expansion often comes with its own risks and many companies can experience difficulties in adapting their business models to foreign countries. Accordingly, the international expansion of our GPoC has combined organic growth with mergers and acquisitions of local players. European companies lead this process, although in recent years Asian companies have expanded to Americas, Asia & Oceania and Africa.

In 2022, 15% of total sales reported by our GPoC were obtained from international markets. Among the groups subject to this review, notable differences can be identified in the various geographical areas: While US- and Asia-based GPoC reported 10% and 9% of total sales beyond their domestic markets, the European team's international sales represented 61%. The Top 5 most internationalized GPoC in relative terms (see Figure 6.0) is led by ACS and made up exclusively

of other European companies: Strabag, Skanska, VINCI and Bouygues. The leading non-European group within the ranking is the South Korean Hyundai Engineering & Construction whose international sales represented 39%.

In absolute terms (see Figure 3.1), the lead in the 2022 ranking of international sales has shifted to VINCI. The acquisition of Cobra IS in December 2021 has strengthened VINCI's position not only in Spain, but also in other Latin American countries. The Top 3 is completed by ACS and the French group Bouygues. China State Construction Engineering Corporation obtained 5% of its sales outside of China, which amounted to US\$ 16,045 million, ranking it 4th.

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 2022 in the Americas is concentrated in the European companies:

- In relative terms, ACS is once again the largest international contractor among our GPoC. International sales exceeded US\$ 32,000 million in 2022, above 90% of total sales. Operations in America,

which reported sales of approximately US\$ 22,200 million, are focused on the United States and Canada, mainly through Turner, Flatiron and Dragados USA. Turner remains the #1 construction company in the United States according to Engineering News-Record (ENR). The backlog in the region amounts to US\$ 38,000 million.

- VINCI has positioned itself as the largest international contractor in absolute terms among our GPoC mainly due to the Cobra IS acquisition in December 2021. This transaction contributed approximately US\$ 5,800 million to the entity's international sales in 2022. Cobra IS had a significant presence in Brazil, Peru and Mexico as well as among other Latin American countries. VINCI reported sales of US\$ 8,693 million in this region, representing 13% of total sales.
- Skanska generated about 40% of its sales in the United States (US\$ 6,675 million), mainly from construction activities. The United States represents the Group's largest single market. The Swedish group foresees sustained growth due to the need for infrastructure renewal in the region, supported by an all-time high in order bookings and backlog of US\$ 19,500 million, a 21% increase with respect to 2021. Skanska does not operate in Latin America.

- Although Chinese companies usually do not disclose the geographical breakdown of their sales, they are starting to have a significant presence in Latin America with the award of iconic projects such as the Bogota underground and more than a hundred projects over the last decade with combined revenues above US\$ 86 billion.¹⁶

Middle East, Asia and Oceania

China Railway Group, ACS and Samsung C&T lead international sales in this region:

- China Railway Group reported overseas sales of US\$ 8,700 million, 5% of total sales, in line with 2021. Although the Chinese group concentrates its international operations mainly in Oceania and Southeast Asia, it also operates in Africa and South America. In 2022, overseas key projects such as the Padma Bridge in Bangladesh and the 10th of Ramadan Railway were successfully completed. New contracts overseas represented 6% of the total in 2022, which mainly includes water conservation, hydropower, ecological environmental protection and clean energy businesses.
- ACS operates principally in Australia through CIMIC, which has been excluded from the Sydney stock market as a result of a takeover bid performed by the Spanish group in 2022. Sales in this region exceeded US\$ 6,600 million, making it the company's second largest market, in line with 2021. ACS' presence in the region for the coming years is supported by a backlog of US\$ 18,000 million. The most important recently awarded projects are Olive Downs in Queensland, the Eastern Tunnelling package and the Western Harbor Tunnel in Sydney, as well as other energy infrastructure projects, such as a high-capacity renewable energy storage project in Port Hedland.
- Samsung C&T reported revenue of approximately US\$ 7,300 million in the region, around 10% below 2021. The Korean company is taking more aggressive actions to reduce emissions and has announced its net-zero plan that aims to become 100% renewable by 2030 and achieve net-zero by 2050. This



roadmap puts the focus on expanding its solar power development and the EPC business in Qatar and North America.

Africa

The presence of our GPOC in Africa is still limited. Hyundai E&C, VINCI and Bouygues lead overseas sales in the region:

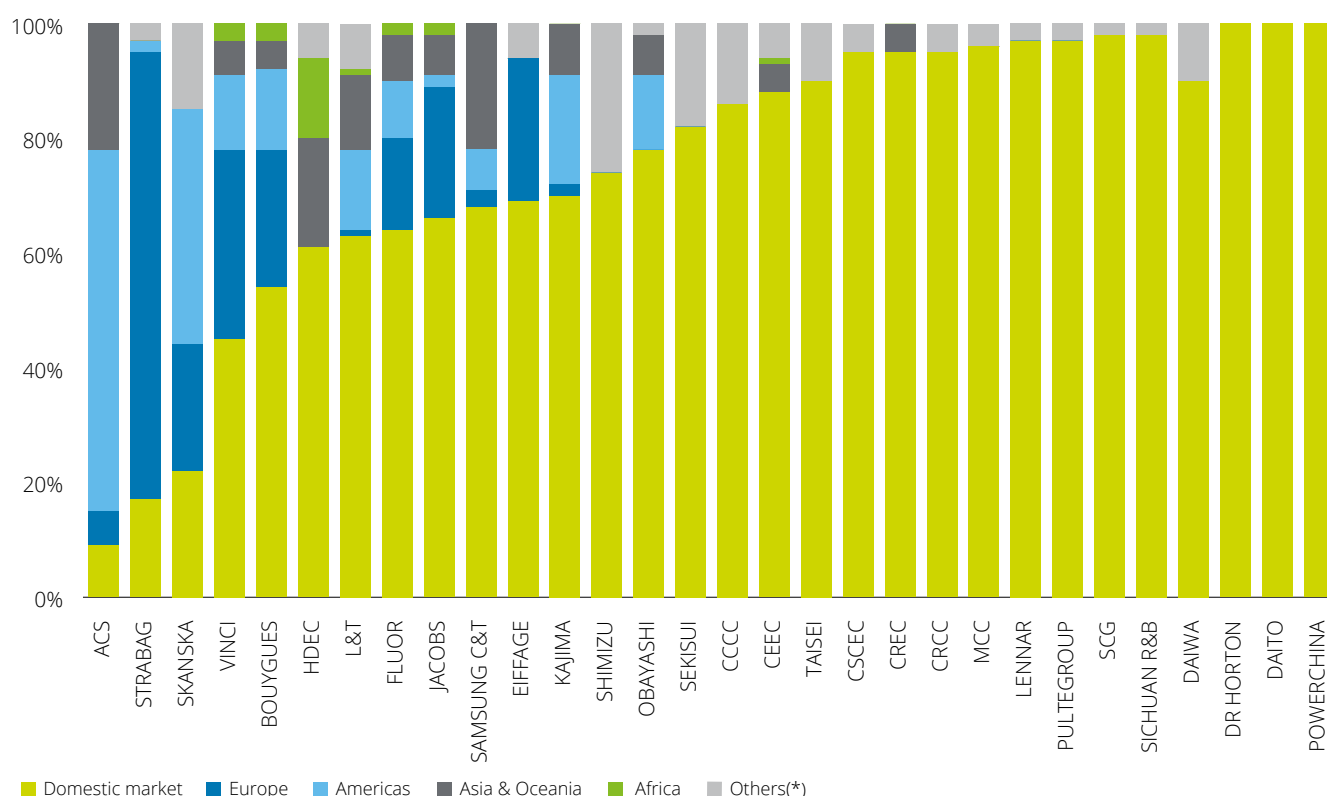
- Chinese companies have the strongest presence in Africa;¹⁷ according to Deloitte's Africa Construction Trends report, that tracks over 400 projects in the region. Chinese construction companies have consistently played a significant role as the largest constructors of the continent with market share in the range of 25% to 33% over the last years.
- Hyundai E&C also has a prominent presence in Africa, which accounted for about 14% of its total sales in 2022, 2 p.p. above 2021. The conversion of the Azito Power Plant (Ivory Coast) from a simple cycle power plant to a combined cycle facility and the Lemba-Imbu Water Purification Plant Construction project (Republic of the Congo) represent some of the most relevant projects developed by the group within the region.
- VINCI reported sales in Africa of approximately US\$ 1,800 million, in line with 2021, operating in Mauritania,

Benin and Cameroon through Sogea-Satom, a major subsidiary focused on the building and public works sector in Africa. The main ongoing construction project in the region corresponds to a motorway in Kenya connecting Nairobi and Mau Summit. The company also commissioned a series of facilities designed to expand and secure the drinking water supply in the Greater Kampala area in Uganda and a water treatment plant in Côte d'Ivoire.

- The Top 3 ranking of international operations in Africa is completed by Bouygues. It reported sales of almost US\$ 1,400 million in the region. Construction projects such as the Science and Technology Faculty at the Mohammed VI Polytechnic University in Morocco, the Abomey Calavi University hospital in Benin, the Qiddiya theme park in Saudi Arabia and Line 3 of the Cairo metro in Egypt concentrated 50% of sales in Africa.

Europe

VINCI, Strabag and Bouygues lead the presence of our Top 30 GPOC in Europe, excluding their national operations, all of them reporting sales above US\$ 10,000 million:

Figure 6.0: Top 30 GPoC Sales by region

(*) The percentages included in the others segment come from percentages that the company did not disclose in their annual reports or in their financial statements.

Source: Global Powers of Construction (GPoC) 2022 analysis; company financials

- VINCI's most relevant European country excluding France is the United Kingdom, where it reported US\$ 5,500 million in 2022. Its main operations are focused on concessions, such as the London Gatwick and Belfast International airports, and the rehabilitation and maintenance of roadways. Germany contributed close to US\$ 4,300 million while Spain contributed US\$ 3,100 million, a significant year-on-year increase due to Cobra IS' acquisition in December 2021. Total sales in Europe, excluding France, amounted to more than US\$ 21,000 million.
- Bouygues ranked 2nd in European operations, excluding France, reporting over US\$ 11,000 million. The most relevant market in the region was the United Kingdom in 2022, mainly through its construction division. The main ongoing construction projects are the Hinkley Point C nuclear plant and the high-speed rail line connecting Birmingham-Manchester. Sales in the United Kingdom amounted to US\$ 3,900 million. Switzerland represented close to US\$ 2,000 million and the rest of the European countries did not individually contribute significant figures.

Diversification

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

In 2022, 24% of total revenues reported by our GPoC were obtained from non-construction activities, 1 p.p. below than in 2021. Europe-based GPoC, considered as the most diversified, obtained 37% of their sales from activities other than construction. On the other hand, Asia- and US-based GPoC obtained about 80% and 90% of their revenues, respectively, from construction works.

The non-construction activities of our GPoC enable us to highlight the following conclusions:

Real estate

Real estate is one of the segments in which the GPoC have diversified the most. Six of our GPoC, considered as homebuilders, lead this segment of operations in which some international players are rising:

- US-based GPoC, Lennar, D.R. Horton and PulteGroup remain the largest players in the real estate business. Lennar delivered 66,399 new homes in 2021 (11% more

than in 2020) at an average price of US\$ 481,000, received new orders of 61,105 homes and had a backlog at year end of 18,869 homes, valued at US\$ 8.7 billion. Although Lennar's focus is on first-time homes, which are more valuable, D.R. Horton outsells the first homebuilder of our GPoC in terms of volume. In 2022, it reported deliveries of 82,744 homes (in line with 2021) at an average price of US\$ 386,000. Both leading companies complete their diversified operations with financial services and as multifamily services providers which represent close to 5% of total sales. On the other hand, PulteGroup barely operated outside of the home sales activity in 2022. Far behind, it reported deliveries of 29,111 homes in 2022 (1% above 2021) at an average price of US\$ 547,000. Its backlog amounts to 12,169 homes.

- The Japanese companies Daiwa House, Sekisui House and Daito Trust are also well considered homebuilders. Daiwa

House operates across five real estate segments: single-family homes, build-to-rent homes, condominiums, commercial facilities, and logistics and corporate facilities. At year end it reported real estate for investment of US\$ 12,000 million and real estate for sale of US\$ 13,000 million. Sekisui reported revenue of around US\$ 11,000 million from activities such as rental housing, real estate fees, condominiums, and urban development businesses. Daito Trust reported revenue of US\$ 9,400 million from its real estate business. It experienced solid financial performance during 2022 as its occupancy rate reached 97%.

- In an upward trend, other Asia-based GPoC companies, mainly from China, have increased their presence in the Real Estate segment. China State Construction Engineering reported revenue of US\$ 41,915 million from its real estate development activities, making it the third

segment in terms of sales in 2022. China Railway Construction, China Railway Group and Metallurgical Corporation of China, among others, also carry weight in the Asian real estate market.

- Among the European entities, Skanska is the only GPoC group that has reported a significant presence in the real estate business, although 2022 has been a rough year for the Swedish group. In 2022, home sales amounted to 2,254 units (4,084 homes sold in 2021). Inflation and interest rate hikes by the European Central Bank caused turbulence in this market. The outlook for 2023 seems to indicate that it will remain stable.

Industrial Services

This segment is a broad field of activity that includes engineering services as well as the installation and maintenance of energy, transport and industrial infrastructure, it is therefore, one of the most extensive non-construction activities across our GPoC.



The most significant players in this field are as follows:

- The Asian-based GPoC lead this segment of operations. The Korean group Samsung C&T reported sales of US\$ 15,537 million related to activities such as services to renewable energy and biofuel businesses and providing solutions to the mining, materials, and chemicals industries. Also, Larsen & Toubro (India) reported sales of US\$ 7,928 million related to design-to-build solutions for offshore and onshore hydrocarbon projects, commissioning solutions for thermal power and gas-based power plants, design-to-delivery solutions for the defense industry and technology services. Lastly, China Communications Construction reported sale of more than US\$ 7,000 million in the infrastructure design business. The scope of this activity mainly includes consulting, planning, design and engineering consultancy services. It reported a backlog at year-

end of US\$ 22,000 million, reinforcing it as the leading company in China.

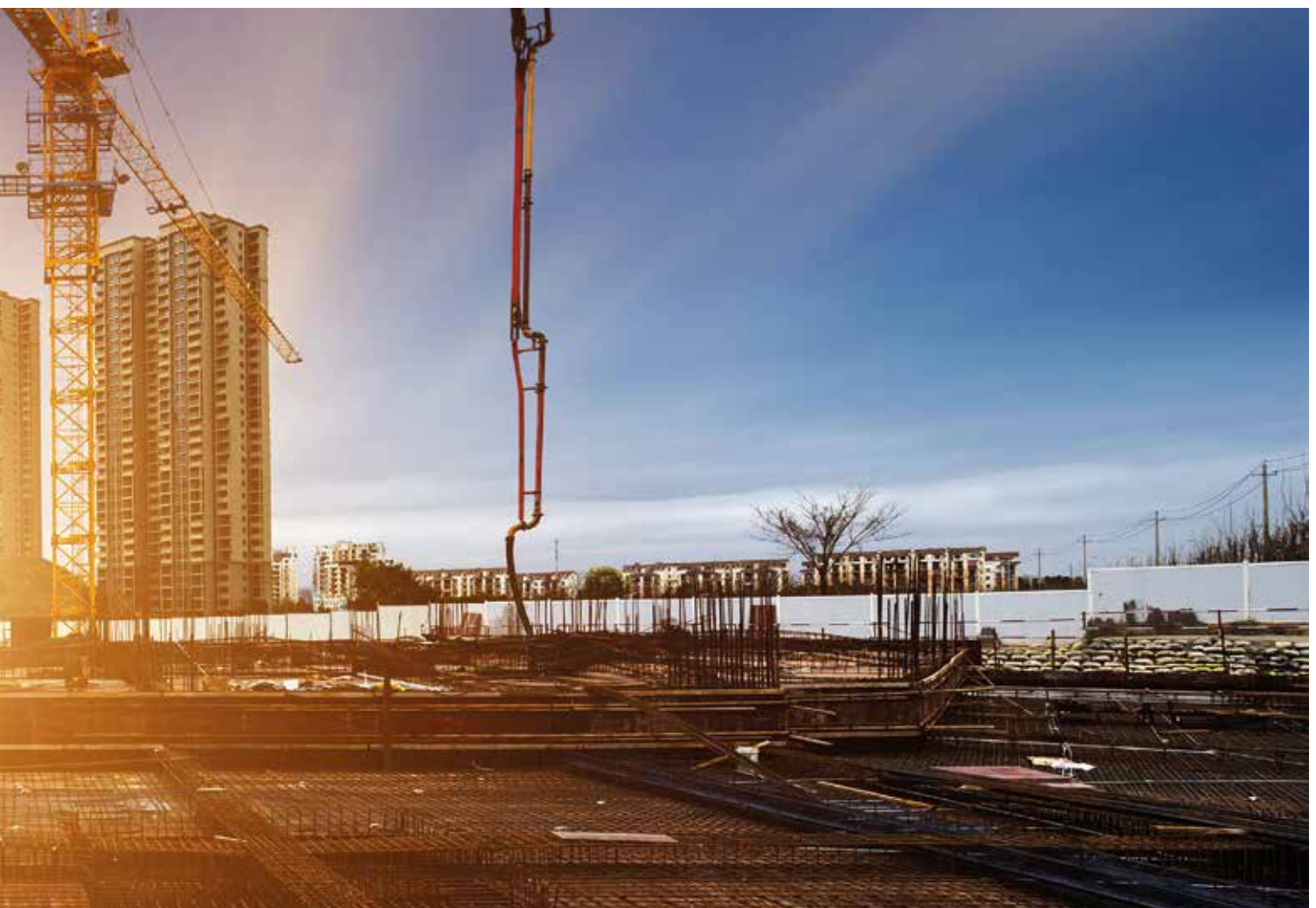
- In Europe, two key players have an extensive presence within this segment. VINCI reported sales of US\$ 23,458 million in its VINCI Energy and Cobra IS divisions in 2022. It reported a backlog at year-end of US\$ 24,800 million. Activities within the segment include development of renewable energy concession projects, EPC projects and long-term O&M contracts for the energy and telecommunications industries, among others. VINCI expects to be a key player in the European energy transition. Eiffage reported revenue of US\$ 13,289 million from activities that include renewable energy EPC projects, urban solutions and maintenance of transport and telecommunications infrastructure, among others.
- The US-based GPoC Jacobs reported revenues of US\$ 8,570 million for its

People & Places Solutions segment. This line of business provides consulting, design and engineering for end-to-end solutions to climate change, energy transition, connected mobility, integrated water management and smart cities.

Concessions

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. This segment is characterized by sustained cash flows, but also by strong capital investment requirements. As European-based GPoC dominate the concessions business, the presence of US and Asian-based groups is still limited:

- Eiffage's concession activity is focused in particular on the operation of transport infrastructure in France. In the same vein, VINCI has significant highway concessions in the domestic market, but it has



diversified the portfolio to include airport concessions, both locally and overseas. VINCI and Eiffage reported significant increases in concession revenue of 27.2% and 10.4%, respectively, as 2021 was still affected by the restrictions imposed due to COVID-19.

- This activity contributed US\$ 204 million to ACS' net income, of which US\$ 150 million came from a non-controlling interest in Abertis, a Spanish-based company that operates around 8,000 kilometers of transport infrastructure in Europe, the Americas and Asia. ACS is strengthening this activity by combining organic growth with acquisitions. In 2022, it increased its interest in the SH 288 highway concession in Texas (United States) by purchasing a significant stake, making it the largest shareholder.

- Concession activities represent a major area of Strabag's activities. Its portfolio comprises 39 PPP projects with a total investment volume of US\$ 10.9 billion.

Other non-related activities

GPoC groups have also been able to develop businesses that are not related to the construction industry cycle:

- China Railway Construction reported sales of just over US\$ 15,000 million in its Materials and Logistics division in 2022. This activity aims to increase the efficiency of materials procurement and logistics transport as a solution-oriented strategy in a highly localized and competitive industry.
- Bouygues has a major presence in the media and telecom sectors. Bouygues' TF1 reported sales of US\$ 2.6 billion in 2022, 3% above those in 2021 due to

a slight higher viewers share offset by a 1% decline of media sales. In similar terms, Bouygues Telecom reported US\$ 7.9 billion in 2022, up 4% from 2021, supported by its commercial momentum.

- Samsung C&T reported sales of US\$ 4.5 billion in the Resort division. This area of business includes theme parks, water parks, golf clubs and landscaping, as well as all the services provided within. Also, its Fashion division works with an extensive line of brands that has enabled it to successfully cement its position as the leader in the fashion industry in Korea. This segment represented US\$ 1.7 billion, 5% of the group's total revenue in 2022.
- Larsen & Toubro's Financial Products and Services segment, which represents about 7% of its total income, offers a diverse set of financial products and services encompassing mutual funds, infrastructure 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 separate 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 4% in 2022, while companies classified as domestic and international conglomerates reported average operating margins of 7.5%. The highest margins in 2022 were reported by those GPoC with significant homebuilding activity (14.6%). In terms of net income, the conclusions are similar: net income as a percentage of total sales amounted

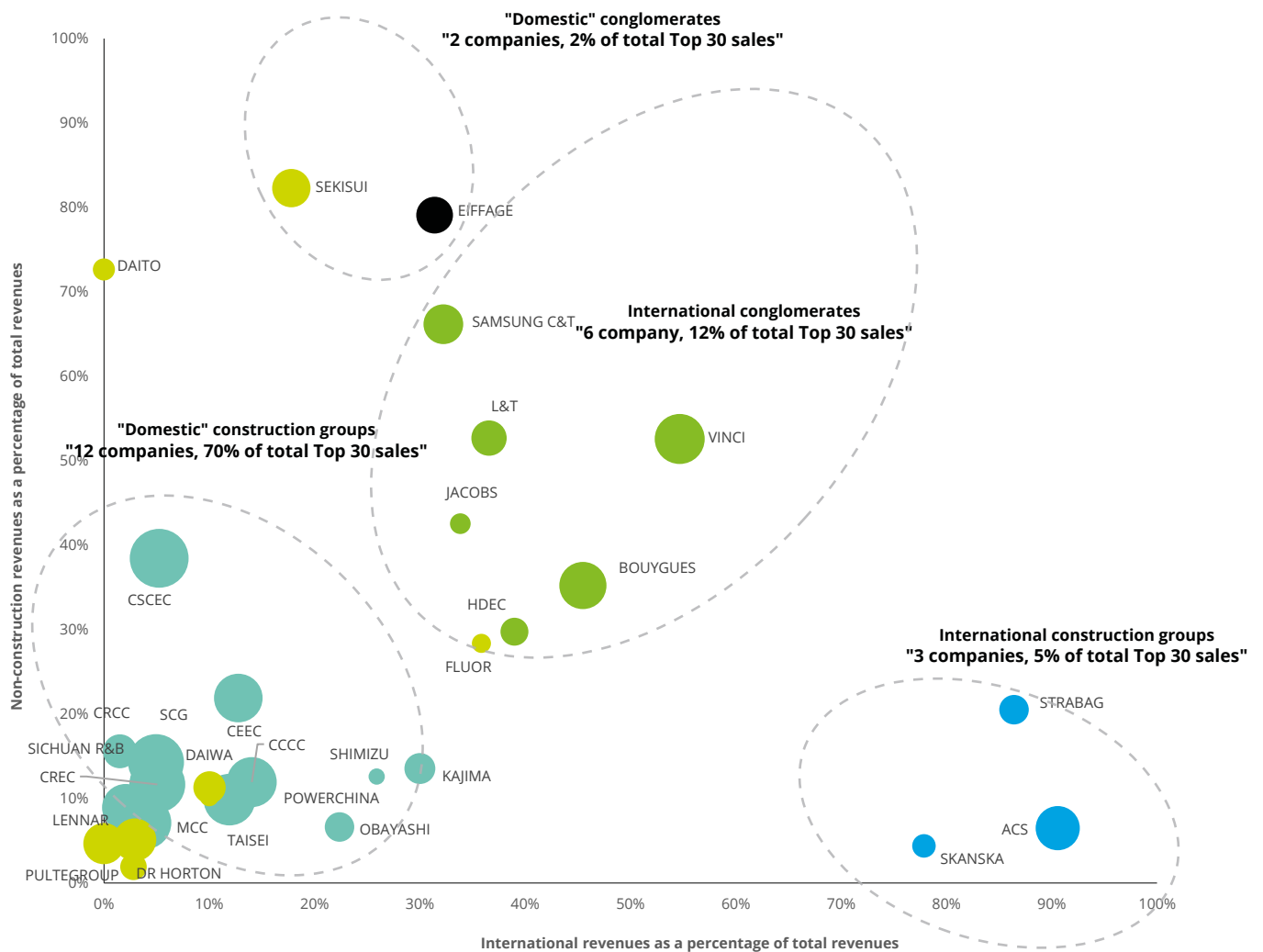
to 4.9% in the most diversified GPoC, 1.8 and 2.1 percentage points above domestic and international construction groups, respectively. Homebuilders reported a net income to sales ratio of 11.5% in 2022.

- On the other hand, non-construction activities usually lead to higher

indebtedness given that some of these activities (real estate, concessions, etc.) are capital intensive. While the net debt to equity ratio amounted to 38.0% among the international and domestic construction groups, the most diversified GPoC reported an average ratio of 29.2% in 2022. Homebuilders reported the lowest ratio among the five

categories identified (17.4%). Among the nine GPoC that reported a cash surplus in 2022, five companies are focused on construction activities while two groups are considered as homebuilders. Hyundai E&C and Fluor are the only diversified groups that reported a net cash position.

Figure 6.1 Internationalization vs Diversification



Source: Global Powers of Construction (GPOC) 2022 analysis; company financials

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 2022. 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, International Monetary Fund, World Bank, Euroconstruct, European Commission, 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 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

2022		
Currency	Date	Exchange rate
AED	From 01.01.2022 to 31.12.2022	3.67
AUD	From 01.07.2021 to 30.06.2022	1.38
BAHT	From 01.01.2022 to 31.12.2022	35.05
BRL	From 01.01.2022 to 31.12.2022	5.16
CAD	From 01.01.2022 to 31.12.2022	1.30
CHF	From 01.01.2022 to 31.12.2022	0.96
CLP	From 01.01.2022 to 31.12.2022	870.74
CNY	From 01.01.2022 to 31.12.2022	6.73
	31.12.2022	6.90
CRORE	From 01.01.2022 to 31.12.2022	78.58
DKK	From 01.10.2021 to 30.09.2022	6.89
EUR	From 01.01.2022 to 31.12.2022	0.95
	31.12.2022	0.94
GBP	From 01.01.2022 to 31.12.2022	0.81
	From 01.05.2021 to 30.04.2022	0.74
	From 01.07.2021 to 30.06.2022	0.75
	From 01.08.2021 to 31.07.2022	0.76
HKD	From 01.01.2022 to 31.12.2022	0.13
INR	From 01.04.2021 to 31.03.2022	74.51
	31.03.2022	75.87
JPY	From 01.04.2021 to 31.03.2022	112.33
	31.03.2022	121.44
	From 01.02.2021 to 31.01.2022	110.67
	31.01.2022	115.22
KRW	From 01.01.2022 to 31.12.2022	1,291.78
	31.12.2022	1,260.18
MXN	From 01.01.2022 to 31.12.2022	20.12
NOK	From 01.01.2022 to 31.12.2022	9.61
PLN	From 01.01.2022 to 31.12.2022	4.45
SEK	From 01.01.2022 to 31.12.2022	10.12
	31.12.2022	10.42
TRY	From 01.01.2022 to 31.12.2022	16.56
TWD	From 01.01.2022 to 31.12.2022	29.80
ILS	From 01.01.2022 to 31.12.2022	3.36

2021		
Currency	Date	Exchange rate
AED	From 01.01.2021 to 31.12.2021	3.67
AUD	From 01.07.2020 to 30.06.2021	1.34
BAHT	From 01.01.2021 to 31.12.2021	32.01
BRL	From 01.01.2021 to 31.12.2021	5.40
CAD	From 01.01.2021 to 31.12.2021	1.25
CHF	From 01.01.2021 to 31.12.2021	0.91
CLP	From 01.01.2021 to 31.12.2021	758.25
CNY	From 01.01.2021 to 31.12.2021	6.45
	31.12.2021	6.37
DKK	From 01.10.2020 to 30.09.2021	6.23
EUR	From 01.01.2021 to 31.12.2021	0.85
	31.12.2021	0.88
GBP	From 01.01.2021 to 31.12.2021	0.73
	From 01.05.2020 to 30.04.2021	0.76
	From 01.07.2020 to 30.06.2021	0.74
	From 01.08.2020 to 31.07.2021	0.74
HKD	From 01.01.2021 to 31.12.2021	7.77
INR	From 01.04.2020 to 31.03.2021	74.25
	31.03.2021	73.14
JPY	From 01.04.2020 to 31.03.2021	106.09
	31.03.2021	110.61
	From 01.02.2020 to 31.01.2021	106.35
	31.01.2021	104.64
KRW	From 01.01.2021 to 31.12.2021	1,144.89
	31.12.2021	1,188.59
KWD	From 01.01.2021 to 31.12.2021	0.30
MXN	From 01.01.2021 to 31.12.2021	20.28
NOK	From 01.01.2021 to 31.12.2021	8.60
SEK	From 01.01.2021 to 31.12.2021	8.58
	31.12.2021	9.05
TRY	From 01.01.2021 to 31.12.2021	8.86
TWD	From 01.01.2021 to 31.12.2021	27.94

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

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