Climate change and steel's reputation

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World Steel Association (worldsteel)

worldsteel
ASSOCIATION

Project and Methodology Summary

Research was carried out across **9 markets** (Brazil, China, Germany, India, Japan, South Korea, Turkey, USA and a South East Asia regional grouping) and **a 'Global audience' between 02/09/2022 to 14/02/2023**

This report analyses the findings from **486 semi-structured telephone interviews.** This is a combination of:

451 interviews with the following respondent groups across 9 markets:

137 Industry customer managers

139 Business/customer specifiers

90 Media

85 ESG investors and analysts

35 interviews with the following respondent groups across the EU, USA and UK (the Global audience'):
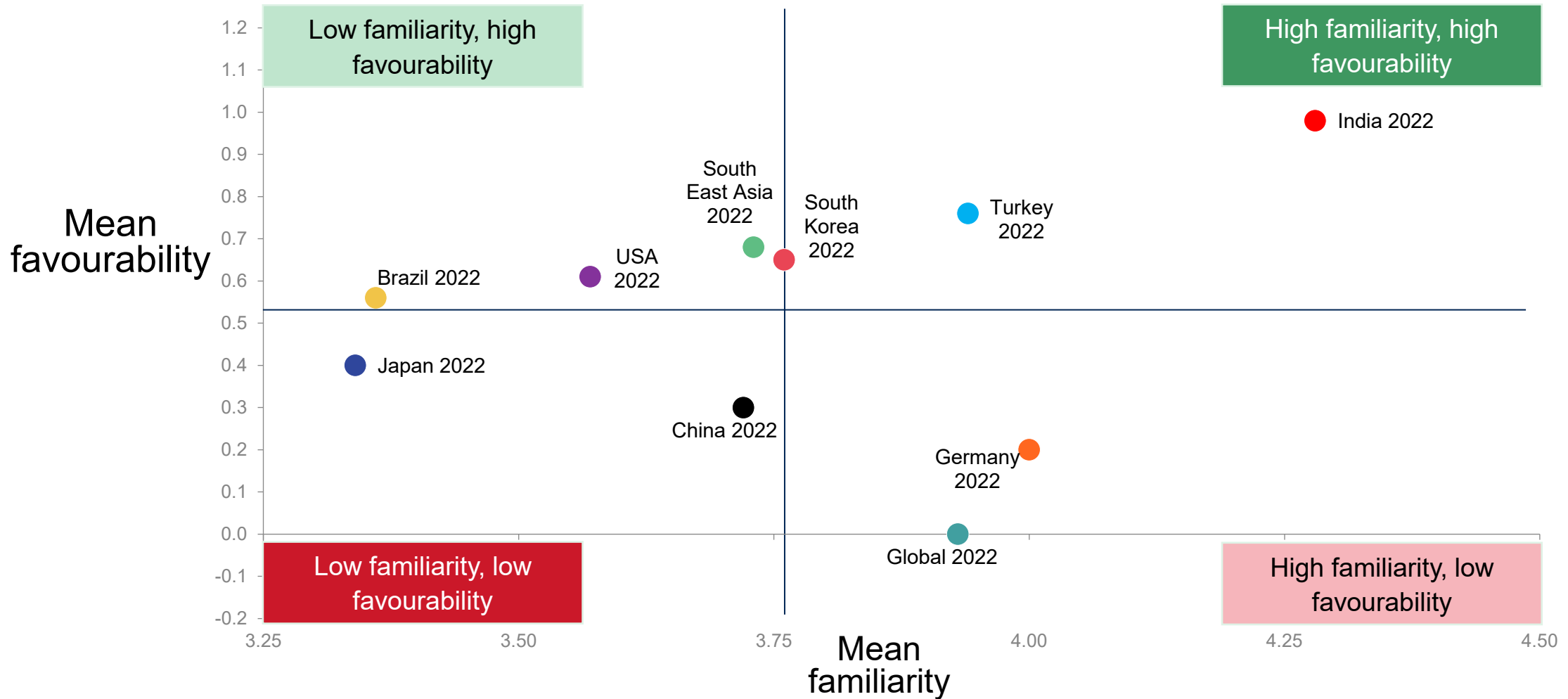
9 IGOs

10 NGOs

8 Not for Profit/Think Tanks

8 Global Not for Profit/Think Tanks

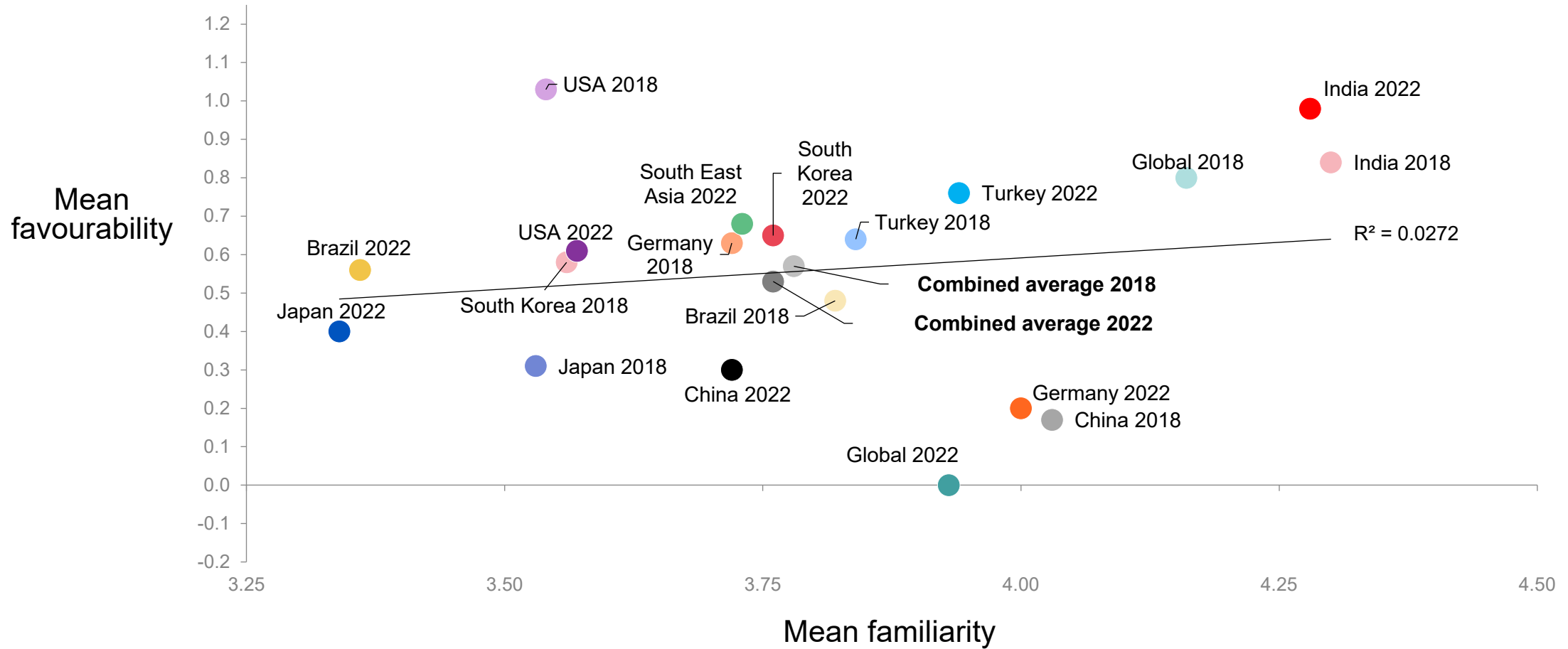Participants were sampled on agreed criteria to ensure their relevance to worldsteel and its remit

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Reputation map of steel industry, by country, 2022

Mean favourability (y-axis)

- Low familiarity, high favourability
- High familiarity, high favourability
- Low familiarity, low favourability
- High familiarity, low favourability

India 2022

South East Asia 2022

South Korea 2022

Turkey 2022

USA 2022

Brazil 2022

Japan 2022

China 2022

Germany 2022

Global 2022

Mean familiarity (x-axis)

Base: 2022- Combined (n=486), 2022- Brazil (n=50), 2022- China (n=50), 2022- Germany (n=43), 2022- India (n=50), 2022- Japan (n=50), 2022- South Korea (n=50), 2022- Turkey (n=48), 2022- USA (n=50), South East Asia (n=60), 2022- Global (n=35)

Quadrants calculated using the mean average familiarity and favourability scores of the combined total (9 markets plus the global audience group)

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Reputation map of steel industry – year on year change by country

Mean favourability (y-axis) vs Mean familiarity (x-axis)

- USA 2018 (~3.55, 1.03)
- India 2022 (~4.28, 0.98)
- India 2018 (~4.30, 0.83)
- Global 2018 (~4.17, 0.80)
- Turkey 2022 (~3.84, 0.76)
- South East Asia 2022 (~3.70, 0.68)
- South Korea 2022 (~3.76, 0.65)
- Turkey 2018 (~3.83, 0.64)
- Germany 2018 / USA 2022 / Combined average 2022
- Brazil 2022 (~3.37, 0.56)
- South Korea 2018 (~3.57, 0.58)
- Combined average 2018
- Brazil 2018 (~3.82, 0.48)
- Japan 2022 (~3.34, 0.40)
- Japan 2018 (~3.53, 0.31)
- China 2022 (~3.72, 0.30)
- Germany 2022 (~4.00, 0.20)
- China 2018 (~4.05, 0.17)
- Global 2022 (~3.93, 0.00)

R² = 0.0272

Mean favourability

Mean familiarity

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Reputation of steel as a material
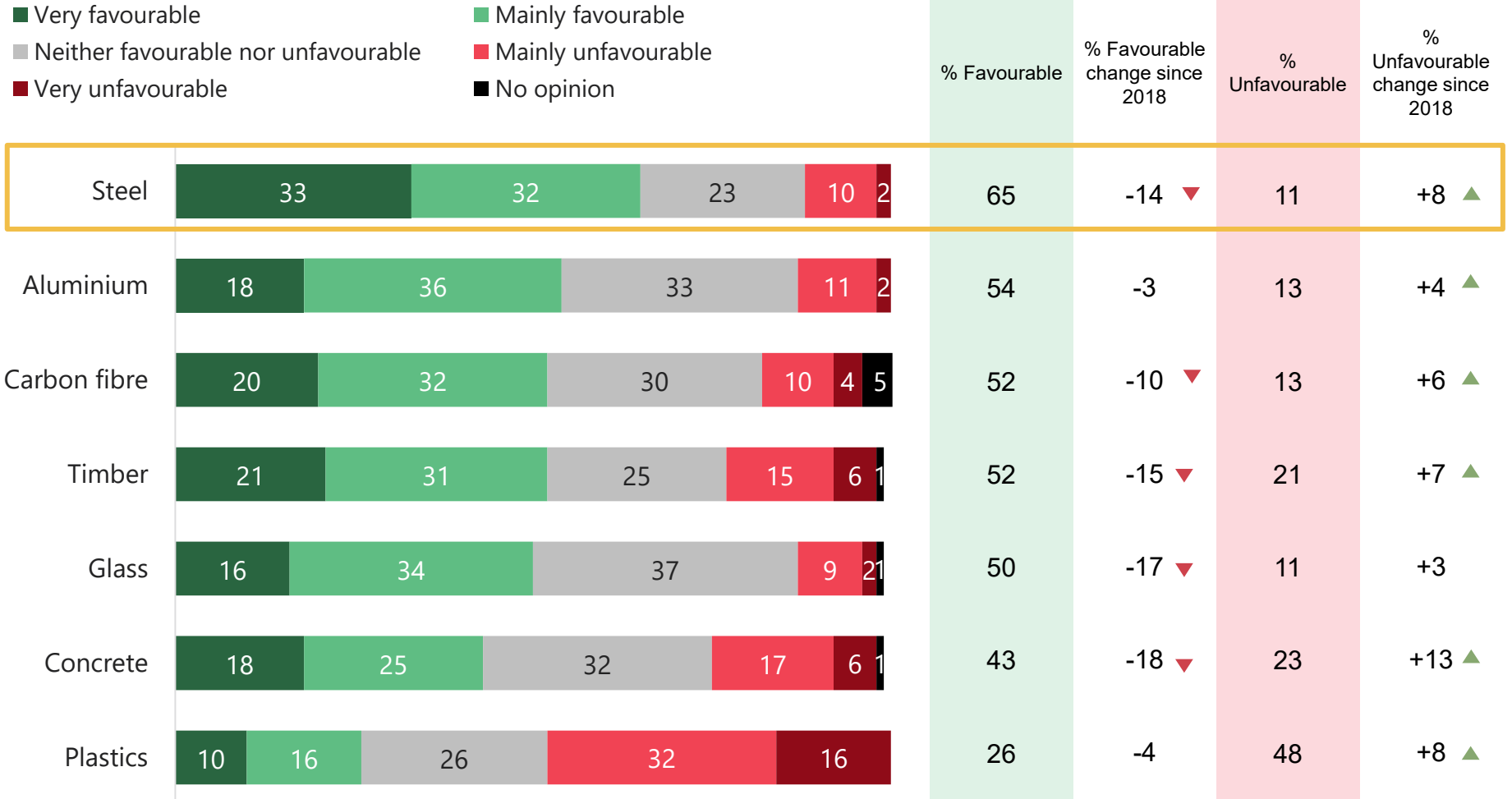
1

Steel remains the best regarded material.

But, this position is fragile – and is for most other materials.

Taking into account all the possible ways it is produced and used, how favourable or unfavourable are your overall feelings or impressions of each of the following construction or manufacturing materials?

- ■ Very favourable
- ■ Mainly favourable
- ■ Neither favourable nor unfavourable
- ■ Mainly unfavourable
- ■ Very unfavourable
- ■ No opinion

	Very favourable	Mainly favourable	Neither favourable nor unfavourable	Mainly unfavourable	Very unfavourable	No opinion	% Favourable	% Favourable change since 2018	% Unfavourable	% Unfavourable change since 2018
Steel	33	32	23	10	2		65	-14 ▼	11	+8 ▲
Aluminium	18	36	33	11	2		54	-3	13	+4 ▲
Carbon fibre	20	32	30	10	4	5	52	-10 ▼	13	+6 ▲
Timber	21	31	25	15	6	1	52	-15 ▼	21	+7 ▲
Glass	16	34	37	9	2	1	50	-17 ▼	11	+3
Concrete	18	25	32	17	6	1	43	-18 ▼	23	+13 ▲
Plastics	10	16	26	32	16		26	-4	48	+8 ▲

Base: 2022- All participants (n=486) 2018- All participants (n=523)

▼ ▲ Denotes significant change since 2018

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Favourability towards steel is in decline in all markets bar India

Taking into account all the possible ways it is produced and used, how favourable or unfavourable are your overall feelings or impressions of each of the following construction or manufacturing materials?

Legend:
- ■ Very favourable
- ■ Mainly favourable
- ■ Neither favourable nor unfavourable
- ■ Mainly unfavourable
- ■ Very unfavourable
- ■ No opinion

Country	Very favourable	Mainly favourable	Neither	Mainly unfav	Very unfav	No opinion	Favourable	% Favourable Change since 2018	Unfavourable	% Unfavourable Change since 2018
India	38	48	8	6			86	0	6	+4
Turkey	58	25	8	7	2		83	-9	9	+7
USA	34	40	13	12		2	73	-21 ▼	12	+10
Brazil	50	22	12	10	6		72	-24 ▼	16	+14 ▲
South Korea	20	50	24	6			70	-10	6	0
South East Asia*	43	26	26	1	2	2	69	N/A	3	N/A
Germany	29	26	26	19			54	-36 ▼	19	0
China	16	36	42	6			52	-5	6	+4
Japan	26	24	38	12			50	-17	12	+5
Global	12	19	36	26	8		31	-30 ▼	34	+22 ▲

Base: 2022- Brazil (n=50), China (n=50), Germany (n=43), India (n=50), Japan (n=50), South Korea (n=50), Turkey (n=48), USA (n=50), South East Asia (n=60)*, Global (n=35)
2018- Brazil (n=50), China (n=50), Germany (n=40), India (n=50), Japan (n=50), South Korea (n=50), Turkey (n=50), USA (n=48), Global (n=35)
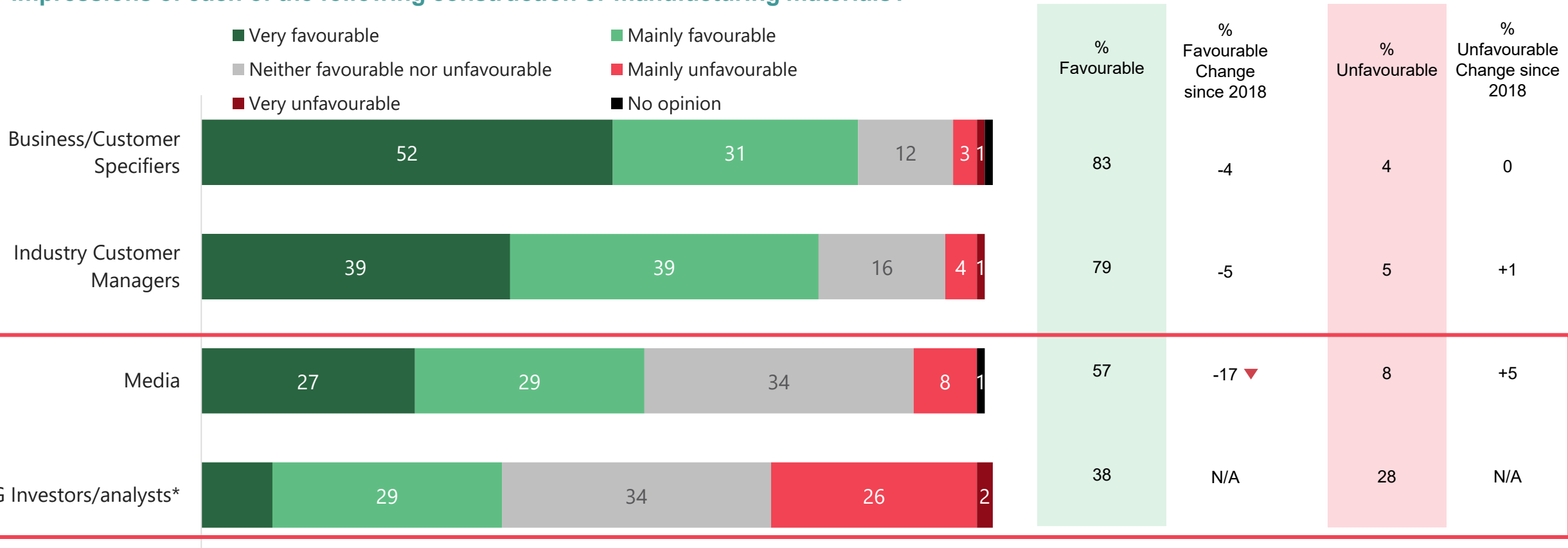
*No trend data South East Asia- newly introduced in 2022

▼ ▲ Denotes significant change since 2018

Ipsos
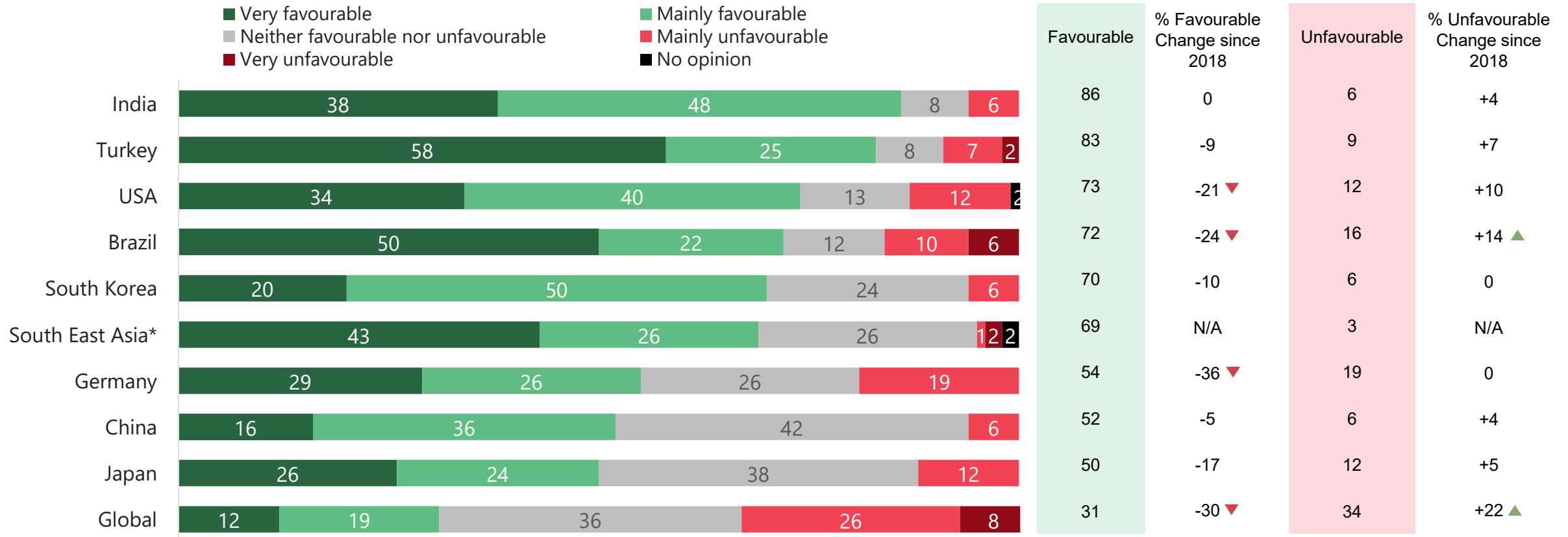
The downturn in positive sentiment is driven by opinion among journalists and ESG audiences

Taking into account all the possible ways it is produced and used, how favourable or unfavourable are your overall feelings or impressions of each of the following construction or manufacturing materials?

Legend:
- ■ Very favourable
- ■ Mainly favourable
- ■ Neither favourable nor unfavourable
- ■ Mainly unfavourable
- ■ Very unfavourable
- ■ No opinion

	Segments	% Favourable	% Favourable Change since 2018	% Unfavourable	% Unfavourable Change since 2018
Business/Customer Specifiers	52 / 31 / 12 / 3 / 1	83	-4	4	0
Industry Customer Managers	39 / 39 / 16 / 4 / 1	79	-5	5	+1
Media	27 / 29 / 34 / 8 / 1	57	-17 ▼	8	+5
ESG Investors/analysts*	29 / 34 / 26 / 2	38	N/A	28	N/A

Base: 2022- Industry customer managers (n=137), Business/customer specifiers (n=139), Media (n=90), ESG investors/analysts (n=85)*
2018- Industry customer managers (n=129), Business/Customer specifiers (n=145), Media (n=105)
*No trend data for ESG Investors/analysts- newly introduced in 2022

▼ ▲ Denotes significant change since 2018

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> Of course, I do everything from an ESG point of view, right? And I see the problem there in the extremely high energy requirement. That applies to all of these industries which I judged to be very negative; they have a very high energy requirement and therefore also produce a very high CO_2 burden, and for this reason, this increases climate change. That's the problem with these industries.

ESG investor/analyst

2

Steel is prized for its durability, versatility and recyclability.

You said earlier you are <u>favourable</u> towards steel as a construction and manufacturing material. Can you tell me why you feel like that?

% mentioned (Top mentions)

Good durability / long lasting	37
Versatile material / has a number of uses	31
Popular / used a lot	26
Strong / sturdy material	25
Sustainable / recyclable material	24
Good price / affordable / cheap	23

Base: All participants who say they are favourable towards steel as a material (n=317)

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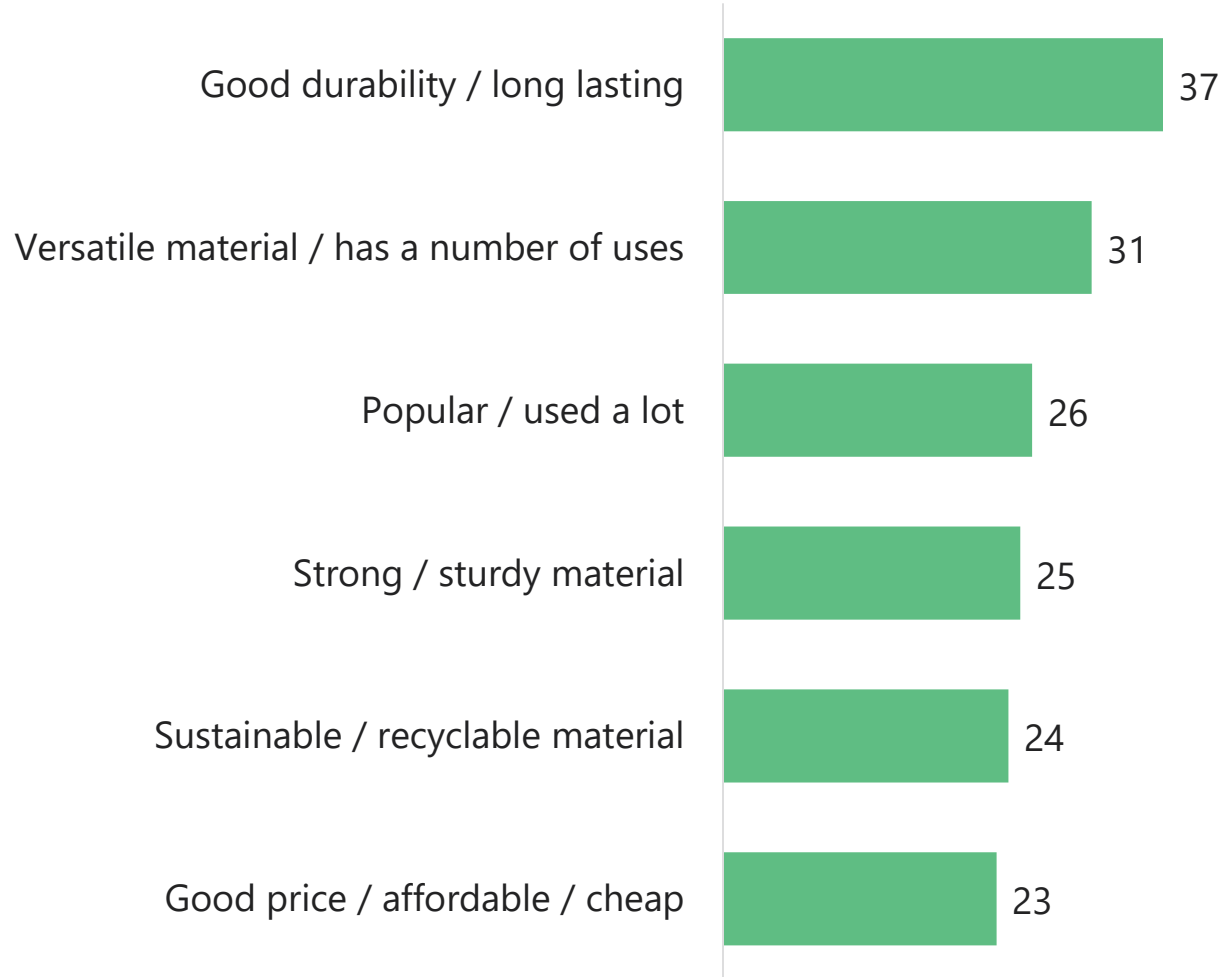
The primary criticism of steel is its negative environmental impact.

You said earlier you are <u>unfavourable</u> towards steel as a construction and manufacturing material. Can you tell me why you feel like that?

% mentioned (Top mentions)

Negative environmental impact / pollutant / not sustainable	91
Not as durable as other materials	10
Expensive / costly material	9
Difficult to process / work with / use	7

Base: All participants who say they are unfavourable towards steel as a material (n=52)

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3

Steel is seen as strong and easy to recycle, but increasingly associated with pollution.

Thinking about the same list of seven materials, which of them do you most associate with each of the following qualities?

% all mentions shown

Legend: ■ Steel ■ Aluminium ■ Carbon fibre ■ Concrete ■ Glass ■ Plastics ■ Timber

Strong and durable — Steel 84, Aluminium 30, ▲
Production of it increases climate change — Steel 59, Timber 21 ▼
Easy to recycle — Steel 57
Production of it causes pollution — Steel 55, ▲
Is everywhere in your life — Steel 48 ▼, Glass 48 ▼
Cost effective — Steel 33 ▼, Aluminium 23, Concrete 33 ▼, Plastics 44 ▲
Its raw materials are running out — Steel 29, Concrete 13 ▲, Glass 8
Inspires creativity — Steel 23
Modern — Steel 21
Lightweight — Steel 4

▼ ▲ Denotes significant change since 2018

Base: 2022- All participants (n=486) 2018- All participants (n=523)

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Reputation of the steel industry

1

Steel is the best regarded industry.

But, unfavourable sentiment is on the rise.

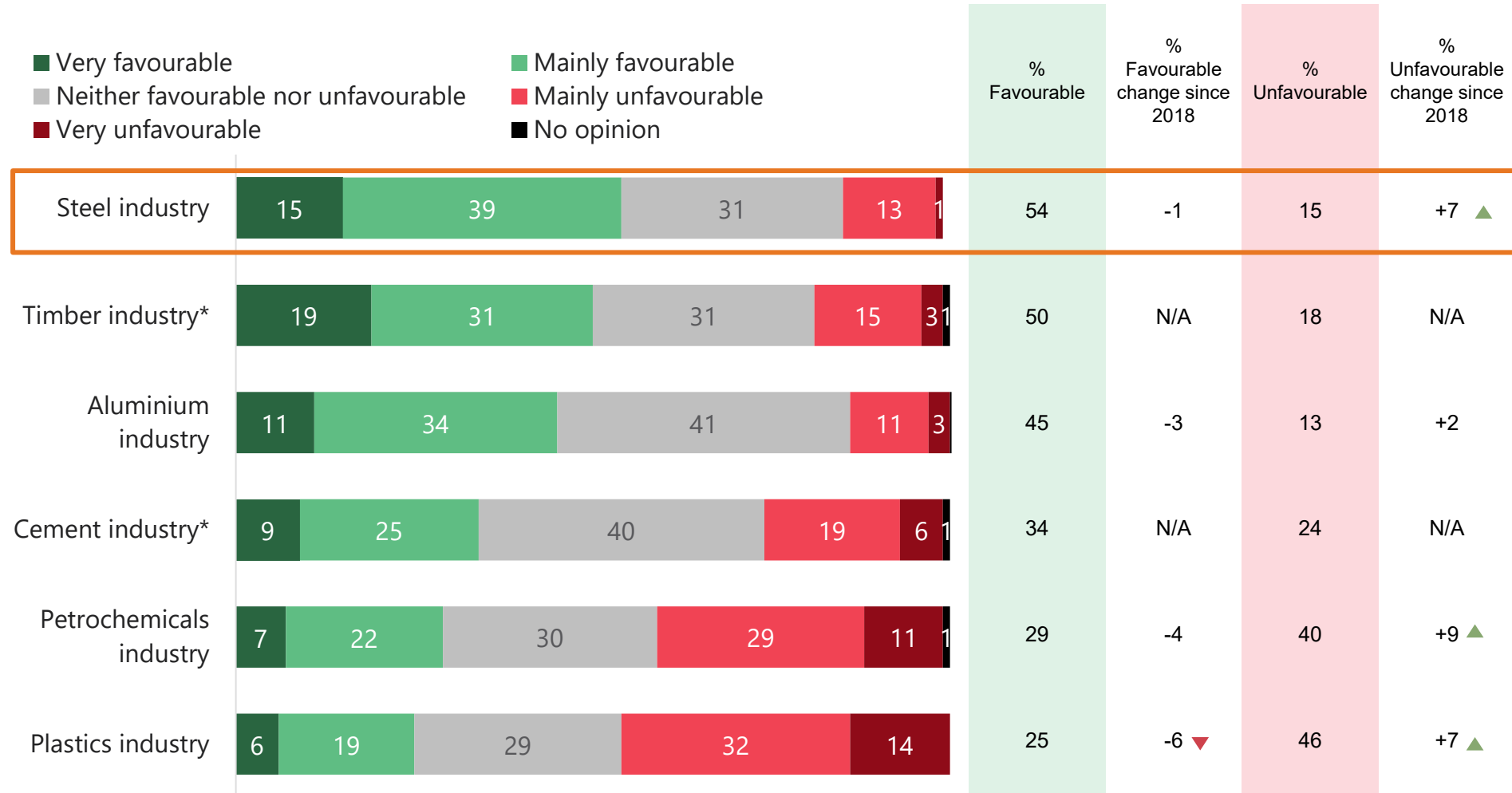**Taking into account all the possible ways it is produced and used, how favourable or unfavourable are your overall feelings or impressions of each of the following construction or manufacturing materials?**

Legend:
- ■ Very favourable
- ■ Mainly favourable
- ■ Neither favourable nor unfavourable
- ■ Mainly unfavourable
- ■ Very unfavourable
- ■ No opinion

Industry	Very favourable	Mainly favourable	Neither favourable nor unfavourable	Mainly unfavourable	Very unfavourable	No opinion	% Favourable	% Favourable change since 2018	% Unfavourable	% Unfavourable change since 2018
Steel industry	15	39	31	13		1	54	-1	15	+7 ▲
Timber industry*	19	31	31	15	3	1	50	N/A	18	N/A
Aluminium industry	11	34	41	11	3		45	-3	13	+2
Cement industry*	9	25	40	19	6	1	34	N/A	24	N/A
Petrochemicals industry	7	22	30	29	11	1	29	-4	40	+9 ▲
Plastics industry	6	19	29	32	14		25	-6 ▼	46	+7 ▲

Base: 2022- All participants (n=486) 2018- All participants (n=523)

▼ ▲ Denotes significant change since 2018

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14

The steel industry is better known than others

For each industry I read out, could you please tell me how well you feel you know it?

Legend:
- ■ % Know very well
- ■ % Know a fair amount
- ■ % Know just a little
- ■ % Heard of but know nothing about it
- ■ % Not heard of

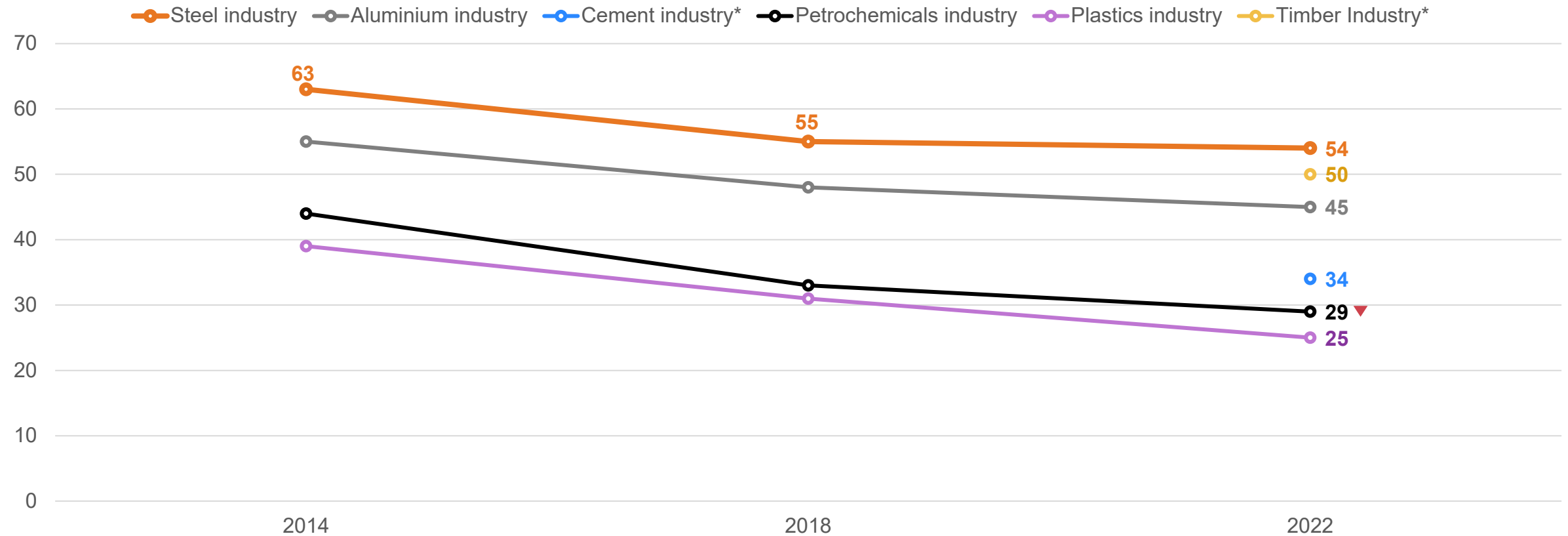| Industry	% Know very well	% Know a fair amount	% Know just a little	% Heard of but know nothing about it	% Not heard of	% Know at least a fair amount	% Change from 2018
Steel industry	22	39	30	7	1	62	-2
Cement industry*	13	32	34	19	2	44	N/A
Petrochemicals industry	12	31	36	18	4	43	+5
Plastics industry	10	32	42	14	2	41	+6 ▲
Timber industry*	8	31	38	21	3	39	N/A
Aluminium industry	7	27	42	20	4	34	-5

Base: 2022- All participants (n=486), 2018- All participants (n=523) *No trend data for Timber and Cement industries- newly introduced in 2022

▼ ▲ Denotes significant change since 2018

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Favourability towards most sectors is stable, but there are signs of a long-term decline in positive sentiment

Taking into account everything you know about each industry, how favourable or unfavourable do you feel towards it? (% favourable)

Legend: Steel industry · Aluminium industry · Cement industry* · Petrochemicals industry · Plastics industry · Timber Industry*

- Steel industry: 63 (2014), 55 (2018), 54 (2022)
- Aluminium industry: 55 (2014), 48 (2018), 45 (2022)
- Petrochemicals industry: 44 (2014), 33 (2018), 29 (2022) ▼
- Plastics industry: 39 (2014), 31 (2018), 25 (2022)
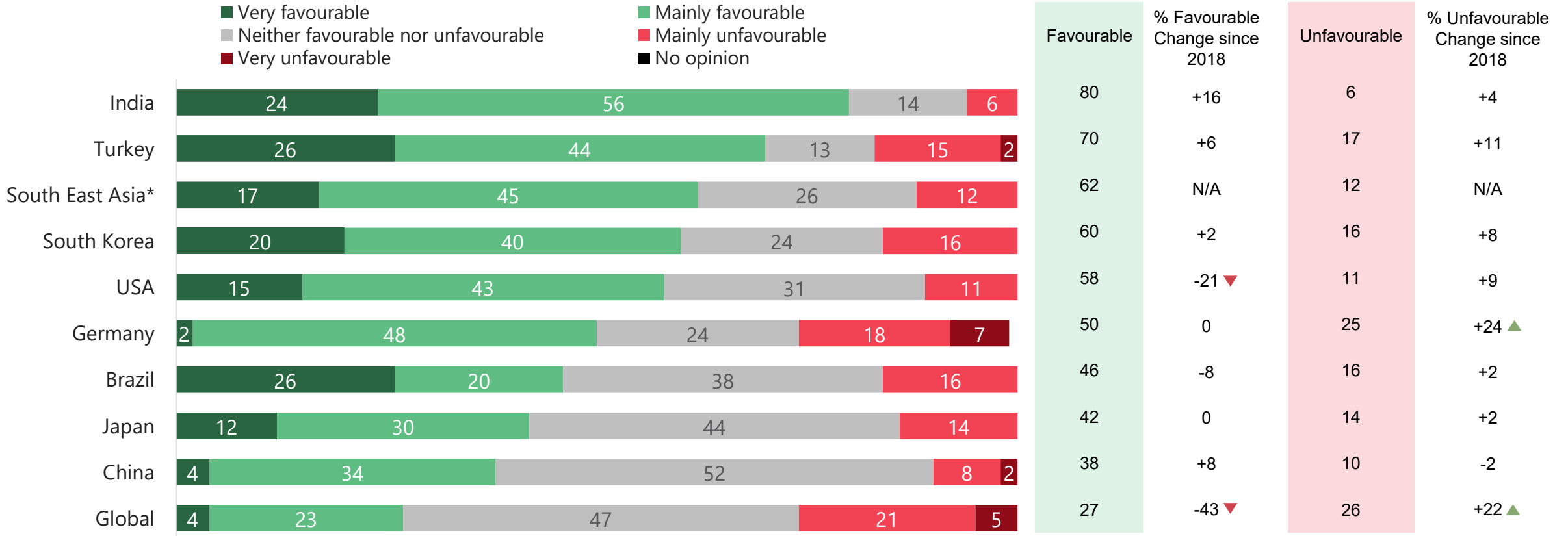- Timber Industry*: 50 (2022)
- Cement industry*: 34 (2022)

Base: All participants each year; 2014 (n=539), 2018 (n=523), 2022 (n=486). *No trend data for Timber and Cement industries- newly introduced in 2022

▼ ▲ Denotes significant change since 2018

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The steel industry's reputation is positive in most markets. Its reputation is weakening in Germany, Brazil and the USA

Taking into account everything you know about each industry, how favourable or unfavourable do you feel towards it? [Steel industry]

Legend:
- ■ Very favourable
- ■ Mainly favourable
- ■ Neither favourable nor unfavourable
- ■ Mainly unfavourable
- ■ Very unfavourable
- ■ No opinion

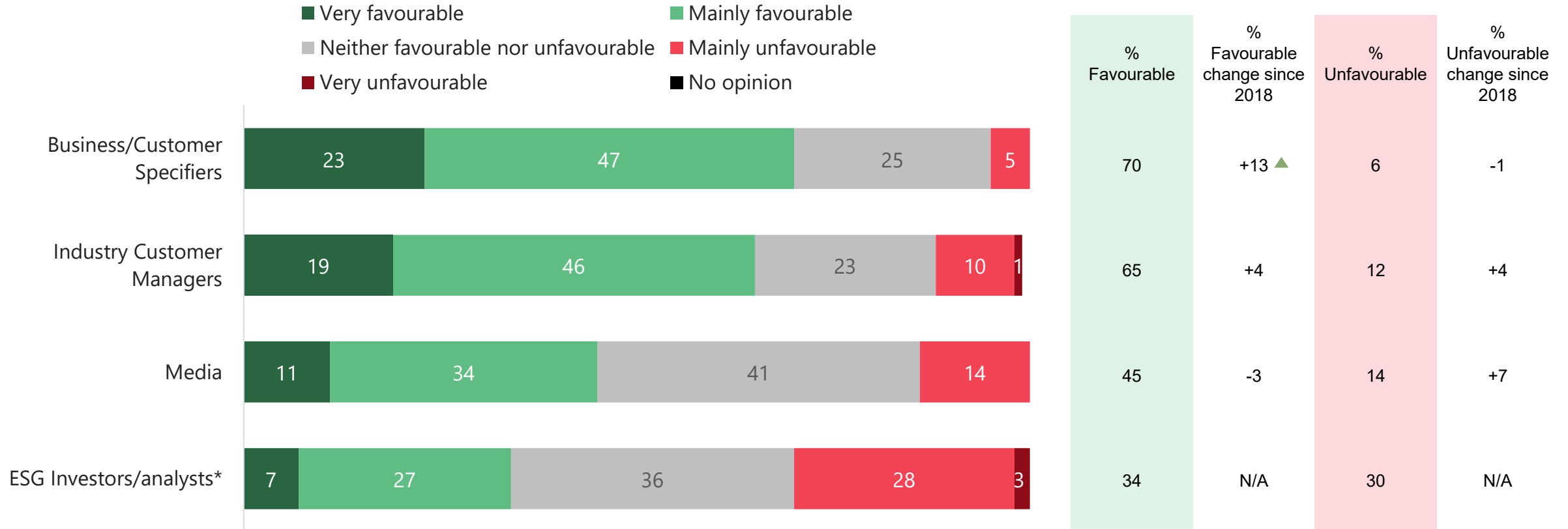| Country	Very favourable	Mainly favourable	Neither	Mainly unfavourable	Very unfavourable	Favourable	% Favourable Change since 2018	Unfavourable	% Unfavourable Change since 2018
India	24	56	14	6		80	+16	6	+4
Turkey	26	44	13	15	2	70	+6	17	+11
South East Asia*	17	45	26	12		62	N/A	12	N/A
South Korea	20	40	24	16		60	+2	16	+8
USA	15	43	31	11		58	-21 ▼	11	+9
Germany	2	48	24	18	7	50	0	25	+24 ▲
Brazil	26	20	38	16		46	-8	16	+2
Japan	12	30	44	14		42	0	14	+2
China	4	34	52	8	2	38	+8	10	-2
Global	4	23	47	21	5	27	-43 ▼	26	+22 ▲

▼ ▲ Denotes significant change since 2018

Base: 2022- Brazil (n=50), China (n=50), Germany (n=43), India (n=50), Japan (n=50), South Korea (n=50), Turkey (n=48), USA (n=50), South East Asia (n=60)*, Global (n=35) 2018- Brazil (n=50), China (n=50), Germany (n=40), India (n=50), Japan (n=50), South Korea (n=50), Turkey (n=50), USA (n=48), Global (n=35) *No trend data South East Asia- newly introduced in 2022

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Specifiers are increasingly positive about the steel industry. Opinion among ESG investors and analysts is polarised

Taking into account everything you know about each industry, how favourable or unfavourable do you feel towards it? [Steel industry]

Legend:
- ■ Very favourable
- ■ Mainly favourable
- ■ Neither favourable nor unfavourable
- ■ Mainly unfavourable
- ■ Very unfavourable
- ■ No opinion

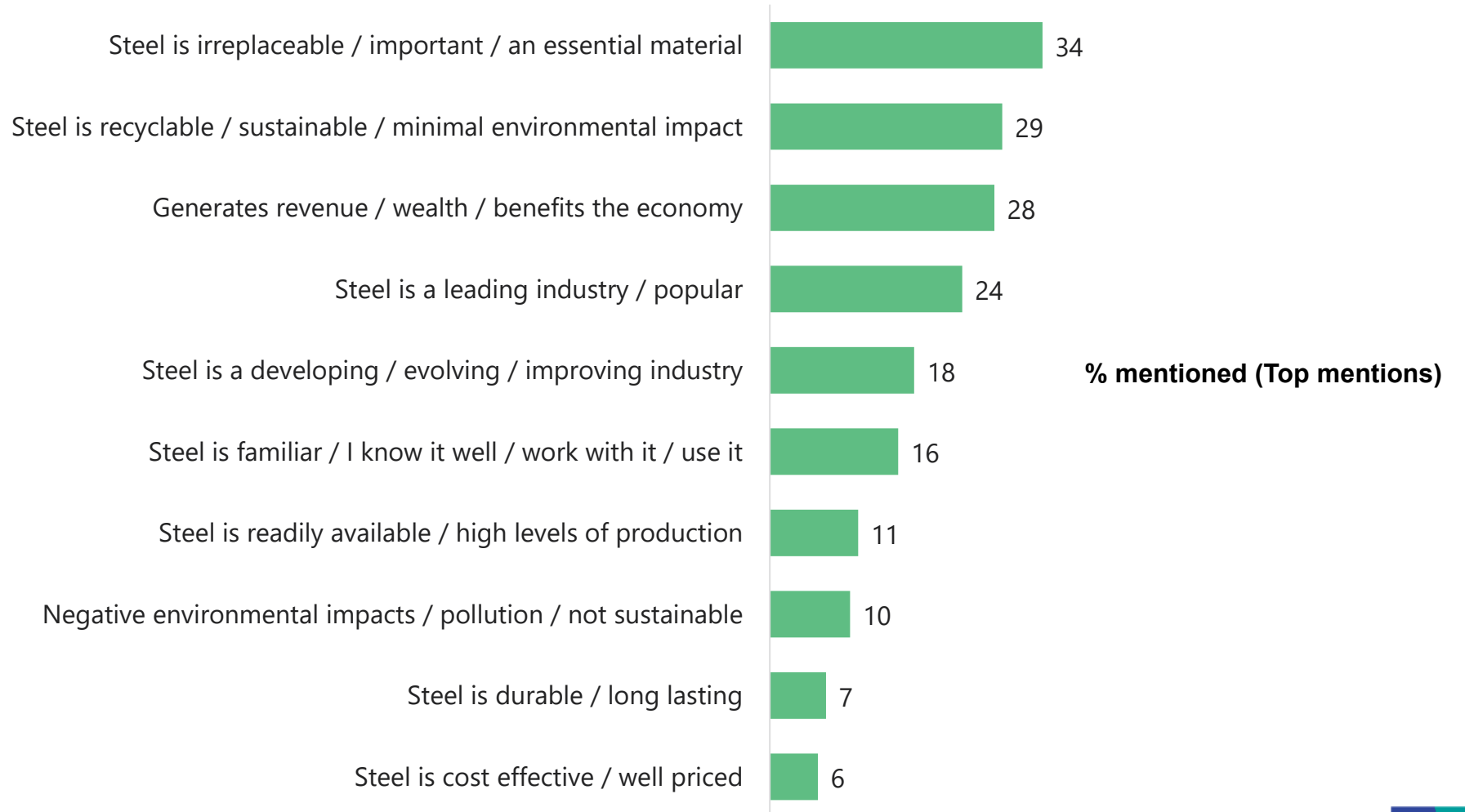|	Very favourable	Mainly favourable	Neither favourable nor unfavourable	Mainly unfavourable	Very unfavourable	% Favourable	% Favourable change since 2018	% Unfavourable	% Unfavourable change since 2018
Business/Customer Specifiers	23	47	25	5		70	+13 ▲	6	-1
Industry Customer Managers	19	46	23	10	1	65	+4	12	+4
Media	11	34	41	14		45	-3	14	+7
ESG Investors/analysts*	7	27	36	28	3	34	N/A	30	N/A

Base: 2022- Industry customer managers (n=137), Business/customer specifiers (n=139), Media (n=90), ESG investors/analysts (n=85)* 2018- Industry customer managers (n=129), Business/Customer specifiers (n=145), Media (n=105). *No trend data for ESG Investors/analysts- newly introduced in 2022

▼ ▲ Denotes significant change since 2018

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2

Steel's reputation as a material underpins positivity towards the industry itself.

You said earlier you are <u>favourable</u> towards the steel industry. Could you tell me why you feel like that?

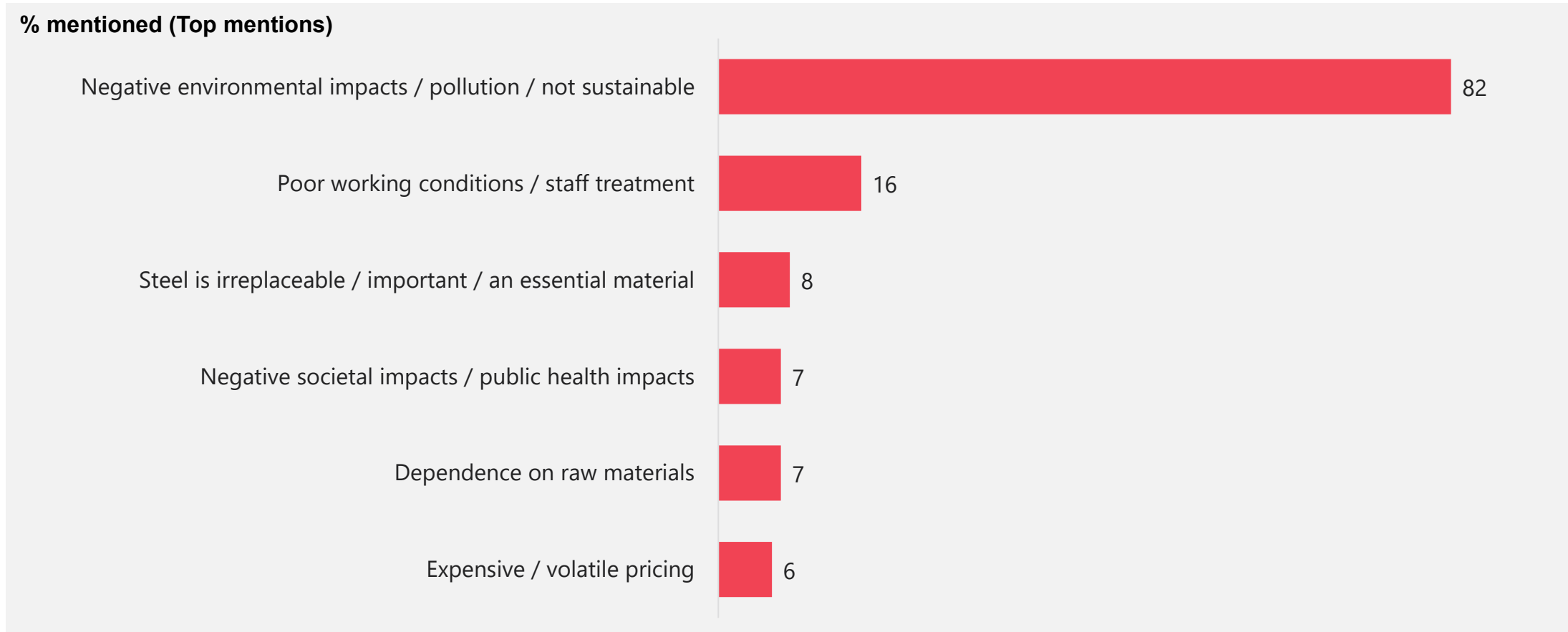| Response	%
Steel is irreplaceable / important / an essential material	34
Steel is recyclable / sustainable / minimal environmental impact	29
Generates revenue / wealth / benefits the economy	28
Steel is a leading industry / popular	24
Steel is a developing / evolving / improving industry	18
Steel is familiar / I know it well / work with it / use it	16
Steel is readily available / high levels of production	11
Negative environmental impacts / pollution / not sustainable	10
Steel is durable / long lasting	7
Steel is cost effective / well priced	6

% mentioned (Top mentions)

Base: All participants who say they are favourable towards the steel industry (n=263)

▼ ▲ Denotes significant change since 2018

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Steel's impact on the environment is the primary factor behind negative perceptions of it

You said earlier you are unfavourable towards the steel industry. Could you tell me why you feel like that?

% mentioned (Top mentions)

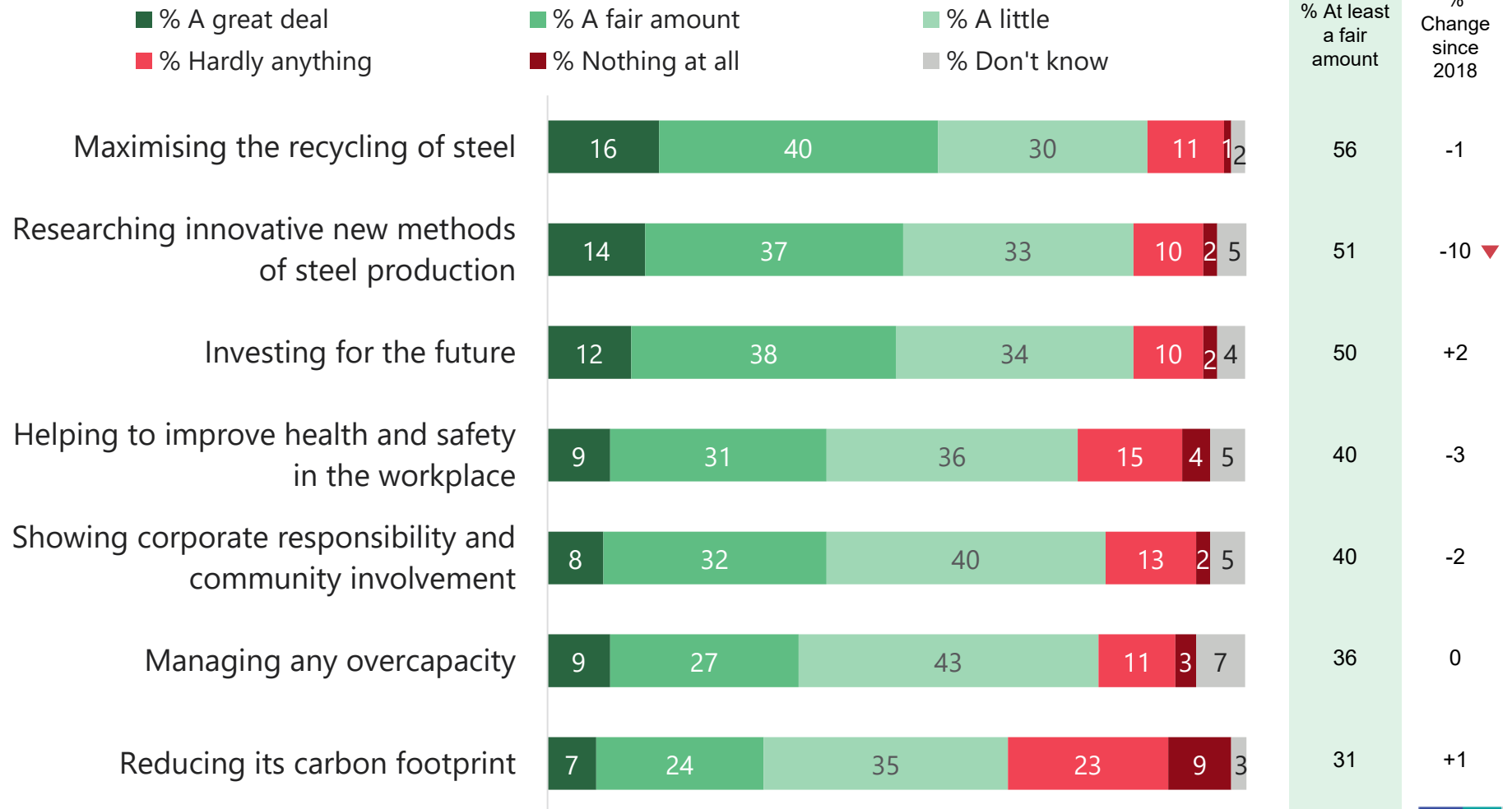|	
Negative environmental impacts / pollution / not sustainable	82
Poor working conditions / staff treatment	16
Steel is irreplaceable / important / an essential material	8
Negative societal impacts / public health impacts	7
Dependence on raw materials	7
Expensive / volatile pricing	6

Base: All participants who say they are unfavourable towards the steel industry (n=69)

3

There is recognition of the industry's initiatives – but room to improve the depth of stakeholder knowledge.

To the best of your knowledge, how much do you think the steel industry is currently doing in each of the following areas?

- ■ % A great deal
- ■ % A fair amount
- ■ % A little
- ■ % Hardly anything
- ■ % Nothing at all
- ■ % Don't know

	% A great deal	% A fair amount	% A little	% Hardly anything	% Nothing at all	% Don't know	% At least a fair amount	% Change since 2018
Maximising the recycling of steel	16	40	30	11	1	2	56	-1
Researching innovative new methods of steel production	14	37	33	10	2	5	51	-10 ▼
Investing for the future	12	38	34	10	2	4	50	+2
Helping to improve health and safety in the workplace	9	31	36	15	4	5	40	-3
Showing corporate responsibility and community involvement	8	32	40	13	2	5	40	-2
Managing any overcapacity	9	27	43	11	3	7	36	0
Reducing its carbon footprint	7	24	35	23	9	3	31	+1

Base: 2022- All participants (n=486), 2018- All participants (n=523)

▼ ▲ Denotes significant change since 2018

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