

# Tesla Inc. (TSLA)

## Plans to open charging network – initial thoughts and analysis

Buy

TSLA 12m Price Target: \$880.00 Price: \$885.20 Upside: 31.2%

### Tesla plans to open up its charging network to other automakers

On 7/20/2021, Tesla's CEO commented that the company plans to open its charging network to other automakers, potentially later this year and eventually across all geographies. Recall that Tesla owns and operates a Level 3 (DC fast charging, which Tesla calls Supercharging) network of ~3k stations with ~25k+ ports, making it the largest fast charging network in the world. In addition, Tesla partners with hotels, restaurants, shopping centers, and resorts for Level 2 destination charging.

While Tesla has about 24% of total public charging share in the US by connector, it has 56% of DC fast charging share (Exhibit 1, Exhibit 2), per the US Department of Energy (DOE) database.

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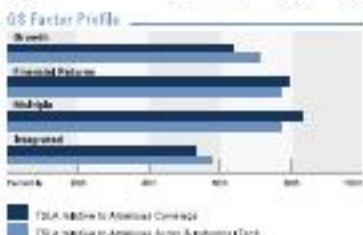
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	Market cap: \$742.4Bn
	Enterprise value: \$732.8Bn
	Jan ADTV: \$31.70n
	United States
	Americas Auto & Industrial Tech
	M&A Rank: 3

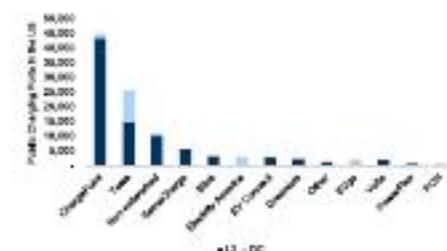
	2020	2021E	2022E	2023E
Revenue (\$mil)	\$16,892	\$20,989	\$24,069	\$26,269
EBITDA (\$mil)	\$2,982	\$3,989	\$4,989	\$5,989
EPS (\$)	1.98	4.00	5.98	7.98
FESR (%)	22%	22%	22%	22%
EV/EBITDA (x)	5.3	5.2	5.2	5.2
P/E (ytd) (x)	53	52	51	50
Diluted Yield (%)	0%	0%	0%	0%
Net debt/CFDA (\$B)	7.28	6.00	7.28	7.28
	\$161	\$176	\$191	\$206
EPS (\$)	0.28	0.38	0.44	0.50



Source: Company data, Goldman Sachs Research estimates.  
 See disclosures for details.

Tesla Inc. (TSLA)					Balance Sheet (\$mn)			
	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20
Cash & cash equivalents	10,010	17,072	10,010	10,010	10,010	17,072	10,010	10,010
Amounts receivable	1,690	2,736	1,690	1,690	1,690	2,736	1,690	1,690
Inventories	4,110	3,684	4,110	4,110	4,110	3,684	4,110	4,110
Other current assets	1,100	1,200	1,100	1,100	1,100	1,200	1,100	1,100
Total current assets	26,800	31,696	26,800	26,800	26,800	31,696	26,800	26,800
Net PPE	14,300	18,892	14,300	14,300	14,300	18,892	14,300	14,300
Net intangibles	300	400	300	300	300	400	300	300
Other long-term assets	1,000	1,200	1,000	1,000	1,000	1,200	1,000	1,000
Total assets	62,100	71,988	62,100	62,100	62,100	71,988	62,100	62,100
Accounts payable	8,000	10,000	8,000	8,000	8,000	10,000	8,000	8,000
Other accrued liabilities	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Current lease liabilities	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other current liabilities	8,000	8,400	8,000	8,000	8,000	8,400	8,000	8,000
Total current liabilities	14,000	16,800	14,000	14,000	14,000	16,800	14,000	14,000
Long-term leases	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Non-current lease liabilities	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other long-term liabilities	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Total long-term liabilities	14,000	16,000	14,000	14,000	14,000	16,000	14,000	14,000
Total liabilities	28,800	31,696	28,800	28,800	28,800	31,696	28,800	28,800
Preferred shares	-	-	-	-	-	-	-	-
Total common equity	33,300	37,092	33,300	33,300	33,300	37,092	33,300	33,300
Minority interest	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Total liabilities & equity	62,100	71,988	62,100	62,100	62,100	71,988	62,100	62,100
EPS-BE	0.29	0.25	0.29	0.29	0.29	0.25	0.29	0.29
Growth & Margins (%)					Cash Flow (\$mn)			
	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20
Total Revenue growth	101%	101%	101%	101%	101%	101%	101%	101%
EPS-Total-growth	101%	111%	101%	101%	101%	111%	101%	101%
EPS-growth	101%	101%	101%	101%	101%	101%	101%	101%
Gross margin	31.2	31.8	31.4	31.2	31.2	31.8	31.4	31.2
EPS margin	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Price Performance					EPS-BE			
	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20
PE Ratio	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
EPS	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
EPS-Growth	101%	101%	101%	101%	101%	101%	101%	101%
EPS-Total-growth	101%	101%	101%	101%	101%	101%	101%	101%
EPS-Total-growth	101%	101%	101%	101%	101%	101%	101%	101%
Source: FactSet, Prices as of 27 Apr 2020 (USD)								
Income Statement (\$ mn)					EPS-BE			
	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20	1Q'20
Total Revenue	10,010	10,010	10,010	10,010	10,010	10,010	10,010	10,010
Cost of goods sold	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
SG&A	3,160	4,160	3,160	3,160	3,160	4,160	3,160	3,160
R&D	1,480	1,680	1,480	1,480	1,480	1,680	1,480	1,480
Other operating expenses	1,100	1,200	1,100	1,100	1,100	1,200	1,100	1,100
EBITDA	4,160	3,480	4,160	4,160	4,160	3,480	4,160	4,160
Depreciation & amortization	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
EBIT	3,160	2,480	3,160	3,160	3,160	2,480	3,160	3,160
Net income (loss) (net)	1,100	900	1,100	1,100	1,100	900	1,100	1,100
Normalized from earnings	-	-	-	-	-	-	-	-
Provision post	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Provision for taxes	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Minority interest	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Preferred dividends	-	-	-	-	-	-	-	-
Net inc. (loss)-non-operating	600	3,160	600	600	600	3,160	600	600
Net inc. (loss)-asset held-for-sale	600	3,160	600	600	600	3,160	600	600
EPS (Basic, pre-adjusted) (1)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Basic, pre-adjusted) (2)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted) (1)	-	-	-	-	-	-	-	-
EPS (Basic, adjusted) (2)	-	-	-	-	-	-	-	-
EPS (Diluted, pre-adjusted) (1)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Diluted, pre-adjusted) (2)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Diluted, adjusted) (1)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted) (2)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.70
EPS (Diluted)	0.66	0.30	0.66	0.66	0.66	0.30	0.66	0.66
EPS (Basic, adjusted)	-	-	-	-	-	-	-	-
EPS (Diluted, adjusted)	-	-	-	-	-	-	-	-
EPS (Basic)	0.70	0.30	0.70	0.70	0.70	0.30	0.70	0.7

**Exhibit 1:** Tesla is currently the market leader in DC fast charging and #2 in overall charging points in the US.



Lesson 12

- Super 66

40-45% of Tesla Supercharging stations are in North America, 30-35% are in APAC, and 20-25% are in Europe, per Supercharge.info.

The company had previously indicated its willingness to share its network with other automakers (e.g., [Electrek](#) reported last month that Tesla plans to open its Supercharging network to other automakers in Norway). Per this update, Tesla plans to open its network later this year and to all geographies over time (Tesla did not specify the timeline).

Note that Tesla vehicles are generally able to utilize other fast charge networks (potentially with the use of an adapter, depending on the region and when the vehicle was made).

Payback period for a Tesla Supercharger

While the company generally charges based on the electricity used at its chargers (subject to local rules), Tesla's primary objective in building out the charging network has been to support EV sales [as a network was needed]. The company will also offer charging credits (and in the past free charging for Model X) as an incentive to buy a vehicle. Tesla has said on its website that its objective in monetization is only to minimize/offset the cost from Superchargers.

DC fast charging stations are expensive to install, and they can cost about \$100K per plug to build when including site infrastructure (per the Rocky Mountain Institute), although there is a range depending on power levels and economies of scale.

In [Exhibit 3](#), we detail the theoretical payback period of a Tesla Supercharging station. In this illustrative analysis, we assume that Tesla has a \$0.16/kWh margin per charge (the price of supercharging per kWh relative to cost to deliver the electricity), and that the average vehicle adds 35 kWh per charging session. We recognize there would also be maintenance costs that this simple analysis does not capture. This shows that many stations are likely break-even or negative today, as Tesla has suggested.

**Exhibit 3: We estimate the payback period of a Tesla Supercharger could be several years**

Tesla Supercharger payback period

Tesla Supercharging Payback Period (years)					
	Total	Tesla Supercharger Hardware	Install Cost (\$)		
Chargers charged	\$0,000	75,000	100,000	125,000	
10	8	4	6	7	
8	9	5	7	8	
6	4	7	9	11	
4	7	10	12	15	
2	13	20	28	33	

Source: Goldman Sachs Global Investment Research

### Sizing the revenue opportunity

Tesla opening up its network could represent a sizable opportunity over time as the EV fleet grows, especially if Tesla charges more for non-Tesla owners (we also see strategic implications, as we discuss later).

In [Exhibit 4](#), we show the potential revenue opportunity if Tesla were to open up its Supercharger network to non-Tesla vehicles and charge on a per use basis. The first column shows the monetization opportunity with Tesla's current installed base of 25K chargers, and if the base grew to 500K Superchargers in the long-term for illustrative purposes (would be a \$25+ bn in annual revenue, depending on average use and price).

We assume Tesla makes about \$10-11 per charge in revenue on average in this analysis (e.g., \$0.30/kWh to add 35 kWh of capacity), and we make different assumptions for station utilization (e.g., between 5 and 15 charging sessions per day).

While \$0.30 per kWh is modestly above rates Tesla typically charges currently during peak times, we assume for this analysis that fast charging rates would go higher if Tesla is selling at a level to non-Tesla owners that is designed to generate a profit.

**Exhibit 4: Tesla Supercharger revenue opportunity could grow from ~\$1 bn with the current network to \$25+ bn annually, depending on utilization and network size**

Tesla Supercharging Network DMR

Chargers charged	Tesla Supercharging Network (All Time)				
	Total	Tesla Superchargers	Install Cost (\$)	Revenue (\$)	Payback Period (years)
0	25,000	0	0	0	0
2	5170	500	11,818	16,791	80.869
4	5187	1,020	23,636	33,482	67.320
6	5195	1,530	35,454	50,661	51.945
8	52,030	3,060	68,888	81,798	32.955
10	52,037	6,074	137,776	164,372	20.744

Source: Goldman Sachs Global Investment Research

It is unclear to us what Tesla would need to do in order to prepare its network for external vehicles, and it could also face costs to upgrade its current charging stations. Note that Tesla is already using CCS (an industry standard) charging plugs in Europe, so it may plan to invest to upgrade other Superchargers as well. There could also be an opportunity to sell adapters to non-Tesla owners.

### Strategic considerations and implications

We believe that Tesla's charging network currently represents an important competitive advantage for Tesla vs. peer electric vehicle manufacturers, as Tesla drivers benefit from an exclusive fast-charging network with high up-time and global coverage. This network helps to alleviate range anxiety and enable long-distance travel; we note it is significantly faster and cheaper to drive across the country in a Tesla vehicle than in a competing EV (due in part to Supercharger access, but also due to range and battery efficiency, as detailed by [Car and Driver](#) in a July 2021 article). We believe ease of charging has been a key contributor to demand for Tesla vehicles.

Opening up the network would mark progress in the company's mission to accelerate the global transition to sustainable energy — making it more attractive for any driver to own an EV — and also help Tesla's brand.

While this move could diminish Tesla's current relative advantage when selling EVs (and lead to increased wait times for Tesla drivers at stations), we see potential strategic benefits long-term. For example, we believe that allowing access for non-Tesla vehicles could let Tesla grow its own network faster and also potentially limit the ability of other charging networks to gain traction in the market and monetize investments, allowing Tesla to maintain its leading market position. In fast charging, Tesla could potentially charge Tesla owners a lower price (only enough to offset or minimize network costs, as is the current approach), which would in turn allow it to sustain an advantage when selling cars due to its network (i.e., you get a better price if you own a Tesla).

Finally, Tesla could better monetize its charging network and create a new profit driver.

### Price target and key risks

We are Buy rated on TSLA shares. Our 12-month price target of \$860 is based on 14X 2028 estimated revenue. Key downside risks to our thesis relate to the rate of EV adoption (and the ability for Tesla to meet this demand given supply chain constraints), ModelY demand, increased competition in EVs (and Tesla's EV market share), the auto cycle, key person risk, the internal control environment, and operational risks associated with Tesla's high degree of vertical integration.

## Disclosure Appendix

### Reg AC

We, Mark Delaney, CFA, Bruno Dossena, Ryan Hees and Eleanor Gordan, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

### GS Factor Profile

The Goldman Sachs Factor Profile provides investment insights for a stock by comparing key attributes to the market (i.e., our coverage universe) and its sector peers. The four key attributes depicted are: Growth, Financial Returns, Multiple (e.g., valuation) and Integrated (a composite of Growth, Financial Returns and Multiple). Growth, Financial Returns and Multiple are calculated by using normalized ranks for specific metrics for each stock. The normalized ranks for the metrics are then averaged and converted into percentiles for the relevant attribute. The precise calculation of each metric may vary depending on the fiscal year, industry and region, but the standard approach is as follows:

**Growth** is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROIC and CROCF for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price-to-earnings (P/E), P/BV (P/B) and EV/EBITDA (Adjusted Cash Flow (ACF)) for financial stocks, only P/E, P/B and P/CF, with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile and (100% - Multiple percentile).

**Financial Returns** and **Multiple** use the Goldman Sachs analyst forecast at the fiscal year-end at least three quarters in the future. **Growth** uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future on a per-share basis for all methods.

For a more detailed description of how we calculate the GS Factor Profile, please contact your GS representative.

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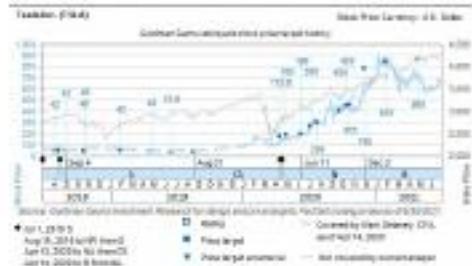
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Goldman Sachs' Investment Research global Equity coverage universe

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