A&M Valuation Insights

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The price for taking equity risk in Germany continues its downward trend



1) Fachausschuss für Unternehmensbewertung und Betriebswirtschaft (FAUB) of the German Institute of Chartered Accountants (IDW).

2) The MRP is calculated by relating the market capitalization of CDAX companies to analyst forecasts. Whereas stock prices are volatile, analyst forecasts are adjusted with a time lag. The A&M implied MRP model considers capital market data as well as consensus earnings estimates as of 31 December 2023 and is updated on a quarterly basis. The results might be affected by a timing lag with regards to updates of consensus estimates by the equity research community. The range of the MRP shown is derived by varying stock price data from 60 trading days to 20 trading days.

3) Results are subject to information deficiencies and capital market exaggerations.

In a one-year comparison, Enterprise Values show the highest recovery in Transportation & Logistics

One-year comparison of forward 2023 EV/EBITDA trading multiple on firm level data by industry (CDAX)

- The Enterprise Value (EV) developed differently across industries. Transportation & Logistics firms saw a significant increase in EV, while Energy & Materials
 performed worse compared to 2022.
- Fundamentally, sales outlooks across industries are far less optimistic compared to sales increases achieved a year ago. Especially, strong growth patterns in Energy & Materials amid the war in the Ukraine and in Transportation & Logistics following the COVID-19 pandemic dropped from their peeks in 2022.
- EBITDA margins, in turn, are projected to slightly increase compared to earnings levels achieved a year ago. As such, it, at least partly seems, that rising
 input costs are mostly passed on to consumers in most industries.



Note: The analysis of forward EV/EBITDA trading multiple levels is based on all CDAX firms and compares median EV/EBITDA trading multiple levels by industry as of 31 December 2023 and as of 31 December 2022. Only firm years considered for which consistent data was available across analyzed variables. Sales growth and EBITDA margin analysis compares 2022 sales growth and 2022 EBITDA margin with 2023 sales growth and EBITDA margin consensus as of 31 December 2023. Source: S&P Capital IQ, A&M Analysis.

US firms are priced at a premium compared to CDAX firms, most prominent in Information Technology and Industrials



- A comparison of forward EV/EBITDA trading multiples of US (S&P500) and German (CDAX) firms at the industry level reveals that US trading premia are highest in Information Technology (22.1x vs. 10.1x), Industrials (15.3x vs. 6.5x) and Consumer Products (16.2x vs. 8.1x).
- The development of EVs significantly differs between Germany and the US in some industries while yearly changes in sales growth projections seem largely
 in line amongst US and German industries except for Online Retail & Trade. However, US listed stocks seem to benefit far more from prosperous profitability
 (EBITDA margin) than German listed stocks, apart from firms in the Transportation & Logistics industry.

The analysis of forward EV/EBITDA trading multiple levels is based on all CDAX and S&P 500 firms and compares median EV/EBITDA trading multiple levels by industry as of 31 December 2023. Only firm years considered for which consistent data was available across analysed variables. Source: S&P Capital IQ, A&M Analysis.

Prices paid in European M&A transactions imply premia to trading prices in the healthcare and technology industry

Comparison of LTM transaction and LTM trading multiple pricing levels (EV/EBITDA) by industry in Europe (S&P Europe 350)



- We compare Last-Twelve-Month (LTM) EV/EBITDA multiples paid in European M&A transactions with LTM European trading pricing levels (S&P Europe 350). The light blue bar represents the range of trading multiples during the observation period.
- The highest prices were paid in Healthcare and Information Technology, with transaction multiples above the range of trading multiples.
- Within Consumer Products prominent brands exhibit notably high trading multiples, exemplified by Hermès (34.1x) and L'Oreal (28.0x). Transaction, in turn, predominantly involve lesser-known brands, such as "The Restaurant Group", leading to transaction multiples beneath the range of trading multiples.
- In the Industrials sector, transaction multiple also fall below trading multiples, mostly due to the size of observed transactions.

Note: Transaction pricing levels are defined as Last-Twelve-Months (LTM) EV/EBITDA at closing and consist of all closed M&A transactions in Europe with sufficient data availability. Transactions clustered by industry for the January 2023 to December 2023 period. Trading pricing levels are based on LTM EV/EBITDA trading multiples for all S&P Europe 350 firms, clustered by industry. The trading pricing range is comprised of the minimum and maximum value as of December 31, 2022, June 30, 2023, and December 31, 2023. Source: S&P Capital IQ, A&M Analysis.



Industry Spotlight

Renewable Energies in Europe



Volatile pricing levels of Renewables were mostly due to two external shocks: COVID-19 and the war in the Ukraine

EV/EBITDA trading multiple analysis based on firm level data of energy firms²

Both COVID-19 and the Ukraine war have particularly impacted the energy industry. Since the beginning of the pandemic, the multiples of the renewable energy sector have shown especially high volatility.



Development trends:

- At the onset of the pandemic, multiples in the renewable energy sector doubled within a year. However, major integrated power generators showed little change.
- After a strong upward trend, multiples of Operators and Components declined. The onset of the Ukraine war and the rise in interest rates further burdened renewable firms, causing multiples to return to pre-pandemic levels.
- Only multiples of Project Developers continued to rise after a brief decline.

Decomposition of COVID-19 (Jan20 – Mar21) and Ukraine war (Jan22 – Dez23) impacts on trading pricing levels of renewable firms

Company Type		COVID-19			Ukraine war		
		EV Chango in %	Market Cap	EBITDA Chango in %	EV	Market Cap	EBITDA
		Change III 76					
「「」」	Components	+50.0%	+57.1%	-49.5%	-29.6%	-33.8%	+3.7%
8	Project Developer	+65.8%	+90.1%	+20.0%	+24.6%	+10.0%	+20.3%
	Operator	+46.7%	+61.0%	-8.7%	+0.1%	-15.2%	+66.4%
0	Integrated Corporate	+13.4%	+18.7%	+18.0%	+5.6%	+1.9%	+30.4%
	Oil & Gas ³	-23.6%	-31.4%	-46.0%	+11.7%	+24.0%	+38.5%

With the onset of the pandemic, a capital shift away from traditional oil & gas companies (– €162.4bn market cap) towards the renewable energy sector (+ €117.9bn market cap) was observed, resulting in a significant increase in trading multiples.

The Ukraine war and its consequences, especially the rise in electricity prices, led to an increase in the EBITDA of renewable energy companies, particularly for Operators and specifically the so-called YieldCos.

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Source: S&P Capital IQ, A&M Analysis.

2) Energy companies were assigned to various clusters, which are described in more detail on page 12.

3) For comparison purposes, the development of the companies BP p.l.c., TotalEnergies SE, Repsol, S.A., Eni S.p.A., and Shell plc were considered

The energy transition brought about YieldCos, a new type of company

Similar to a REIT in the investment industry, YieldCos generate predictable cash flows by acquiring already producing wind and solar parks.

These companies separate volatile activities like R&D and construction from the production of renewable energy, reducing the cost of capital.

Fixed feed-in tariffs and long-term power purchase agreements enable stable and secure cash flows, allowing investors to participate in the energy transition with reduced associated risks.



Development of market capitalization:

- The increase in electricity prices began in 2021 due to the COVID-19 pandemic and growing international demand. In 2022, the situation was further exacerbated by the Russian invasion of Ukraine.
- The market price of YieldCos particularly benefited from the increase in electricity prices, rising by approximately 40% between early 2021 and mid-2022. In contrast, the valuation of integrated electricity corporates, especially at the peak of electricity prices, declined.
- With falling electricity prices, market prices of both firm types have approached each other again.

Influence of interest rates on the market capitalization of YieldCos



Development of market capitalization:

- In addition to electricity prices, interest rates influence the profitability of YieldCos, as they finance a significant portion of their projects with debt.
- As such, the rising interest rate environment created challenging conditions for portfolio expansion.
- Towards the end of the year 2023, the market increasingly considered an imminent interest rate cut by the ECB, which was perceived as a positive signal for YieldCos.

1) Source: S&P Capital IQ, Company Financial Reports, Ember, A&M Analysis.

2) Note: The market capitalization shown refers to a peer group of ten European YieldCos and a peer group of twelve integrated European integrated Electricity Corporations.

Wind parks in Europe achieve higher prices per Megawatt (MW) than solar parks due to their higher efficiency



+34%

+23%

EV/MW Transaction Multiples³

YieldCos with a focus on wind farms have consistently expanded their capacities; however, they couldn't increase their EV, leading to a decline in the multiple over time. Transaction multiples, on the other hand, remained stable at 1.5x.

1.2x 1.1x 2022 2023

1.5x

2023

A similar trend is observed among YieldCos with a focus on solar parks. However, transaction multiples show a significant decline from 2021 to 2022 and then remained rather constant.

- The EV/MW multiple is commonly used in the energy industry, especially in the valuation of power plants, wind farms, or solar parks. It compares the EV to the capacity specified in MW.
- In an overall view, wind farms exhibit higher multiples than solar parks. The reason is that wind farms in Europe typically achieve a greater number of fullload hours throughout the year, generating more power for the same MW capacity.
- YieldCos are continuously investing in their portfolios and expanding their capacities through acquisitions of operational wind and solar parks. YieldCos focusing on wind parks have increased their MW capacity by 34% over the last two years, while those focusing on solar parks have seen a 23% increase. However, the EV remained relatively constant for both technologies and only experienced marginal growth, leading to a steady decline in multiple pricing levels.
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- Note: Companies are assigned according to the focused technology of their portfolio composition. 2)
- 3) In total, 69 transactions were considered, including 40 wind parks and 29 solar parks.

List of considered Renewable Energy firms

The initial peer group consisted of 70 companies based on the ETFs Invesco Wind Energy UCITS, iShares Global Clean Energy, and Invesco Solar Energy, as well as proprietary research. Peer companies were divided into four clusters: "Components"," "Project Developers," "Operators," and "Integrated Companies". The clusters are defined as follows:

- Components: Includes firms with a strong focus on renewable energies that produce wind turbines, high-voltage cable solutions, and other components for wind and solar parks.
- **Project Developers**: Companies which act across the entire value chain, starting with the development of wind and solar parks, through financing, construction, and up to sales of parks and after-sale services.
- Operators: This cluster refers essentially to independent power purchasers who hold wind and solar parks in their portfolios and sell the generated electricity on the market.
- Integrated Corporates: Diversified electricity companies which primarily generate electricity not only from renewable energy but also from conventional technologies. Additionally, they are also involved in other areas such as trading.

Only companies with consistent data throughout the respective observation period and no negative EBITDA in any year were considered. The final peer group consists of the following 41 companies:

Components	Project Developers	Operators	Integrated Corporates
NKT A/S	TERNA ENERGY Industrial Commercial Technical Societe Anonyme	Scatec ASA	BKW AG
Ørsted A/S	Voltalia SA	EDP Renováveis, S.A.	Edison S.p.A.
Nexans S.A.	Energiekontor AG	VERBUND AG	EnBW Energie Baden-Württemberg AG
LEM Holding SA	PNE AG	Solaria Energía y Medio Ambiente, S.A.	Endesa, S.A.
Ecosuntek S.p.A.		Clere AG	Enel SpA
		Arise AB (publ)	Energiedienst Holding AG
		Brookfield Renewable Partners L.P.	EVN AG
		Atlantica Sustainable Infrastructure plc	Fortum Oyj
		Aega ASA	Iberdrola, S.A.
		ERG S.p.A. (YieldCo)	RWE Aktiengesellschaft
		Encavis AG (YieldCo)	SSE plc
		7C Solarparken AG (YieldCo)	Public Power Corporation S.A.
		Alerion Clean Power S.p.A. (YieldCo)	EDP - Energias de Portugal, S.A.
		clearvise AG (YieldCo)	
		Edisun Power Europe AG (YieldCo)	
		Tion Renewables AG (YieldCo)	
		Greencoat Renewables PLC (YieldCo)	
		Octopus Renewables Infrastructure Trust plc (YieldCo)	
		The Renewables Infrastructure Group Limited (YieldCo)	

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