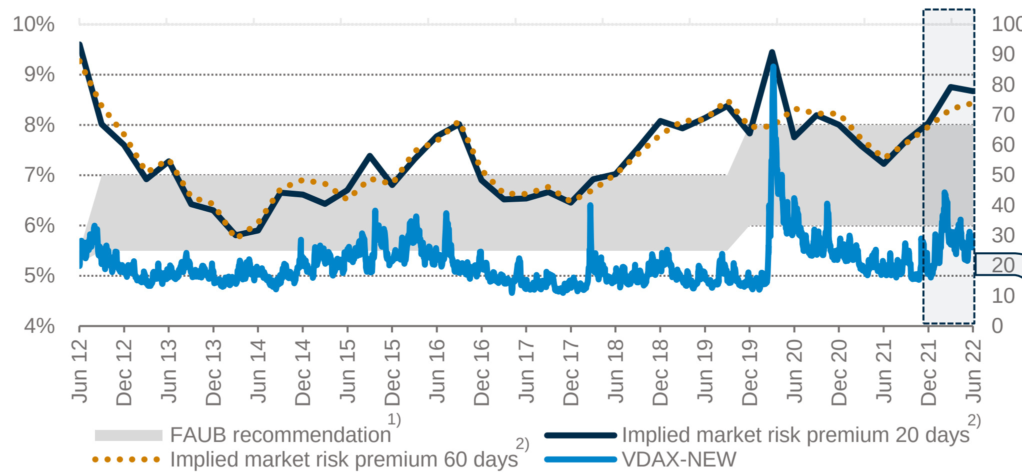
A&M Valuation Insights

July 2022

At increased volatility levels of asset prices, the price for taking equity risk in Germany remains high

The price for taking the risk of equity investments in Germany

The calculated German market risk premium (MRP) represents a real-time illustration of investors' current risk appetite reflecting German capital market data and analyst forecasts.



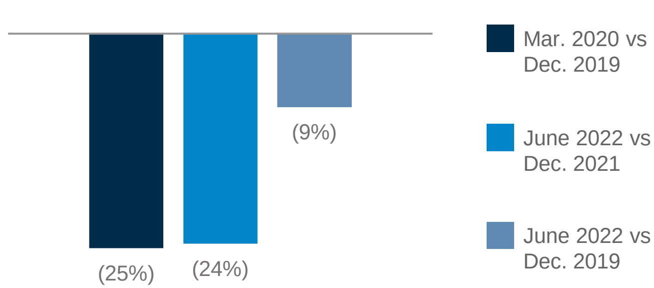
Results are subject to information deficiencies and capital market exaggerations:

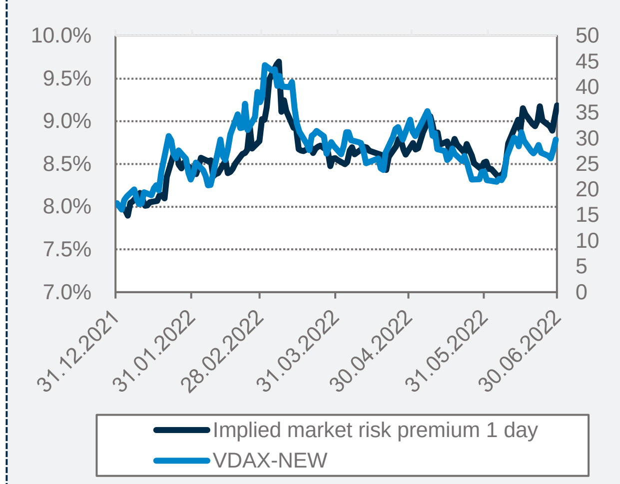
- The MRP is calculated by relating the market capitalization of CDAX companies to analyst forecasts. Whereas stock prices are volatile, analyst forecasts are adjusted with a time lag.
- The use of MRP in corporate valuation needs to be judged against underlying risk profiles of cash flows, the overall cost of capital applied and other methods to obtain MRP estimates.
- Current market volatility, as measured by the VDAX-NEW index, has increased amid the Ukraine-crisis.

Risk perception is affected by dropping asset prices at increased volatility levels

Change in covered CDAX market cap 3) | Covid-19 pandemic vs. Ukraine crisis

Following the drop in the equity markets related to the war in the Ukraine, the stock market now trades below pre-Covid levels.





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

2) The A&M implied MRP model considers capital market data as well as consensus earnings estimates as of 30 June 2022 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) The A&M implied MRP model generally analyses firm level data for all CDAX firms with sufficient data availability. As of 30 June 2022 (31 Dec 2021, 31 Mar 2020, 31 Dec 2019), about 96% (97%, 94%, 96%) of the total market cap of CDAX is covered.

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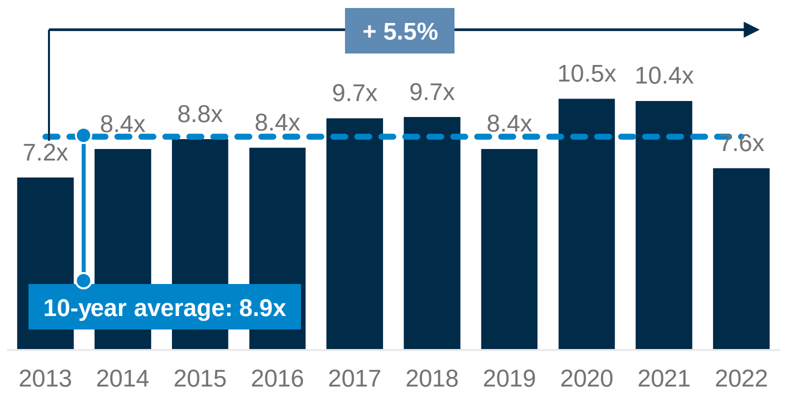
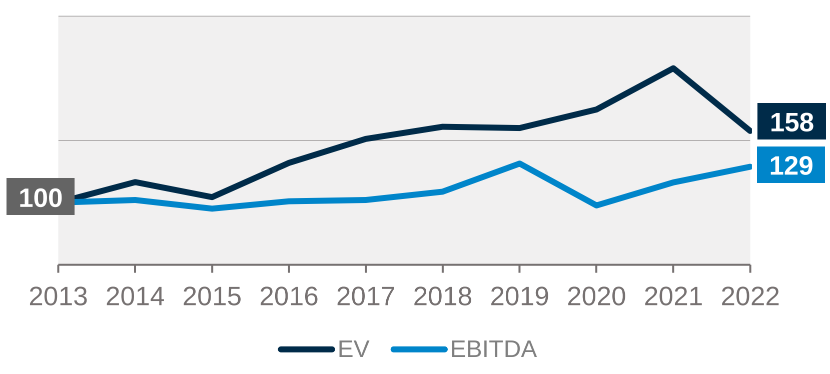
In a 10-comparison, the observed trend of declining forward trading pricing levels persists even further

Forward EV/EBITDA trading multiple analysis based on firm level data of CDAX firms[1]

CDAX forward EV/EBITDA multiple | June 2013 to June 2022

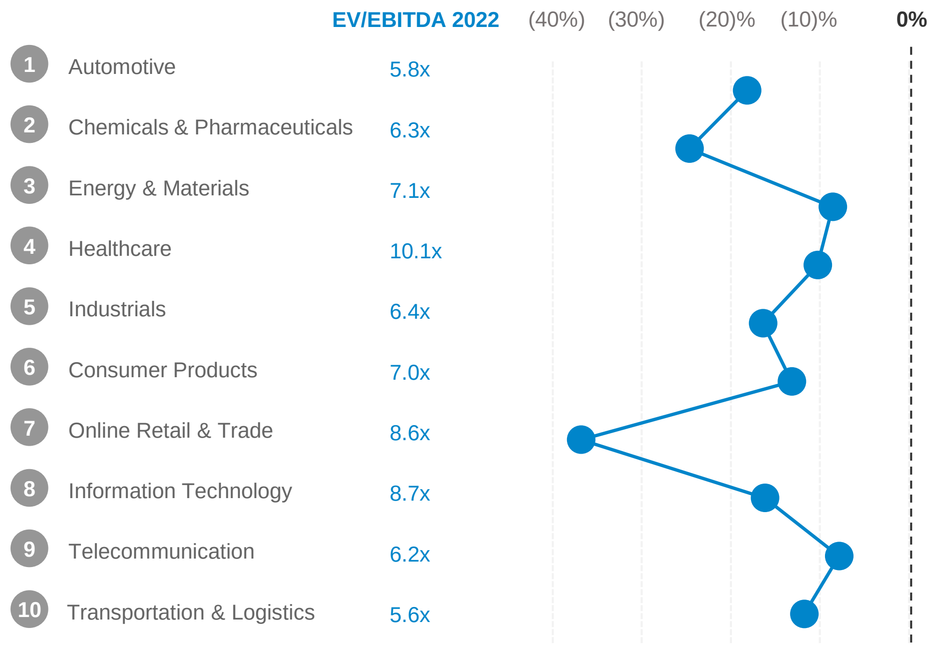


EV and EBITDA Development | June 2013 to June 2022



- The CDAX forward EV/EBITDA multiple declined to 7.6x in June 2022, reaching almost the record low of 7.2x in 2013.
- In a 10-year comparison, all industries analysed currently trade at a discount with Online Retail & Trade at the low end and Energy & Materials as well as Telecommunication at the high end of observed discounts. It seems that asset prices declined disproportionally compared to still relatively stable earnings levels.

Forward EV/EBITDA 2022 multiple vs 10y average deviation as of June 2022



1) 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 June 30, 2022. Only firm years considered for which consistent data was available across analysed variables. The 10-year average EV/EBITDA multiple was derived by analysing the CDAX on firm level data as at June 30 for each year going back to 2013.
Source: S&P Capital IQ, A&M Analysis.

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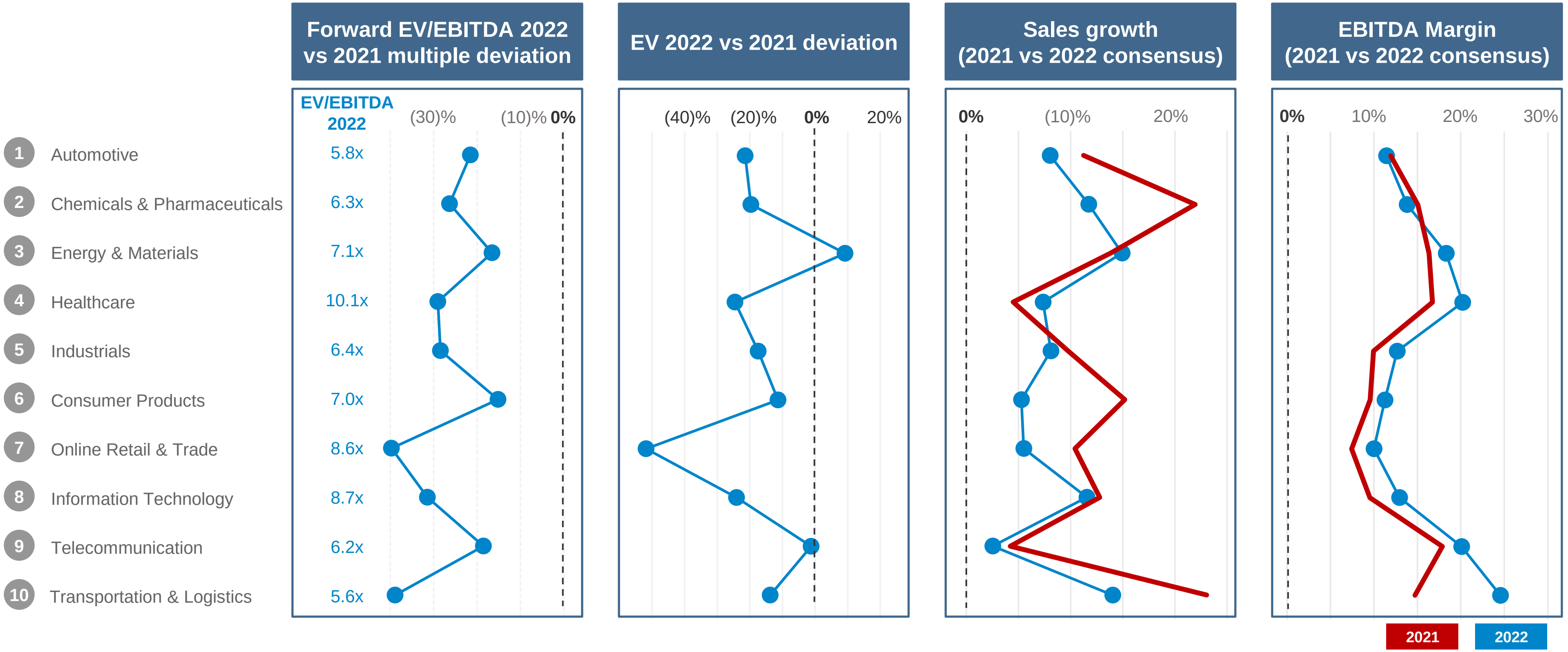
In a one-year comparison, forward trading pricing levels decreased across all industries

One-year comparison of forward 2022 EV/EBITDA trading multiple by industry (CDAX)

- A one-year comparison shows declining pricing levels across all industries.
- From June this year compared to June last year, EV’s are down across industries caused by dramatic drops in asset prices, except for Energy & Materials.
- Previously pandemic-driven suppressed growth and earnings levels (red lines below) seem to have slightly recovered compared to a year ago.
- It remains doubtful, however, whether the effect of the Russian aggression in the Ukraine is already factored into growth and earnings levels forecasts by the analyst community. Hence, pricing tags are far off from normalized levels.

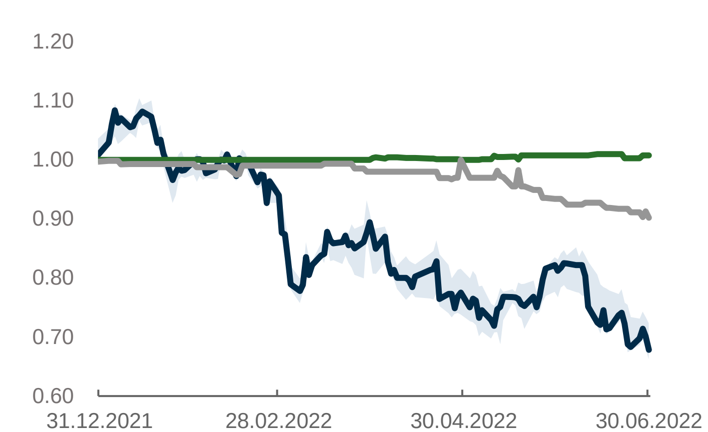


Note: The analysis of forward EV/EBITDA trading multiple levels is based on all CDAX firms and compares median EV/EBITDA trading multiple levels by industry as of June 30, 2022. Only firm years considered for which consistent data was available across analyzed variables. Sales growth and EBITDA margin analysis compares 2021 sales growth and EBITDA consensus as of 31 Dec 2021 with 2022 sales growth and EBITDA consensus as of 30 June 2022.
Source: S&P Capital IQ, A&M Analysis.

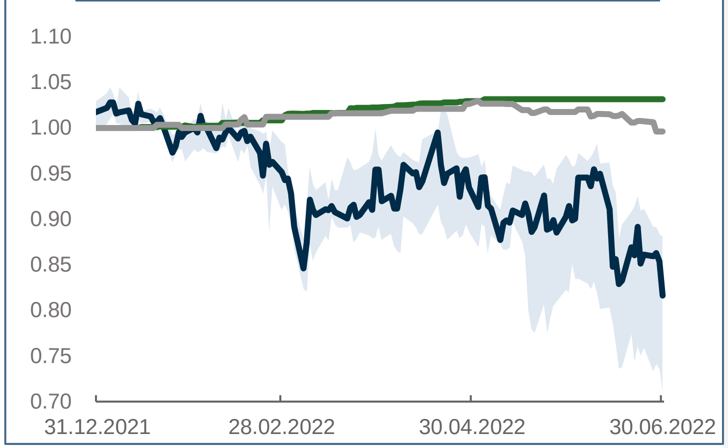
Since the war in the Ukraine stock prices reacted quickly. Updates in consensus estimates are clearly lagging behind.

Analysis of the timing lag with regards to consensus earnings estimates and stock price movements by industry (CDAX)[1]

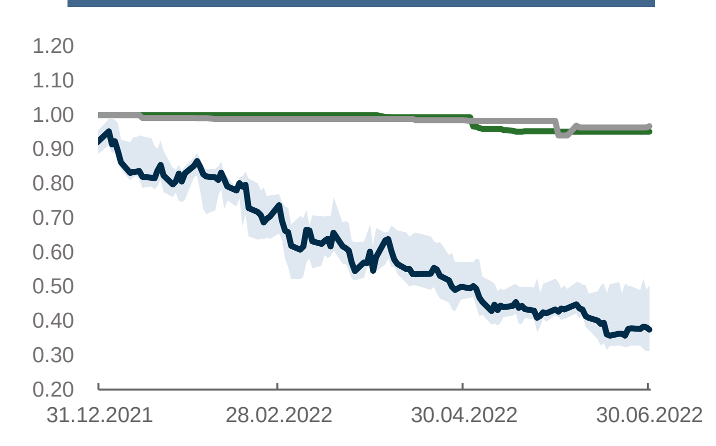
Automotive



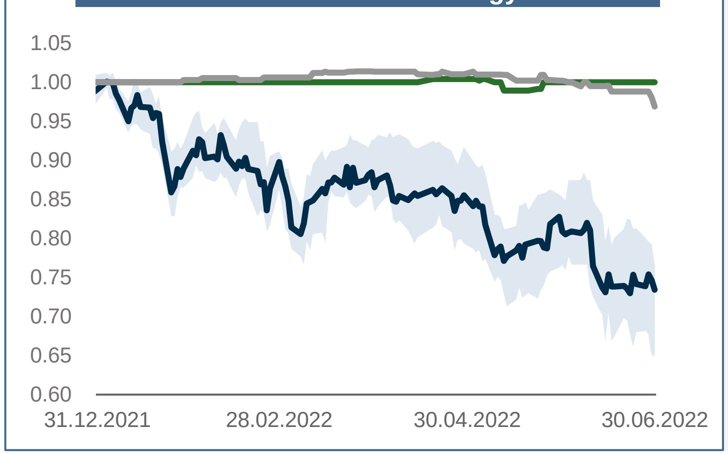
Consumer Products



Online retail and trade



Information Technology



Indexed market cap. | Market cap. variation | 2022 consensus sales estimate (indexed) | 2022 consensus EBITDA estimate (indexed)

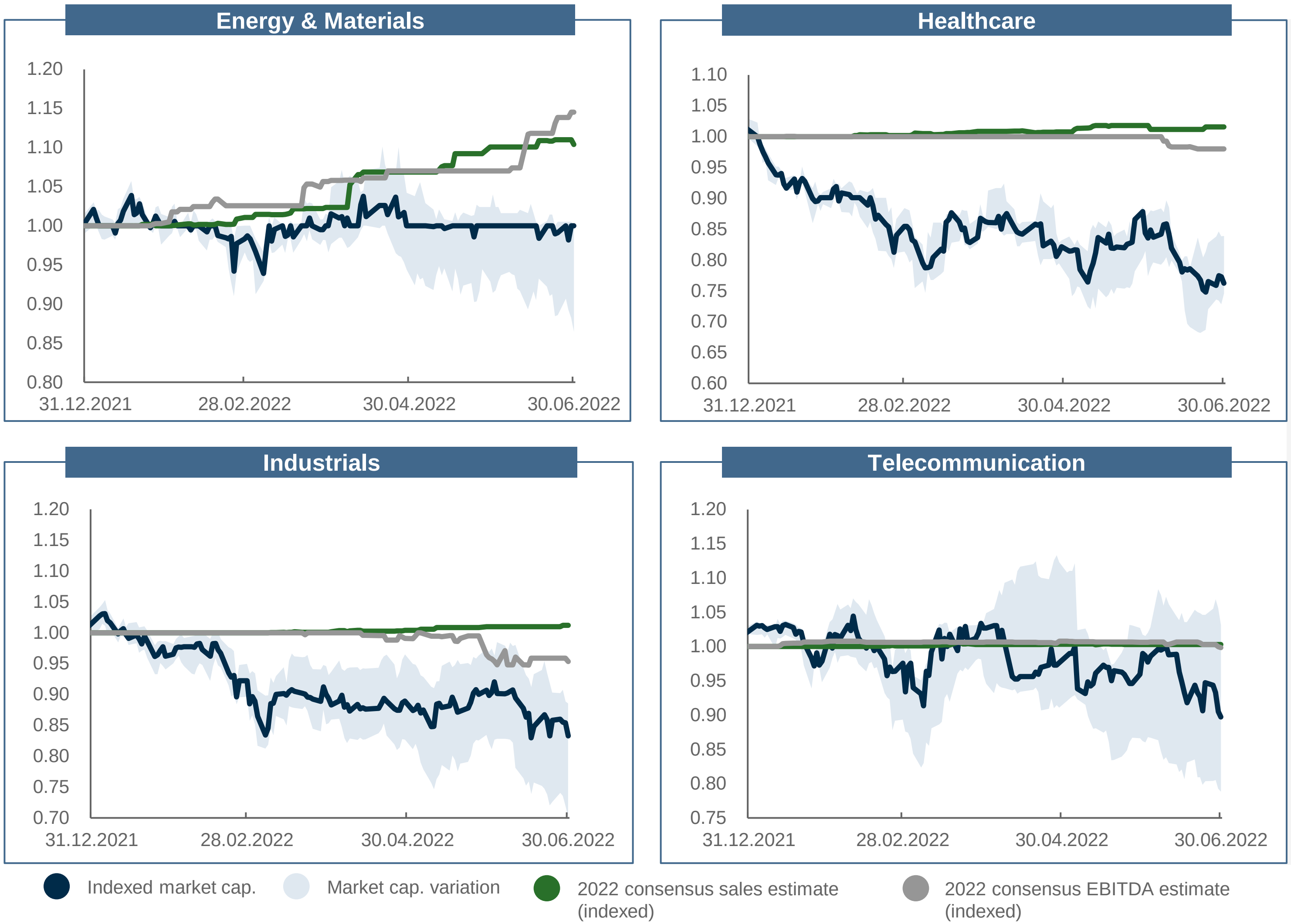
- We contrast stock price movements by industry with changes in consensus growth (sales) and profitability (EBITDA) estimates by the equity research community.
- The drop in asset prices since the start of the Russian aggression in the Ukraine is evident across most industries.
- Consensus estimates did so far not change significantly on an industry level. We interpret this as evidence of a timing lag in updates of consensus estimates since the start of the Russian invasion in the Ukraine.
- Hence, it appears that the significant drop in current trading pricing levels might not be sustainable given outdated consensus earnings estimates.
- Also, one could argue that the drop in market caps at stable analyst consensus forecasts is caused by a higher risk aversion of investors (reflected in the rising MRP).

1) The analysis of the timing lag with regards consensus earnings estimates and stock price movements by industry is based on all CDAX firms and compares indexed median sales and EBITDA estimates in the period January 01, 2022 to June 30, 2022 with the indexed stock price movement by industry. Only firm years considered for which consistent data was available across analysed variables.

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

The timing lag does not affect industries evenly. The industry Energy & Materials seems to be on the spotlight.

Analysis of the timing lag with regards consensus earnings estimates and stock price movements by industry (CDAX)[1]



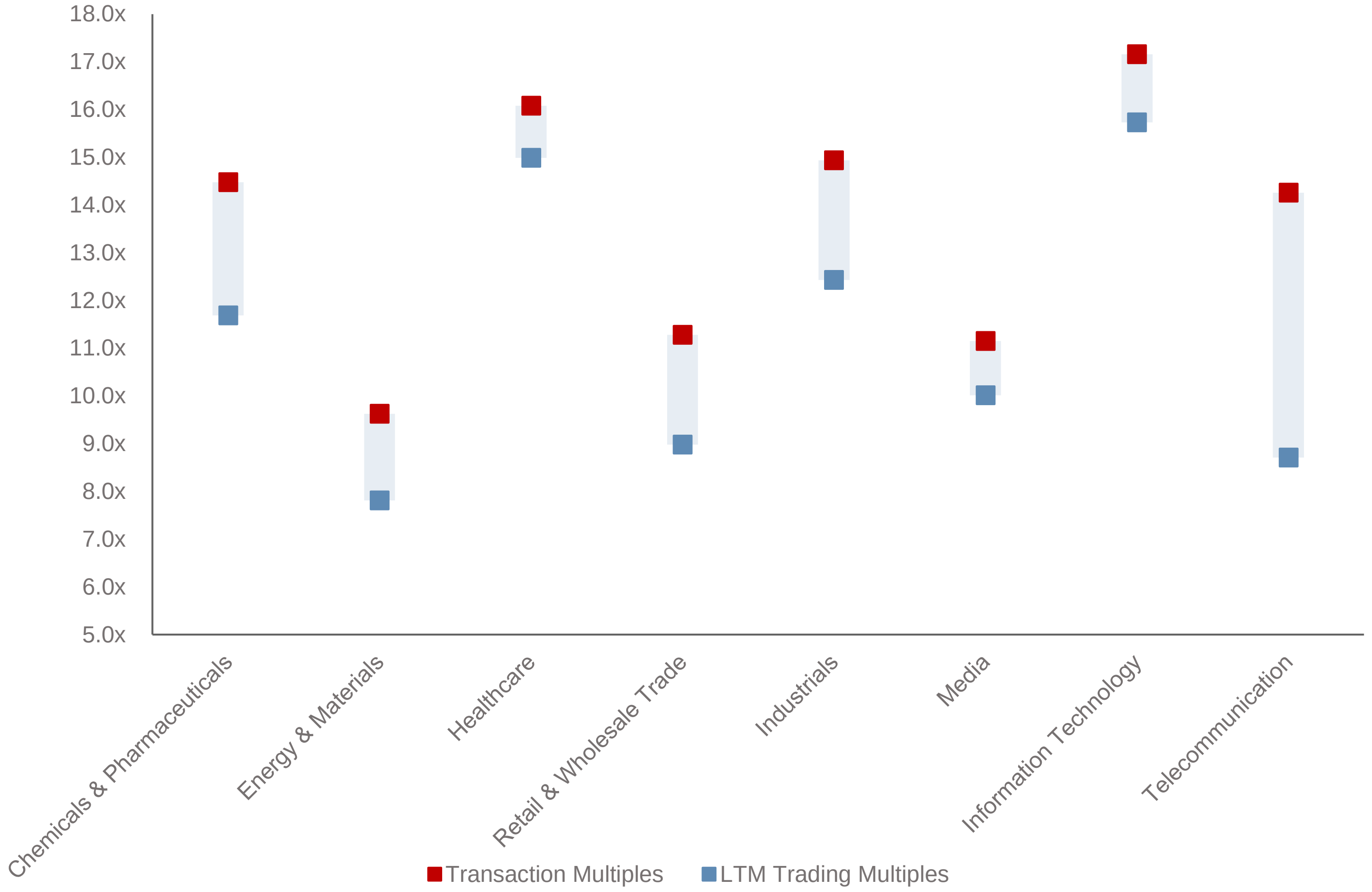
- While the timing lag in updated growth and profitability estimates is visible for most industries, this does not hold for Energy & Materials.
- As such, while stock prices did drop at the time of the Russian invasion, asset prices quickly recovered at increased consensus sales and EBITDA forecast levels.
- After all, the industry Energy & Materials plays a crucial role for the German economy in times of war, thus justifying the focus of analysts on this sector.
- Also, analysts seem to have reacted rather quickly in updating EBITDA estimates in the sector Industrials.
- Whether that is truly already capturing the impact of the war is rather speculative in nature.

1) The analysis of the timing lag with regards consensus earnings estimates and stock price movements by industry is based on all CDAX firms and compares indexed median sales and EBITDA estimates in the period January 01, 2022 to June 30, 2022 with the indexed stock price movement by industry. Only firm years considered for which consistent data was available across analysed variables.

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

In a one-year time frame, price tags were highest in IT and Healthcare across European M&A transactions

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).
- Highest multiples were paid in Information Technology at 17.2x and Healthcare at 16.1x whereas Energy & Materials at 9.6x exhibits the lowest price tag among industries.
- Premia, as measured by the spread between LTM transaction and LTM trading multiple pricing levels, have been highest in Telecommunications at 39% and lowest in Healthcare at 7% and Media at 10%.

Note: Transaction pricing levels are defined as LTM EV/EBITDA at closing and consist of all closed M&A transactions in Europe with a transaction value greater than EUR 25 Mio., data clustered by industry for the June 2021 to June 2022 period. The trading pricing level is based on LTM EV/EBITDA trading multiples for all S&P Europe 350 firms, data clustered by industry as of June 30, 2022. Source: S&P Capital IQ, A&M Analysis.

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