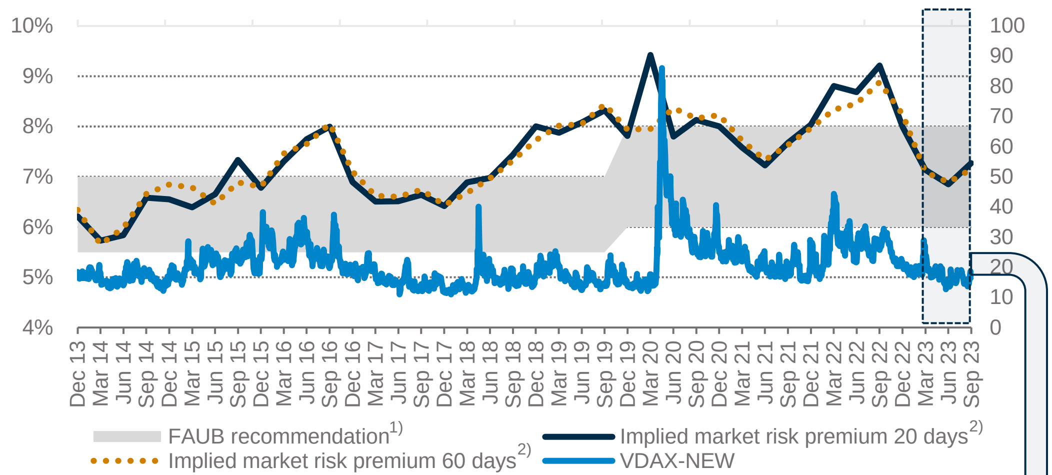
A&M Valuation Insights

November 2023

The price for taking equity risk in Germany is on the rise again after its recent downward trend

The price for taking the risk of equity investments in Germany

The calculated German market risk premium (MRP) represents investors' current risk appetite based on German capital market data and analyst forecasts.[3]

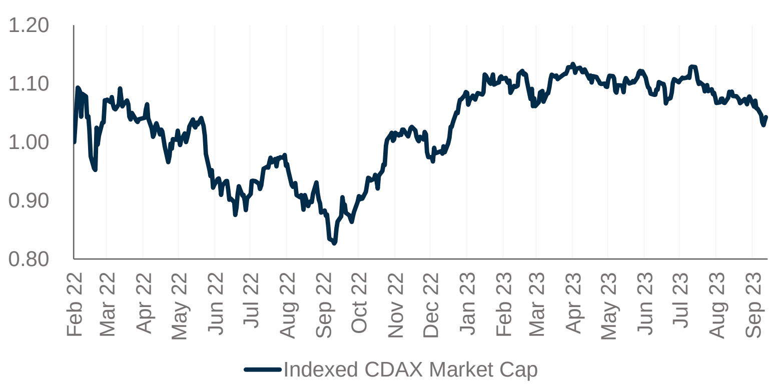


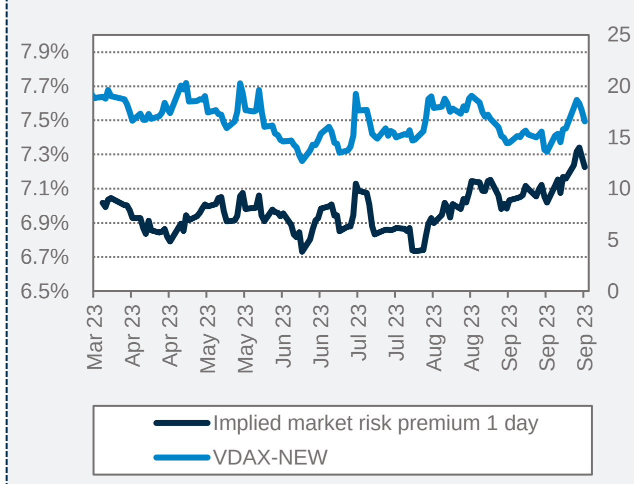
Decreasing risk indicators:

- The implied MRP has steadily decreased since September 2022 mostly due to the increase in the risk-free rate
- Currently the MRP is on the rise again given increasing market returns leaving the MRP in the mid-range of the FAUB range.
- Market volatility, as measured by the VDAX-NEW, has remained relatively stable over the last 6 months recovering from its all time high in March 2020 to a level comparable to its historical long-term average.

Change in CDAX market cap

In 2023, asset prices essentially moved sideways, although a slight downward trend may be observed in recent months.





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 30 September 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.

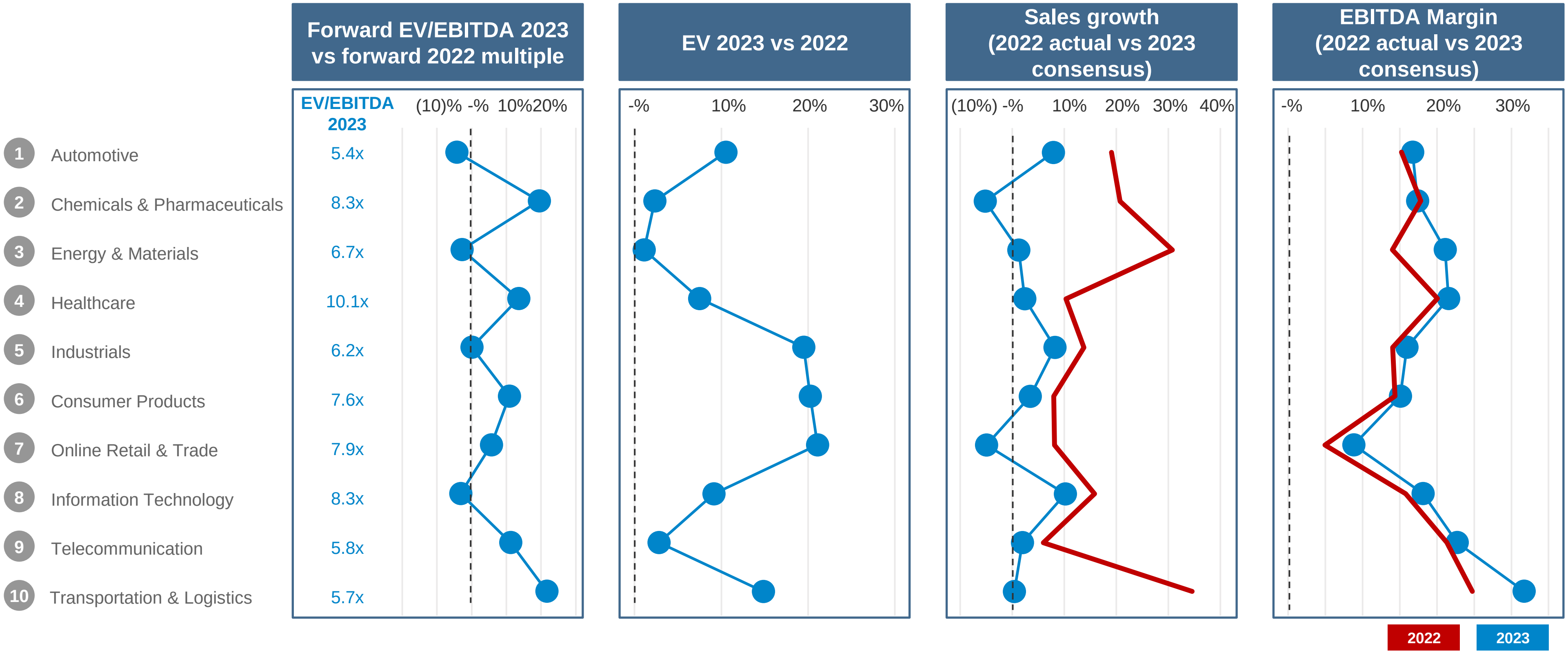
3) Results are subject to information deficiencies and capital market exaggerations.

ALVAREZ & MARSAL

In a one-year comparison, forward multiples show the highest recovery in Chems & Pharma and Transportation

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

- The recovery in asset prices led to Enterprise Values (EV) increases across all industries.
- Fundamentally, sales outlooks across industries are far less optimistic compared to sales increaseds 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 remain rather stable 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.
- Forward EV/EBITDA multiples in the industries Chems & Pharma and Transportation & Logistics showed notable increases compared to the previous year.



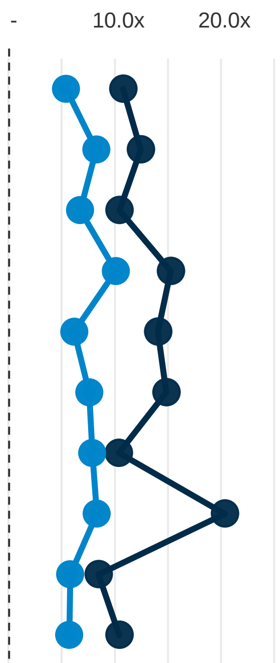
Note: The analysis of forward EV/EBITDA trading multiple levels is based on all CDAX firms and compares median EV/EBITDA trading multiple levels by industry as of 30 September 2023 and as of 30 September 2022. Only firm years considered for which consistent data was available across analyzed variables. Sales growth and EBITDA margin analysis compares 2022 sales growth and EBITDA consensus as of 30 September 2022 with 2023 sales growth and EBITDA consensus as of 30 September 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

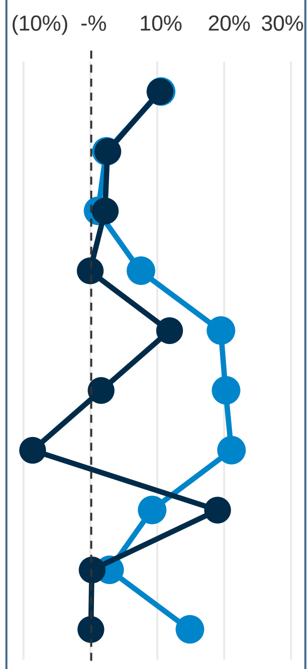
Forward EV/EBITDA trading multiple analysis based on firm level data of CDAX and S&P 500 firms[1]

Comparison of Forward EV/EBITDA 2023 Germany vs USA

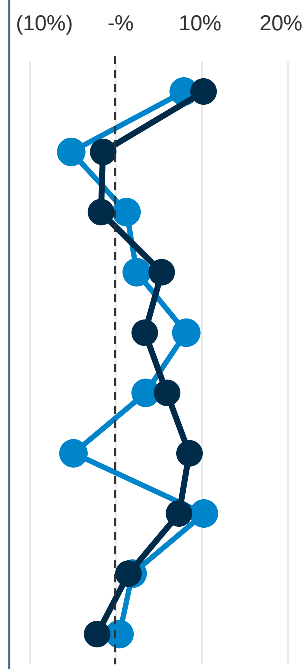
		Germany	USA
1	Automotive	5.4x	10.8x
2	Chemicals & Pharmaceuticals	8.3x	12.4x
3	Energy & Materials	6.7x	10.4x
4	Healthcare	10.1x	15.3x
5	Industrials	6.2x	14.1x
6	Consumer Products	7.6x	14.9x
7	Online Retail & Trade	7.9x	10.4x
8	Information Technology	8.3x	20.4x
9	Telecommunication	5.8x	8.5x
10	Transportation & Logistics	5.7x	10.4x



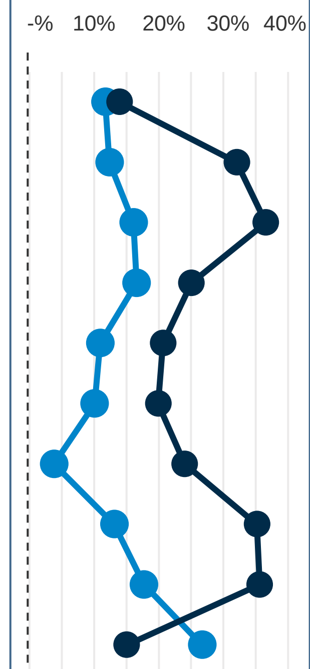
1-year EV deviation



Sales growth 2023



EBITDA Margin 2023



Germany USA

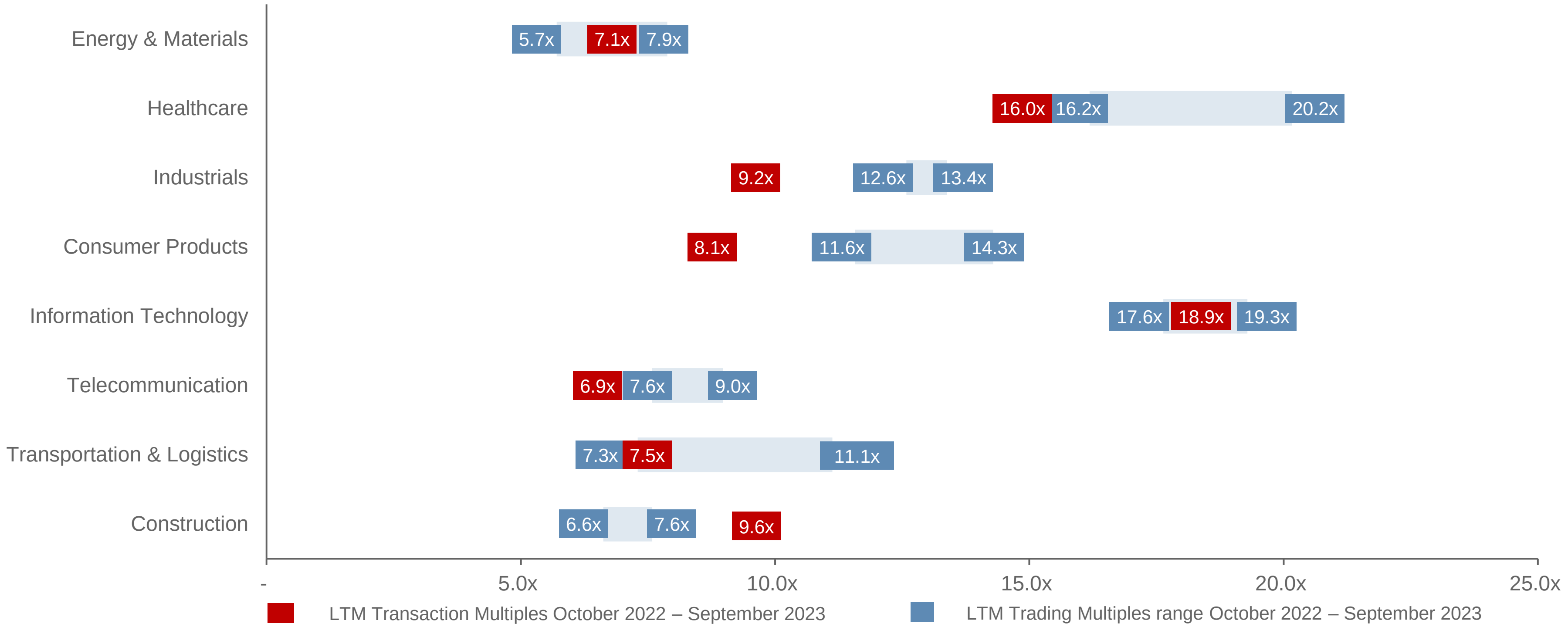
- A comparison of forward EV/EBITDA trading multiples of US (S&P500) and German (CDAX) firms at the industry level reveals that US trading premia are highest in Information Technology (20.4x vs. 8.3x), Industrials (14.1x vs. 6.2x) and Consumer Products (14.9x vs. 7.6x).
- The development of EVs significantly 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 projections (EBITDA margin) than German listed stocks.

1) 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 30 September 2023. Only firm years considered for which consistent data was available across analysed variables.
Source: S&P Capital IQ, A&M Analysis.

ALVAREZ & MARSAL

Over the last year, price tags in European M&A transactions mostly imply discounts to LTM trading pricing levels

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.
- In most industries, prices paid imply a discount to LTM European trading pricing levels. This is particularly evident in the Industrials and Consumer Products sectors, where discount of 27.0% and 30.2%, respectively, have been observed.
- The highest prices were paid in Healthcare and Information Technology, with transaction multiples just below or within the range of trading multiples. The only industry where transaction multiples imply a premium to trading pricing levels was evident in Construction.

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 October 2022 to September 2023 period. Trading pricing level 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 September 30, 2022, March 30, 2023, and September 30, 2023.
Source: S&P Capital IQ, A&M Analysis.

A&M Valuation Insights

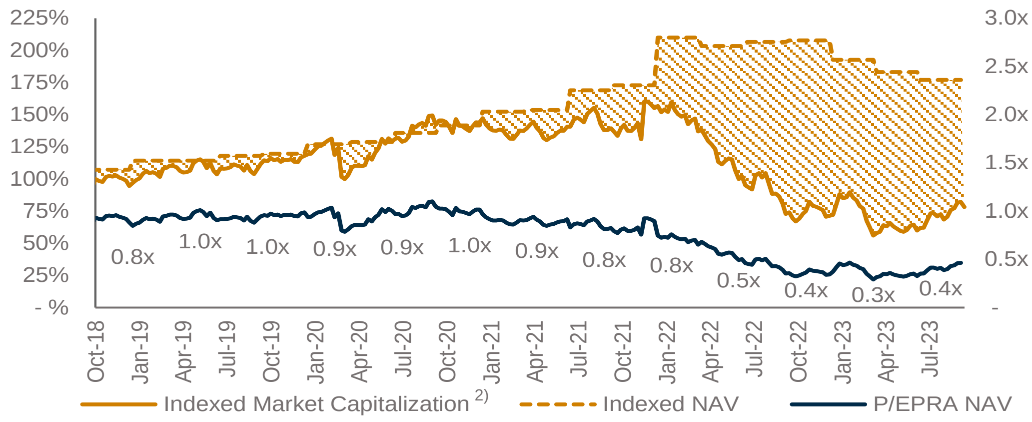
Industry Spotlight: Real Estate in Germany

In recent years, the market capitalization of real estate companies decoupled from their net asset values

The ratio of the market capitalization of real estate companies to their net asset value (P/NAV) compares the market value of equity with the value of the companies' net assets – which is largely driven by the valuation of the companies' real estate assets.

In the long-term, both values typically converge over time, resulting in a ratio of about 1.0x. However, over the past years, the market capitalization of both residential and commercial real estate companies in Germany has diverged substantially from their NAV.

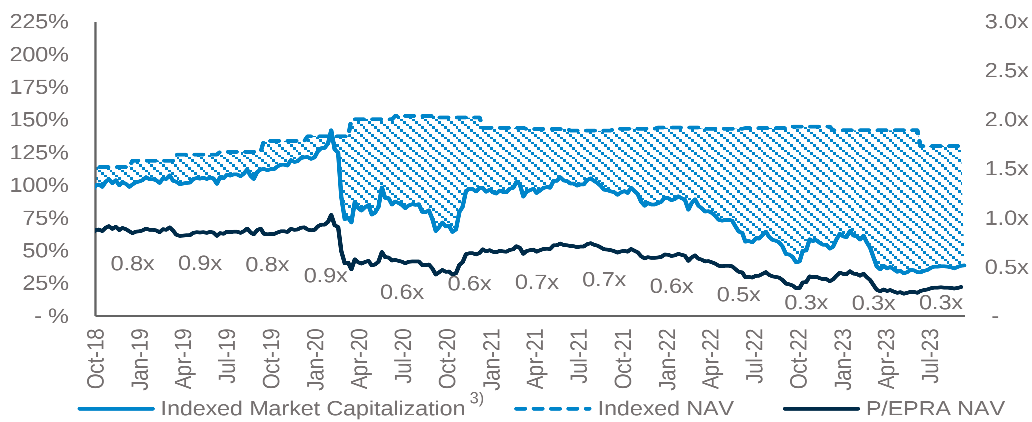
Ratio of market capitalization to NAV (P/NAV) of residential real estate companies



Development of the P/NAV ratio:

- Before the outbreak of the COVID-19 crisis in spring 2020, the P/NAV ratio of German residential real estate companies was close to 100%.
- The gap between the two metrics widened sharply at the outbreak of to the pandemic but recovered by the end of 2020.
- Since the end of 2021, the market capitalization began to decline sharply, while the NAV of residential real estate companies increased. Recently, however, net asset values have also been declining.

Ratio of market capitalization to NAV (P/NAV) of commercial real estate companies



Development of the P/NAV ratio:

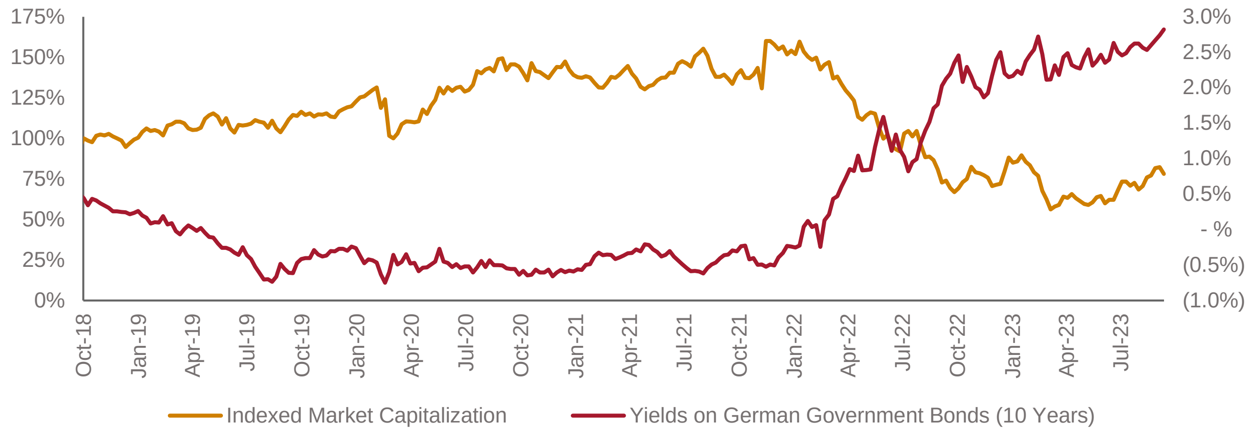
- Similar to the residential real estate companies, also the P/NAV ratio of commercial real estate companies was close to 100% until 2020.
- With the onset of the COVID-19 crisis, the P/NAV ratio of commercial real estate companies collapsed - unlike residential real estate companies, a strong recovery could not be observed.
- Overall, the share prices of commercial real estate companies fell much more sharply than those of residential real estate companies in Germany, while net asset values remained relatively constant.

1) Source: S&P Capital IQ, Company Financial Reports, A&M Analysis
2) Note: The market capitalization shown refers to a peer group of residential real estate companies and includes Grand City Properties S.A., LEG Immobilien SE, TAG Immobilien AG and Vonovia SE.
3) Note: The market capitalization shown refers to a peer group of commercial real estate companies and includes Aroundtown S.A., DEMIRE Deutsche Mittelstand Real Estate AG, Branicks Group AG, Deutsche EuroShop AG and VIB Vermögen AG.

The declining market capitalization of real estate companies is largely explained by interest rate increases

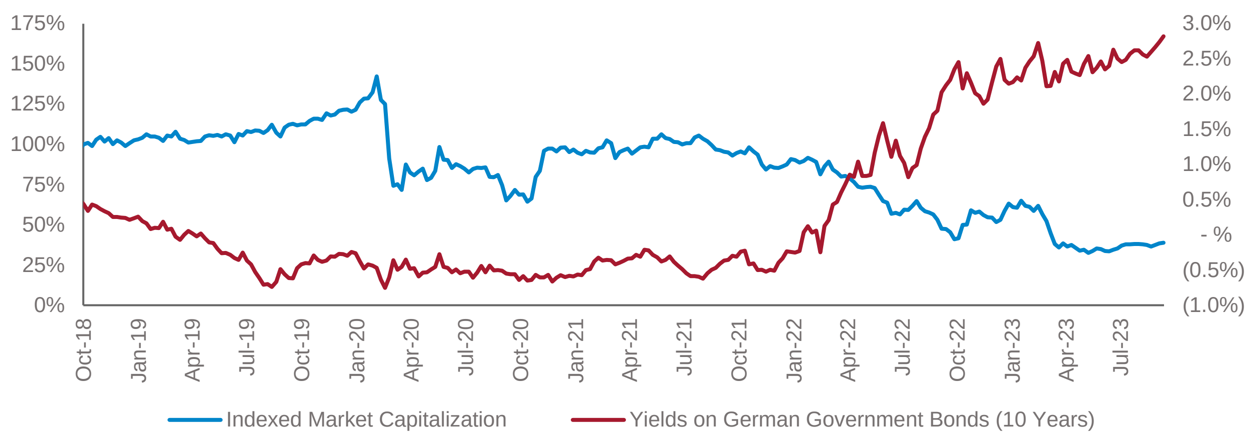
Comparison of stock market capitalization and government bond yields

Residential real estate market capitalization vs. yields on 10-year German government bonds



- The indexed market capitalization of the residential real estate companies declined significantly since the beginning of 2022.
- This decline in market capitalization is strongly related to the decision of major central banks to rise key interest rates in order to curb burgeoning inflation.
- As a result, higher financing costs have a strong adverse effect on real estate companies, which must refinance their debt at much higher rates.
- At the same time, the strong inflation has led to higher property management costs, while rent increases due to non-indexed rental agreements are lagging behind.

Commercial real estate market capitalization vs. yields on 10-year German government bonds



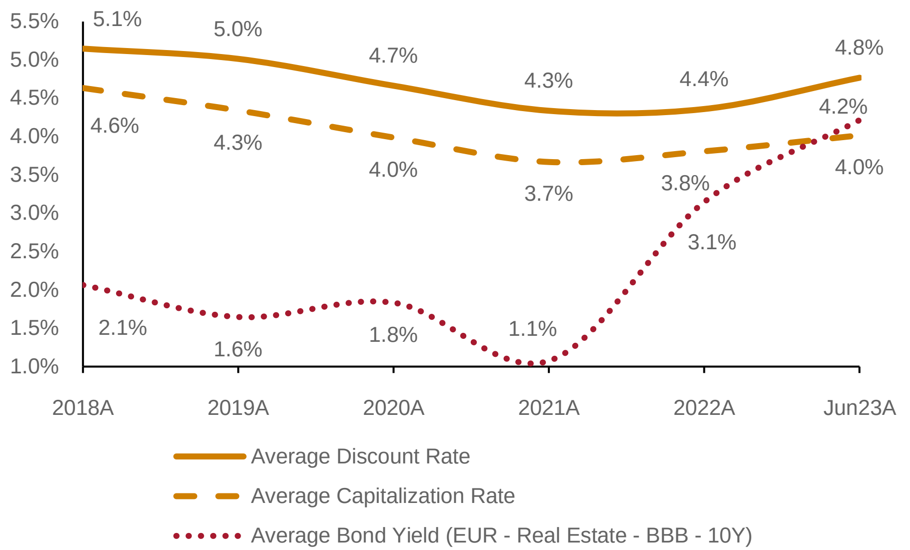
- Naturally, the new interest rate environment is also having a strong negative impact on the stock market performance of German commercial real estate companies.
- The rise in interest rates that began in late 2021 has again led to severe decreases in the market capitalization of commercial real estate companies.
- In addition to the impact of higher borrowing costs on the profitability of the peer group companies, the economic situation of some commercial tenants, such as e.g. retail stores, has worsened.

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

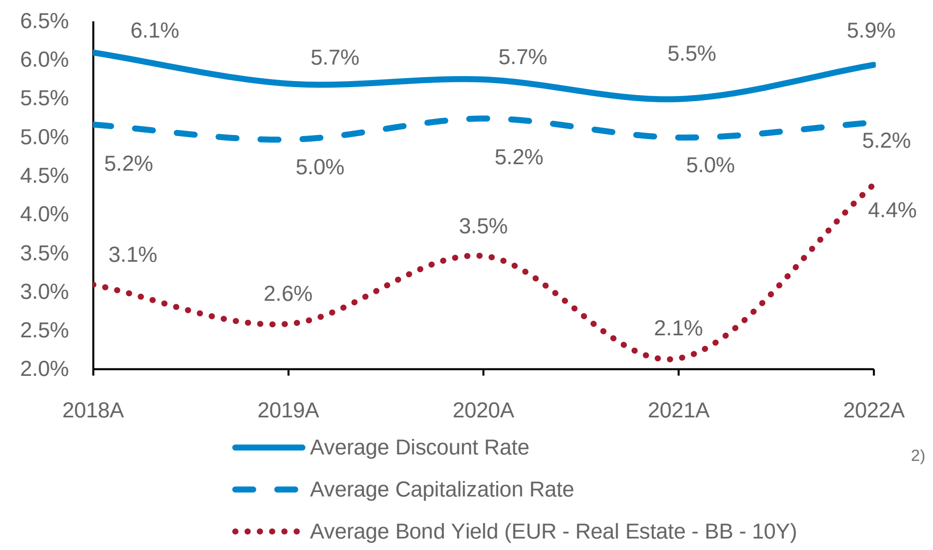
ALVAREZ & MARSAL

Despite interest rate increases, discount rates used in the valuation of real estate portfolios were not yet adjusted

Discount and capitalization rate of residential real estate companies



Discount and capitalization rate of commercial real estate companies



Implications of the current levels of discount and capitalization rates

- The above figures show the average discount and capitalization rates used in the valuation of the properties of the residential and commercial real estate companies in the years 2018-22. For comparative purposes, the average corporate bond yields for the corresponding rating class of the two peer groups (BBB for residential, BB for commercial real estate) are shown.
- Despite the strong increase in interest rates in 2022 in an attempt by central banks to curb inflation also reflected in the sharp increase in bond yields, the discount and capitalization rates of German real estate companies have remained relatively constant. Only recently, the average discount rates of commercial real estate companies showed a moderate increase.
- As outlined before, the interest rate hikes and the detrimental consequences to real estate companies were directly priced in by market participants and led to a strong decrease in the companies' market value of equity. In contrast, net asset values are adjusting at a much slower pace, as higher discount rates have not yet been fully incorporated into the real estate valuations.
- In the near future, a subsequent increase of the discount and capitalization rates employed by the real estate appraisers is likely. Such an increase will result in lower property values and a decrease in the companies' net asset value. Declining property valuations will have consequential effects on the real estate sector, such as a strong negative impact on the companies' net income, as well as challenges related to debt financing (e.g. loan-to-value ratios).

1) Source: S&P Capital IQ, A&M Analysis
2) Jun23A is omitted because among the selected peer companies only Deutsche EuroShop AG has reported their discount and capitalization rates (as of 27 September 2023).

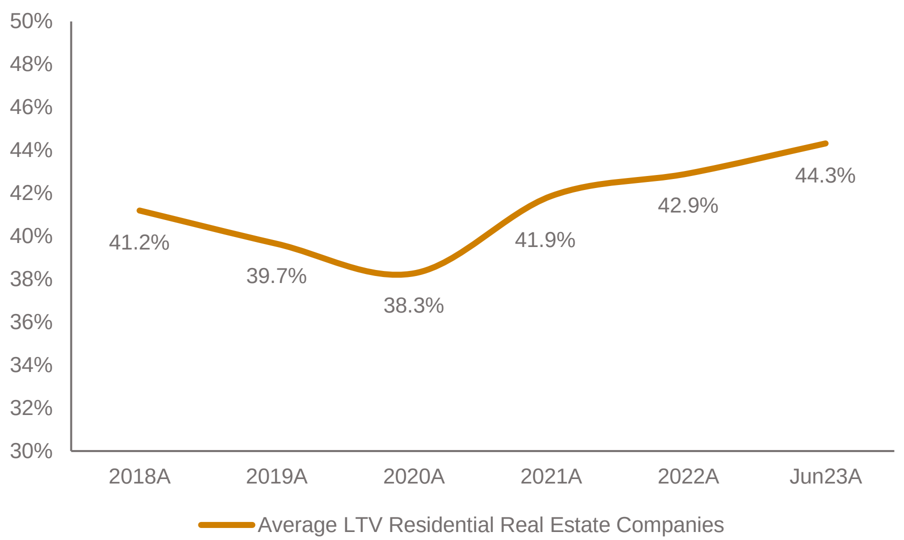
ALVAREZ & MARSAL

Loan-to-value ratios of residential real estate companies have risen considerably over the previous two years

Overview of LTV ratios

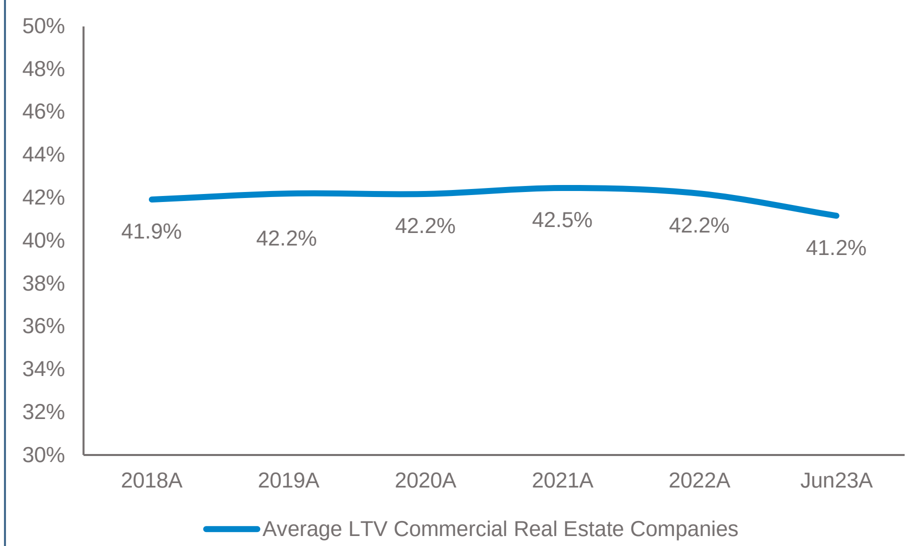
- The loan-to-value ratio (LTV) is a measure of real estate companies' debt leverage. LTV is defined as the value of the total outstanding net debt divided by the market value of the real estate properties.
- Typically, lending conditions of real estate companies such as the charged interest rates, debt covenants etc. relate to the LTV ratio.

LTV ratios of residential real estate companies



- Between 2018 and 2020, residential real estate companies, on average, were able to reduce LTV ratios, primarily through deleveraging as well as an increase in the value of their existing real estate portfolios.
- The subsequent increase in the LTV ratio in 2021 is partially attributable to large acquisitions in the German residential sector which involved significant debt financing. Recently, asset were sold at discounts and decreasing portfolio valuations led to an increase in the LTV ratios, among other factors.

LTV ratios of commercial real estate companies



- While the company-specific LTV ratio in the commercial sector fluctuated in 2018-22 for reasons such as capital increases, acquisitions, or share buybacks, the industry average remained constant at around 42%.
- The LTV ratios of commercial real estate companies decreased slightly in 2023, as proactive deleveraging mitigated the negative effects of property revaluations. A substantial portion of the decrease in the LTV ratios through deleveraging is attributable to the disposal of properties.

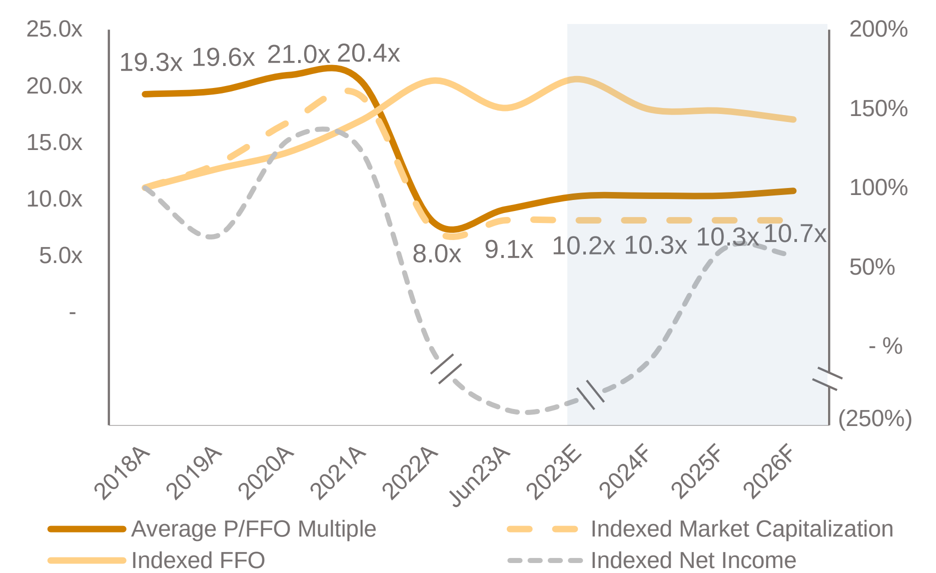
Source: Company Financial Reports, A&M Analysis

P/FFO multiples have deteriorated and are forecasted to remain low in the future

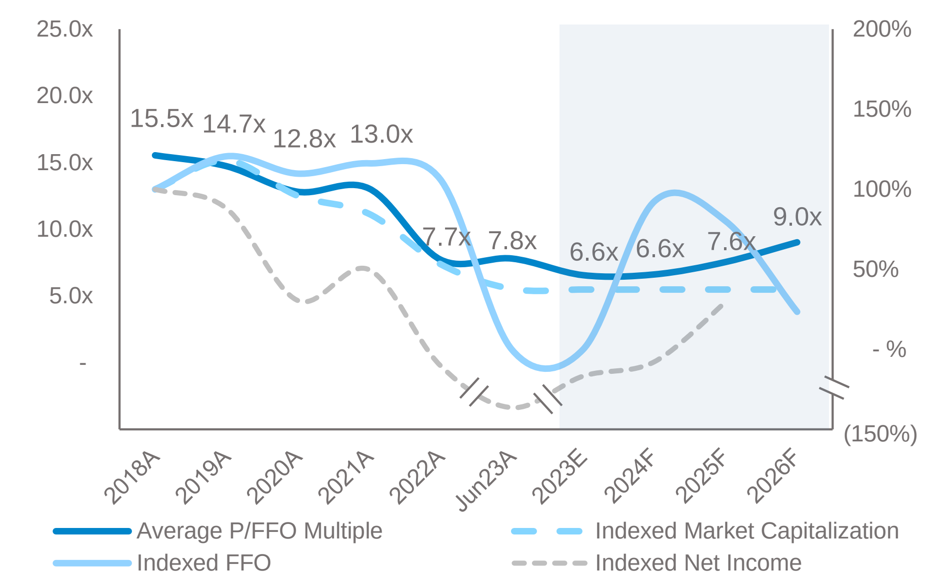
Overview of P/FFO multiples

- Besides the P/NAV ratio which focusses on the value of the companies' net assets, a key multiple for the relative valuation of real estate companies is the market capitalization relative to the companies' funds from operations (P/FFO).
- For residential real estate companies, a P/FFO multiple of around 20x could be observed throughout the years 2018-21. However, following the interest rate hikes and the resulting sharp decline in market capitalization, the P/FFO multiples fell well below the 10x mark. In the coming years, only a slight recovery of the multiple is expected.
- A similar development can be observed for the commercial real estate companies: Between 2018-21, the P/FFO multiples ranged between 12x and 16x and declined to 7.7x in 2022. In the following years, P/FFO multiples are expected to remain low, with only a slight recovery being projected for the year 2025.
- The change in the multiples is driven by the decrease in the companies' market capitalization: While the FFOs remain so far relatively constant over time, the market capitalization of German real estate companies saw a sharp decline. Contrary to the companies' funds from operations, which remain robust, net profits have decreased sharply in 2022 and are even expected to be negative in 2023 as a result of the anticipated revaluation losses.

P/FFO multiples of residential real estate companies



P/FFO multiples of commercial real estate companies



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

ALVAREZ & MARSAL

YOUR CONTACTS

DR. TIM LAAS
Managing Director
+49 171 176 7507
tlaas@alvarezandmarsal.com

DR. CHRISTIAN BÜCHELHOFER
Senior Director
+49 160 9922 4024
cbuechelhofer@alvarezandmarsal.com