DACH Capital Market Study

June 30, 2021

Analysis of cost of capital parameters and multiples for the capital markets of Germany, Austria and Switzerland

Volume 9, June 2021

powered by finexpert *and* WU VIENNA

Overview

Content & Contacts

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1 Preface & people

DACH Capital Market Study
Preface

Dear business partners and friends of ValueTrust,

We are pleased to release our ninth edition of the **ValueTrust DACH**[1] **Capital Market Study** powered by finexpert and WU. The study was elaborated by ValueTrust Financial Advisors SE (ValueTrust) in cooperation with finexpert and the Institute of Accounting and Auditing at the WU Vienna. With this study, we provide a data compilation of the **capital market parameters** that enables an enterprise valuation in Germany, Austria and Switzerland. It has the purpose to serve as an assistant and data source as well as to show trends of the analyzed parameters.

In this study, we analyze the relevant parameters to calculate the costs of capital based on the Capital Asset Pricing Model **(risk-free rate, market risk premium and beta)**. Additionally, we determine **implied as well as historical market and sector returns**. Moreover, this study includes capital structure-adjusted implied sector returns, which serve as an indicator for the **unlevered cost of equity**. The **relevered cost of equity** can be calculated by adapting the company specific debt situation to the **unlevered cost of equity**. This procedure serves as an alternative to the CAPM.

Furthermore, we provide an analysis of empirical (ex-post) costs of equity in the form of **total shareholder returns** which consist of capital gains and dividends. The total shareholder returns can be used as a plausibility check of the implied (ex-ante) returns. Lastly, **trading multiples** frame the end of this study.

We examine the before mentioned parameters for the **German, Austrian and Swiss capital market** (in form of the CDAX[2], WBI[3] and SPI[4]). These indices have been merged into **twelve** finexpert **sector indices** (so-called "super sectors") Banking, Insurance, Financial Services, Consumer Service, Consumer Goods, Pharma & Healthcare, Information Technology, Telecommunication, Utilities, Basic Materials, Industrials and Real Estate. Please note that the order of the sectors in the presentations has been adjusted as of this study.

Historical data has been compiled between the reference dates **June 30, 2015 and June 30, 2021** and will be **updated semi-annually**, with the objective that **historical**, as well as **current data**, can be consulted at the same time. Hence, we can understand changes in time, which allows to track the performance of all three capital markets. Additionally, further knowledge and information for financial decision making is provided at www.finexpert.info.

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1) D (Germany), A (Austria), CH (Switzerland). 2) German Composite DAX Index. 3) Vienna Stock Index. 4) Swiss Performance Index.

DACH Capital Market Study
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- More than 25 years of experience in corporate valuation and financial advisory
- Previously Partner at KPMG and Managing Director at Duff & Phelps
- Honorary professor for "Practice of transaction-oriented company valuation and value-oriented management" at LMU Munich
- Member of the DVFA Expert Group "Fairness Opinions" and "Best Practice Recommendations Corporate Valuation“
- Co-Founder of the European Association of Certified Valuators and Analysts (EACVA e.V.)

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DACH Capital Market Study
Disclaimer

This study presents an empirical analysis which serves the purpose of illustrating the cost of capital of Germany's, Austria's, and Switzerland's capital markets. Nevertheless, the available information and the corresponding exemplifications do not allow a complete presentation of a proper derivation of costs of capital. Furthermore, the market participant must consider that the company specific costs of capital can vary widely due to individual corporate situations.

The listed information is not specified to anyone and, consequently, it cannot be directed to an individual or juristic person. Although we are always endeavored to present information that is reliable, accurate, and current, we cannot guarantee that the data is applicable to valuation in the present as well as in the future. The same applies to our underlying data from the data provider S&P Capital IQ.

We recommend a self-contained, technical, and detailed analysis of the specific situation and we dissuade from acting based on the provided information only.

ValueTrust and its co-authors do not assume any liability for the up-to-datedness, completeness or accuracy of this study or its contents.

2 Executive summary

Executive Summary (1/2)

Cost of equity per sector according to four different methodologies

Sectors	Implied levered cost of equity [1]	Levered cost of equity (CAPM) [2]	1/PE-ratio (1yf)	Total shareholder return (Ø 6y) [3]
Banking	10.0%	6.5%	8.0%	2.8%
Insurance	10.2%	9.2%	8.1%	11.0%
Financial Services	6.1%	7.1%	4.5%	24.4%
Consumer Service	5.1%	7.9%	4.5%	27.7%
Consumer Goods	8.5%	7.9%	4.1%	13.5%
Pharma & Healthcare	6.9%	7.8%	3.4%	11.3%

1) Due to the distortion of earnings forecasts as a consequence of the corona crisis we base our derivation of implied cost of equity on t+2 earnings, explaining the deviation from 1/PE-ratio (1yf).

2) Based on 2-year sector beta, risk-free rate of 0.35% and market risk premium of 8.2% for the German market.

3) Total shareholder returns can be viewed as historic, realized cost of equity. However, it has to be considered that total shareholder returns vary widely, depending on the relevant time period.

Executive Summary (2/2)

Cost of equity per sector according to four different methodologies

Sectors	Implied levered cost of equity [1]	Levered cost of equity (CAPM) [2]	1/PE-ratio (1yf)	Total shareholder return (Ø 6y) [3]
Information Technology	5.8%	8.2%	3.4%	21.9%
Telecommunication	7.4%	6.1%	5.8%	5.8%
Utilities	6.7%	5.2%	5.5%	16.9%
Basic Materials	8.4%	7.9%	6.5%	11.0%
Industrials	6.5%	8.7%	4.1%	17.0%
Real Estate	5.4%	5.8%	5.5%	15.3%

1) Due to the distortion of earnings forecasts as a consequence of the corona crisis we base our derivation of implied cost of equity on t+2 earnings, explaining the deviation from 1/PE-ratio (1yf).

2) Based on 2-year sector beta, risk-free rate of 0.35% and market risk premium of 8.2% for the German market.

3) Total shareholder returns can be viewed as historic, realized cost of equity. However, it has to be considered that total shareholder returns vary widely, depending on the relevant time period.

3 Risk-free rate

Risk-Free Rate
Background & approach

The **risk-free rate** is a return available on a security that the market generally regards as free of default risk. It serves as an input parameter for the **CAPM** and to determine the risk-adequate cost of capital.

The risk-free rate is a yield, which is obtained from **long-term government bonds** of countries with top notch rating. By using interest rate data of different maturities, a **yield curve** can be estimated for fictitious zero-coupon bonds (spot rates) for a period of up to 30 years. Therefore, the German Central Bank (Deutsche Bundesbank) and the Swiss National Bank (Schweizer Nationalbank) publish – on a daily basis – the parameters needed to determine the yield curve using the **Svensson method**. Based on the respective yield curve, a **uniform risk-free rate** is derived under the assumption of present value equivalence to an infinite time horizon.

The **German bonds** are internationally classified as **almost risk-free securities** due to their AAA rating according to S&P. As a result, the **Austrian** Chamber of Public Accountants and Tax Consultants also recommends deriving the risk-free rate from the yield curve using the parameters published by the German Central Bank.[1)] Likewise, bonds issued by **Switzerland** enjoy a AAA rating and are also considered risk-free according to the Swiss National Bank.[2)] Hence, a similar approach as for Germany and Austria is in our view appropriate for Switzerland with Swiss parameters.[3)]

To compute the risk-free rate for a specific reference date, the **Institute of Public Auditors** (Institut der Wirtschaftsprüfer, **IDW**) in Germany recommends using an **average value** deduced from the daily yield curves of the **past three months** (IDW S 1).

On the contrary, the **Austrian Expert Opinion (KFS/BW 1)** on company valuation recommends to derive the risk-free rate in line with the evaluated company's cash flow profile from the yield curve that is valid for the **reference date (reference date principle)**. Thus, the KFS/BW 1 and its counterpart, the IDW S 1, differ from each other. Consequently, in the following analyses, we depict the **yield curve** for Germany following IDW S 1 while for Austria we adhere to the recommendations of KFS/BW 1.

For **Switzerland**, there is no generally accepted scheme to determine the risk-free rate. The most widely used risk-free rates in valuation practice are the yield of a **10-year Swiss government bond** as of the reference date as well as the **yield derived from the 3-month average of the daily yield curves** (in accordance with IDW S 1).

Additionally, we illustrate the monthly development of the risk-free rates since June 2015 for all three capital markets.

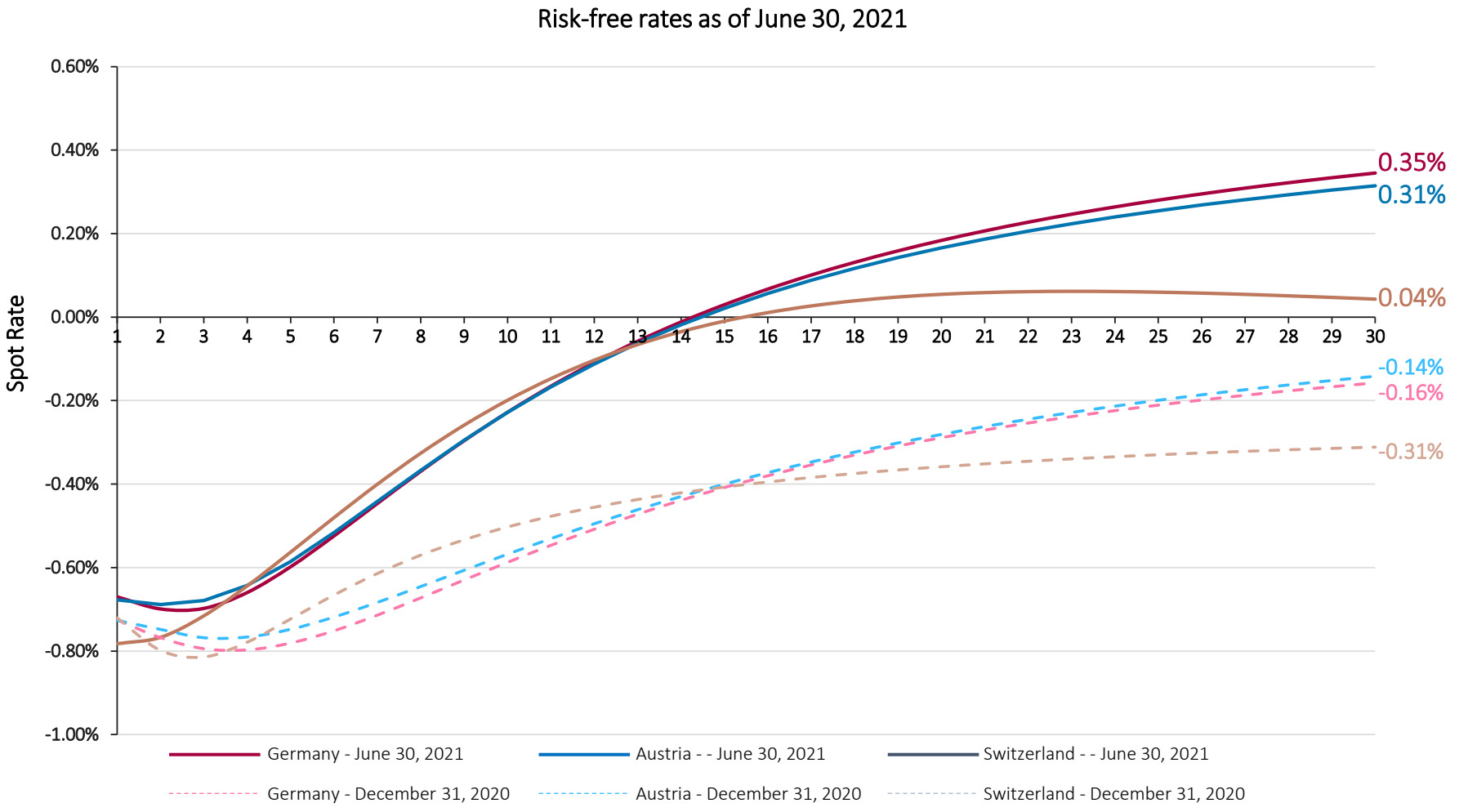
1) www.bundesbank.de.

2) Swiss National Bank – Zinssätze und Renditen, p.11.

3) ibid., p.13.

Risk-Free Rate – DACH

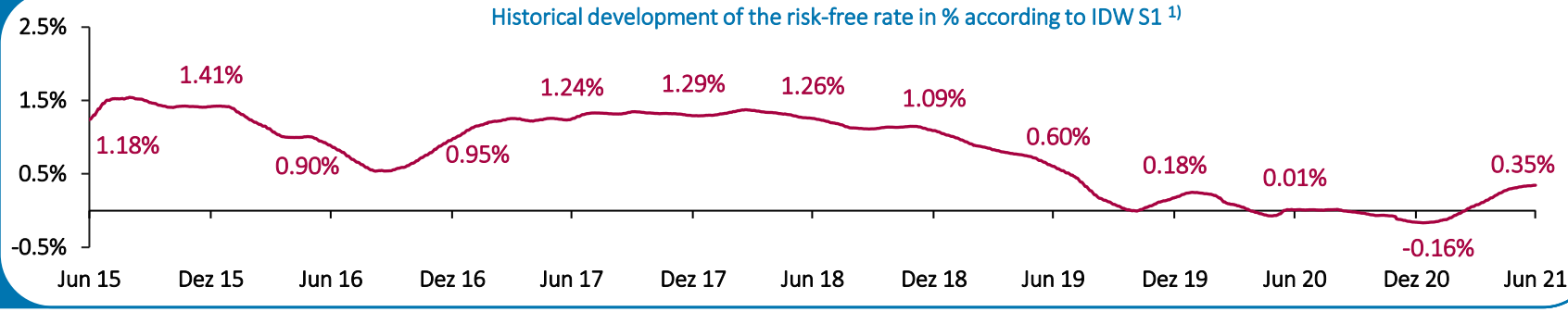
Determination according to country specific recommendations
Interest rate curve based on long-term bonds (Svensson method)



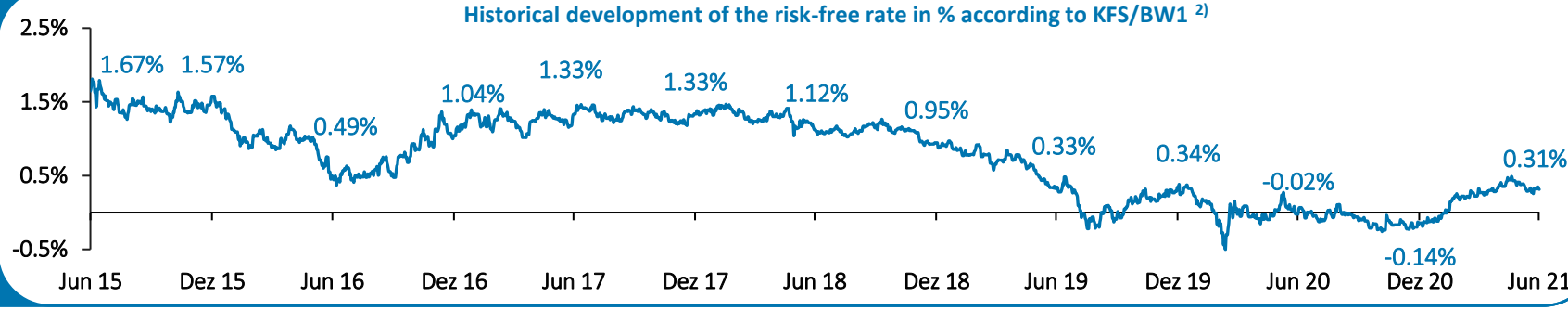
Risk-Free Rate – DACH

Historical development of the risk-free rate (Svensson method) since June 2015

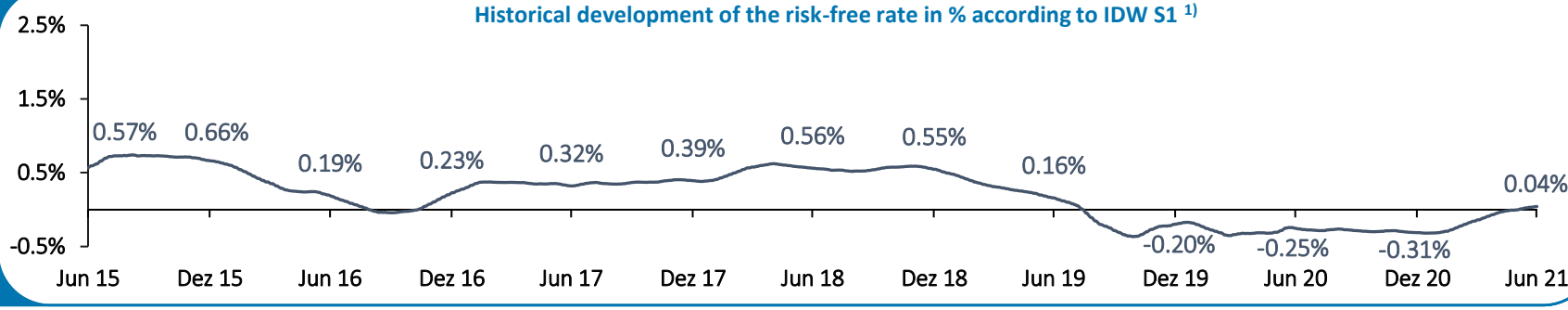
Germany



Austria



Switzerland



1) Interest rate as of reference date using 3-month average yield curves in accordance with IDW S 1; 2) Interest rate calculated using the daily yield curve in accordance with KFS/BW 1 (no 3-month average).

4 Market returns and market risk premium

a. Implied returns (ex-ante analysis)

Implied Market Returns and Market Premium
Background & approach

The **future-oriented** computation of **implied market returns** and **market risk premiums** is based on profit estimates for public companies and return calculations. This approach is called ex-ante analysis and allows to calculate the "**implied cost of capital**". It is to be distinguished from the **ex-post analysis**.

Particularly, the **ex-ante method** offers an **alternative** to the **ex-post approach** of calculating the costs of capital by means of the regression analysis through the **CAPM**. The ex-ante analysis method seeks costs of capital which represent the **return expectations of market participants**. Moreover, it is supposed that the estimates of financial analysts reflect the expectations of the capital market.

The concept of **implied cost of capital** gained in momentum recently. For example, it was recognized by the German *Fachausschuss für Unternehmensbewertung* "**FAUB**".[1] It is acknowledged that implied cost of capital capture the **current capital market situation** and are thus able to reflect the effects of the current **low interest rate environment**.

Furthermore, recent **court rulings** with regards to appraisal proceedings appreciate the use of **implied cost of capital** as they are **forward-looking**. As of the **reference date**, it offers a more insightful perspective in comparison to the exclusive use of ex-post data.

For the following analysis, we use – simplified to annually – the formula of the Residual Income Valuation Model by *Babbel*:[2]

$$r_t = \frac{NI_{t+2}}{MC_t} + \left(1 - \frac{BV_t}{MC_t}\right) * g$$

With the following parameter definitions:

r_t = Cost of equity at time t

NI_{t+2} = Expected net income in the following time period t+2

MC_t = Market capitalization at time t

BV_t = Book value of equity at time t

g = Projected growth rate

Through dissolving the models to achieve the cost of capital, we obtain the implied return on equity.[3] Since *Babbel's* model does not need any explicit assumptions, except for the growth rate, it turns out to be **robust**. We source all data (i.e. the expected annual net income, the market capitalizations, and the company's book value of equity, etc.) of the analyzed companies from the data supplier S&P Capital IQ. Additionally, we apply the European Central Bank target inflation rate of **2.0% as a typified growth rate**.

Henceforth, we determine the **implied market returns** for the entire DAX, ATX and SMI. We consider these indices as a valid approximation for the total markets.[4] The results build the starting points for the calculations of the **implied market risk premiums** of the three capital markets. Subtracting the risk-free rate from the implied market returns results in the implied market risk premium.

To determine the appropriate market risk premium for valuation purposes, it is important to take also the analysis of historical returns as well as volatility into account. Especially in times of crisis it can make sense to apply an average market risk premium over several periods instead of a reference date value.

1) cf. Castedello/Jonas/Schieszl/Lenckner, Die Marktrisikoprämie im Niedrigzinsumfeld – Hintergrund und Erläuterung der Empfehlung des FAUB (WPg, 13/2018, p. 806-825).

2) cf. Babbel, Challenging Stock Prices: Stock prices und implied growth expectations, in: Corporate Finance, N. 9, 2015, p. 316-323, in particular p. 319. We apply t+2 earnings forecasts in our model from 2021 onwards since the t+1 forecasts are significantly distorted by the COVID-19 crisis; this deviates from our approach in the European Capital Market study since there are no t+2 forecasts available, leading to lower implied returns.

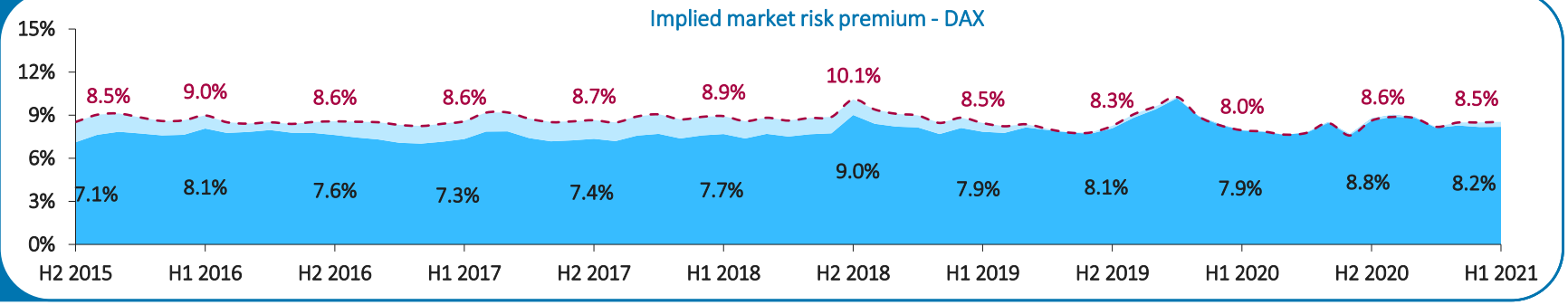
3) cf. Reese, 2007, Estimation of the costs of capital for evaluation purposes; Aders/Aschauer/Dollinger, Die implizite Marktrisikoprämie am österreichischen Kapitalmarkt (RWZ, 6/2016, p. 195-202).

4) Approx. 75% of the total market capitalization (CDAX, WBI, SPI) is covered.

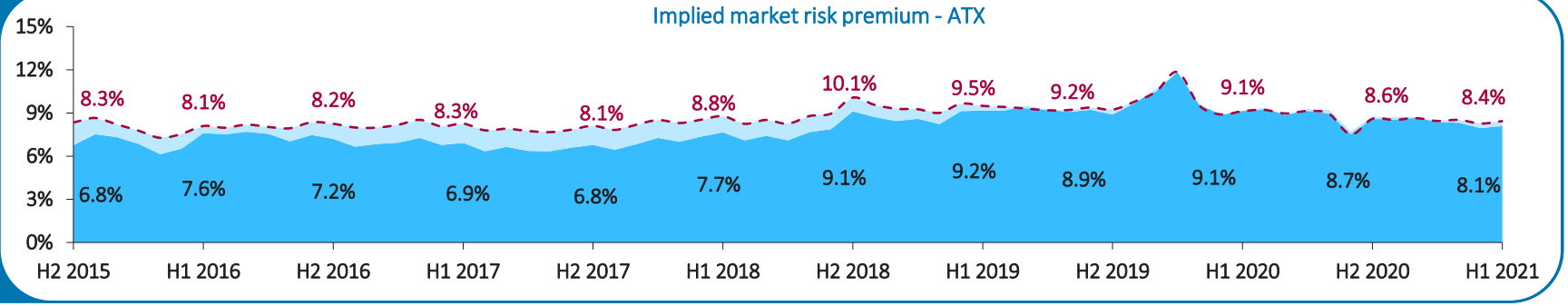
Implied Market Returns and Market Risk Premium

German, Austrian and Swiss market

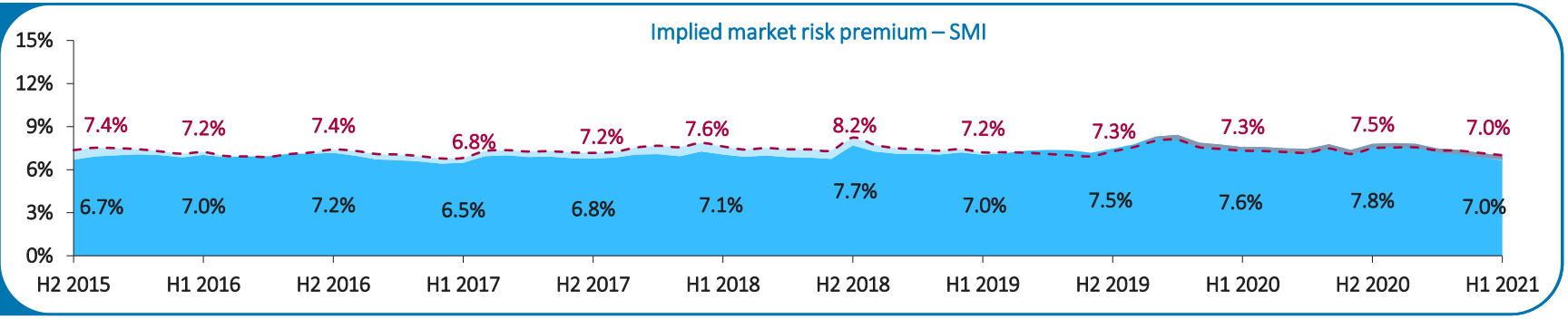
Germany



Austria



Switzerland



4 Market returns and market risk premium

b. Historical returns (ex-post analysis)

Historical Market Returns
Background & approach

Besides analyzing the implied market returns through the ex-ante analysis, we also analyze **historical (ex-post) returns**. Once this analysis is performed over a **long-term observation period**, an expected **return potential** of the German, Austrian and Swiss capital markets is assessable. Therefore, the analysis of historical returns can be used for **plausibility checks of the costs of capital**, more specifically **return requirements**, which were evaluated through the CAPM.

To further enable a precise analysis of the historical returns of the German, Austrian and Swiss capital markets, we use the so-called **return triangle**.[1)] It helps to present the **annually realized returns** from **different investment periods** in a simple and understandable way. Especially the **different buying and selling points in time** and the different annual holding periods are being illustrated comprehensively. To calculate the **average annual returns** over several years, we use both the **geometric and arithmetic mean**.

In this study, we analyze the so-called **total shareholder returns,** which include the **returns on investments** and the **dividend yields**. For our analysis, it is needful to focus on **total return indices** because they include the price and dividend yields. Since **DAX** is a performance index, we already have an index which includes the price and dividend yields. The ATX and SMI only include the price yields, hence we need their specific total return indices. The relevant total return index for Austria is called the **ATX Total Return** and for Switzerland **SMI Total Return**. The composition of both indices are identical to the ATX and the SMI and compromise 20 companies each.

The observation period amounts to 25 years. Therefore, the earliest data of the **DAX and the ATX Total Return** is from the end of 1994. However, the data of the **SMI Total Return** starts from the end of 1995. All ex-post returns are being calculated by using the **data as of the reference date June 30.**

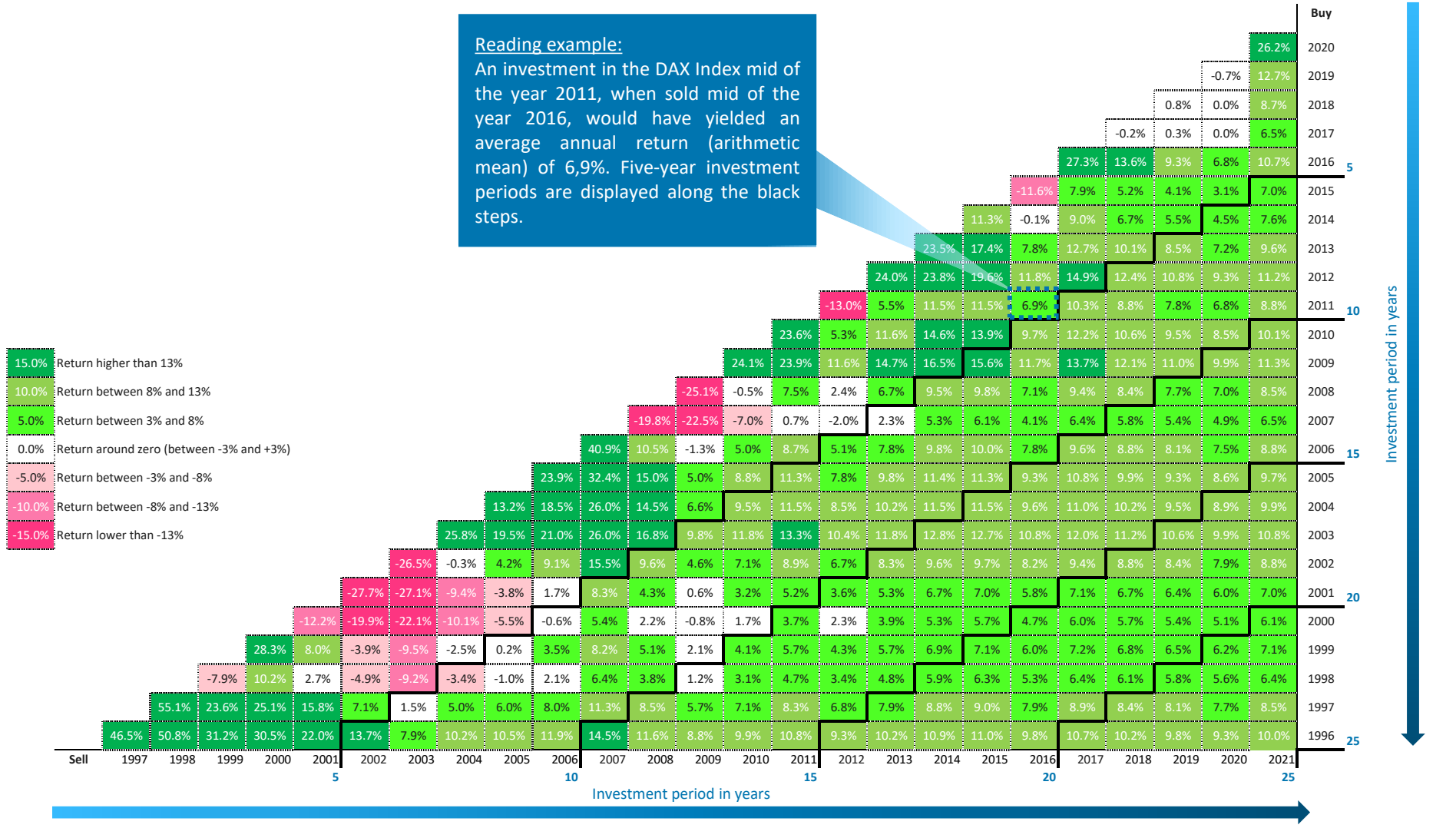
The following slides illustrate how the two calculation methods (arithmetic and geometric) differ from each other for the period between June 30, 1996 and June 30, 2021:

- DAX:
  - the **arithmetic mean** of the historical market returns is **10.0%**
  - the **geometric mean** of the historical market returns is **7.5%**
- ATX:
  - the **arithmetic mean** of the historical market returns is **10.6%**
  - the **geometric mean** of the historical market returns is **7.3%**
- SMI:
  - the **arithmetic mean** of the historical market returns is **9.0%**
  - the **geometric mean** of the historical market returns is **7.4%**

1) The German Stock Institute e.V. (DAI) developed the return triangle for DAX and EURO STOXX.

Historical Market Returns (Arithmetic Mean) – German Market

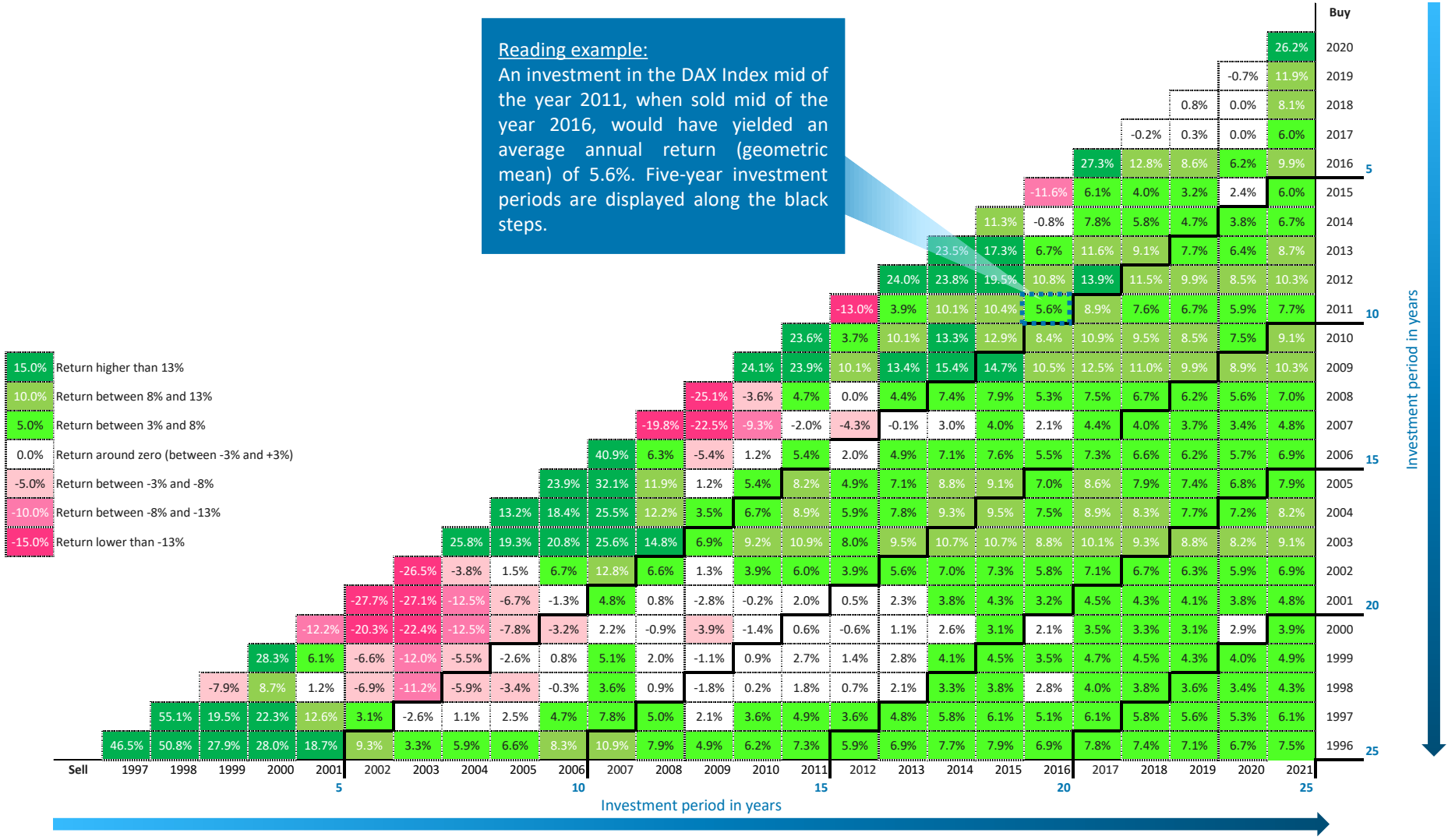
DAX Performance Index Return Triangle



Following: https://www.dai.de/files/dai_usercontent/dokumente/renditedreieck/2015-12-31%20DAX-Rendite-Dreieck%2050%20Jahre%20Web.pdf.

Historical Market Returns (Geometric Mean) – German Market

DAX Performance Index Return Triangle



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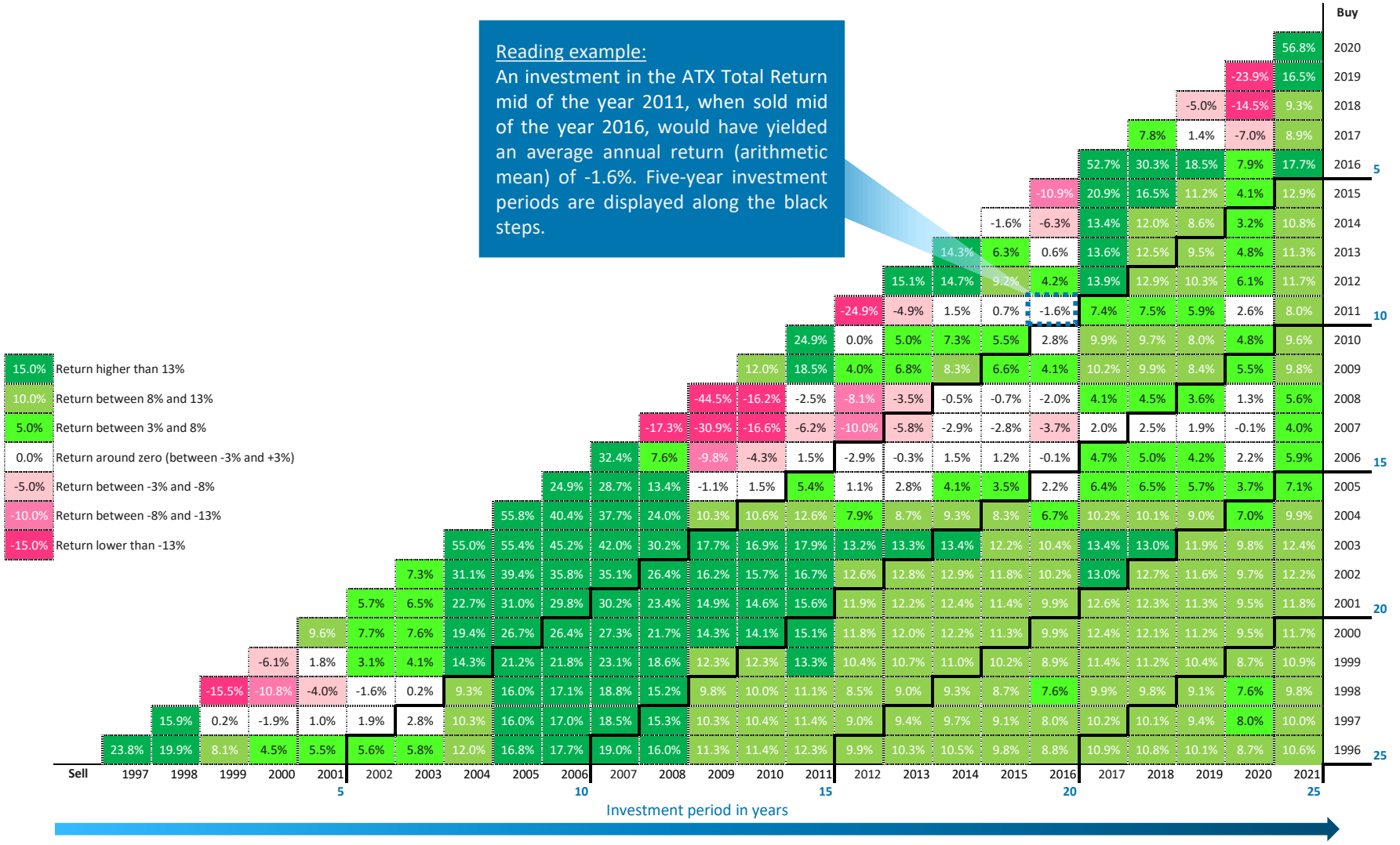
Historical Market Returns (Arithmetic Mean) – Austrian Market

ATX Total Return Index Return Triangle



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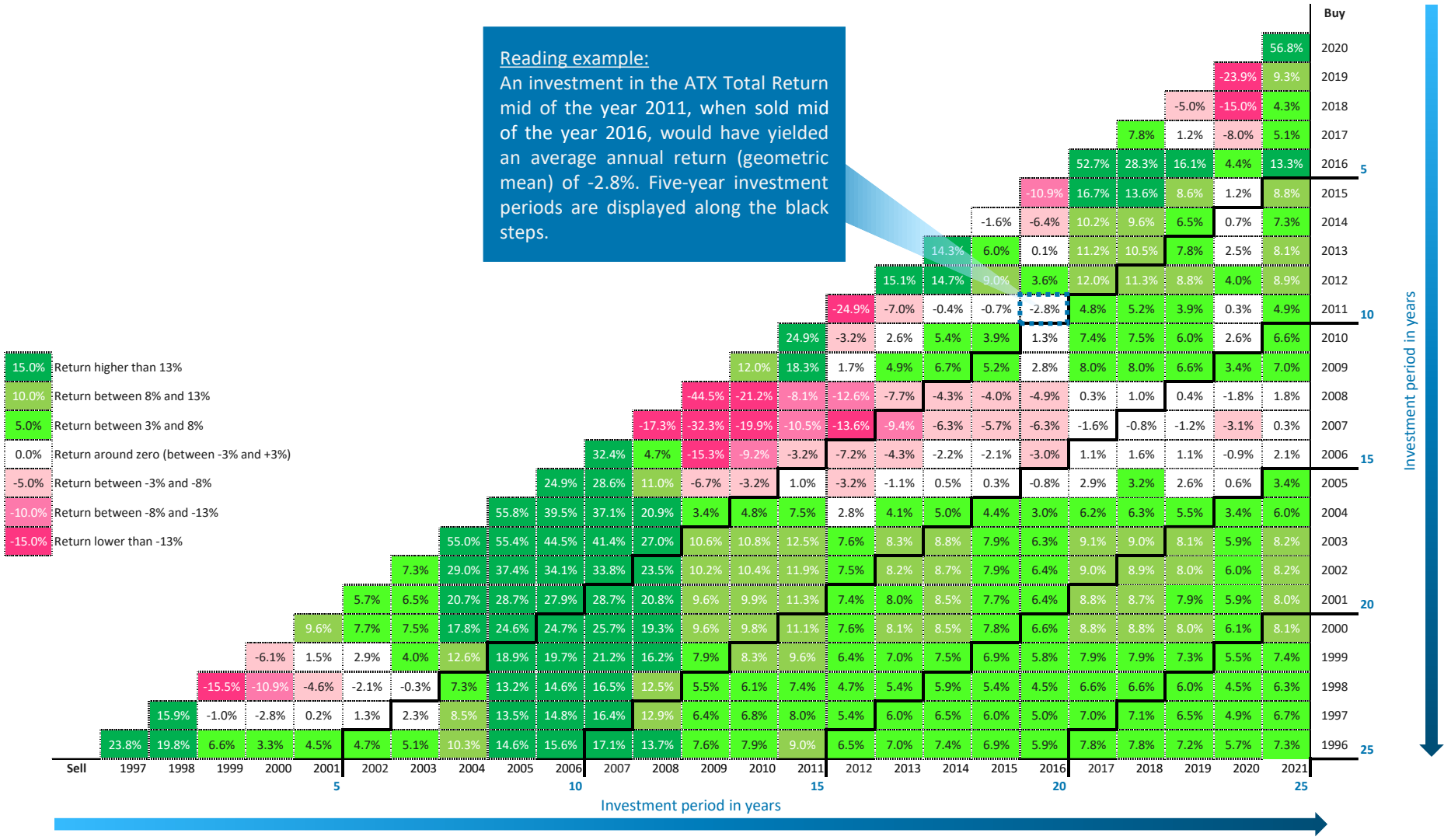
Historical Market Returns (Geometric Mean) – Austrian Market

ATX Total Return Index Return Triangle



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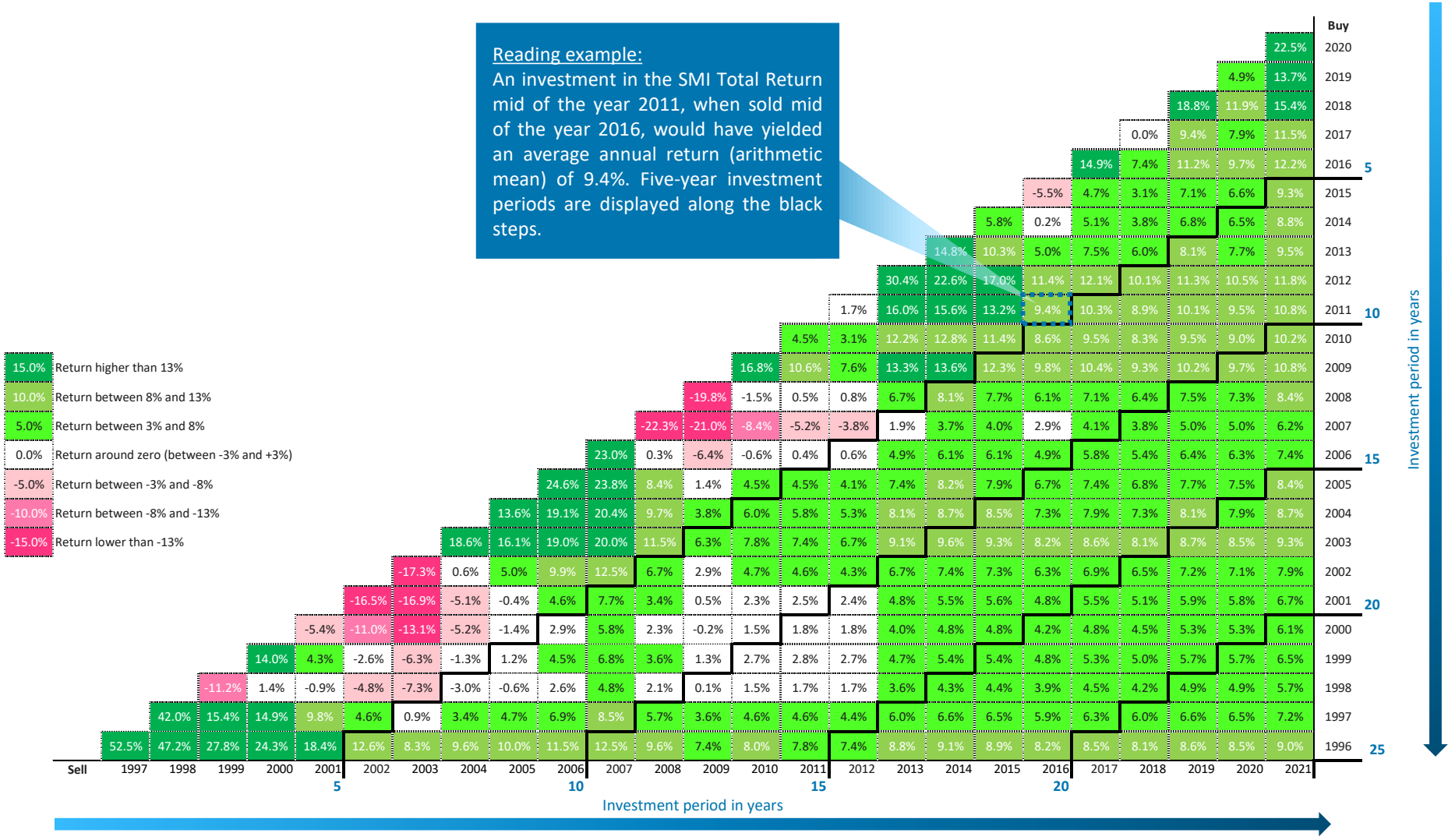
Historical Market Returns (Arithmetic Mean) – Swiss Market

SMI Total Return Index Return Triangle



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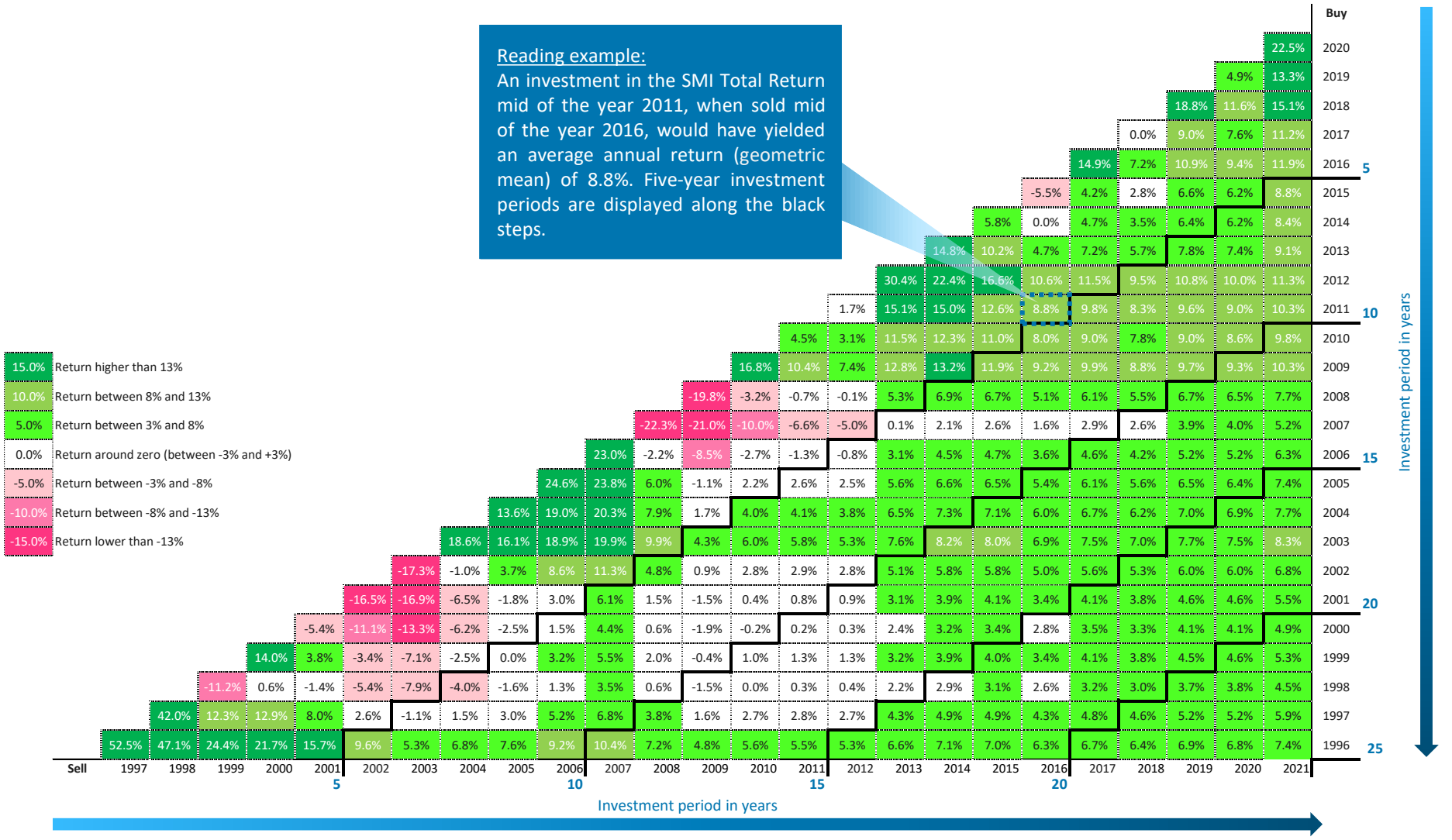
Historical Market Returns (Geometric Mean) – Swiss Market

SMI Total Return Index Return Triangle



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5 Sector classification of the DACH region

based on finexpert *sector indices*

finexpert Sector Indices of the DACH Region

Methodology & approach

The finexpert sector indices aim to cover the **whole capital market of the DACH region**. Therefore, this capital market study contains all equities of the **German Composite DAX Index (CDAX)**, **Vienna Stock Exchange Index (WBI)** and **Swiss Performance Index (SPI)**. These three indices contain all shares listed on the **Official** and **Semi-Official Market**.

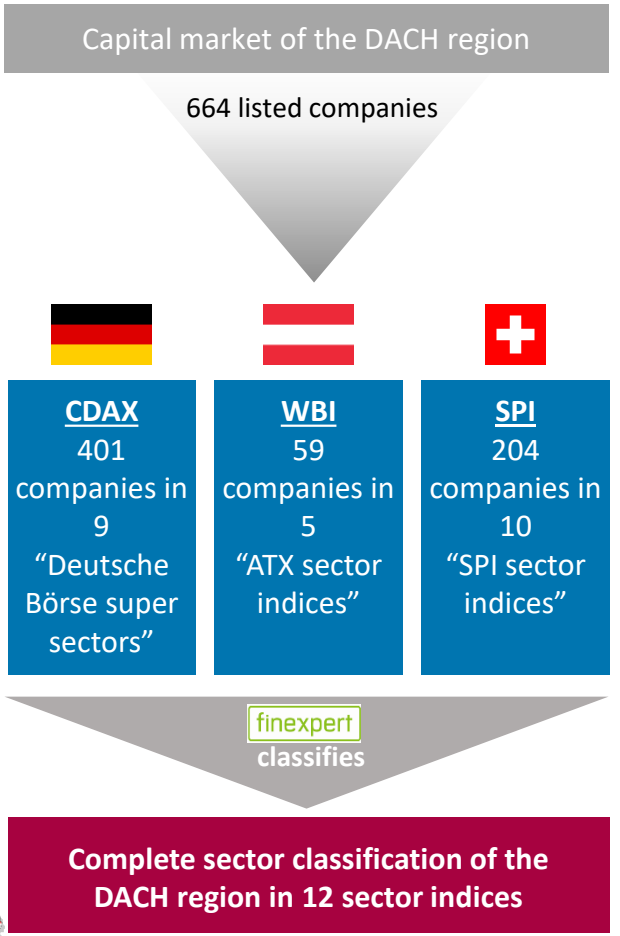
The **664 public companies**, which are listed in the mentioned indices as of June 30, 2021, build the base for the **sector classification** and the **subsequent analyses**:

- The German DAX Sector All Index[1)] includes 401 companies listed in the Prime Standard and General Standard and is classified into nine "Deutsche Börse super sectors".
- The Austrian ATX only has sector five indices, ValueTrust assigns the remaining companies of the WBI to the classified sector indices.
- The Swiss SPI contains ten sector indices that comprise 204 companies.

Eventually, finexpert merged all three market indices and the respective sector index classification into twelve finexpert sector indices, so-called "super sectors."

The **twelve sector indices** for this study are defined as follows:

- Banking
- Insurance
- Financial Services
- Consumer Service
- Consumer Goods
- Pharma & Healthcare
- Information Technology
- Telecommunication
- Utilities
- Basic Materials
- Industrials
- Real Estate

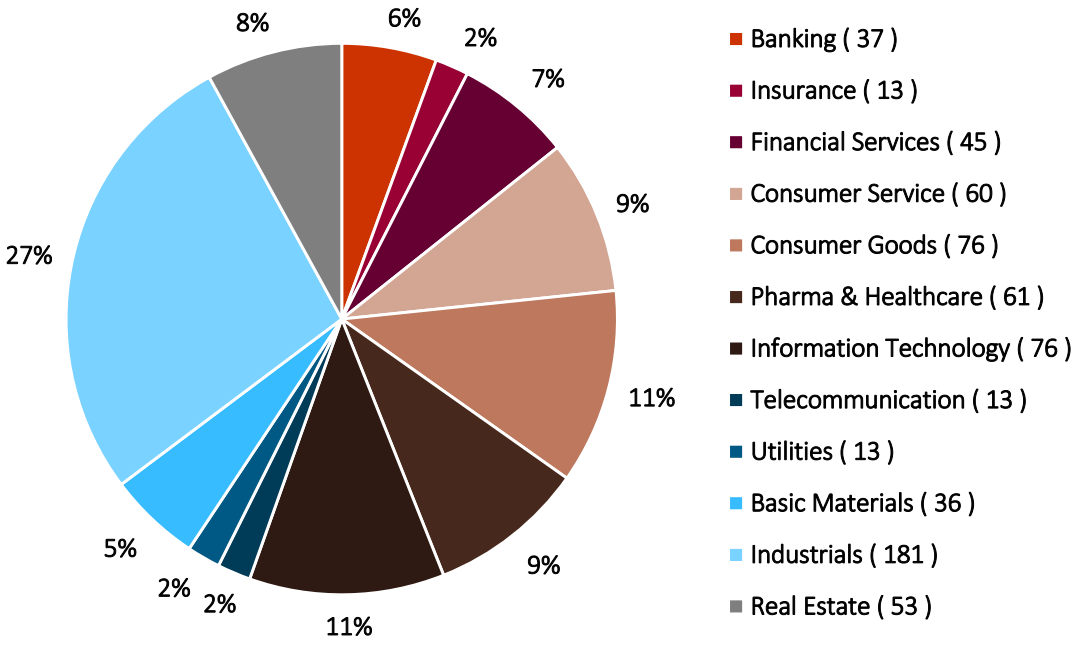


1) The DAX Sector All Index contains all equities listed in the Prime and General Standard as well as in the Scale segment of the Frankfurt stock exchange.

finexpert Sector Indices of the DACH Region as of June 30, 2021

Sector distribution and number of companies

Sector classification of the DACH Region



The chart shows the percentage distribution of the 664 listed companies in the twelve "super sectors" (the absolute number of companies is displayed in parentheses).

The twelve defined sectors can be classified in **three different dimensions**.

- nine different sectors represent a proportion of less than 10%,
- two represent a share between 10% and 20%,
- and one represents a portion of more than 20%.

Companies within the **Industrials, Information Technology and Consumer Goods sectors,** hence, represent **nearly 50%** of the entire market.

1) Including asset managers, leasing firms and distribution companies for financial products.

6 Betas

Betas
Background & approach

Beta is used in the **CAPM** and is also known as the beta coefficient or beta factor. Beta is a measure of **systematic risk** of a security of a specific company (**company beta**) or a specific sector (**sector beta**) in comparison to the market. A beta of less than 1 means that the security is theoretically less **volatile** than the market. A beta of greater than 1 indicates that the security's price is more volatile than the market.

Beta factors are estimated based on **historical returns of securities** in comparison to an **approximate market portfolio**. Since the company valuation is **forward-looking**, it has to be examined whether or what potential risk factors prevailing in the past do also apply for the future. By valuing non-listed companies or companies without meaningful share price performance, it is common to use a beta factor from a group of comparable companies ("**peer group beta**"), a suitable sector ("**sector beta**") or one single listed company in the capital market with a similar business model and a similar risk profile ("**pure play beta**"). Within this capital market study we have used **sector betas** which are computed as **arithmetic means of the statistically significant beta factors of all companies** of a particular sector.

The estimation of beta factors is usually accomplished through a **linear regression analysis**. We use the CDAX, WBI, and SPI as country specific reference indices.

Furthermore, it is important to set a time period for which the data is collected (**benchmark period**) and whether daily, weekly or monthly returns (**return interval**) are analyzed. In practice, it is common to use **observation periods of two years** with the regression of **weekly returns** or a **five-year observation period** with the regression of **monthly returns**. Both alternatives are displayed in our study.

In the CAPM, company specific **risk premiums** include not only **business** risk, but also financial **risk**. The beta factor for levered companies ("**levered beta**") is usually higher compared to a company with an identical business model but without debt (due to financial risk). Hence, **changes in the capital structure** require an **adjustment of the betas** and therefore of the company specific risk premiums.

In order to calculate the **unlevered beta,** adjustment formulas have been developed. We prefer to use the **adjustment formula by Harris/Pringle** which assumes a value-based financing policy, stock-flow adjustments without time delay, uncertain tax shields and a so-called **debt beta**. We calculate the debt beta based on the respective company's rating or the average sector rating (if a company's rating is not available) through the application of the **credit spread** derived from the expected cost of debt. We do not adjust the credit spread for unsystematic risks. The capital market data, in particular historical market prices, is provided by the data supplier S&P Capital IQ.

Betas

Sector specific levered and unlevered betas as of June 30, 2021 (arithmetic mean)

Sector	Beta levered	Beta unlevered
Banking [1]	0.75 0.86	n.a.
Insurance [1]	1.08 1.02	n.a.
Financial Services [1]	0.82 1.10	n.a.
Consumer Service	0.92 1.14	0.74 0.93
Consumer Goods	0.93 1.30	0.68 0.91
Pharma & Healthcare	0.91 1.08	0.81 0.99
Information Technology	0.95 1.18	0.82 1.02
Telecom-munication	0.70 0.84	0.57 0.70
Utilities	0.59 0.65	0.46 0.48
Basic Materials	0.92 1.10	0.70 0.84
Industrials	1.02 1.27	0.79 1.01
Real Estate	0.67 0.81	0.47 0.54
DACH [2]	1.00 1.03	

2-years weekly *(darker fill)* 5-years monthly *(transparent fill)*

1) We refrained from adjustments of the companies' specific debt (unlevered) because indebtedness is part of the companies' operational activities and economic risk. Bank specific regulations about the minimum capital within financial institutions let us assume that the indebtedness degree is widely comparable. For that reason, it is possible to renounce the adaptation of levered betas.

2) For all DACH companies, the market value-weighted mean of the levered beta was calculated. This value deviates slightly from 1 due to the exclusion of statistically insignificant betas.

7 Sector returns

a. Implied returns (ex-ante analysis)

Implied Sector Returns
Background & approach

Besides the future-oriented calculation of **implied market returns** (cf. slide 16 et seq.), we calculate **implied returns for sectors**. That offers an **alternative** and simplification to the **ex-post analysis** of the company's costs of capital via the **CAPM**. Using this approach, the calculation of sector betas via regression analyses is not necessary.

The **implied sector returns** shown on the following slides can be used as an **indicator** for the **sector specific levered costs of equity**. Those already consider a **sector specific leverage**. Because of this, another simplification is to renounce making adjustments with regards to the capital structure risk.

Comparable to the calculation of the implied market returns, the following return calculations are based on the Residual Income Valuation Model by *Babbel.*[1)] The required data (i.e. net income, market capitalization, and book values of equity) are sourced from the data provider S&P Capital IQ. Regarding the profit growth, we assume a growth rate of 2.0%.

We unlever the implied returns with the following **adjusting equation** for the **costs of equity**[2)] to take the specific leverage into account:[3)]

$$k_E^L = k_E^U + \left(k_E^U - R_f\right) * \frac{D}{E}$$

with:

k_E^L = Levered cost of equity

k_E^U = Unlevered cost of equity

R_f = Risk-free rate

$\frac{D}{E}$ = Debt[4)] -to-equity ratio

The **implied unlevered sector returns** serve as an indicator for an **aggregated** and **unlevered cost of equity** for **specific sectors**. The process of relevering a company's cost of capital to reflect a company specific debt situation (cf. calculation example on the next slide) can be worked out without using the CAPM.

1) cf. Babbel, Challenging Stock Prices: Share prices and implied growth expectations (Corporate Finance, n. 9, 2015, p. 316-323, especially p. 319); cf. Aders/Aschauer/Dollinger, Die implizite Marktrisikoprämie am österreichischen Kapitalmarkt (RWZ, 6/2016, p. 195-202).

2) In situations in which the debt betas in the market are distorted, we would have to adjust these betas to avoid unsystematic risks. For simplification reasons, we deviate from our typical analysis strategy to achieve the enterprise value (Debt beta > 0) and assume that the costs of debt are at the level of the risk-free rate. This process is designed by the so-called Practitioners formula (uncertain tax shields, debt beta = 0), cf. Pratt/Grabowski, Cost of Capital, 5th ed., 2014, p. 253.

3) We assume that the cash and cash equivalents are used entirely for operational purposes. Consequently, we do not deduct excess cash from the debt.

4) "Debt" is defined as all interest-bearing liabilities. The debt illustration of the companies in the Banking, Insurance and Financial Services sector only serves an informational purpose. We will not implement an adjustment to these companies' specific debt (unlevered) because their indebtedness is part of their operational activities and economic risk.

Implied Sector Returns

Exemplary calculation to adjust for the company specific capital structure

Calculation example:

As of the reference date June 30, 2021, we observe a sector specific, unlevered cost of equity of **5.5%** (market-value weighted mean) of an exemplary company X, which operates in the German Basic Materials sector. The following assumptions have been made:

- The debt-to-equity ratio of the exemplary company X: **40%**
- The risk-free rate: **0.35%** (cf. slide 12)

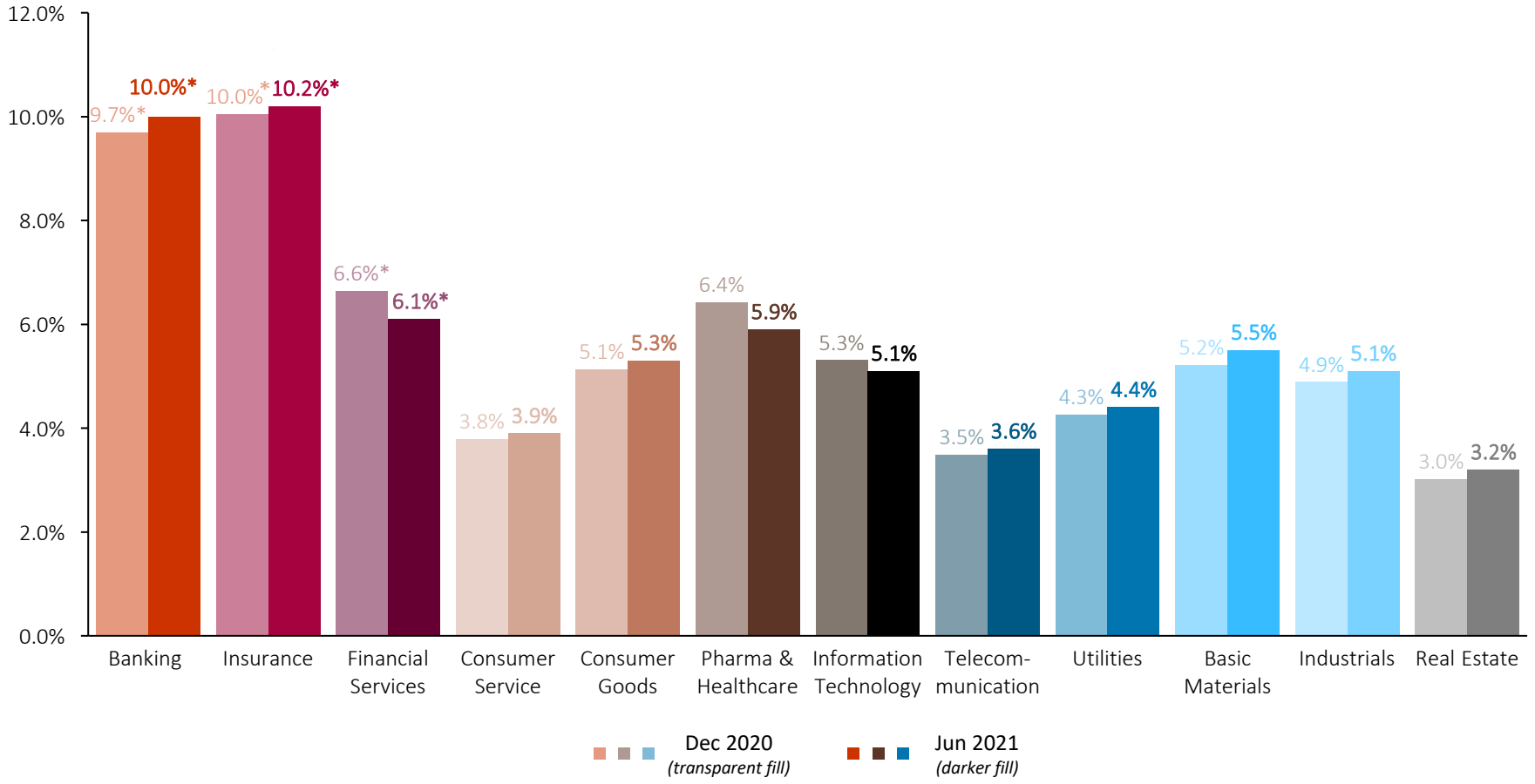
Based on these numbers, we calculate the relevered costs of equity of company X with the adjustment formula:

$$\mathbf{k_E^L} = 5.5\% + (5.5\% - 0.35\%) * 40\% = 7.6\%$$

Thus, **7.6%** is the company's relevered cost of equity. In comparison, the levered cost of equity of the Basic Materials sector is **8.4%**, reflecting the sectors' higher average leverage.

Implied Sector Returns (unlevered)*

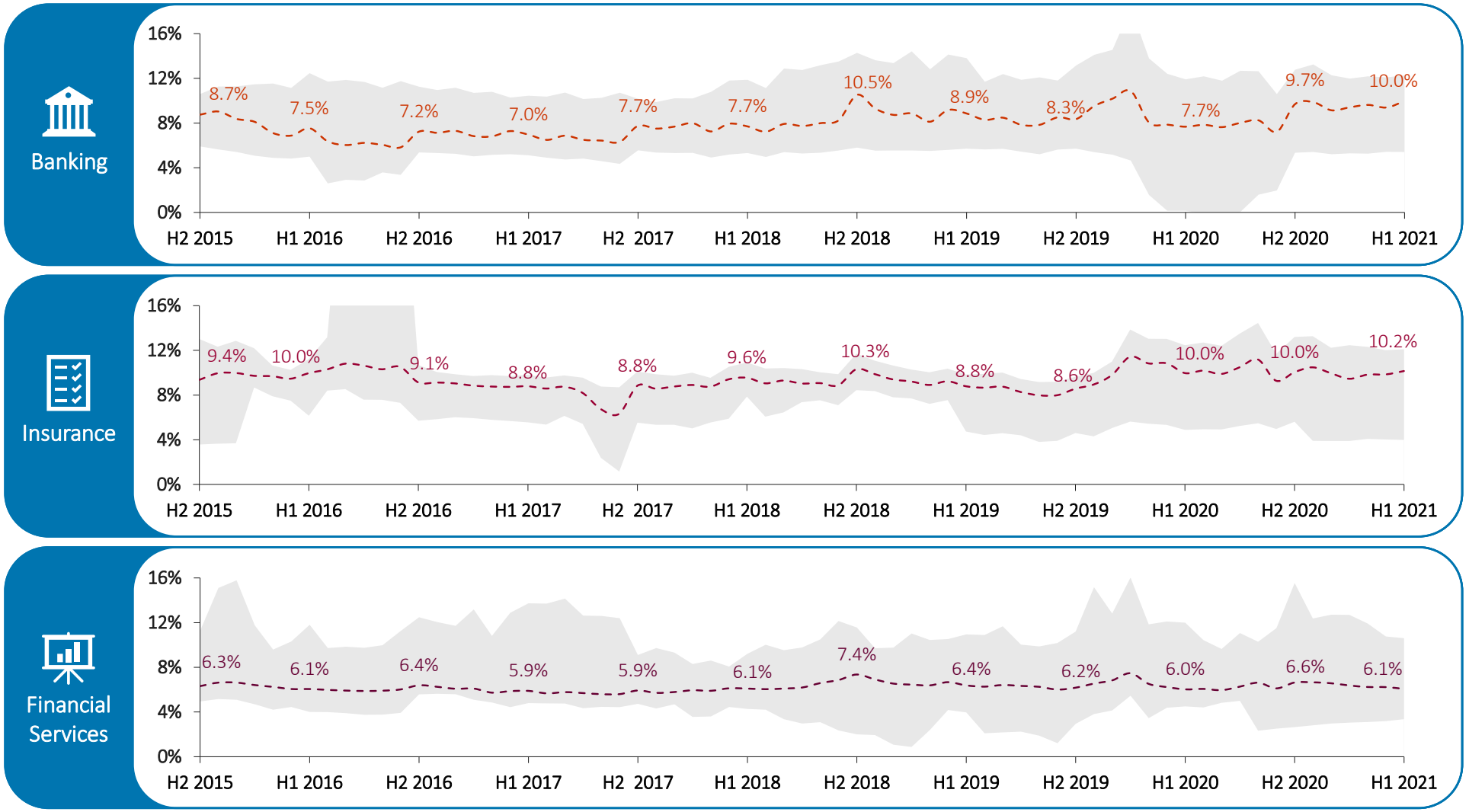
Overview as of June 30, 2021 vs. December 31, 2020



* The returns for the sectors Banking, Insurance and Financial Services are levered sector returns. For all other sectors unlevered returns are displayed.

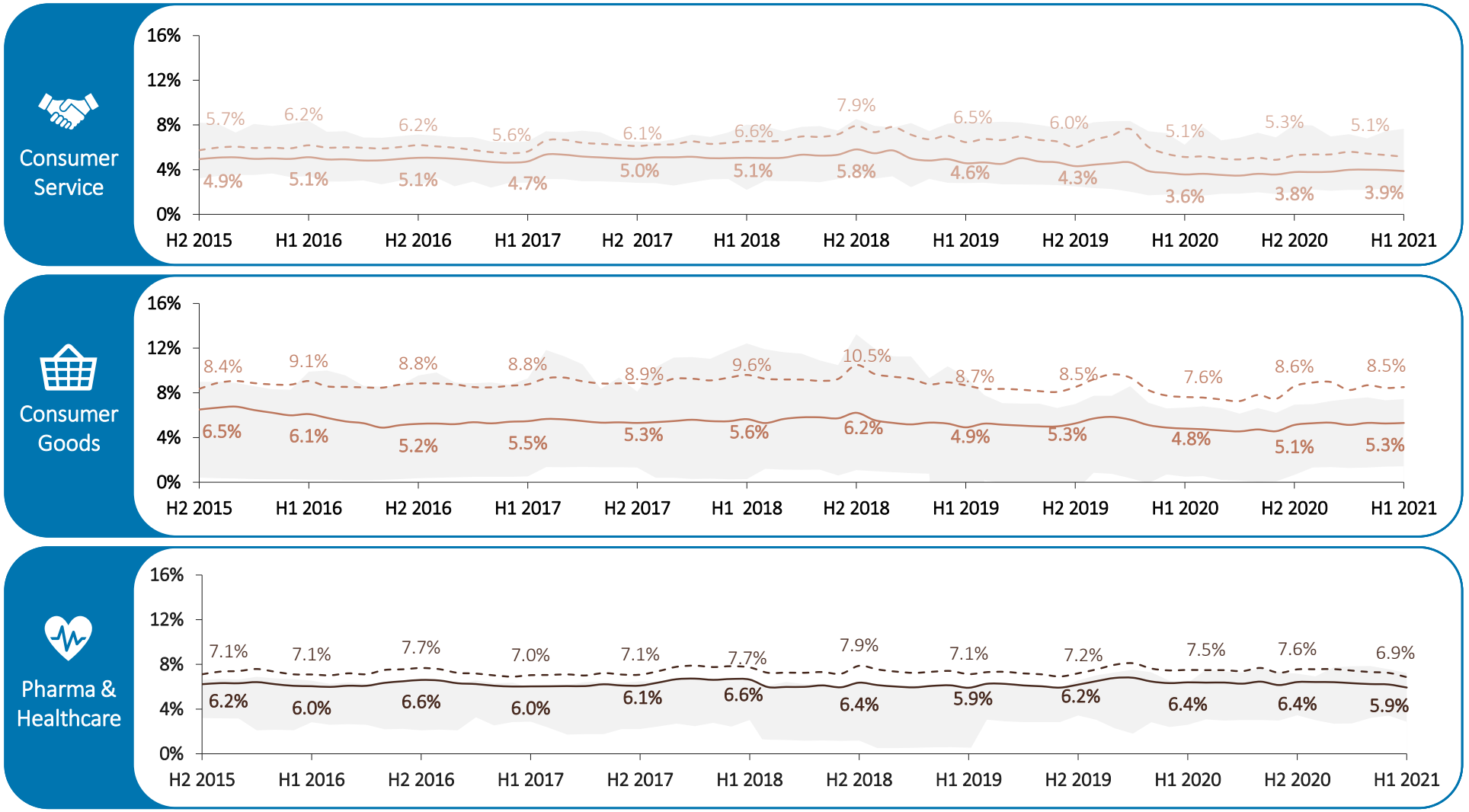
Implied Sector Returns

Banking, Insurance and Financial Services



Implied Sector Returns

Consumer Service, Consumer Goods and Pharma & Healthcare

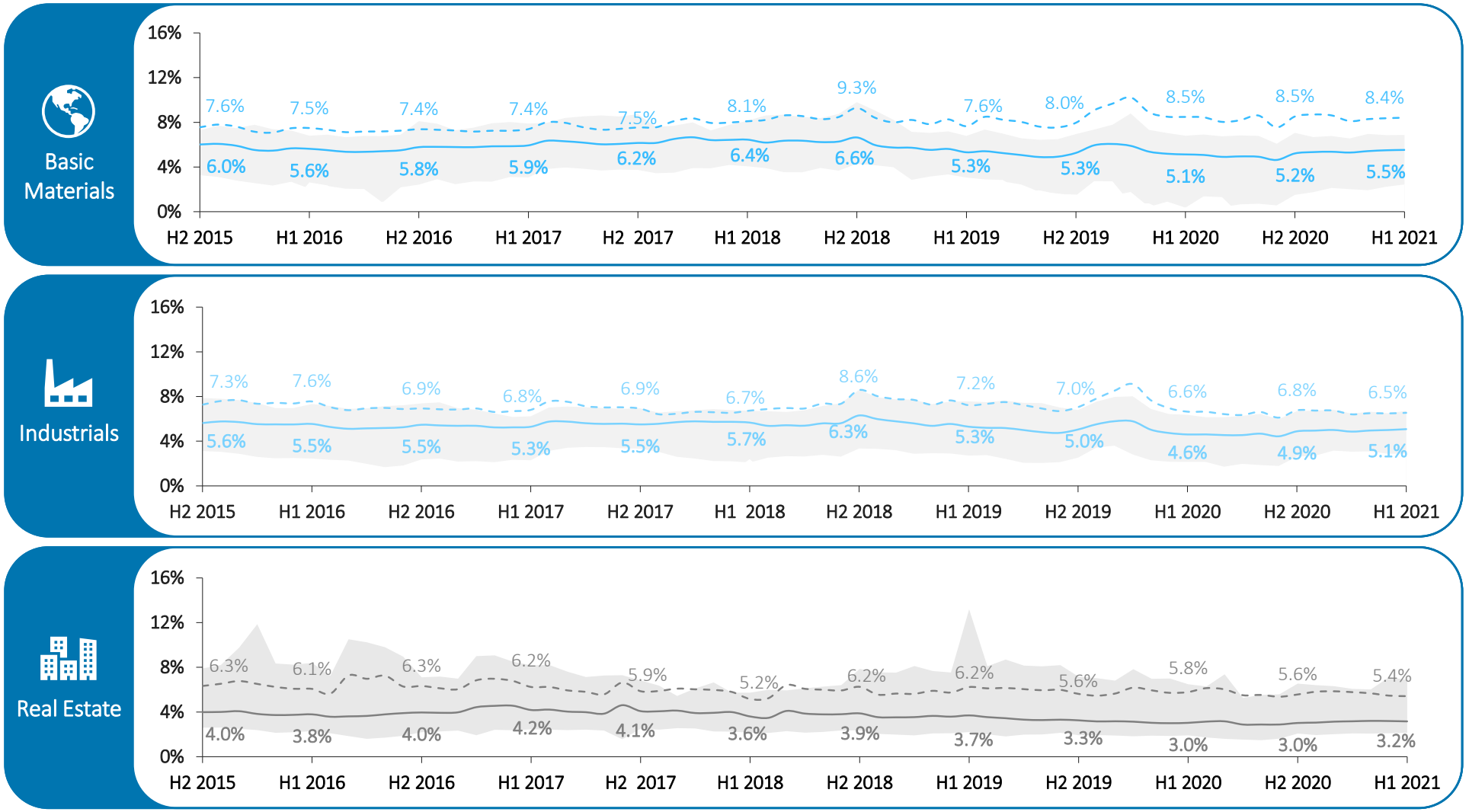


Implied Sector Returns

Information Technology, Telecommunication and Utilities

Implied Sector Returns

Basic Materials, Industrials and Real Estate



7 Sector returns

b. Historical returns (ex-post analysis)

Historical Sector Returns
Background & approach

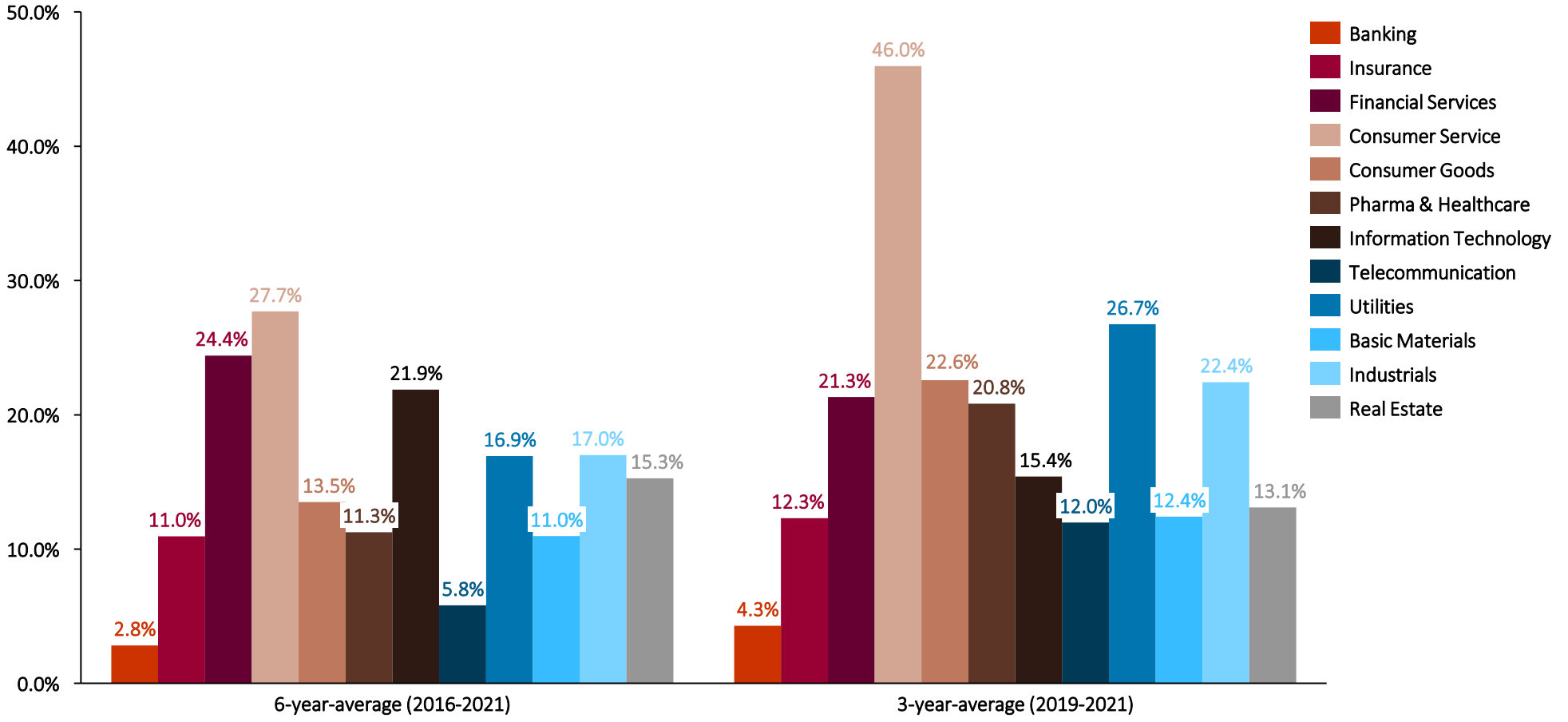
In **addition** to the **determination of historical market returns**, we calculate **historical sector returns**. This option creates an **alternative approach**, like the implied sector returns, to the ex-post analysis of the determination of costs of capital based on regression analyses following the **CAPM**.

Our analysis contains so-called **total shareholder returns** analogous to the return triangles for the German, Austrian and Swiss total return indices. This means, we consider the **share price development** as well as the **dividend yield**, whereas the share price development generally represents the main component of the total shareholder return.

We calculate the **annual total shareholder returns as of June 30**, for every DAX Sector All Index, WBI, and SPI listed company. Afterwards, we aggregate those returns market-value weighted **to sector returns**. Our calculations comprise the time period between 2016 and 2021. Since annual total shareholder returns tend to fluctuate to a great extent, their explanatory power is limited. Therefore, we do not only calculate the 1-year market-value weighted means, but furthermore calculate the 3-year (2019-2021) and the 6-year (2016-2021) averages.

Historical Sector Returns

Annual total shareholder returns as of June 30, 2021



8 Trading multiples

Trading Multiples
Background & approach

Besides absolute valuation models (earnings value, DCF), the **multiples approach** offers a practical way for an enterprise value estimation. The multiples method estimates a company's value **relative** to another company's value. Following this approach, the enterprise value results from the product of a reference value (revenue or earnings values are frequently used) of the company with the respective multiples of **similar companies**.

Within this capital market study, we analyze **multiples for the "super - sectors"** as well as **multiples for the DACH market** consisting of the German, Austrian and Swiss capital markets (DAX Sector All Index, ATX and SPI). We will look at the following multiples:

- Revenue-Multiples ("**EV**[1]**/Revenue**")
- EBIT-Multiples ("**EV**[1]**/EBIT**")
- Price-to-Earnings-Multiples ("**P/E**")
- Price-to-Book Value-Multiples ("**EqV**[2]**/BV**")

Multiples are presented for the reference dates June 30, 2021, and December 31, 2020. The reference values are based on one-year forecasts of analysts (so called forward multiples, in the following **"1yf"**). Solely the Price-to-Book-Value-Multiples are calculated with book values as of the reference dates. We present **median** values.

We present historical multiples since June 30, 2015 in the appendix and will update the applied multiples **semi-annually at the predefined reference date (as of December 31 and as of June 30)**.

For the purpose of **simplification**, we exclude negative multiples and multiples in the highest quantile (95%). The multiples in the lowest quantile (5%) build the lower limit.

To calculate the multiples, we source the data (i.e. Market Cap., Revenue, EBIT, etc.) from the data provider S&P Capital IQ. Based on the availability of data, especially in terms of forecasts, the number of companies underlying each specific multiple varies.

Additionally, we present a **ranking table** of the sector multiples. In a first step, the sector multiples are sorted from highest to lowest for each analyzed multiple. The resulting score in the ranking is displayed in the table and visualized by a color code that assigns a **red color** to the **highest rank** and a dark **green color** to the **lowest rank**. Thus, a red colored high rank indicates a high valuation level, whereas a green colored low rank suggests a low valuation level. In a second step, we aggregate the rankings and calculate an average of all single rankings for each sector multiple. This is shown in the right column of the ranking table. This **average ranking** indicates the overall **relative valuation levels** of the sectors when using multiples.

1) Enterprise Value.

2) Equity Value.

Trading Multiples

Sector multiples – Median (1/2)

1yf as of June 30, 2021 and December 31, 2020

Sector	EV / Revenue	EV / EBIT	P / E	P / BV
Banking	n.a.	n.a.	14.9x 12.5x	0.9x 0.9x
Insurance	n.a.	n.a.	19.7x 12.3x	0.9x 1.0x
Financial Services	n.a.	n.a.	25.4x 22.4x	1.4x 1.4x
Consumer Service	2.2x 1.8x	24.7x 22.8x	21.8x 22.4x	2.8x 2.3x
Consumer Goods	1.3x 1.5x	26.2x 19.6x	24.8x 24.2x	1.6x 1.9x
Pharma & Healthcare	5.8x 5.4x	31.1x 23.9x	35.9x 29.8x	3.4x 3.4x

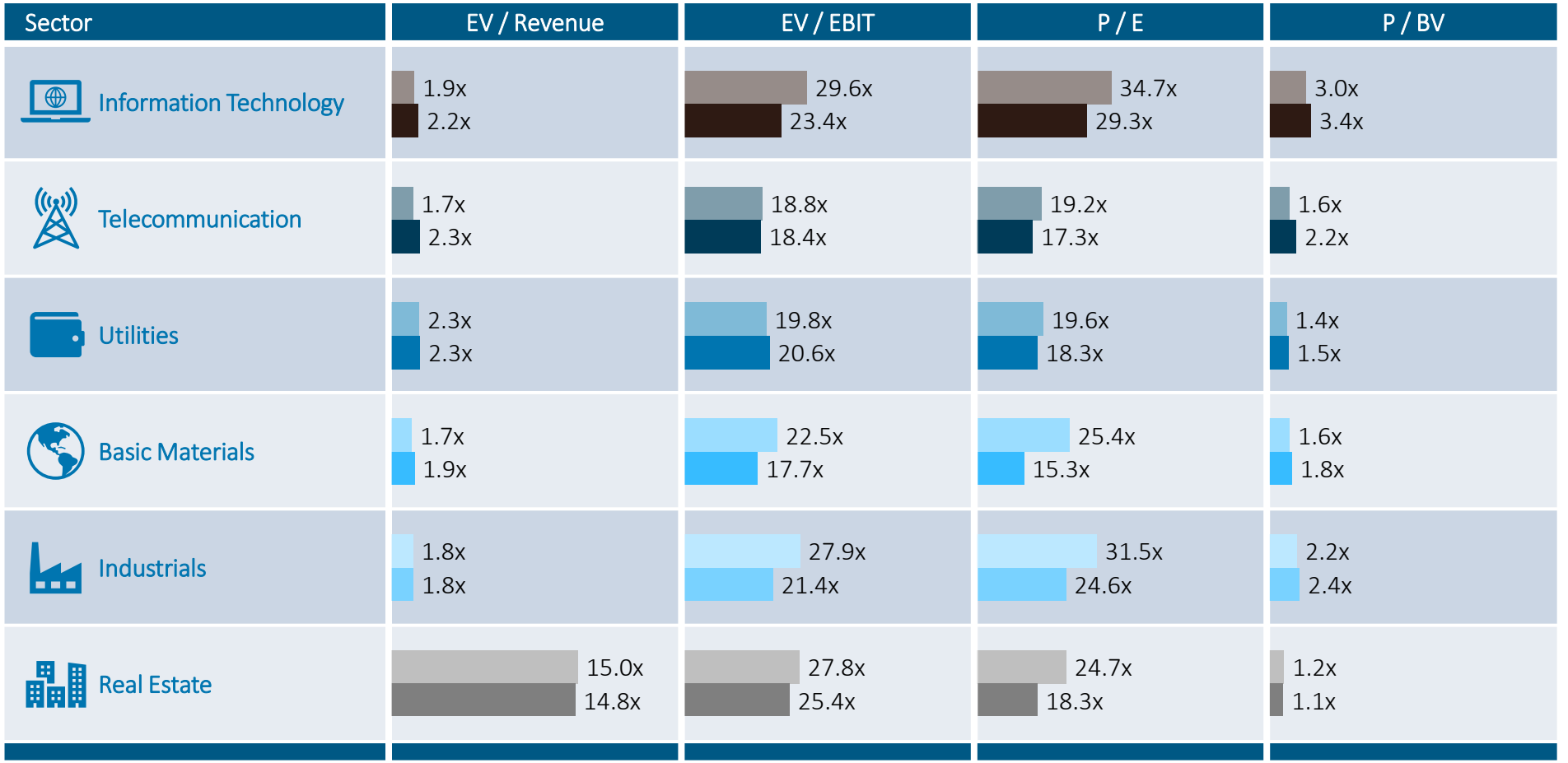
December 31, 2020 *(transparent fill)* June 30, 2021 *(darker fill)*

Note: For companies in the Banking, Insurance and Financial Services sectors, Revenue- and EBIT-Multiples are not meaningful and thus are not reported.

Trading Multiples

Sector multiples – Median (2/2)

1yf as of June 30, 2021 and December 31, 2020

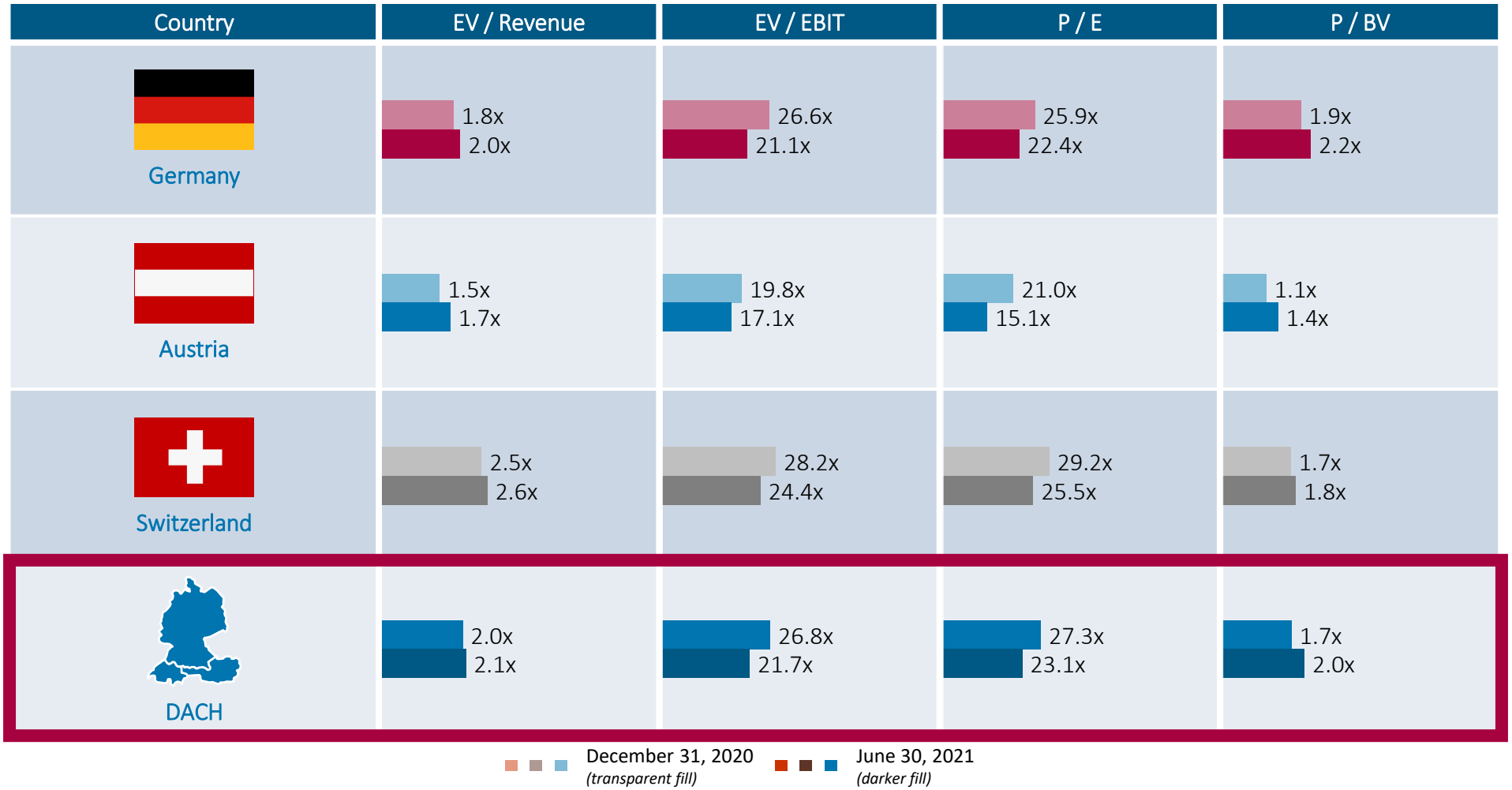


Note: The change in forward multiples compared to the previous DACH Capital Market Study (December 31, 2020) is partially attributable to the change to 2022 analyst forecasts as of June 2021.

Trading Multiples

Country multiples – Median

1yf as of June 30, 2021 and December 31, 2020



Trading Multiples

Sector multiples ranking based on median 1yf as of June 30, 2021 and December 31, 2020

	EV / Revenue 1yf		EV / EBIT 1yf		P / E 1yf		P / BV		ø Ranking
	H2 2020	H1 2021	H2 2020	H1 2021	H2 2020	H1 2021	H2 2020	H1 2021	
Banking	n.a.	n.a.	n.a.	n.a.	12	11	12	12	11.8
Insurance	n.a.	n.a.	n.a.	n.a.	9	12	11	11	10.8
Financial Services	n.a.	n.a.	n.a.	n.a.	5	6	9	9	7.3
Consumer Service	4	7	6	4	8	5	3	4	5.1
Consumer Goods	9	9	5	7	6	4	7	6	6.6
Pharma & Healthcare	2	2	1	2	1	1	1	1	1.4
Information Technology	5	5	2	3	2	2	2	2	2.9
Telecommunication	7	4	9	8	11	9	6	5	7.4
Utilities	3	3	8	6	10	7	8	8	6.6
Basic Materials	8	6	7	9	4	10	5	7	7.0
Industrials	6	8	3	5	3	3	4	3	4.4
Real Estate	1	1	4	1	7	8	10	10	5.3

The Banking and Insurance sectors show the least expensive valuation levels of all sectors.

The Pharma & Healthcare sector shows the highest multiples on average, followed by the Information Technology sector.

Note: Multiples are ranked from highest to lowest values: 1 – highest (red), 9/12 – lowest (dark green).

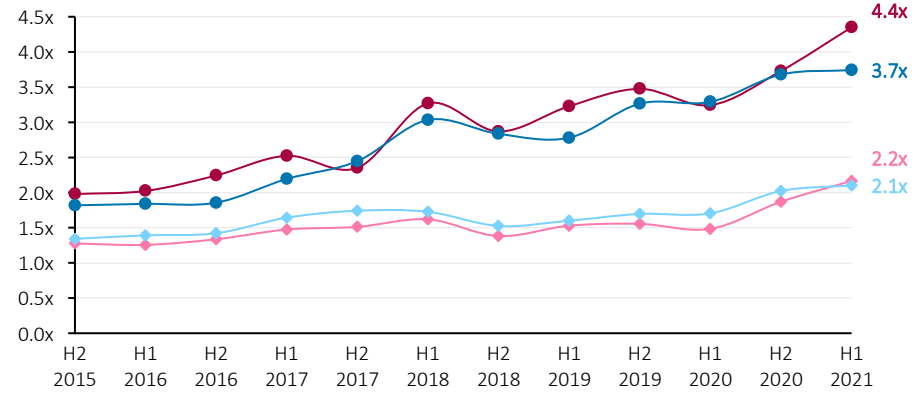
Appendix

Historical development of trading multiples since 2015

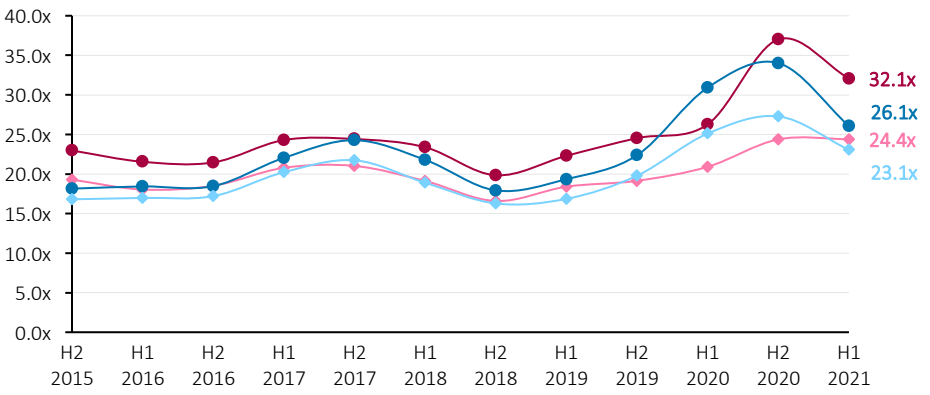
Trading Multiples

DACH – Revenue-, EBIT-, P/E- and P/BV-Multiples

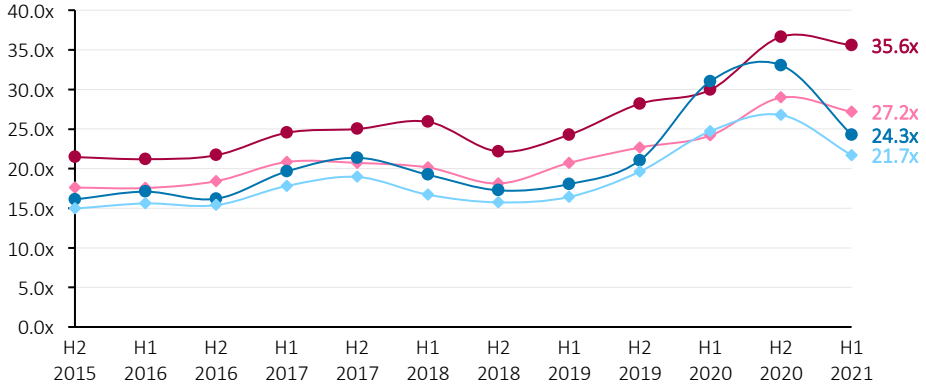
EV/Revenue DACH



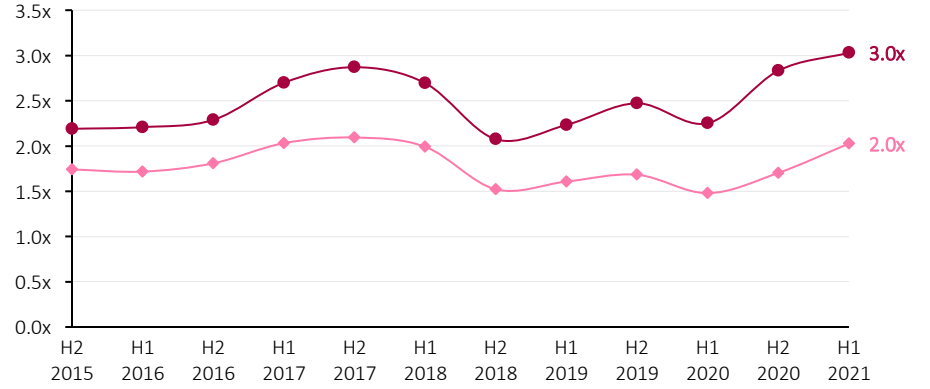
P/E DACH



EV/EBIT DACH



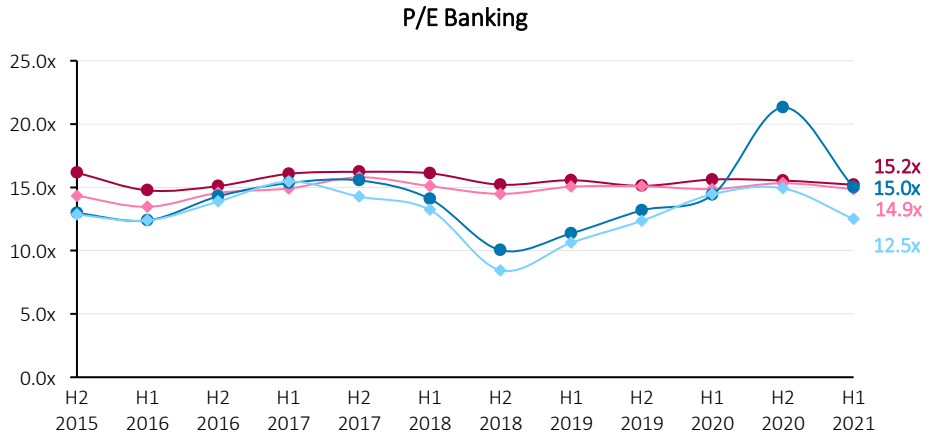
P/BV DACH

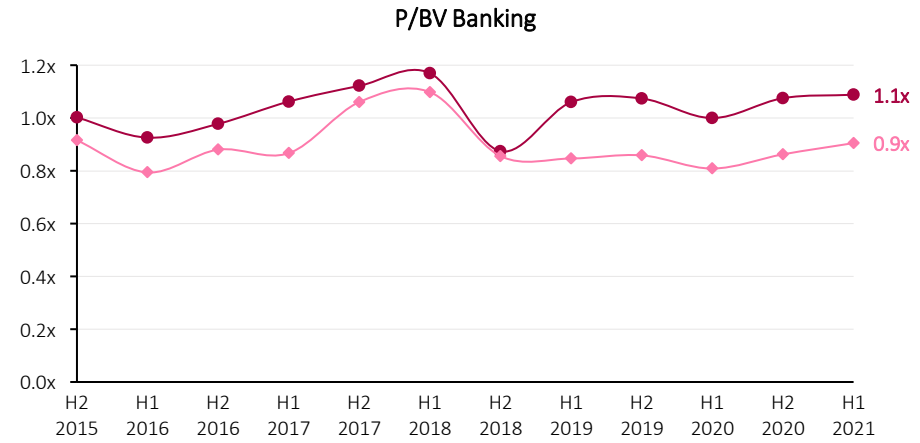


LTM arithmetic mean | LTM median | 1yf arithmetic mean | 1yf median

Trading Multiples

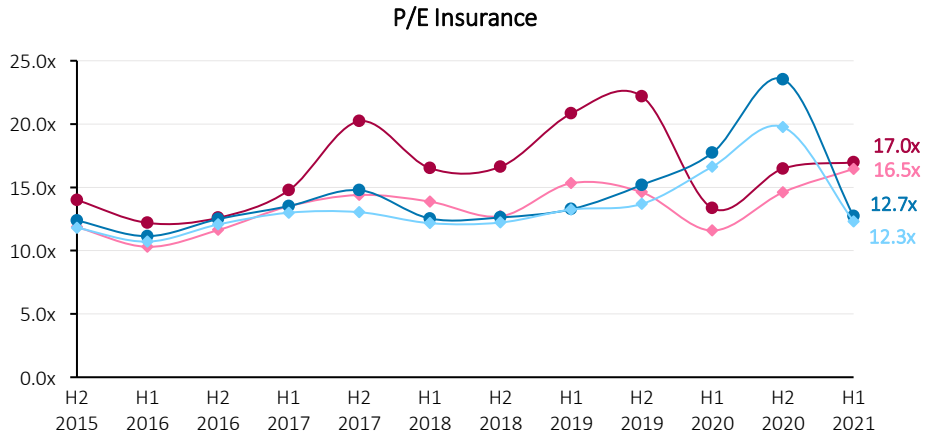
Banking – Revenue-, EBIT-, P/E- and P/BV-Multiples

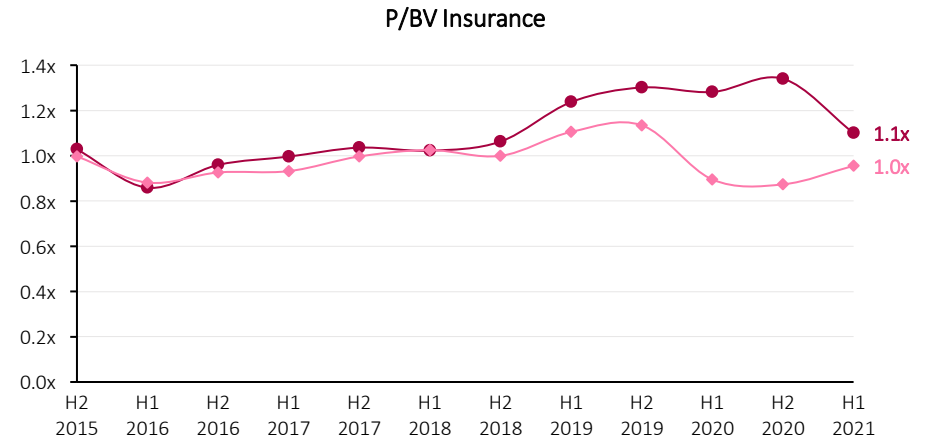




Trading Multiples

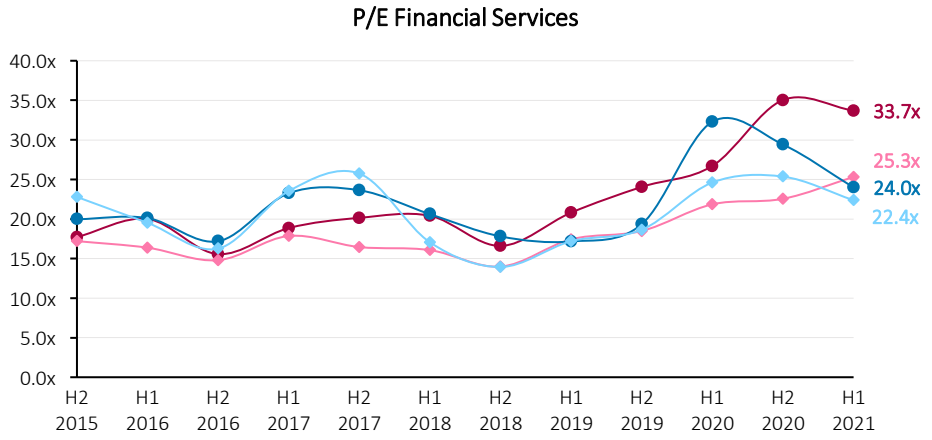
Insurance – Revenue-, EBIT-, P/E- and P/BV-Multiples

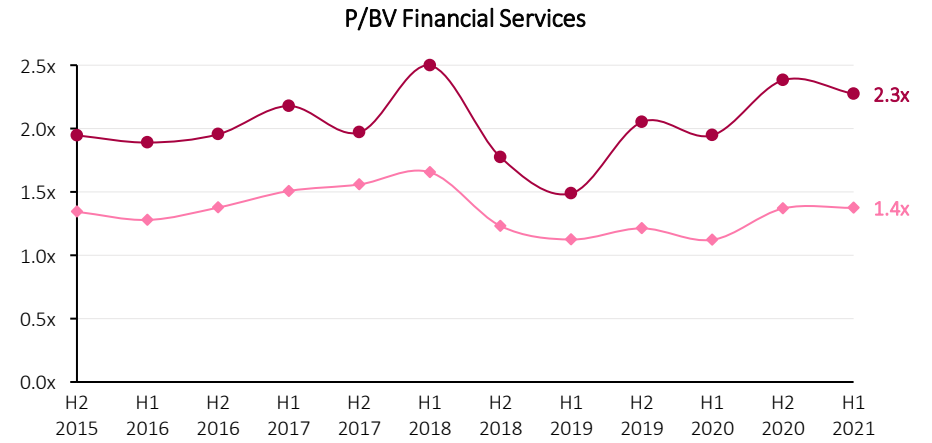




Trading Multiples

Financial Services – Revenue-, EBIT-, P/E- and P/BV-Multiples

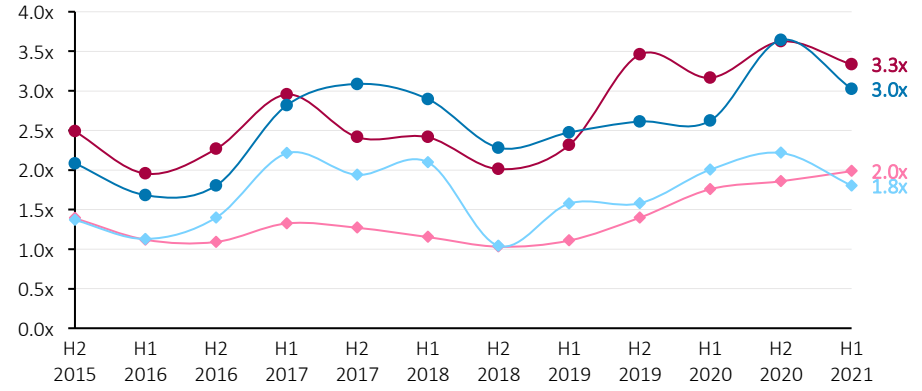




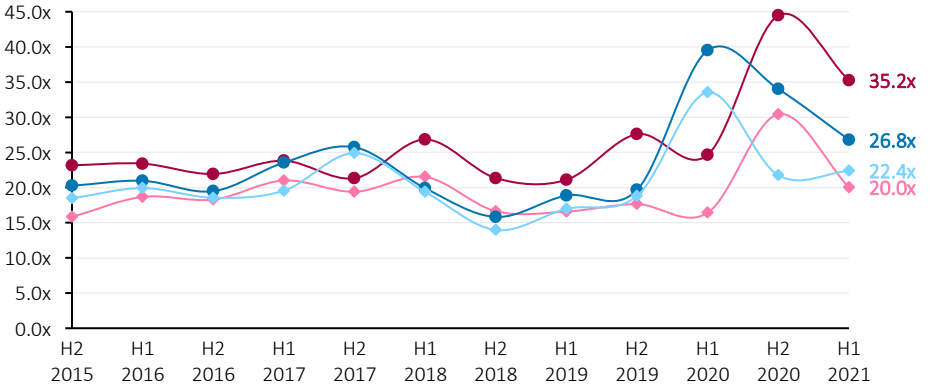
Trading Multiples

Consumer Service – Revenue-, EBIT-, P/E- and P/BV-Multiples

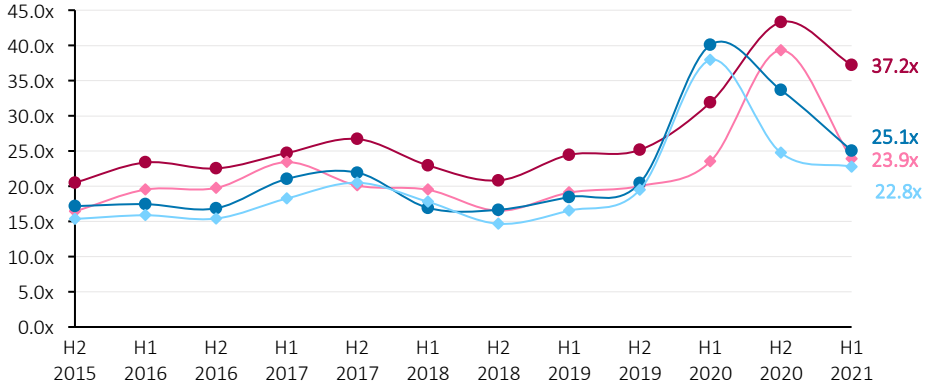
EV/Revenue Consumer Service



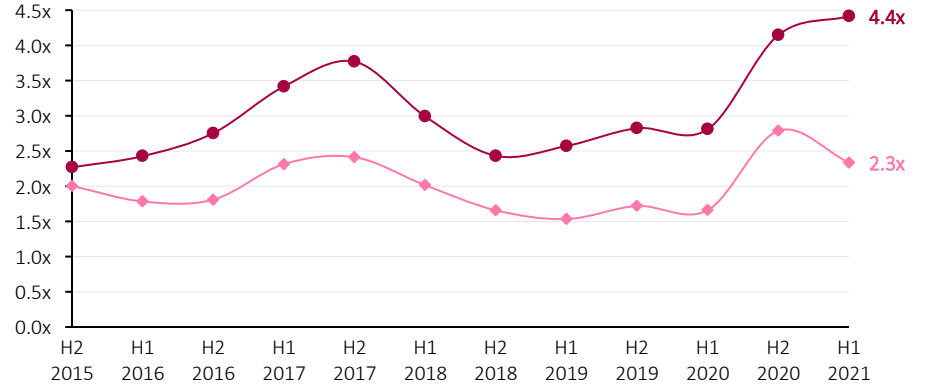
P/E Consumer Service



EV/EBIT Consumer Service



P/BV Consumer Service

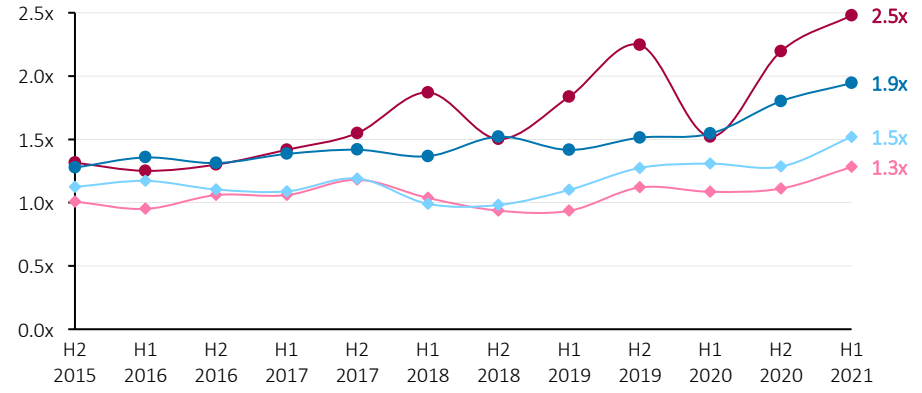


LTM arithmetic mean — LTM median — 1yf arithmetic mean — 1yf median

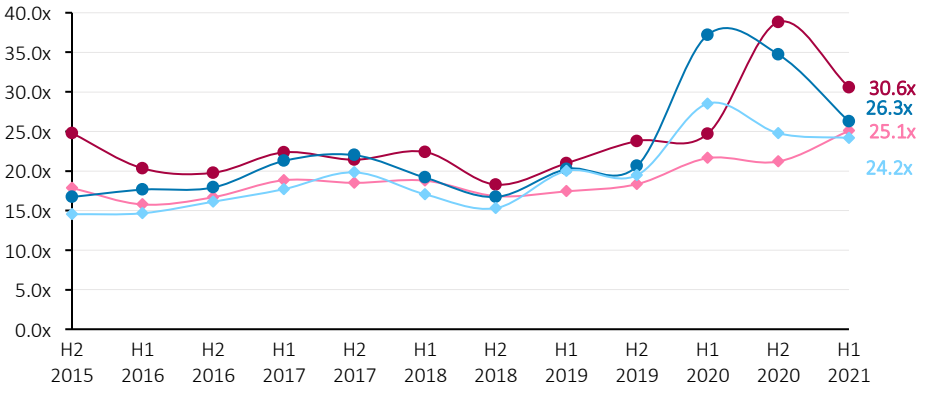
Trading Multiples

Consumer Goods – Revenue-, EBIT-, P/E- and P/BV-Multiples

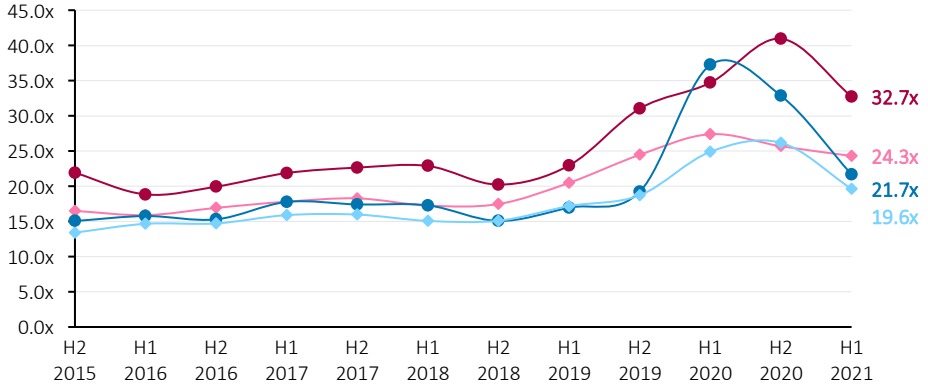
EV/Revenue Consumer Goods



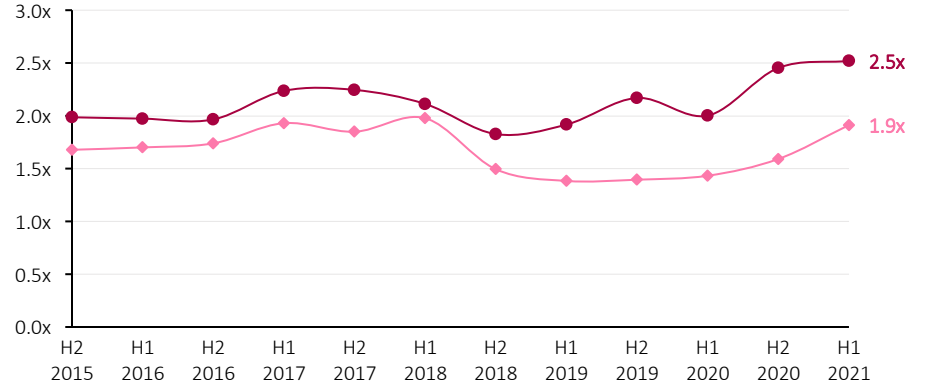
P/E Consumer Goods



EV/EBIT Consumer Goods



P/BV Consumer Goods

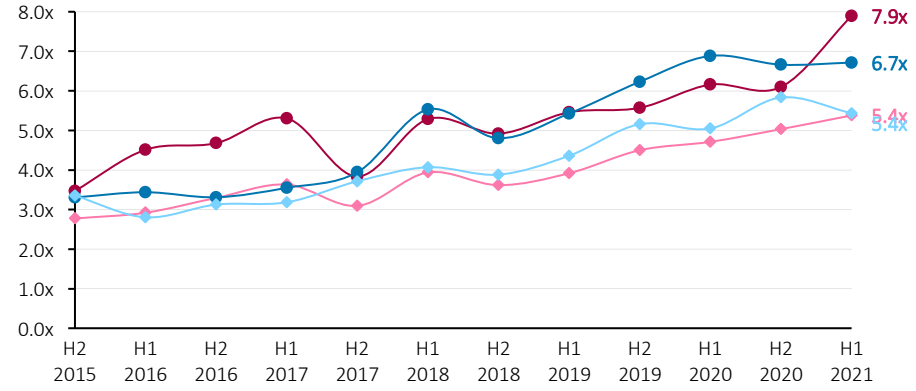


LTM arithmetic mean — LTM median — 1yf arithmetic mean — 1yf median

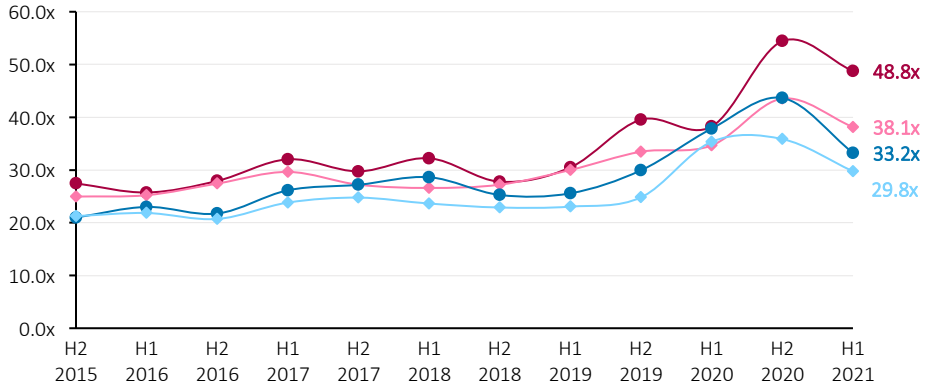
Trading Multiples

Pharma & Healthcare – Revenue-, EBIT-, P/E- and P/BV-Multiples

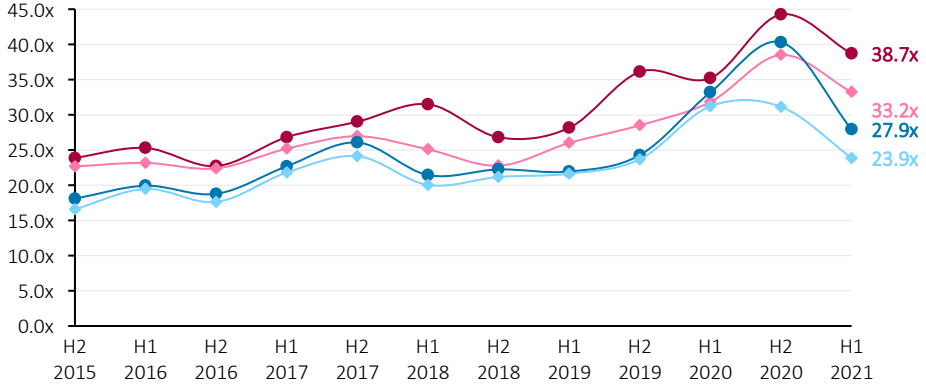
EV/Revenue Pharma & Healthcare



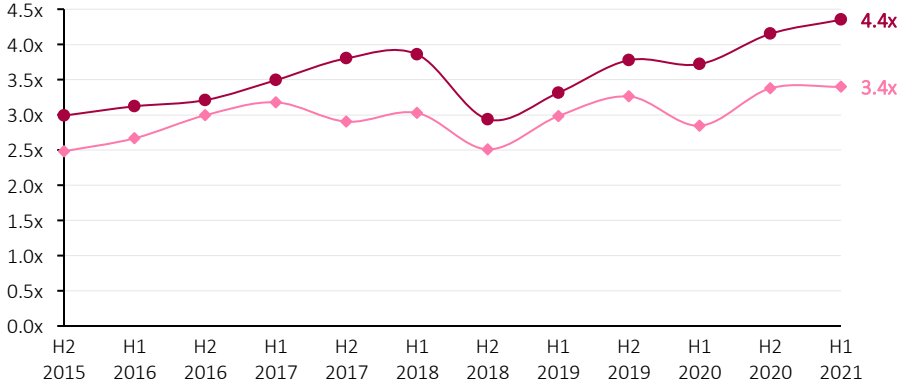
P/E Pharma & Healthcare



EV/EBIT Pharma & Healthcare



P/BV Pharma & Healthcare

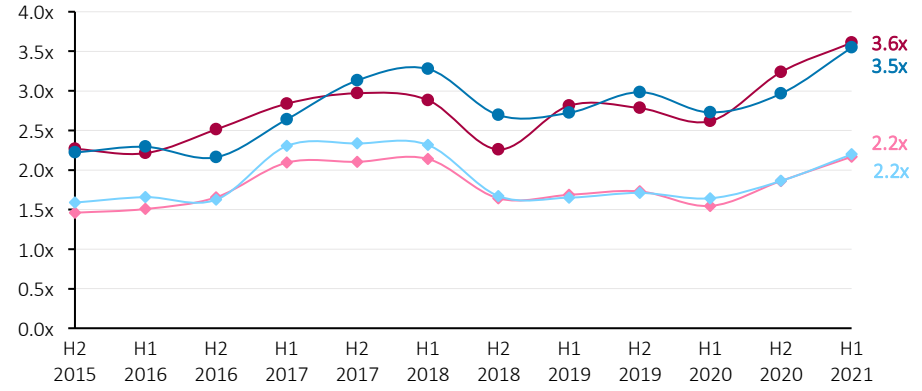


LTM arithmetic mean | LTM median | 1yf arithmetic mean | 1yf median

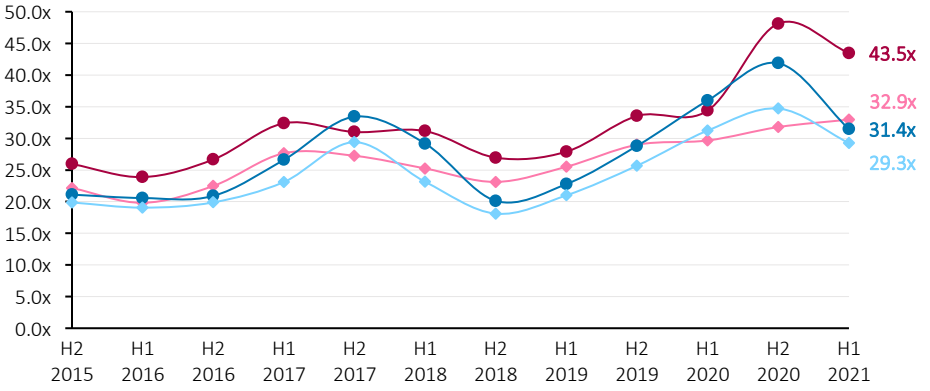
Trading Multiples

Information Technology – Revenue-, EBIT-, P/E- and P/BV-Multiples

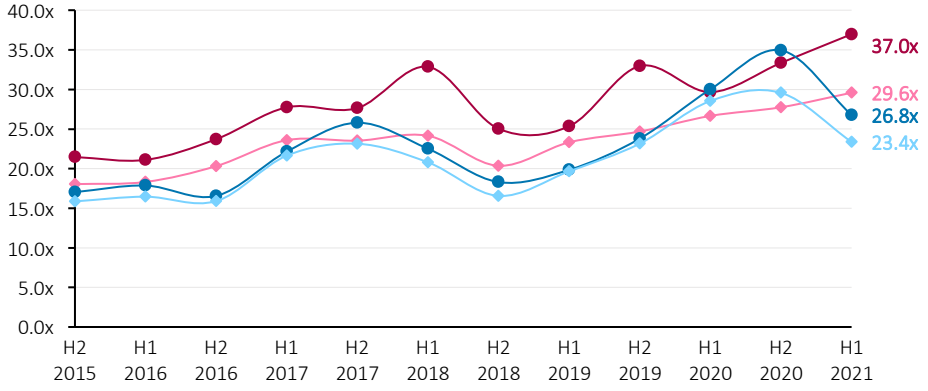
EV/Revenue Information Technology



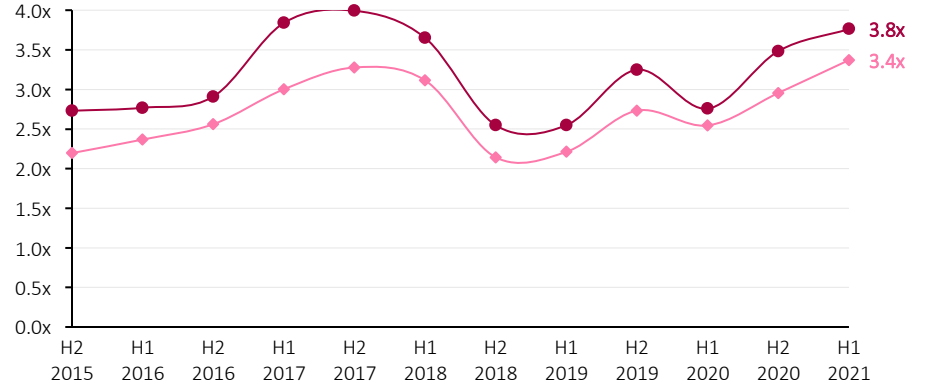
P/E Information Technology



EV/EBIT Information Technology



P/BV Information Technology

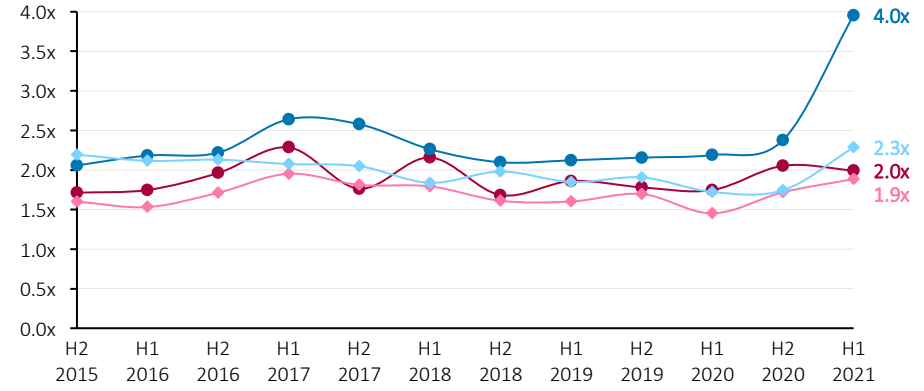


LTM arithmetic mean — LTM median — 1yf arithmetic mean — 1yf median

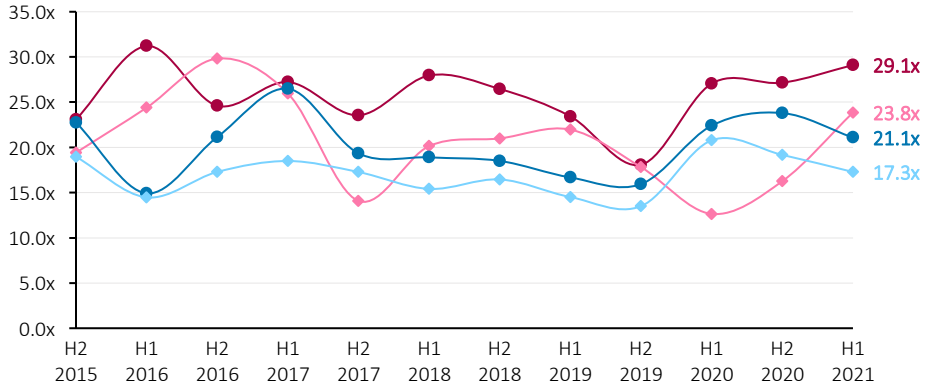
Trading Multiples

Telecommunication – Revenue-, EBIT-, P/E- and P/BV-Multiples

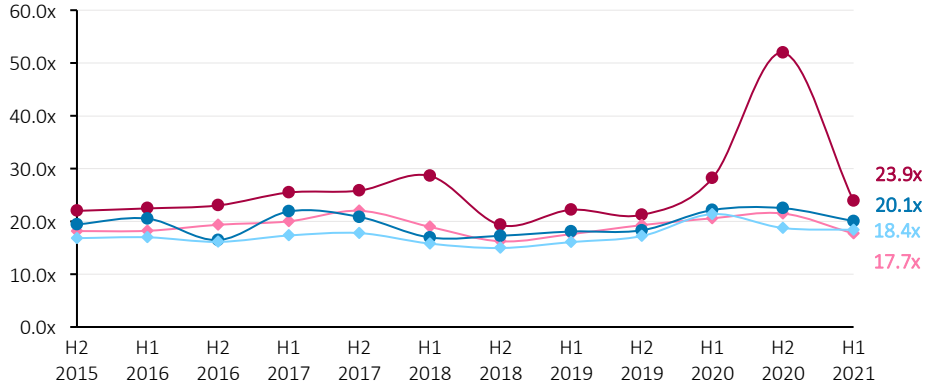
EV/Revenue Telecommunication



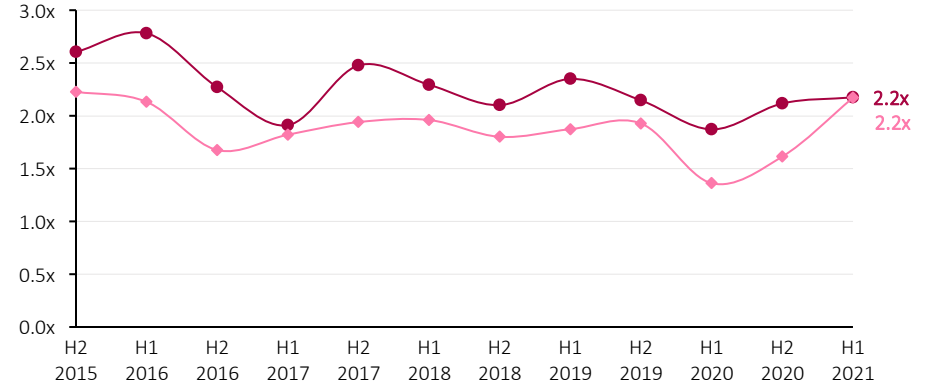
P/E Telecommunication



EV/EBIT Telecommunication



P/BV Telecommunication

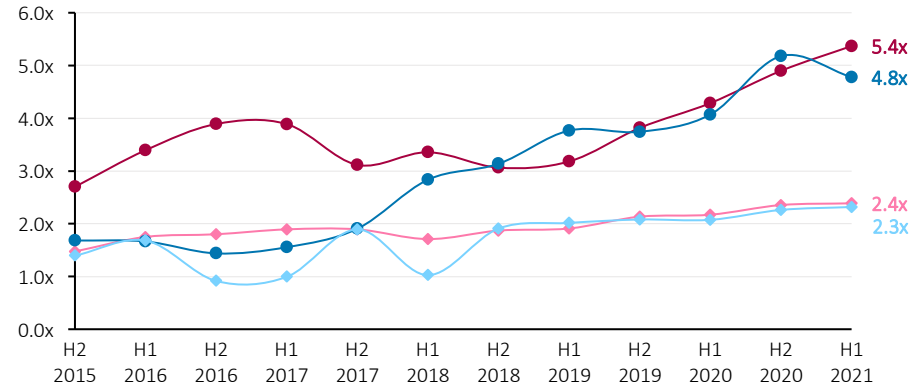


LTM arithmetic mean | LTM median | 1yf arithmetic mean | 1yf median

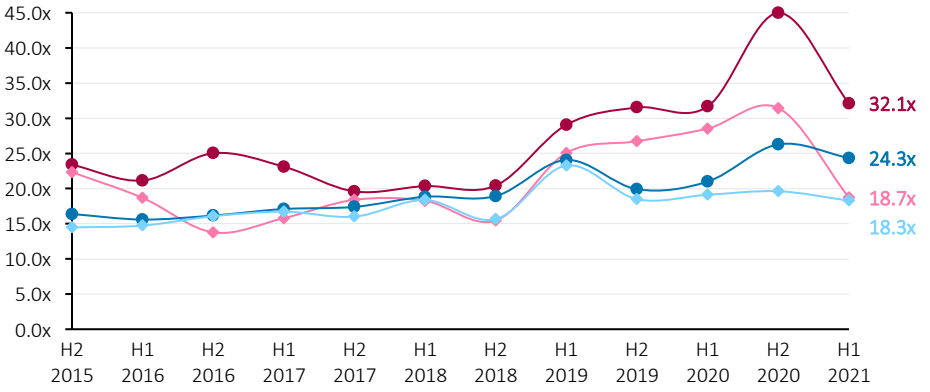
Trading Multiples

Utilities – Revenue-, EBIT-, P/E- and P/BV-Multiples

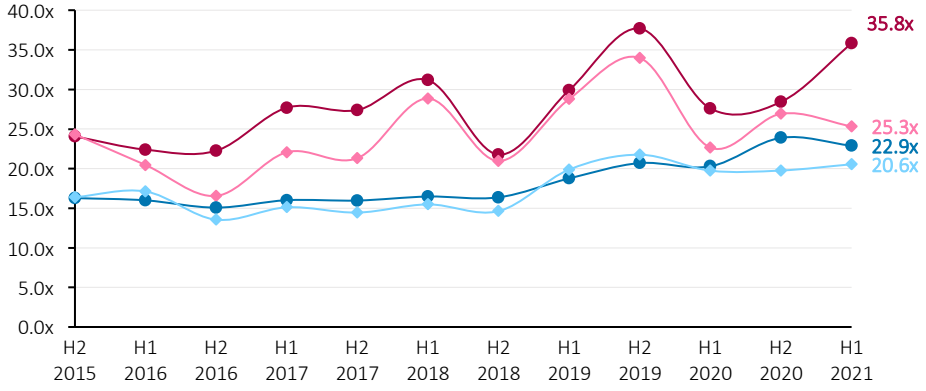
EV/Revenue Utilities



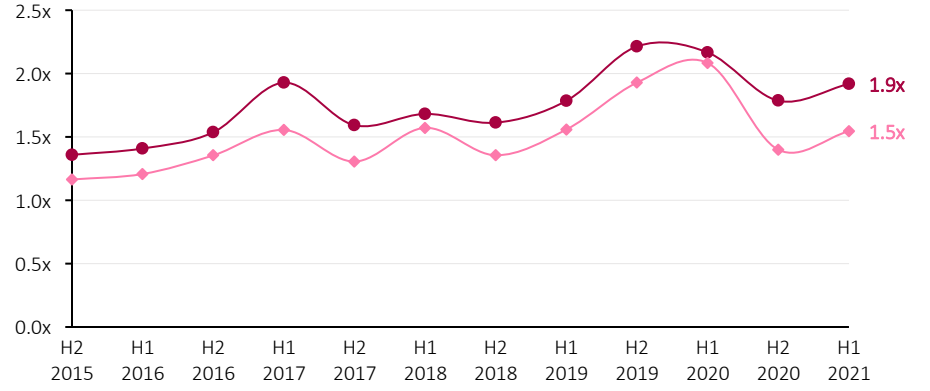
P/E Utilities



EV/EBIT Utilities



P/BV Utilities

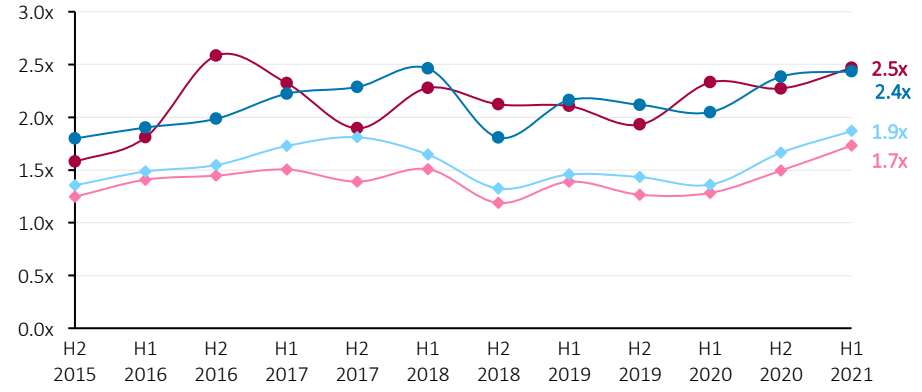


LTM arithmetic mean — LTM median — 1yf arithmetic mean — 1yf median

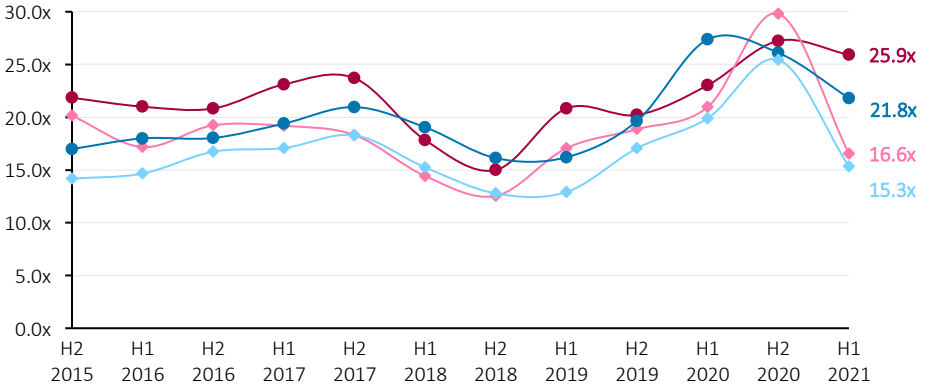
Trading Multiples

Basic Materials – Revenue-, EBIT-, P/E- and P/BV-Multiples

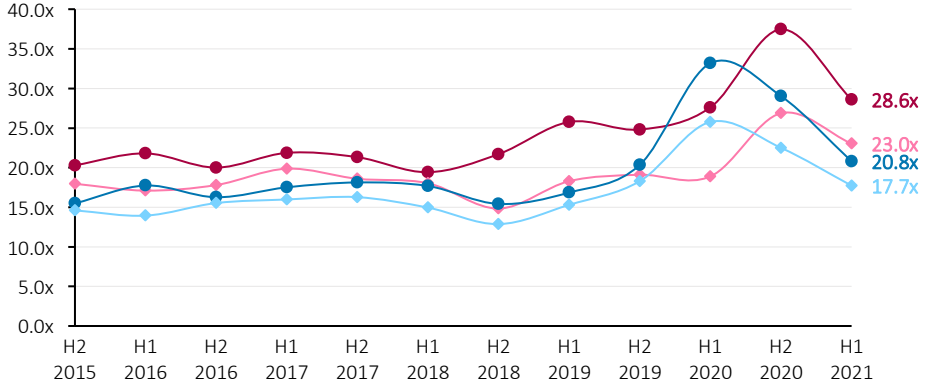
EV/Revenue Basic Materials



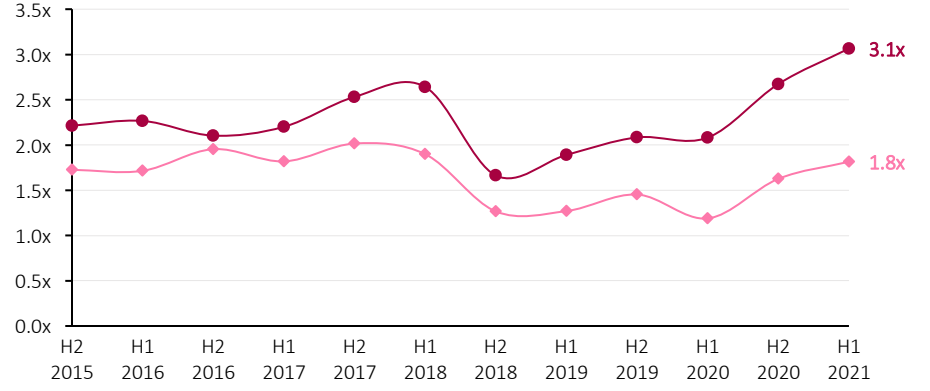
P/E Basic Materials



EV/EBIT Basic Materials



P/BV Basic Materials

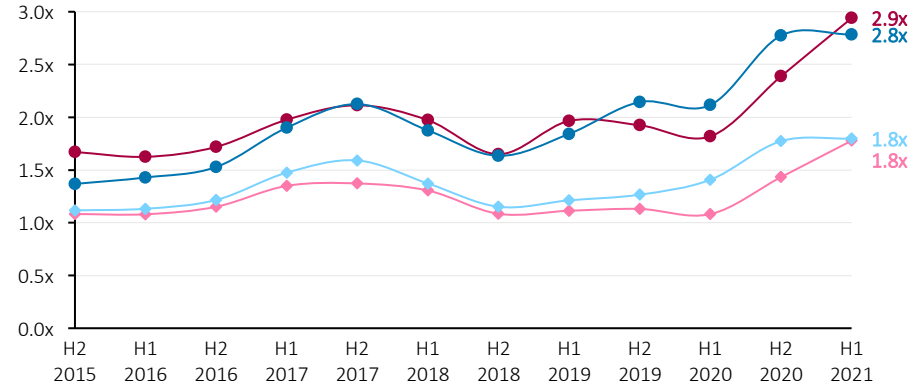


LTM arithmetic mean — LTM median — 1yf arithmetic mean — 1yf median

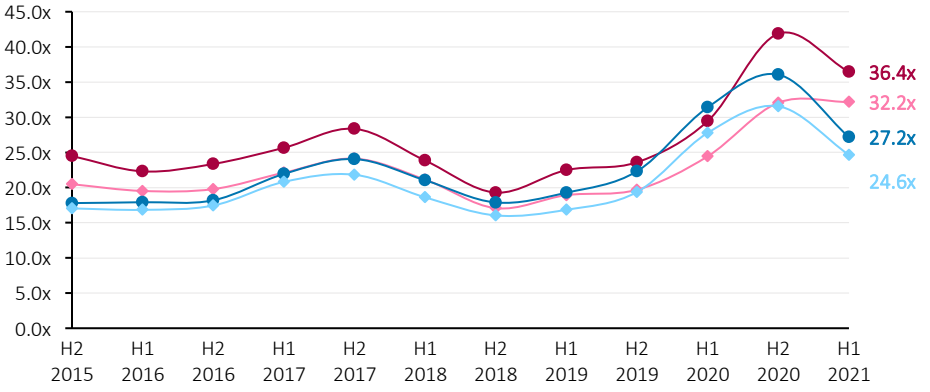
Trading Multiples

Industrials – Revenue-, EBIT-, P/E- and P/BV-Multiples

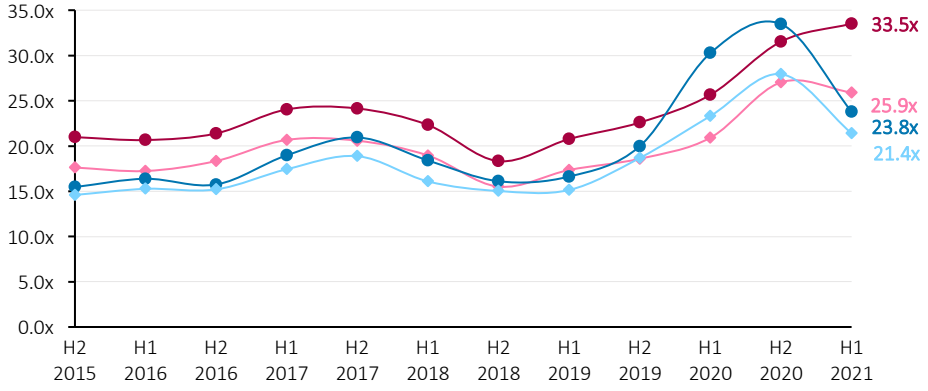
EV/Revenue Industrials



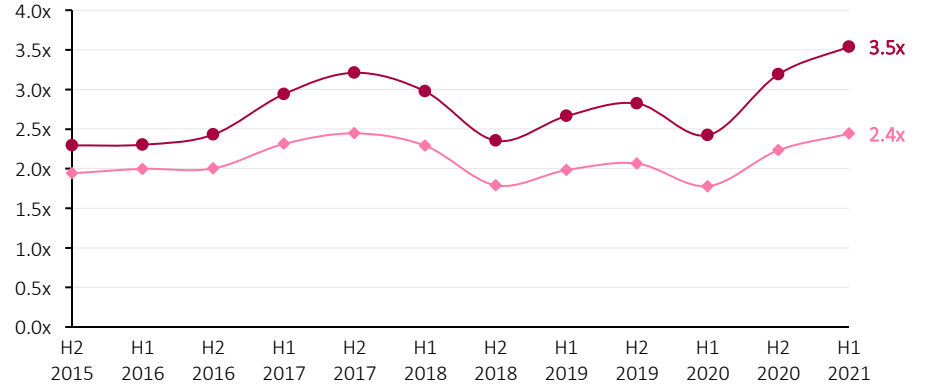
P/E Industrials



EV/EBIT Industrials



P/BV Industrials

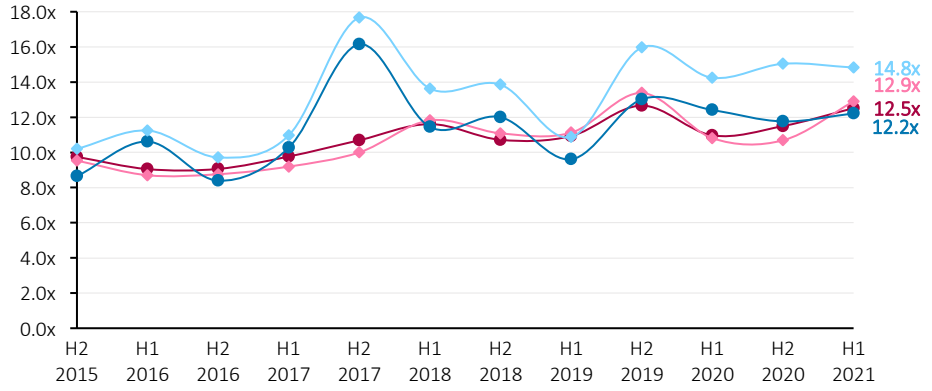


LTM arithmetic mean — LTM median — 1yf arithmetic mean — 1yf median

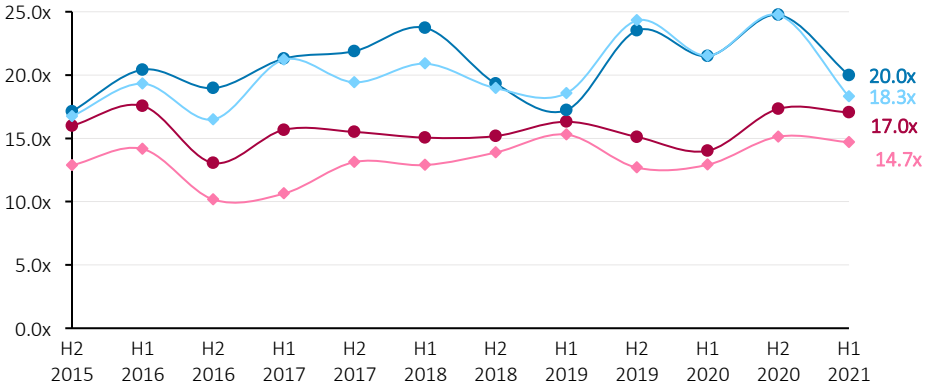
Trading Multiples

Real Estate – Revenue-, EBIT-, P/E- and P/BV-Multiples

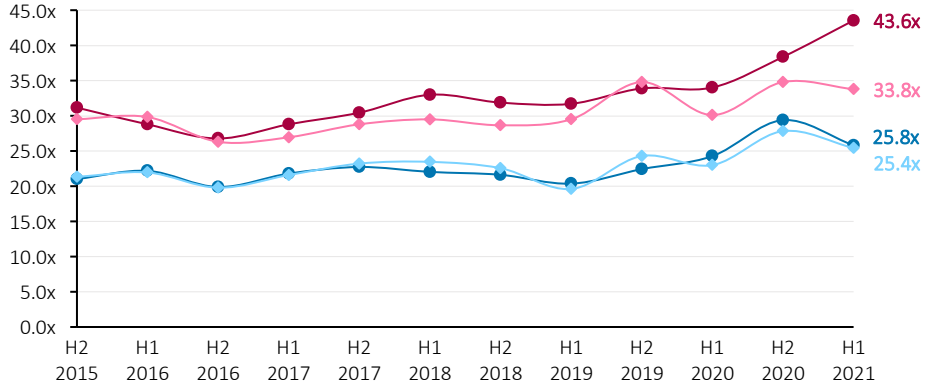
EV/Revenue Real Estate



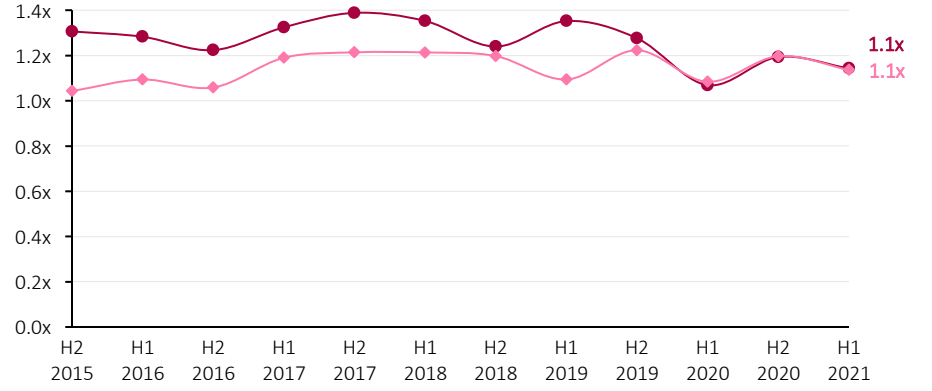
P/E Real Estate



EV/EBIT Real Estate



P/BV Real Estate



LTM arithmetic mean | LTM median | 1yf arithmetic mean | 1yf median

Appendix

Composition of the sectors of DAX Sector All Index, WBI and SPI as of June 30, 2021

Appendix
Composition of each finexpert sector as of June 30, 2021

Banking

Germany
AAREAL BANK AG
COMMERZBANK AG
DEUTSCHE BANK AG
DT.PFANDBRIEFBK AG
PROCREDIT HOLDING AG
WUESTENROT & WUERTTEMBERG AG

Austria
BANK FUER TIROL UND VBG AG
BAWAG AG
BKS BANK AG
BKS BANK AG
ERSTE GROUP BANK AG
OBERBANK AG
OBERBANK AG UMTAUSCH
RAIFFEISEN BANK INTERNATATIONAL AG

Switzerland
BANK LINTH LLB AG
BASELLAND. KANTONALBANK AG
BASLER KANTONALBANK SA
BC DE GENEVE SA
BC DU JURA SA
BC VAUDOISE SA
BERNER KANTONALBANK AG
CEMBRA MONEY BANK AG
CREDIT SUISSE GROUP AG
EFG INTERNATIONAL AG
GLARNER KANTONALBANK AG
GRAUB KANTONALBANK AG
HYPOTHEKARBANK LENZBURG AG
JULIUS BAER EUROPE AG
LUZERNER KANTONALBANK AG
SCHWEIZERISCHE NATIONALBANK AG
ST GALLER KANTONALBANK GA
THURGAUER KANTONALBANK AG
UBS GROUP AG
VALIANT BANK AG
VONTOBEL EUROPE AG
WALLISER KANTONALBANK AG
ZUGER KANTONALBANK AG

Insurance

Germany
ALLIANZ SE
DFV DEUTSCHE FAMILIENVERSICHERUNG AG
HANNOVER RUECK SE
MUENCHNER RUECK AG
TALANX AG

Austria
UNIQA INSURANCE GROUP AG
VIENNA INSURANCE GROUP AG

Switzerland
BALOISE HOLDING AG
HELVETIA HOLDING AG
SWISS LIFE HOLDING AG
SWISS RE AG
VAUDOISE VERSICHERUNGEN HOLDING SA
ZURICH INSURANCE AG

Financial Services (1/2)

Germany
ALBIS LEASING AG
BROCKHAUS CAPITAL MGMT
CAPSENIXX AG
CREDITSHELF AG
DEUTSCHE BETEILIGUNGS AG
DEUTSCHE BOERSE AG
DEUTSCHE CANNABIS AG
DF DEUTSCHE FORFAIT AG
DWS GROUP GMBH & CO KGAA
ERWE IMMOBILIEN AG
ERWE IMMOBILIEN AG
FINTECH GROUP AG
FORIS AG
FRITZ NOLS AG
GRENKE AG
HEIDELBERGER BETEILIGUNGSHOLDING AG
HESSE NEWMAN CAPITAL AG
HYPOPORT AG
KAP BETEILIGUNGS-AG
LINUS DIGITAL FINANCE AG
MAIER & PARTNER AG
MLP AG
OVB HOLDING AG
PEARL GOLD AG
PONGS & ZAHN AG
SIXT LEASING SE
SPOBAG
VALUE MANAGEMENT & RESEARCH AG
WCM BETEILIGUNGS- UND GRUNDBESITZ-AG
WEBAC HOLDING AG

Austria
ADDIKO BANK AG
BURGENLAND HOLDING AG
UNTERNEHMENS INVEST AG
WIENER PRIVATBANK SE

Switzerland
BELLEVUE GROUP AG
COMPAGNIE FINANCIERE TRADITION SA

Appendix
Composition of each finexpert sector as of June 30, 2021

Financial Services (2/2)

GLOBAL ASSET MGMT AG
LEONTEQ AG
ONE SWISS BANK SA
PARTNERS GROUP HOLDING AG
PRIVATE EQUITY HOLDING AG
SPCE PRIVATE EQUITY AG
SWISSQUOTE GROUP HOLDING LTD
VALARTIS GROUP AG
VZ HOLDING AG

Consumer Service

Germany

ABOUT YOU HOLDING AG
ARTNET AG
AUTO1 GROUP SE
BASTEI LUEBBE AG
BEATE UHSE AG
BET-AT-HOME.COM AG
BIJOU BRIGITTE AG
CECONOMY AG
CECONOMY AG
CTS EVENTIM AG & CO. KGAA
DELIVERY HERO AG
DELTICOM AG
ELANIX BIOTECHNIK AG
ELUMEO SE
FIELMANN AG
HAWESKO HOLDING AG
HELLOFRESH SE
HOME24 SE
HORNBACH BAUMARKT AG
HORNBACH HOLDING AG & CO. KGAA
INTERTAINMENT AG
KLASSIK RADIO AG
LOTTO24 AG
LUDWIG BECK AG
METRO AG
NEXR TECHNOLOGIES SE
ODEON FILM AG
PHICOMM AG
PROSIEBENSAT.1 MEDIA SE
READCREST CAPITAL AG
SCOUT24 AG
SLEEPZ AG
SNOWBIRD AG
SPLENDID MEDIEN AG
SPORTTOTAL AG
STROEER SE & CO. KGAA
TAKKT AG
TELE COLUMBUS AG
TRAVEL24.COM AG
UNITED LABELS AG
WESTWING GROUP AG
WESTWING GROUP AG
WILD BUNCH AG
WINDELN.DE SE
YOUR FAMILY ENTERTAINMENT AG
ZALANDO SE
ZEAL NETWORK SE
ZOOPLUS AG

Switzerland

APG SGA AG
ASMALLWORLD AG
DUFRY AG
GALENICA AG
HIGHLIGHT EVENT & ENTERTAINMENT AG
JUNGFRAUBAHN HOLDING AG
MOBILEZONE HOLDING AG
OREL FUESSLI HOLDING AG
TX GROUP
VALORA AG
VILLARS HOLDING SA
ZUR ROSE GROUP AG

Consumer Goods (1/2)

Germany

A.S.CREATION TAPETEN AG
ADIDAS AG
ADLER MODEMAERKTE AG
AHLERS AG
AKASOL AG
BAWAG AG
BAYERISCHE MOTOREN WERKE AG
BEIERSDORF AG
BERENTZEN-GROUP AG
BERTRANDT AG
BORUSSIA DORTMUND GMBH & CO. KGAA
CEWE STIFTUNG & CO.KGAA
CONTINENTAL AG
DAIMLER AG
DIERIG HOLDING AG
EINHELL GERMANY AG
ELRINGKLINGER AG
GERRY WEBER INTERNATIONAL AG
GRAMMER AG
HELLA KGAA HUECK & CO.
HENKEL AG & CO. KGAA
HUGO BOSS AG
IFA HOTEL & TOURISTIK AG
KNAUS AG
LEIFHEIT AG
LEONI AG
MING LE SPORTS AG
MUEHL PRODUKT & SERVICE AG
PFERDEWETTEN.DE AG
PORSCHE AUTOMOBIL HLD. SE
PROGRESS-WERK OBERKIRCH AG
PUMA SE
ROY ASSET HOLDING SE
SAF-HOLLAND SE
SCHAEFFLER AG
SCHLOSS WACHENHEIM AG
STO SE & CO. KGAA
STS GROUP AG

Appendix
Composition of each finexpert sector as of June 30, 2021

Consumer Goods (2/2)

SUEDZUCKER AG
TC UNTERHALTUNGSELEKTRONIK AG
VALENS HOLDING AG
VERALLIA DTLD AG
VILLEROY & BOCH AG
VOLKSWAGEN AG
WASGAU PRODUNKTIONS & HANDELS AG
WESTAG & GETALIT AG
Austria
AGRANA BETEILIGUNGS-AG
DO & CO AG
GURKTALER AG
JOSEF MANNER & COMP. AG
LINZ TEXTIL HOLDING AG
OTTAKRINGER GETRAENKE AG
PIERER MOBILITY AG
POLYTEC HOLDING AG
STADLAUER MALZFABRIK AG
WOLFORD AG
Switzerland
AIRESIS SA
ARYZTA AG
AUTONEUM AG
BARRY CALLEBAUT AG
BELL AG
BLACKSTONE RESOURCES LTD
CALIDA HOLDING AG
EMMI AG
GM SA
HOCHDORF HOLDING AG
LALIQUE GROUP SE
LECLANCHE SA
LINDT & SPRUENGLI AG
METALL ZUG AG
NESTLE SA
ORIOR AG
RICHEMONT SA
STADLER RAIL AG
SWATCH GROUP SA
V-ZUG

Pharma & Healthcare

Germany
4 SC AG
AAP IMPLANTATE AG
BB BIOTECH AG
BIOFRONTERA AG
BIOTEST AG.
CARL ZEISS MEDITEC AG
CO.DON AG
DERMAPHARM HOLDING SE
DRAEGERWERK AG & CO. KGAA
ECKERT & ZIEGLER AG
EPIGENOMICS AG
EVOTEC AG
FRESENIUS MEDICAL CARE AG & CO. KGAA
FRESENIUS SE & CO.KGAA
GERATHERM MEDICAL AG
GERRESHEIMER AG
HEIDELBERG PHARMA AG
MATERNUS-KLINK AG
MEDICLIN AG
MEDIGENE AG
MEDIOS AG
MERCK AG & CO. KGAA
MORPHOSYS AG
PAION AG
PHARMASGP HOLDING SE
RHOEN-KLINIKUM AG
SARTORIUS AG
SIEMENS HEALTHINEERS AG
STRATEC SE
SYGNIS AG
SYNLAB AG
VITA 34 AG
Austria
MARINOMED BIOTECH AG
Switzerland
ACHIKO AG
ADDEX AG
AEVIS HOLDING SA
ALCON INC.
BACHEM HOLDING AG
BASILEA PHARMACEUTICA AG
COLTENE HOLDING AG
DOTTIKON ES HOLDING AG
EVOLVA HOLDING SA
IDORSIA LTD
IVF HARTMANN AG
KUROS BIOSCIENCES AG
LONZA GROUP AG
MEDARTIS HOLDING AG
MOLECULAR PARTNERS AG
NOVARTIS AG
OBSEVA SA
POLYPEPTIDE GROUP AG
POLYPHOR AG
RELIEF THERAPEUTICS HOLDING AG
ROCHE AG
SANTHERA PHARM. HOLDING AG
SIEGFRIED HOLDING AG
SONOVA HOLDING AG
STRAUMANN HOLDING AG
TECAN GROUP AG
VIFOR PHARMA AG
YPSOMED HOLDING AG

Appendix
Composition of each finexpert sector as of June 30, 2021

Information Technology

Germany
ADESSO AG
ADVA OPTICAL NETWORKING SE
AIXTRON SE
ALL FOR ONE STEEB AG
ALLGEIER SE
ATOSS SOFTWARE AG
B & S BANKSYSTEME AG
BECHTLE AG
CANCOM SE
CENIT AG
CHERRY AG
COMPUGROUP MEDICAL SE
DATA MODUL AG
EASY SOFTWARE AG
ELMOS SEMICONDUCTOR AG
EUROMICRON AG
FIRST SENSOR AG
FORTEC ELEKTRONIK AG
GFT TECHNOLOGIES SE
GIGASET AG
GK SOFTWARE SE
HOLIDAYCHECK GROUP AG
INFINEON TECHNIK AG
INIT INNOVATION SE
INTERSHOP COMMUNICATIONS AG
INTICA SYSTEMS AG
INVISION AG
IVU TRAFFIC TECHNOLOGIE AG
KPS AG
MEVIS MEDICAL SOLUTIONS AG
MYHAMMER HOLDING AG
NAGARRO SE
NEMETSCHEK SE
NEW WORK SE
NEXUS AG
NORCOM INFORMATION TECHNOLOGY AG
OHB SE
PANAMAX AG
PARAGON AG
PSI AG
Q.BEYOND AG
REALTECH AG
RIB SOFTWARE AG
SAP SE
SCHWEIZER ELECTRONIC AG
SECUNET SECURITY AG
SERVICEW ARE AG
SILTRONIC AG
SNP AG
SOFTWARE AG
STEMMER IMAGING AG
SUESS MICROTEC AG
SYZYGY AG
TEAMVIEWER AG
TELES AG
TISCON AG
UNITED INTERNET AG
USU SOFTWARE AG
VIVANCO GRUPPE AG
WIRECARD AG
Austria
AT&S AUSTRIA TECH.& SYSTEMTECH. AG
FREQUENTIS AG
KAPSCH TRAFFICCOM AG
MASCHINENFABRIK HEID AG
RATH AG
Switzerland
ALSO HOLDING AG
AMS AG
ASCOM HOLDING AG
CREALOGIX HOLDING AG
HUBER+SUHNER AG
KUDELSKI SA
LOGITECH INTERNATIONAL SA
SOFTWAREONE HOLDING AG
TEMENOS GROUP AG
U-BLOX HOLDING AG
WISEKEY INTERNATIONAL HOLDING AG

Telecommunication

Germany
1+1 AG O.N.
11 88 0 SOLUTIONS AG
3U HOLDING AG
DEUTSCHE TELEKOM AG
ECOTEL COMMUNICATION AG
FREENET AG
LS TELCOM AG
NFON AG
TELEFONICA DEUTSCHLAND HOLDING AG
VANTAGE TOWERS AG
YOC AG
Austria
TELEKOM AUSTRIA AG
Switzerland
SWISSCOM AG

Appendix

Composition of each finexpert sector as of June 30, 2021

Utilities

Germany
E.ON SE
ENBW ENERGIE B./W. AG
ENCAVIS AG
GELSENWASSER AG
MAINOVA AG
MVV ENERGIE AG
RWE AG
UNIPER SE
Austria
EVN AG
VERBUND AG
Switzerland
BKW ENERGIE AG
EDISUN POWER EUROPE AG
ROMANDE ENERGIE HOLDING SA

Basic Materials

Germany
ALTECH ADVANCED MATERIALS AG
ALZCHEM GROUP AG
AURUBIS AG
B.R.A.I.N. AG
BASF SE
BAYER AG
COVESTRO AG
DECHENG TECHNOLOGY AG
EISEN- & HUETTENWERKE AG
EVONIK INDUSTRIES AG
FUCHS PETROLUB SE
H & R GMBH & CO KGAA
K & S AG
KHD HUMBOLDT WEDAG AG
LANXESS AG
SALZGITTER AG
SGL CARBON SE
SIMONA AG
SURTECO SE
SYMRISE AG
WACKER CHEMIE AG
Austria
AMAG AUSTRIA METALL AG
LENZING AG
OMV AG
PORR AG
SCHOELLER-BLECKMANN AG
STRABAG SE
VOESTALPINE AG
WIENERBERGER AG
Switzerland
CLARIANT AG
CPH CHEMIE & PAPIER HOLDING AG
EMS-CHEMIE AG
GIVAUDAN SA
GURIT HOLDING AG
SCHMOLZ & BICKENBACH AG
ZWAHLEN & MAYR SA

Industrials (1/2)

Germany
7C SOLARPARKEN AG
A.I.S. AG
ALBA SE
AMADEUS FIRE AG
AUMANN AG
AVES ONE AG
BASLER AG
BAUER AG
BAYWA AG
BILFINGER SE
BRENNTAG AG
COM.CHARG.SOL.AG
CROPENERGIES AG
DEUTSCHE POST AG
DEUTZ AG
DMG MORI AG
DR. HOENLE AG
DUERR AG
ENAPTER AG
ENERGIEKONTOR AG
FRANCOTYP-POSTALIA HOLDING AG
FRAPORT AG
FRIEDRICH VORWERK GROUP SE
FRIWO AG
GEA GROUP AG
GESCO AG
HAMBURGER HAFEN & LOGISTIK AG
HANSEYACHTS AG
HAPAG-LLOYD AG
HEIDELBERG.DRUCKMASCHINEN AG
HEIDELBERGCEMENT AG
HENSOLDT AG
HGEARS AG
HOCHTIEF AG
INDUS HOLDING AG
INFAS HLDG AG
ITN NANOVATION AG
JENOPTIK AG
JOST WERKE AG
JUNGHEINRICH AG
KATEK SE
KHD HUMBOLDT WEDAG AG
KION GROUP AG
KLOECKNER & CO: SE
KNORR-BREMSE AG
KOENIG & BAUER AG
KROMI LOGISTIK AG
KRONES AG
KSB AG
KUKA AG
KWS SAAT SE
LPKF LASER & ELECTRONICS AG
LUFTHANSA AG
MAN SE
MANZ AG
MASCHINENFABRIK BERTHOLD HERMLE AG
MASTERFLEX AG
MAX AUTOMATION AG
MBB SE
MEDION AG
MS INDUSTRIE AG
MTU AERO ENGINES AG
MUELLER-DIE LILA LOGISTIK AG
NESCHEN AG
NORDEX SE
NORDWEST HANDEL AG
NORMA GROUP SE
ORBIS AG
OSRAM LICHT AG
PFEIFFER VACUUM TECHNOLOGY AG
PHILIPP HOLZMANN AG
PITTLER MASCHINENFABRIK AG
PNE WIND AG
PVA TEPLA AG
R. STAHL AG
RATIONAL AG
RHEINMETALL AG

Appendix
Composition of each finexpert sector as of June 30, 2021

Industrials (2/2)

RINGMETALL AG
SCHALTBAU HOLDING AG
SCHUMAG AG
SFC ENERGY AG
SIEMENS AG
SIEMENS ENERGY AG
SINGULUS TECHNOLOGIES AG
SINO-GERMAN UNITED AG
SIXT SE
SLM SOLUTIONS GROUP AG
SMA SOLAR TECHNOLOGY AG
SOFTING AG
SOLAR-FABRIK AG
TECHNOTRANS AG
THYSSENKRUPP AG
TRATON SE
TUFF GROUP AG
UTD POWER TECHNOLOGY AG
UZIN UTZ AG
VA-Q-TEC AG
VARTA AG
VERBIO VEREINIGTE BIOENERGIE AG
VISCOM AG
VOLTABOX AG
VOSSLOH AG
WACKER NEUSON SE
WALTER BAU-AG
WASHTEC AG
ZHONGDE WASTE TECHNOLOGY AG

Austria

ANDRITZ AG
CLEEN ENERGY AG
FACC AG
FLUGHAFEN WIEN AG
FRAUENTHAL HOLDING AG
MAYR-MELNHOF KARTON AG
OESTERREICHISCHE POST AG
PALFINGER AG
ROSENBAUER INTERNATIONAL AG
SEMPERIT AG HOLDING
SW UMWELTTECHNIK AG
ZUMTOBEL GROUP AG

Switzerland

ABB LTD
ADECCO GROUP AG
ADVAL TECH HOLDING AG
ALUFLEXPACK AG
ARBONIA AG
BELIMO AUTOMATION AG
BOBST GROUP SA
BOSSARD HOLDING AG
BUCHER INDUSTRIES AG
BURCKHARDT AG
BURKHALTER HOLDING AG
BVZ HOLDING AG
BYSTRONIC AG
CICOR MANAGEMENT AG
COMET HOLDING AG
DAETWYLER HOLDING AG
DKSH HOLDING AG
DORMAKABA HOLDING AG
ELMA ELECTRONIC AG
FEINTOOL INTERNATIONAL HOLDING AG
FISCHER AG
FLUGHAFEN ZUERICH AG
FORBO HOLDING AG
GAVAZZI HOLDING AG
GEBERIT AG
IMPLENIA AG
INFICON HOLDING AG
INTERROLL HOLDING AG
KARDEX AG
KLINGELNBERG LTD
KOMAX HOLDING AG
KUEHNE & NAGEL INTERNATIONAL AG
LAFARGEHOLCIM AG
LANDIS+GYR GROUP AG
LEM HOLDING AG
MCH GROUP AG
MEDACTA GROUP SA
MEIER TOBLER AG
MEYER BURGER AG
MIKRON SA
MONTANA AEROSPACE AG
OC OERLIKON CORPORATION AG
PERFECT SA
PERROT DUVAL HOLDING SA
PHOENIX AG
POENINA HOLDING AG
RIETER MASCHINENFABRIK AG
SCHAFFNER AG
SCHINDLER AUFZUEGE AG
SCHLATTER HOLDING AG
SCHWEITER TECHNOLOGIES AG
SENSIRION HOLDING AG
SFS GROUP AG
SGS SA
SIG COMBIBLOC GROUP AG
SIKA AG
STARRAG GROUP HOLDING AG
SULZER AG
TORNOS HOLDING AG
VAT GROUP AG
VETROPACK HOLDING AG
VON ROLL HOLDING AG
ZEHNDER GROUP AG

Real Estate (1/2)

Germany

A.A.A. AG
ACCENTRO REAL ESTATE AG
ADLER REAL ESTATE AG
ALSTRIA OFFICE REIT-AG
DEMIRE DEUTSCHE MITTELSTAND REAL ESTATE AG
DEUTSCHE EUROSHOP AG
DEUTSCHE INDUSTRIE REIT-AG
DEUTSCHE KONSUM REIT-AG
DEUTSCHE REAL ESTATE AG
DEUTSCHE WOHNEN AG
DIC ASSET AG
EYEMAXX REAL ESTATE AG
FAIR VALUE REIT-AG
FCR IMMOBILIEN AG
GATEWAY REAL ESTATE AG
GSW IMMOBILIEN AG
GWB IMMOBILIEN AG
HAMBORNER REIT AG
INSTONE REAL ESTATE GROUP N.V.
LEG IMMOBILIEN AG
PATRIZIA IMMOBILIEN AG
TAG IMMOBILIEN AG
TLG IMMOBILIEN AG
TTL AG
UNIPROF REAL ESTATE HOLDING AG
VONOVIA SE
YMOS AG

Austria

ATRIUM EUROPEAN REAL ESTATE LTD
CA IMMOBILIEN ANLAGEN AG
IMMOFINANZ AG
S IMMO AG
UBM DEVELOPMENT AG
WARIMPEX FINANZ- UND BETEILIGUNGS AG

Switzerland

ALLREAL HOLDING AG
ARUNDEL AG
CI COM SA

Appendix

Composition of each finexpert sector as of June 30, 2021

Real Estate (2/2)

FUNDAMENTA REAL ESTATE AG
HIAG IMMOBILIEN HOLDING AG
INA INVEST HOLDING AG
INTERSHOP HOLDING AG
INVESTIS HOLDING SA
MOBIMO HOLDING AG
NOVAVEST REAL ESTATE AG
ORASCOM DEVELOPMENT HOLDING AG
PEACH PROPERTY GROUP AG
PLAZZA AG
PSP SWISS PROPERTY AG
SWISS FINANCE & PROPERTY GROUP AG
SWISS PRIME SITE AG
VARIA US PROPERTIES AG
WARTECK INVEST AG
ZUEBLIN IMMOBILIEN HOLDING AG
ZUG ESTATES HOLDING AG

VALUETRUST

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