ValueTrust

European Capital Market Study

30 June 2018

Analysis of cost of capital parameters for European capital markets

October 2018

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1 Preface & people

Preface

Dear business partners and friends of ValueTrust,

We are pleased to release our first edition of the **ValueTrust European Capital Market Study.** With this study, we provide a data compilation of the **capital market parameters** that enables an enterprise valuation in Europe. 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 cost 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 **European capital market** (in form of the STOXX Europe 600). This index includes the countries Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland, Spain as well as the UK and has been subdivided into **ten sector indices by industry**: Financials, Basic Materials, Consumer Cyclicals, Telecommunications Services, Industrials, Consumer Non-Cyclicals, Healthcare, Technology, Utilities and Energy.

Mostly, the historical data has been compiled from the reference dates between 30 June 2012 and 30 June 2018.

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European Capital Market Study
People

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- More than 25 years of experience in corporate valuation and corporate finance consulting
- 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 Certifies Valuators and Analysts (EACVA e.V.)

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- Almost 20 years of project experience in corporate valuation and corporate finance consulting
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- Extensive experience in complex company evaluations for business transactions, financial restructuring, court and arbitration proceedings and value-based management systems

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Disclaimer

This study presents an empirical analysis, which serves the purpose of illustrating the cost of capital of European capital markets. Nevertheless, the available information and the corresponding exemplifications do not allow a complete exposure of a proper derivation of costs of capital. Furthermore, the market participant has to take into account 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 and Thomson Reuters Aggregates App.

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

ValueTrust does 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)

Risk-free rate	▪ In comparison to 31 December 2017, the **European risk-free rate** decreased from **1.31%** to **1.26%** as of 30 June 2018.	Chapter 3
Market return and market risk premium	▪ The **implied market return (ex-ante) for the European market** increased from **7.7%** as of 31 December 2017 to **8.4%** as of 30 June 2018. ▪ Consequently, the **market risk premium** increased from **6.3%** to **7.2%**. The risk-free rate did not impact the market risk premium as it stayed almost constant at about 1.3%.	Chapter 4
Betas	▪ Companies within the **Energy** sector have the **highest unlevered** sector-specific betas as of 30 June 2018 at **0.81** for a five-year period. The **Energy** sector also has the **highest levered** sector-specific beta at **1.16**. ▪ Companies within the **Utilities** sector show the lowest unlevered betas at **0.44** as of 30 June 2018. The levered beta is also lowest for the **Utilities** sector at **0.78**.	Chapter 6
Sector returns (p.a.) ex ante	▪ The development of the implied sector returns showed an increasing trend across all sectors between 31 December 2017 and 30 June 2018. ▪ The ex-ante analysis of **implied sector returns** reveals that **unlevered sector returns** are **highest** for companies in the **Energy** sector at **6.1%** (8.8% levered) and **lowest** for companies in the **Utilities** sector at **4.2%** (8.3% levered) as of 30 June 2018.	Chapter 7a

Executive Summary (2/2)

Sector returns (p.a.) ex post

- The ex-post analysis of **historical sector returns** based on total shareholder returns highlights that especially companies of the **Technology** sector realized **high** total shareholder returns at **20.7%** in the three- and **23.8%** in the six-year arithmetic mean. By far the **lowest** historical returns of the sectors were realized by the **Telecommunication Services** sector at **-2.5%** in the three-year and **9.8%** in the six-year arithmetic mean.
- The **Energy** sector has the highest one-year annual total shareholder return at **34.0%** as of 30 June 2018.
- The **Telecommunication Services** sector has the lowest one-year annual total shareholder return at **-5.9%** as of 30 June 2018.

Chapter 7b

Trading Multiples

- As of the reference date 30 June 2018, the **Healthcare** sector has the **highest Revenue-Multiples** compared to all other sectors. The Revenue-Multiples amount to **3.5x** (LTM) and **3.2x** (1yf).
- Opposed to that, the **Energy** sector shows the lowest **Revenue-Multiples** with a value of **0.9x** (LTM) and **0.8x** (1yf).
- Except for the Revenue-Multiples, the **Technology** sector has the **highest** values for all other calculated multiples, namely **EBIT-Multiples, P/E-Multiples** and **EqV/BV-Multiples** (LTM and 1yf).
- The **lowest P/E-Multiple** (LTM) is represented by the **Utilities** sector and amounts to **11.9x** (1yf: 13.4x). The **Consumer Cyclicals** sector has the **lowest EBIT-Multiple** (LTM) **at 11.7x** (1yf: 10.8x).
- The **Technology** sector represents the highest **EqV/BV-Multiple** with a value of **3.8x** as of 30 June 2018 followed by the Healthcare sector **(3.6x)**. In contrast, the **Financials sector** shows the **lowest EqV/BV-Multiple** with a value of **0.9x**, which is significantly lower than the second lowest value of 1.4x (Telecommunications Services sector and Utilities sector).

Chapter 8

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 risk of default. It serves as an input parameter for the **CAPM** in order to determine the risk-adequate cost of capital.

The risk-free rate is a yield, which is obtained from **long-term government bonds** of European countries with top-notch rating. As of the reference date, the AAA-rated countries in the Eurozone included Germany, Luxembourg and the Netherlands. The European Central Bank (ECB) publishes – on a daily basis – the parameters needed to determine the yield curve using the **Svensson method**. [1] By using interest rate data from different maturities, a **yield curve** can be estimated for fictitious zero coupon bonds (spot rates) for a period of up to 30 years. 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.

To compute the risk-free rate for a specific reference date we used an average value of the daily yield curves of the **past three months.** This method **avoids a misleading semblance of precision** and is recognized in court proceedings.[2]

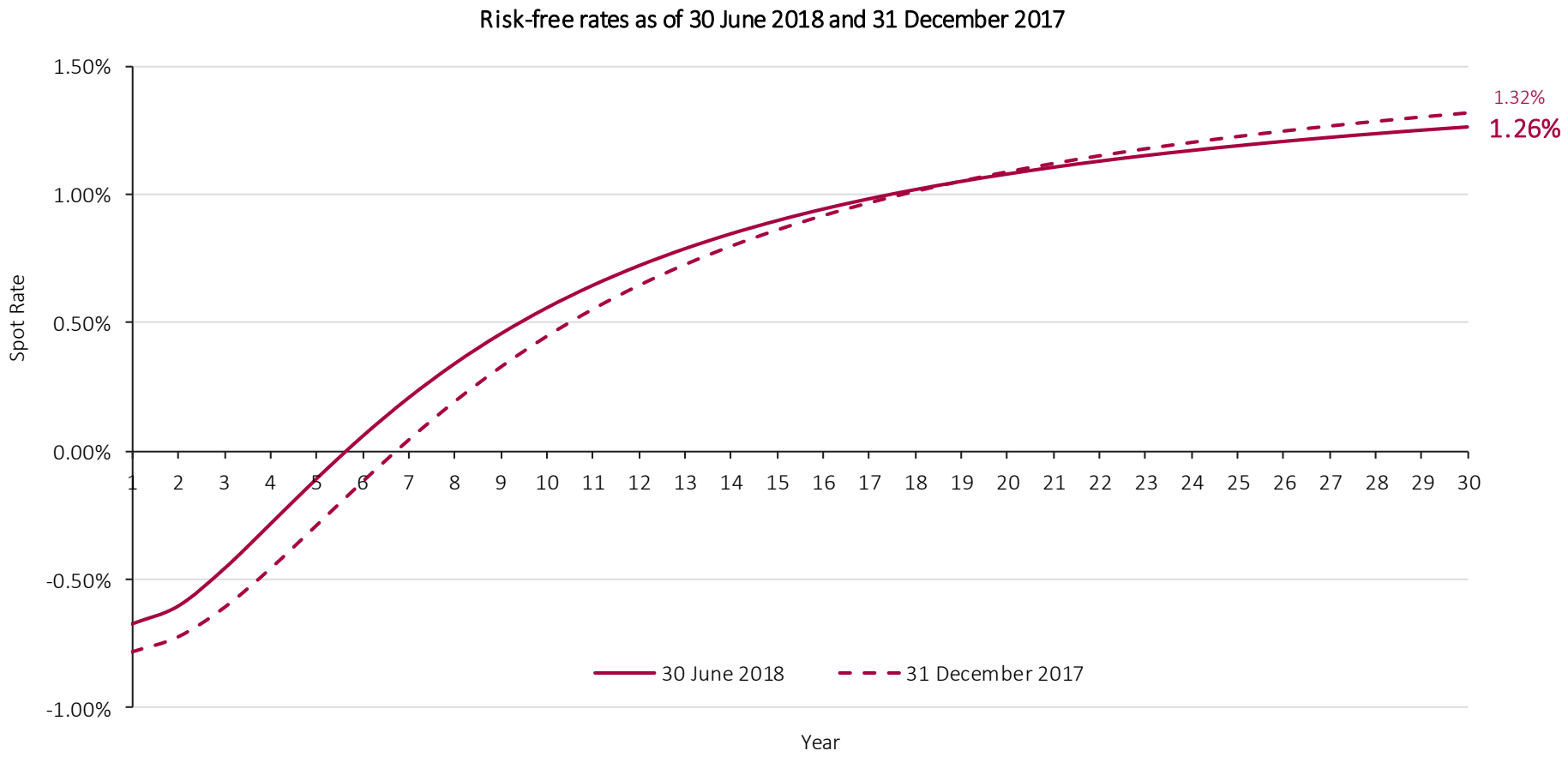
Additionally, we illustrate the monthly development of the risk-free rates since 1st January 2012 for the European capital markets.

1) European Cental Bank. Euro area yield curves.
2) The Institute of Public Auditors (Institut der Wirtschaftsprüfer, IDW) in Germany also recommends this approach.

Risk-Free Rate – Europe

Determination according to IDW S 1

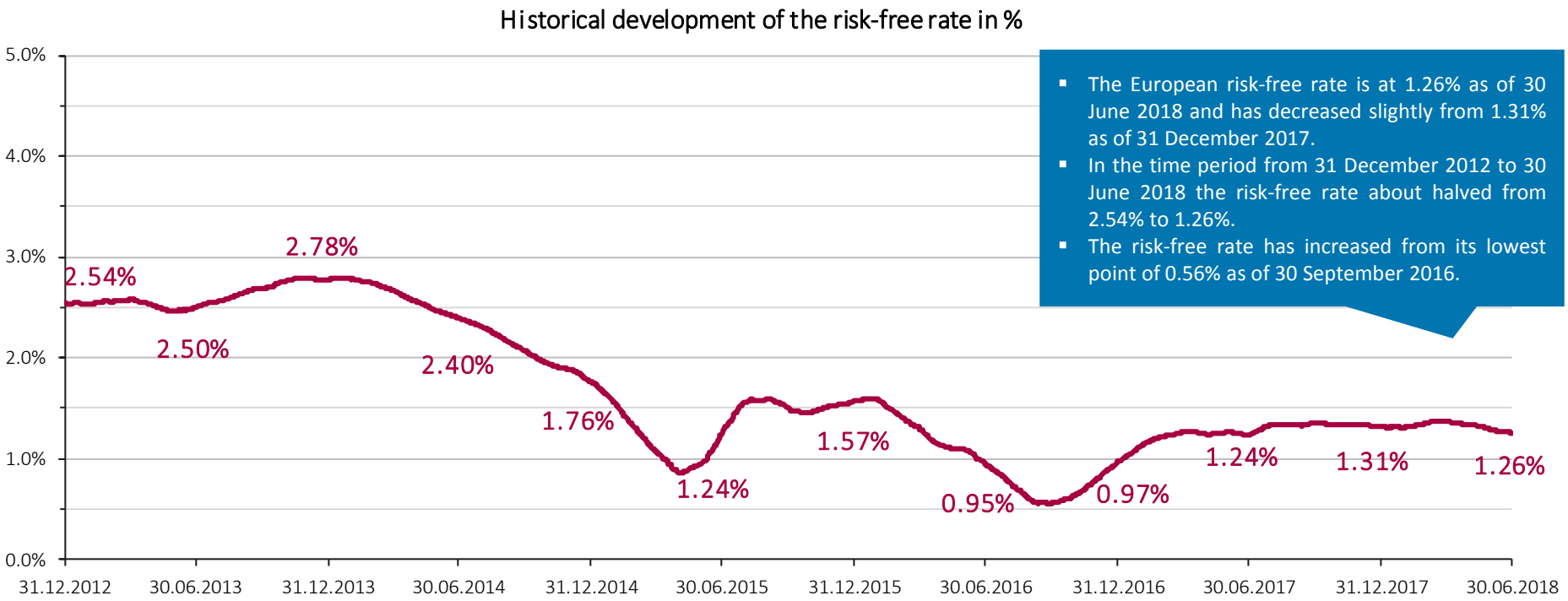
Interest rate curve based on long-term bonds (Svensson Method)



Note: Interest rate as of reference date using 3-month average yield curves in accordance with IDW S 1.

Risk-Free Rate – Europe

Historical development of the risk-free rate (Svensson method) since 2012



- The European risk-free rate is at 1.26% as of 30 June 2018 and has decreased slightly from 1.31% as of 31 December 2017.
- In the time period from 31 December 2012 to 30 June 2018 the risk-free rate about halved from 2.54% to 1.26%.
- The risk-free rate has increased from its lowest point of 0.56% as of 30 September 2016.

Risk-free rate	January	February	March	April	May	June	July	August	September	October	November	December
2018	1.31%	1.35%	1.37%	1.35%	1.29%	1.26%						
2017	1.12%	1.21%	1.27%	1.25%	1.26%	1.24%	1.33%	1.33%	1.36%	1.34%	1.34%	1.31%
2016	1.59%	1.45%	1.29%	1.13%	1.09%	0.95%	0.78%	0.60%	0.56%	0.63%	0.78%	0.97%
2015	1.56%	1.32%	1.07%	0.87%	0.95%	1.24%	1.57%	1.59%	1.51%	1.46%	1.52%	1.57%
2014	2.78%	2.75%	2.67%	2.56%	2.46%	2.40%	2.31%	2.18%	2.07%	1.95%	1.89%	1.76%
2013	2.54%	2.56%	2.58%	2.53%	2.47%	2.50%	2.56%	2.64%	2.69%	2.76%	2.79%	2.78%
2012	3.22%	3.15%	3.10%	3.05%	2.91%	2.77%	2.66%	2.60%	2.59%	2.58%	2.58%	2.54%

Note: Interest rate as of reference date using 3-month average yield curves in accordance with IDW S 1.

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 in recent times. 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**.

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]

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

r_t = Cost of equity at time t

NI_{t+1} = Expected net income in the following time t+1

MC_t = Market capitalization at time t

BV_t = Book value of equity at time t

g = Projected growth rate

Through dissolving the model 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 our data (i.e. the expected annual net income, the market capitalizations, and the book value of equity, etc.) of the analyzed sectors from the data supplier Thomson Reuters. 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 Stoxx Europe 600. We consider this index as a valid approximation for the total European market. The result builds the starting point for the calculation of the **implied market risk premium** of the European capital market.

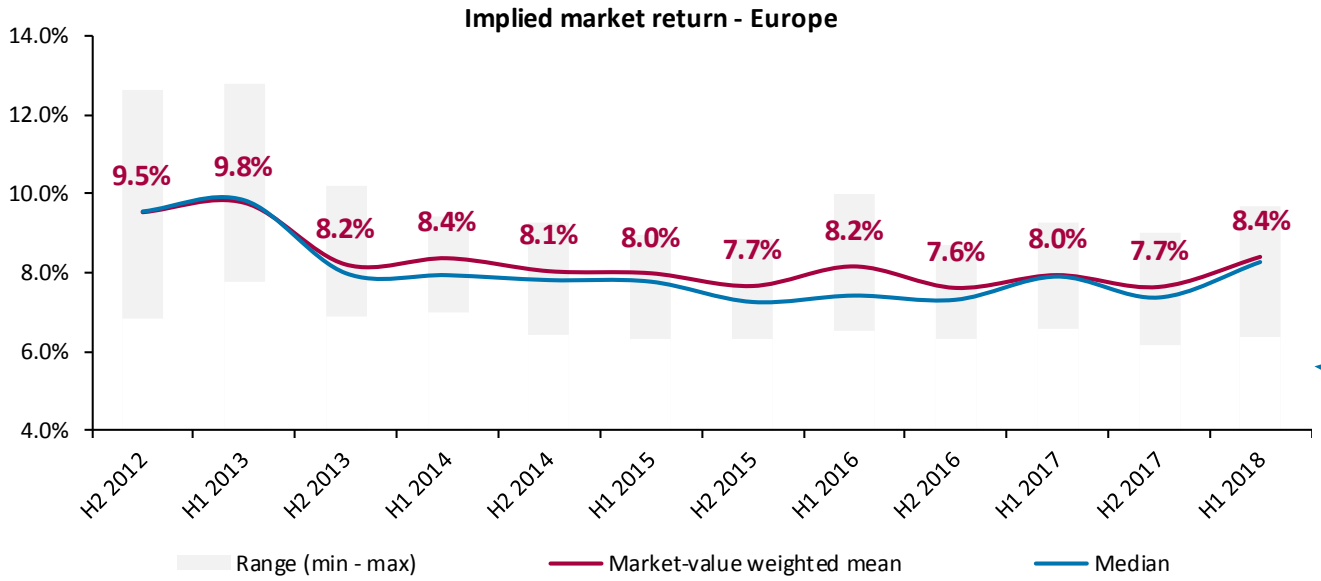
1) cf. Castedello/Jonas/Schieszl/Lenckner, Die Marktrisikoprämie im Niedrigzinsumfeld – Hintergrund und Erläuterung der Empfehlung des FAUB (WPg, 13/2018, p. 806-825).
2) cf. Babbel, Challenging Stock Prices: Share prices and implied growth expectations (Corporate Finance, n. 9, 2015, p. 316-323, especially p. 319).
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); ValueTrust powered by finexpert and JKU, DACH Capital Market Study 31 Dec 2017.

Implied Market Returns

European Market – STOXX Europe 600

Implied market return - Europe

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Minimum	6.8%	7.8%	6.9%	7.0%	6.4%	6.3%	6.3%	6.5%	6.3%	6.6%	6.2%	6.4%
Median	9.5%	9.8%	8.0%	7.9%	7.8%	7.8%	7.3%	7.4%	7.3%	7.9%	7.4%	8.3%
Arithmetic mean	9.5%	9.7%	8.1%	8.1%	7.8%	7.8%	7.4%	7.9%	7.4%	7.8%	7.5%	8.2%
Market-value weighted mean	**9.5%**	**9.8%**	**8.2%**	**8.4%**	**8.1%**	**8.0%**	**7.7%**	**8.2%**	**7.6%**	**8.0%**	**7.7%**	**8.4%**
Maximum	12.6%	12.8%	10.2%	9.5%	9.3%	9.0%	8.8%	10.0%	8.7%	9.3%	9.0%	9.7%



- The market-value weighted mean of the implied European market return increased from 7.7% as of 31 December 2017 to 8.4% as of 30 June 2018.
- Overall, it fluctuates only slightly since 31 December 2013 in a corridor between 7.6% and 8.4%.

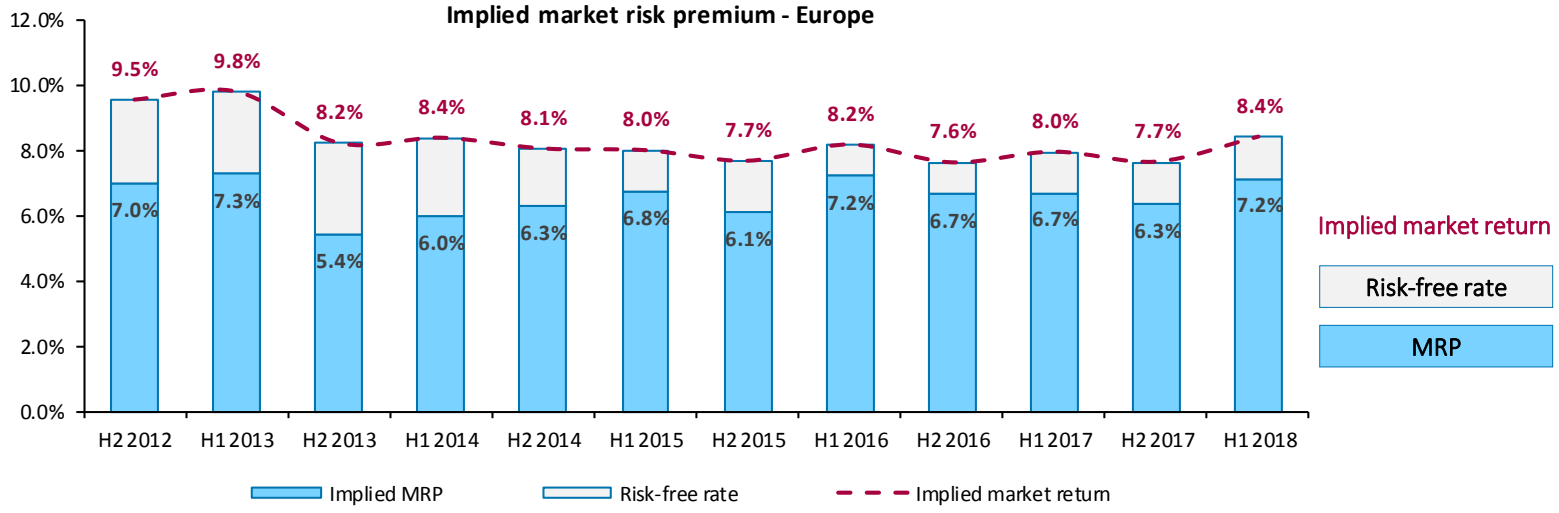
Note: Range based on implied sector returns

Implied Market Risk Premium
European Market – STOXX Europe 600

Knowing the **implied market return** and the daily measured risk-free rate (cf. slide 16 in this study) of the European capital market, we can determine the implied **market risk premium**.

In the years from 2012 to 2018 the **implied market returns** were within a range of **7.6% to 9.8%** (cf. slide 16 in this study). Subtracting the risk-free rate from the implied market return, we derive a **market risk premium** within the range of **5.4% to 7.3%.**

The **implied market return lies at 8.4%** as of the reference date 30 June 2018. Taking the **risk-free rate of 1.3%** (cf. slide 12) into account, we determine a **market risk premium of 7.2%**.



	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
Implied market return	9.5%	9.8%	8.2%	8.4%	8.1%	8.0%	7.7%	8.2%	7.6%	8.0%	7.7%	8.4%
Risk-free rate	2.5%	2.5%	2.8%	2.4%	1.8%	1.2%	1.6%	1.0%	1.0%	1.2%	1.3%	1.3%
Implied MRP	**7.0%**	**7.3%**	**5.4%**	**6.0%**	**6.3%**	**6.8%**	**6.1%**	**7.2%**	**6.7%**	**6.7%**	**6.3%**	**7.2%**

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 analyze **historical (ex-post) returns**. Once this analysis is performed over a **long-term observation period**, an expected **return potential** of the European capital market 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 European capital market, 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 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 the **STOXX Europe 600** is a performance index, it only includes price yields. Hence, we need its total return index. The relevant total return index for Europe is called the STOXX Europe 600 Gross Return ("**STOXX Europe 600 GR**").

The following slide serves as in introduction by showing the historical development of the **STOXX Europe 600 GR** since **June 2012**. Additionally, the EURO STOXX 50 Volatility ("**VSTOXX**") is displayed for the same period. The VSTOXX serves as an indicator for the **stock market's expectations of volatility** and can thus be used as a risk measure. The **VSTOXX** is often named "fear index", high levels are typically associated with more turbulent markets.

The observation period for the total shareholder return analysis amounts to 15 years. Therefore, the earliest data of the **STOXX Europe 600 Gross Return** is from the beginning of 2004.

The following slides illustrate how the two calculation methods (arithmetic and geometric) differ from each other for the period between 30 June 2004 and 30 June 2018. For the longest possible **observation period** of **15 years** the average historical mean of the market return amounts to **9.3%**. Using geometrical averaging, we obtain a market return of **7.9%**.

Please note that the historical market return calculations are based on actual index data points, whereas the implied market return and all sector calculations are based on the Thomson Reuters Aggregates App. Therefore, the comparability can be impeded by different aggregation and composition methodologies.

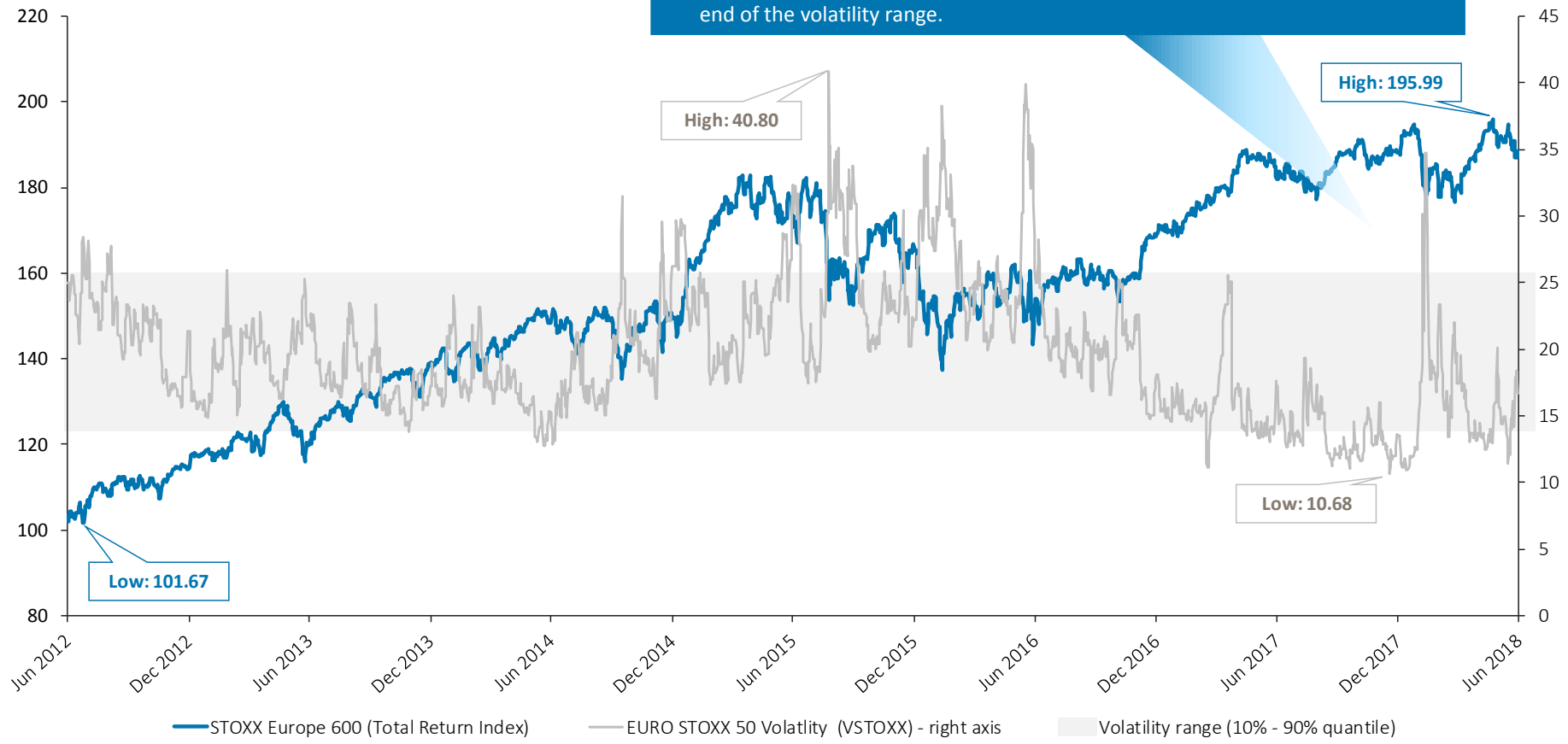
1) The German Stock Institut e.V. (DAI) developed the return triangle for DAX and EURO STOXX.

Historical Market Returns and Volatility – European Market

STOXX Europe 600 GR vs. VSTOXX since 2012

- In the first half of 2018 the STOXX Europe reached a new record high of 195.99.
- At the beginning of 2018 the VSTOXX remained at rather low levels below the 10% quantile. In February and March, a short period of higher volatility could be observed. Starting from April 2018 the VSTOXX was inside or below the lower end of the volatility range.

Historical development of STOXX Europe 600 GR vs VSTOXX



Historical Market Returns (Arithmetic Mean) – European Market

STOXX Europe 600 GR Return Triangle

Reading example:
An investment in the STOXX Europe 600 Index mid of the year 2012, when sold mid of the year 2017, would have yielded an average annual return (arithmetic mean) of 13.0%. Other five-year investment periods are displayed along the black steps.

15.0%	Return greater than 13%
10.0%	Return between 8% and 13%
5.0%	Return between 3% and 8%
0.0%	Return between -3% and +3%
-5.0%	Return between -3% and -8%
-10.0%	Return between -8% and -13%
-15.0%	Return lower than -13%

Buy \ Sell	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2017															3.6%
2016														18.9%	11.2%
2015													-10.4%	4.2%	4.0%
2014												15.1%	2.3%	7.8%	6.8%
2013											23.9%	19.5%	9.5%	11.9%	10.2%
2012										17.6%	20.8%	18.9%	11.5%	13.0%	11.4%
2011									-4.2%	6.7%	12.4%	13.1%	8.4%	10.1%	9.2%
2010								16.1%	6.0%	9.8%	13.4%	13.7%	9.7%	11.0%	10.1%
2009							22.3%	19.2%	11.4%	12.9%	15.1%	15.1%	11.5%	12.4%	11.4%
2008						-24.1%	-0.9%	4.7%	2.5%	5.5%	8.6%	9.5%	7.0%	8.3%	7.9%
2007					-25.4%	-24.8%	-9.1%	-2.8%	-3.1%	0.4%	3.7%	5.1%	3.4%	5.0%	4.8%
2006				26.5%	0.5%	-7.7%	-0.2%	3.1%	1.8%	4.1%	6.6%	7.5%	5.7%	6.9%	6.6%
2005			19.7%	23.1%	6.9%	-0.8%	3.8%	5.8%	4.4%	6.0%	8.0%	8.7%	7.0%	8.0%	7.6%
2004		17.9%	18.8%	21.4%	9.7%	2.9%	6.1%	7.6%	6.1%	7.4%	9.0%	9.6%	7.9%	8.8%	8.4%
2003	22.6%	20.3%	20.1%	21.7%	12.3%	6.2%	8.5%	9.4%	7.9%	8.9%	10.3%	10.7%	9.0%	9.7%	9.3%

Investment period in years: 5, 10, 15

Investment period in years: 5, 10, 15

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) – European Market

STOXX Europe 600 GR Triangle

Reading example:
An investment in the STOXX Europe 600 Index mid of the year 2012, when sold mid of the year 2017, would have yielded an average annual return (geometric mean) of 12.3%. Other five-year investment periods are displayed along the black steps.

15.0%	Return greater than 13%
10.0%	Return between 8% and 13%
5.0%	Return between 3% and 8%
0.0%	Return between -3% and +3%
-5.0%	Return between -3% and -8%
-10.0%	Return between -8% and -13%
-15.0%	Return lower than -13%

Buy	Sell 2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2017															3.6%
2016														18.9%	11.0%
2015													-10.4%	3.2%	3.3%
2014												15.1%	1.5%	7.0%	6.1%
2013											23.9%	19.4%	8.5%	11.0%	9.5%
2012										17.6%	20.7%	18.8%	10.7%	12.3%	10.8%
2011									-4.2%	6.1%	11.8%	12.6%	7.6%	9.4%	8.5%
2010								16.1%	5.5%	9.4%	12.8%	13.3%	8.9%	10.3%	9.4%
2009							22.3%	19.1%	10.8%	12.5%	14.7%	14.7%	10.7%	11.7%	10.8%
2008						-24.1%	-3.7%	2.5%	0.8%	3.9%	7.0%	8.1%	5.6%	7.0%	6.7%
2007					-25.4%	-24.8%	-11.6%	-5.3%	-5.1%	-1.7%	1.6%	3.2%	1.6%	3.2%	3.3%
2006				26.5%	-2.9%	-10.6%	-3.3%	0.3%	-0.5%	1.9%	4.5%	5.6%	3.9%	5.2%	5.0%
2005			19.7%	23.1%	4.1%	-3.8%	0.9%	3.3%	2.2%	4.0%	6.1%	6.9%	5.2%	6.3%	6.1%
2004		17.9%	18.8%	21.3%	7.4%	0.2%	3.6%	5.3%	4.0%	5.5%	7.2%	7.9%	6.2%	7.1%	6.9%
2003	22.6%	20.2%	20.1%	21.6%	10.3%	3.6%	6.1%	7.3%	6.0%	7.1%	8.5%	9.0%	7.4%	8.2%	7.9%

Investment period in years: 5, 10, 15

Investment period in years: 5, 10, 15

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

5 Sector classification of European companies

based on STOXX® industry classification

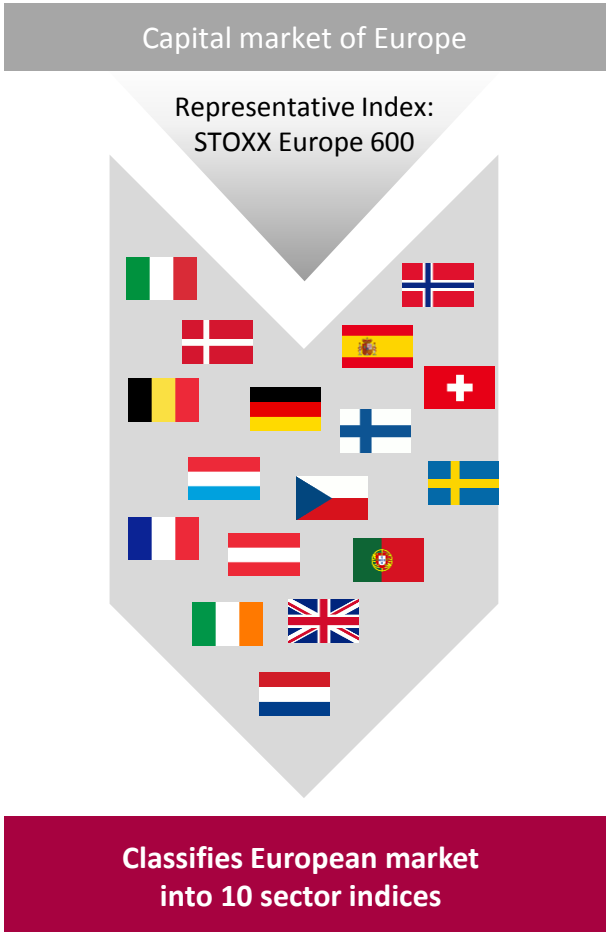
Sector Indices of European capital market
Methodology & approach

The sector indices aim to cover the **whole capital market of Europe**. Therefore, this capital market study contains all equities of the **STOXX Europe 600** as listed in the Thomson Reuters Aggregates App.[1] The STOXX Europe 600 Index represents large, mid and small capitalization companies across **17 countries of the European region**: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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

- Financials
- Basic Materials
- Consumer Cyclicals
- Telecommunications Services
- Industrials
- Consumer Non-Cyclicals
- Healthcare
- Technology
- Utilities
- Energy

} sector indices

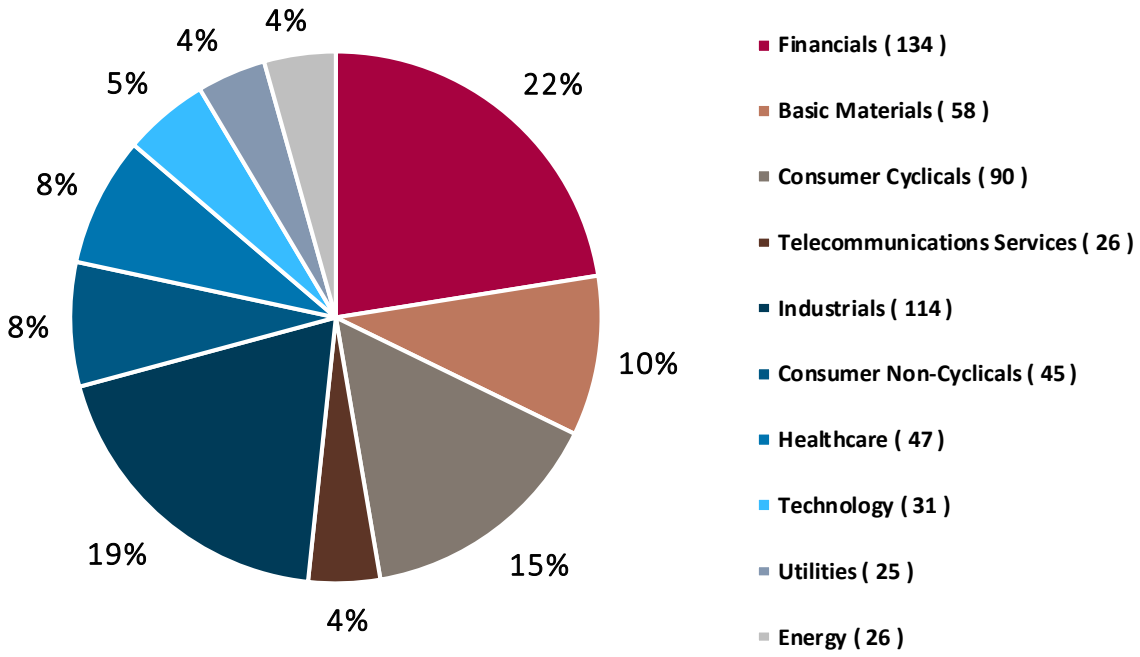


1) The Thomson Reuters Aggregates App offers analyst forecasts and historical values of key financials on an aggregated sector level.

Sector Indices of Europe as of 30 June 2018

Sector distribution and number of companies

Sector classification of the STOXX Europe 600



The chart shows the percentage distribution of the 596 listed companies in the 10 industries based on the STOXX Europe 600 as listed in the Thomson Reuters Aggregates App (the numerical amount is listed behind the sector names).

The ten defined sectors can be classified in three different dimensions.

- Six different sectors represent a share of less than 10%,
- three sectors represent a share between 10% and 20%,
- and one represent a share of more than 20%.

Companies within the Financials and Industrials sectors represent more than 40% of the entire market measured in number of companies included in the STOXX Eurpe 600 index.

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 on the basis of **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**").

The estimation of beta factors is usually accomplished through a **linear regression analysis**. Furthermore, it is important to set a time period, in 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**.

In the CAPM, company specific **risk premiums** include besides the **business risk** also the **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 sector rating through the application of the **credit spread** derived from the expected cost of debt. The **debt beta** is then derived by dividing the **sector credit spread** by the current **European market risk premium**. For simplification reasons, we do not adjust the credit spread for unsystematic risks.

In this study, we use levered sector betas as determined in the Thomson Reuters Aggregates App. Due to data availability, we only apply the five-year observation period and then calculate unlevered betas.

Betas

Sector specific levered and unlevered betas as of 30 June 2018

Sector	Beta levered	Debt ratio[1)]	Leverage	Rating	Credit Spread	Debt Beta	Beta unlevered
	5-years 2018-2014 monthly	5-years 2018-2014 monthly	5-years 2018-2014 monthly	as of 30. Jun 18	5-years 2018-2014 monthly	5-years 2018-2014 monthly	5-years 2018-2014 monthly
Financials	1.07	70%	232%	A-	1.13%	n.a.	n.a.[2)]
Basic Materials	1.15	36%	57%	BBB+	1.20%	0.17	0.79
Consumer Cyclicals	1.04	48%	93%	A-	1.13%	0.16	0.61
Telecommunications Services	0.93	57%	131%	BBB-	1.63%	0.23	0.53
Industrials	0.92	53%	111%	BBB+	1.20%	0.17	0.53
Consumer Non-Cyclicals	0.87	45%	81%	BBB+	1.20%	0.17	0.56
Healthcare	1.03	36%	57%	BBB+	1.20%	0.17	0.72
Technology	0.99	25%	34%	A	0.99%	0.14	0.78
Utilities	0.78	57%	130%	BBB	1.27%	0.18	0.44
Energy	1.16	35%	54%	BBB+	1.20%	0.17	0.81
All	**1.01**						

1) The debt ratio corresponds to the debt-to-total capital ratio.

2) The debt illustration of the companies of the Financials sector only serves an informational purpose. We will not implement an adjustment to the company's specific debt (unlevered) because a bank's indebtedness is part of its operational activities and economic risk. Therefore, a separation of operative and financial obligations is not possible. In addition, 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 the beta factors.

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 14 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 Thomson Reuters on an aggregated sector level. Regarding the profit growth, we assume for all sectors for simplification purposes 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); 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 capital 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 of the "Financials" sector only serves an informational purpose. We will not implement an adjustment to the company's specific debt (unlevered) because a bank' s indebtedness is part of its 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 30 June 2018, we observe the sector specific, levered cost of equity of **8.4%** (market-value weighted mean) in the European Basic Materials sector. Taking the sector-specific leverage into account, we derive unlevered cost of equity of **6,0%.** For the exemplary company X, which operates in the European Basic Materials sector, the following assumptions have been made:

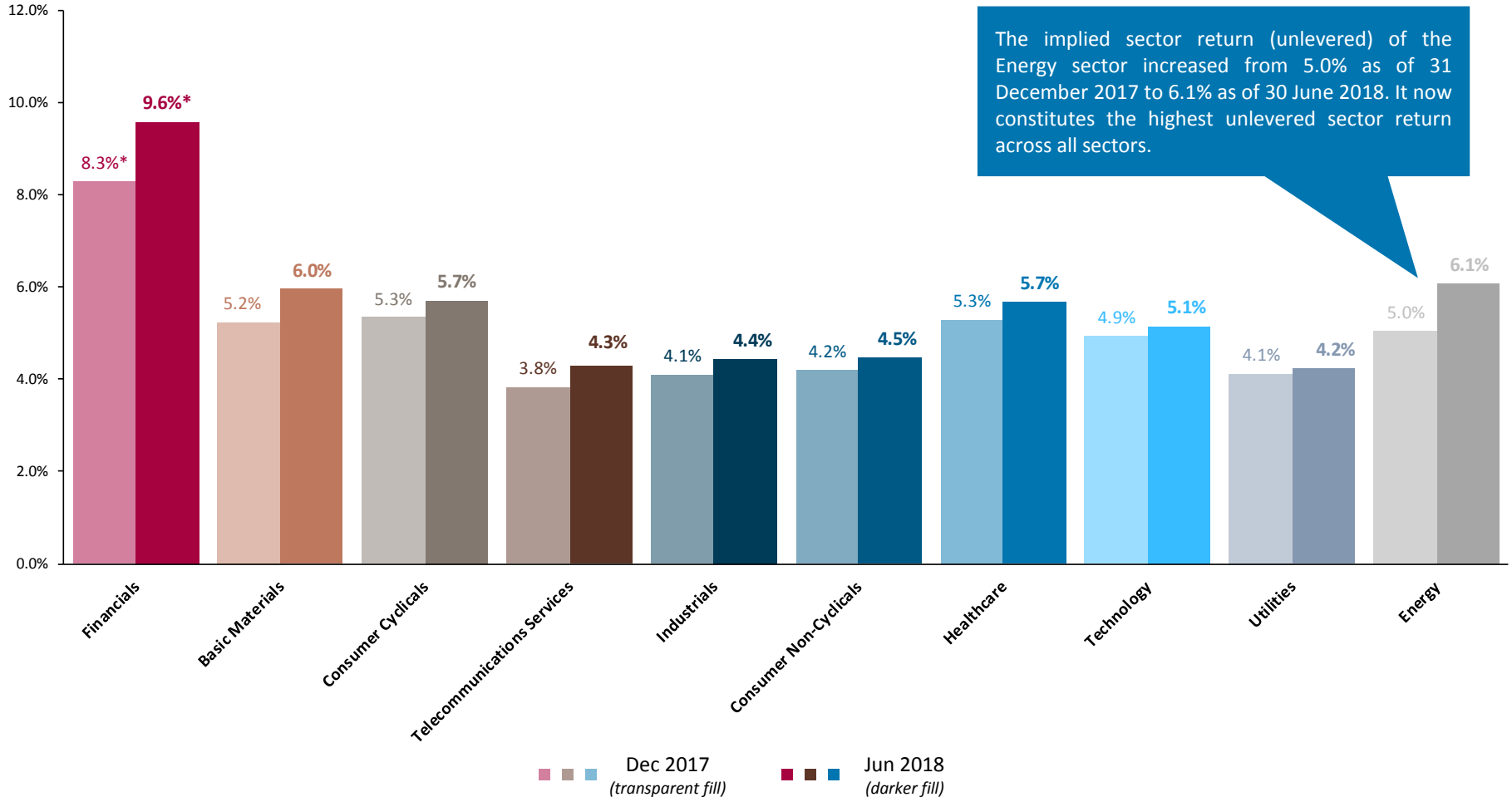
- The debt-to-equity ratio of the exemplary company X: **40%**
- The risk-free rate: **1.26%** (cf. slide 13)

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

$$\mathbf{k_E^L} = 6.0\% + (6.0\% - 1.26\%) * 40\% = 7.9\%$$

Thus, **7.9%** is the company's relevered cost of equity. In comparison, the levered cost of equity of the Basic Materials sector is **8.4**%.

Implied Sector Returns
Overview as of 30 June 2018



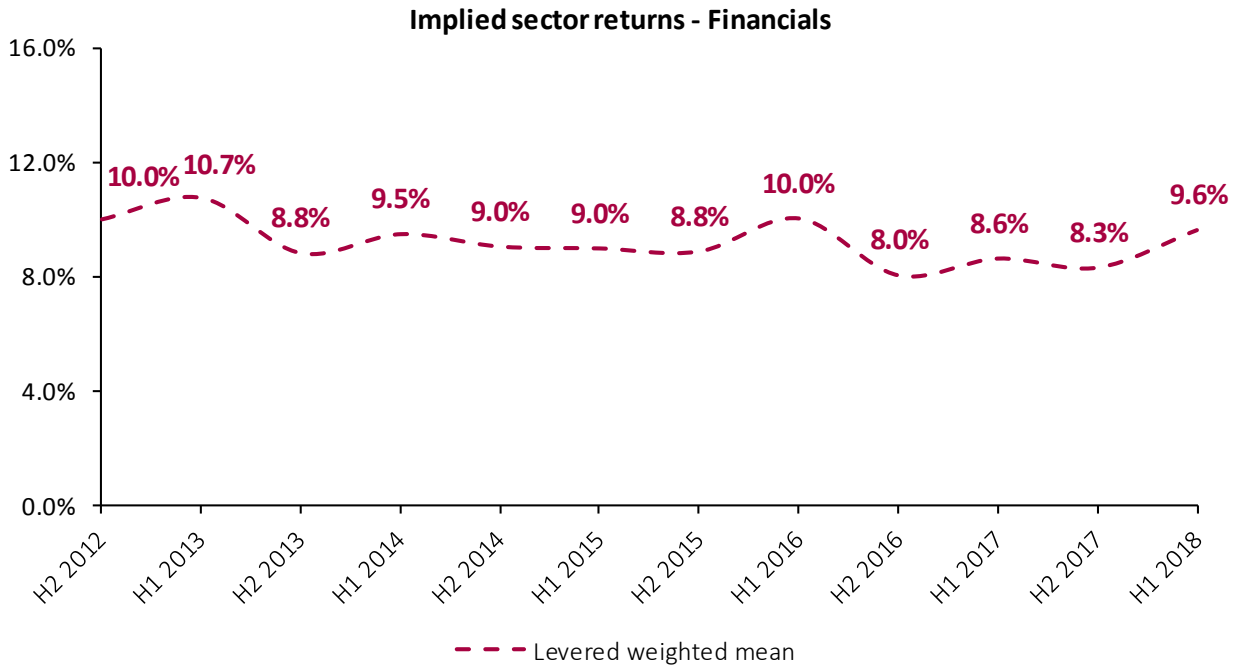
The implied sector return (unlevered) of the Energy sector increased from 5.0% as of 31 December 2017 to 6.1% as of 30 June 2018. It now constitutes the highest unlevered sector return across all sectors.

Note: The returns for the Financials sector refer to levered sector returns. For all other sectors, unlevered returns are displayed.

Implied Sector Returns
Financials

Implied sector returns - Financials

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	10.0%	10.7%	8.8%	9.5%	9.0%	9.0%	8.8%	10.0%	8.0%	8.6%	8.3%	9.6%
Leverage	280.7%	290.7%	290.4%	267.5%	267.2%	226.9%	226.7%	210.2%	210.4%	206.0%	206.0%	191.7%



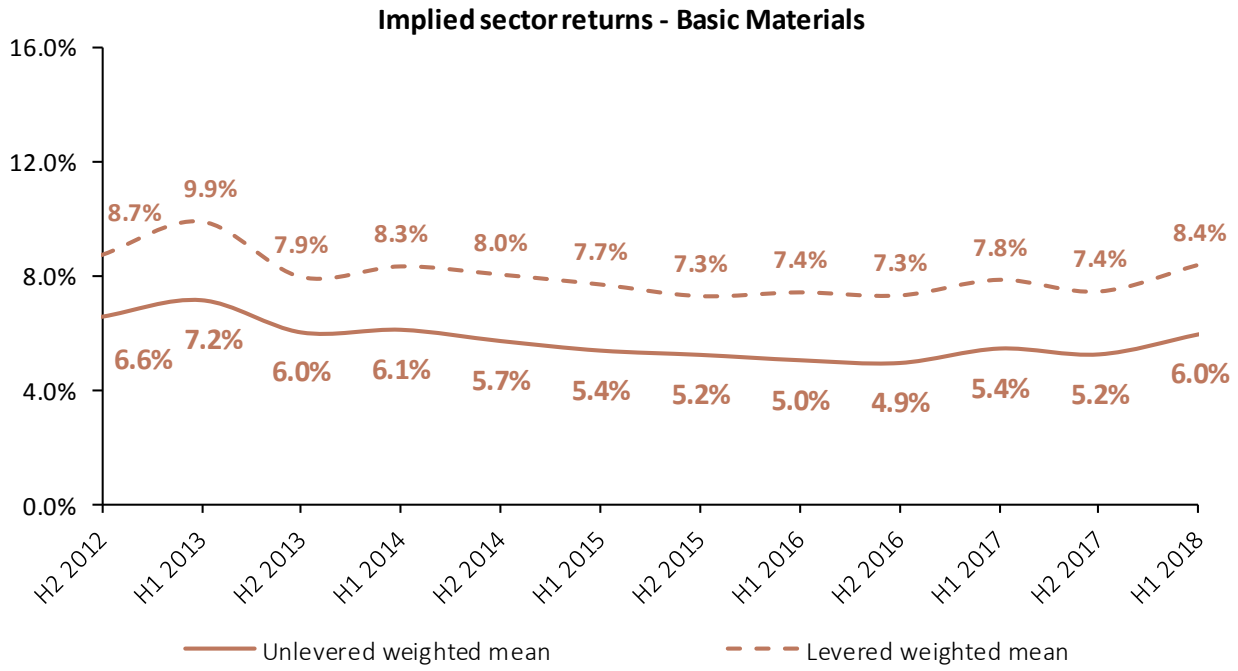
- The implied sector return of the Financials sector increased from 8.3% as of 31 December 2017 to 9.6% as of 30 June 2018.
- Overall, we can observe a fluctuation between 8.0% and 10.7% of the levered weighted mean since 31 December 2012.

Note: The debt illustration of the companies of the Financials sector only serves an informational purpose. We will not implement an adjustment to the company's specific debt (unlevered) because a bank's indebtedness is part of its operational activities and economic risk.

Implied Sector Returns
Basic Materials

Implied sector returns - Basic Materials

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	8.7%	9.9%	7.9%	8.3%	8.0%	7.7%	7.3%	7.4%	7.3%	7.8%	7.4%	8.4%
Leverage	52.9%	58.1%	59.2%	59.2%	58.3%	55.6%	55.9%	57.8%	59.3%	56.8%	55.7%	51.4%
Unlevered weighted mean	**6.6%**	**7.2%**	**6.0%**	**6.1%**	**5.7%**	**5.4%**	**5.2%**	**5.0%**	**4.9%**	**5.4%**	**5.2%**	**6.0%**

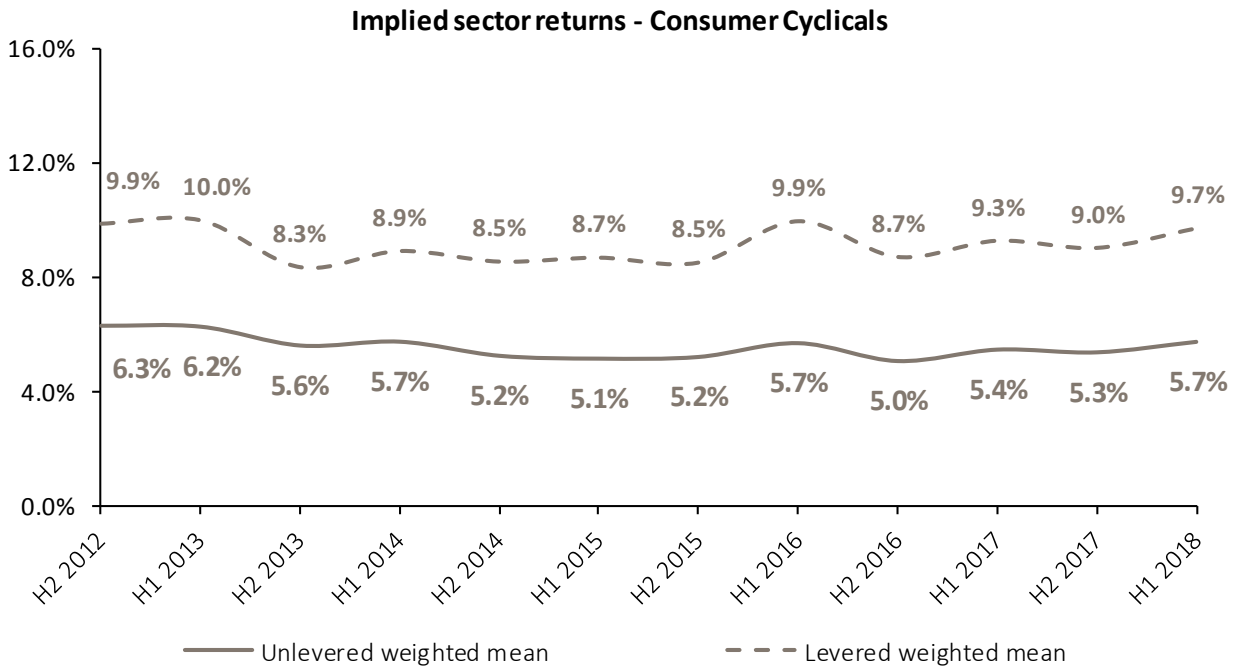


- The weighted mean of the implied sector return (unlevered) in the Basic Materials sector has an increasing trend rising from 4.9% as of 31 December 2016 to 6.0% as of 30 June 2018, its highest value in 4 years.
- In comparison to other sectors, the Basic Materials sector has the second highest unlevered weighted mean of implied sector returns as of 30 June 2018.

Implied Sector Returns
Consumer Cyclicals

Implied sector returns - Consumer Cyclicals

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	9.9%	10.0%	8.3%	8.9%	8.5%	8.7%	8.5%	9.9%	8.7%	9.3%	9.0%	9.7%
Leverage	95.7%	99.5%	98.8%	96.2%	96.1%	91.8%	92.3%	90.7%	90.4%	91.3%	91.3%	89.5%
Unlevered weighted mean	**6.3%**	**6.2%**	**5.6%**	**5.7%**	**5.2%**	**5.1%**	**5.2%**	**5.7%**	**5.0%**	**5.4%**	**5.3%**	**5.7%**

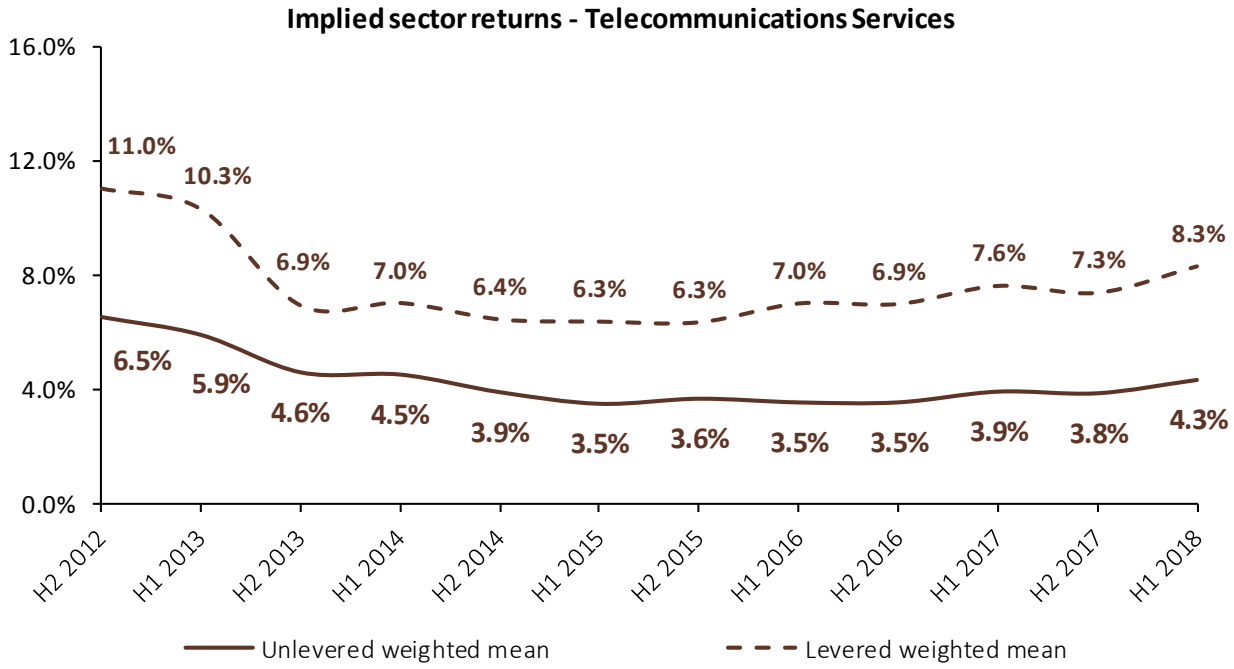


- The weighted mean of the implied sector return (unlevered) in the Consumer Cyclicals sector increased from 5.3% as of 31 December 2017 to 5.7% as of 30 June 2018.
- Overall, the fluctuation of the unlevered weighted mean has been quite small (5.1% to 6.3%) since 31 December 2012.

Implied Sector Returns
Telecommunication Services

Implied sector returns - Telecommunications Services

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	11.0%	10.3%	6.9%	7.0%	6.4%	6.3%	6.3%	7.0%	6.9%	7.6%	7.3%	8.3%
Leverage	114.6%	131.3%	131.4%	120.5%	120.8%	129.3%	129.1%	135.3%	135.5%	140.0%	139.6%	131.2%
Unlevered weighted mean	**6.5%**	**5.9%**	**4.6%**	**4.5%**	**3.9%**	**3.5%**	**3.6%**	**3.5%**	**3.5%**	**3.9%**	**3.8%**	**4.3%**

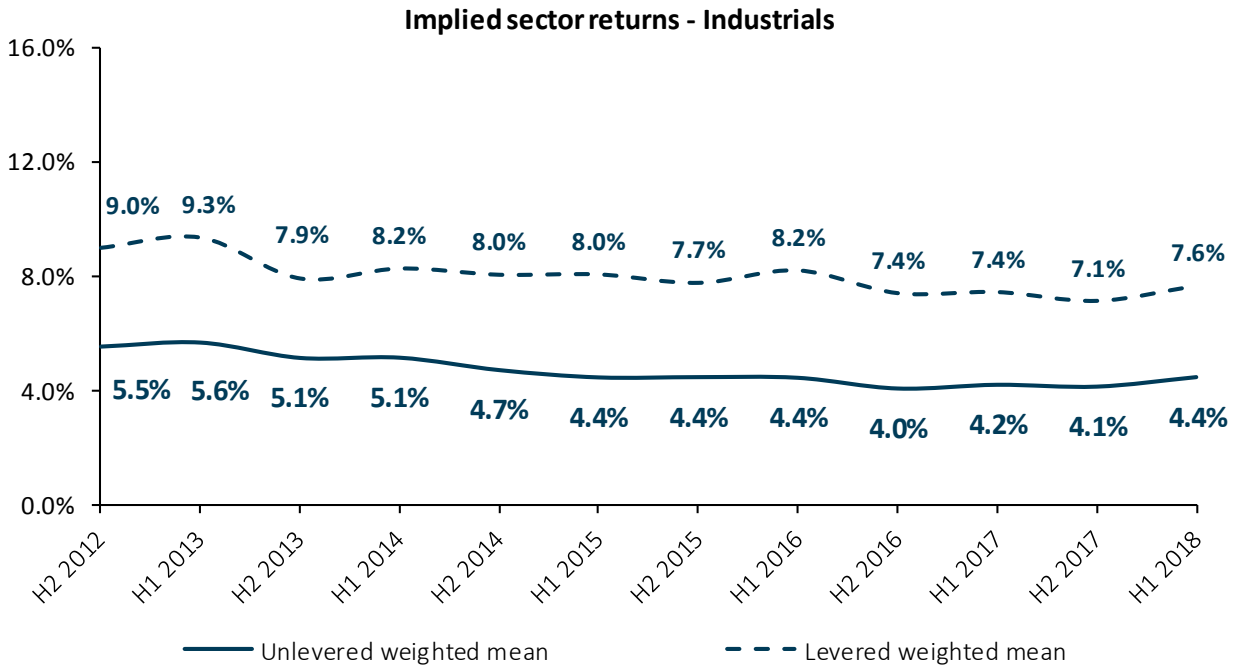


- In the Telecommunications Services sector, the weighted mean of the implied market return (unlevered) has seen an increasing trend since 30 June 2016.
- In comparison to other sectors, the Telecommunications Services sector has the second lowest unlevered weighted mean as of 30 June 2018.

Implied Sector Returns
Industrials

Implied sector returns - Industrials

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	9.0%	9.3%	7.9%	8.2%	8.0%	8.0%	7.7%	8.2%	7.4%	7.4%	7.1%	7.6%
Leverage	116.8%	116.9%	119.6%	115.1%	114.5%	113.2%	115.3%	108.7%	109.1%	111.0%	107.6%	100.8%
Unlevered weighted mean	**5.5%**	**5.6%**	**5.1%**	**5.1%**	**4.7%**	**4.4%**	**4.4%**	**4.4%**	**4.0%**	**4.2%**	**4.1%**	**4.4%**

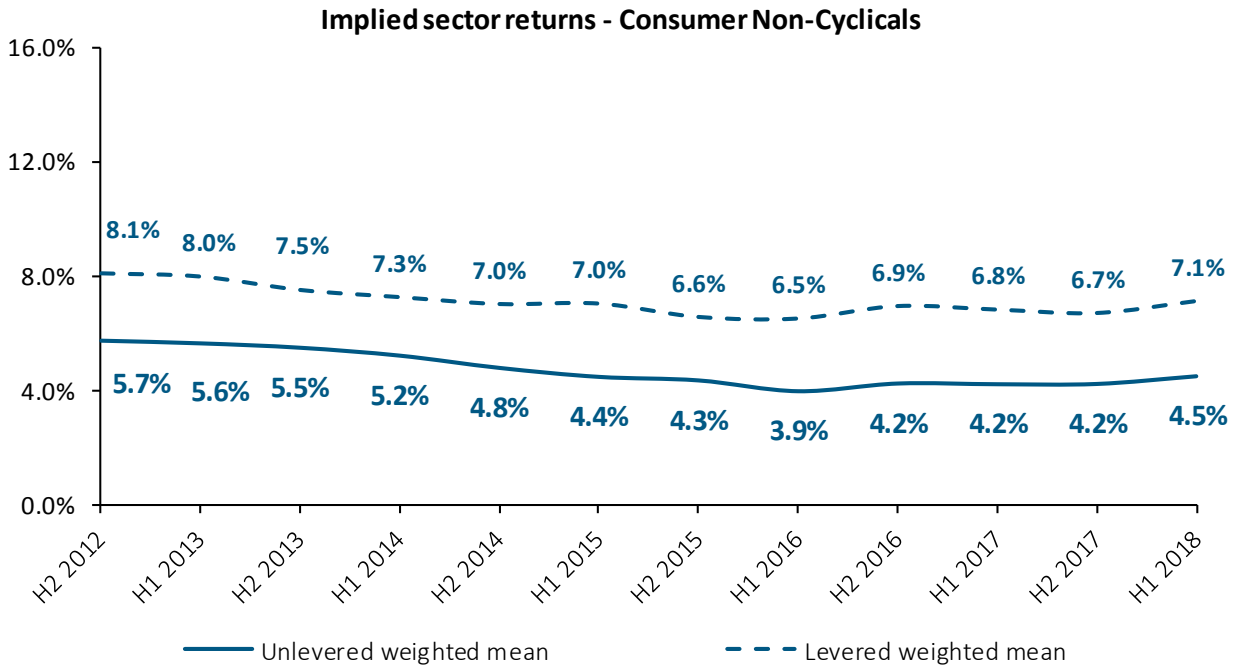


- The weighted mean of the implied sector return (unlevered) in the Industrials sector increased from 4.1% as of 31 December 2017 to 4.4% as of 30 June 2018.
- Over the past three years the unlevered weighted mean has varied only within a pretty small range (4.0% to 4.4%), without showing a clear directional trend.

Implied Sector Returns
Consumer Non-Cyclicals

Implied sector returns - Consumer Non-Cyclicals

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	8.1%	8.0%	7.5%	7.3%	7.0%	7.0%	6.6%	6.5%	6.9%	6.8%	6.7%	7.1%
Leverage	74.9%	75.5%	76.0%	74.2%	75.3%	80.7%	81.5%	85.8%	84.3%	89.3%	86.8%	82.7%
Unlevered weighted mean	**5.7%**	**5.6%**	**5.5%**	**5.2%**	**4.8%**	**4.4%**	**4.3%**	**3.9%**	**4.2%**	**4.2%**	**4.2%**	**4.5%**

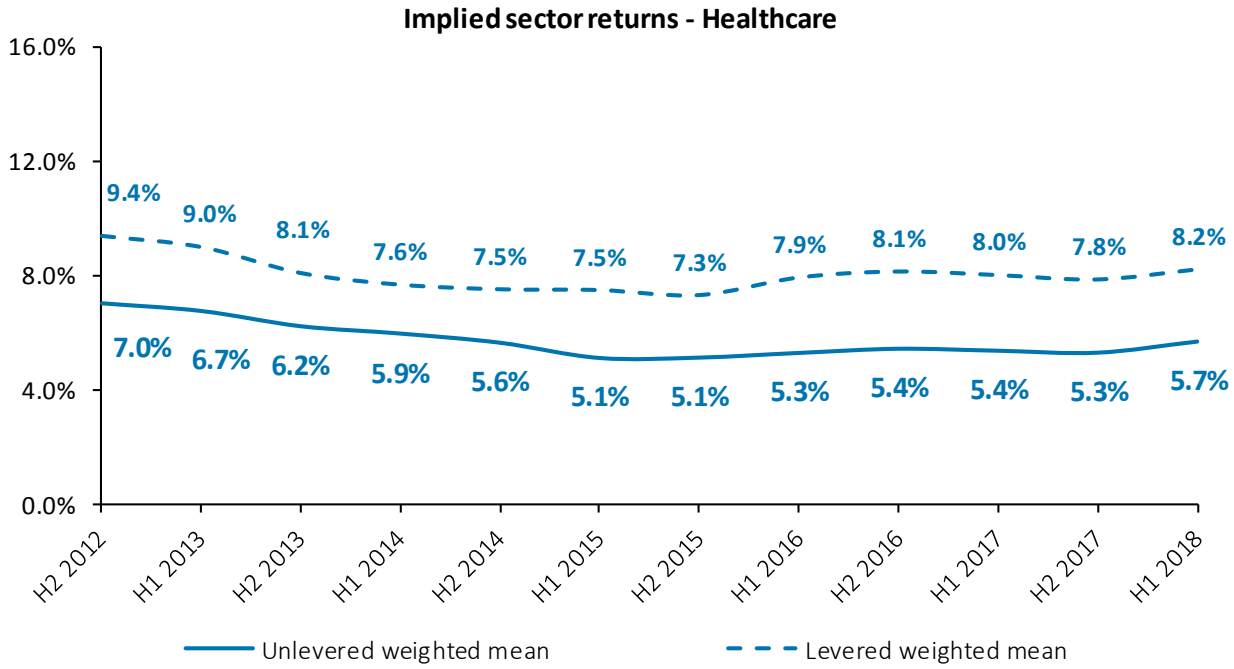


- In the Consumer Non-Cyclicals sector, the weighted mean of the implied sector return (unlevered) has seen a steadily decreasing trend until 30 June 2016 and then an increasing trend, rising from 3.9% as of 30 June 2016 to 4.5% as of 30 June 2018.
- Overall, the fluctuation of the unlevered weighted mean of implied sector returns has been quite small (4.2% to 5.7%) since 31 December 2012.

Implied Sector Returns
Healthcare

Implied sector returns - Healthcare

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	9.4%	9.0%	8.1%	7.6%	7.5%	7.5%	7.3%	7.9%	8.1%	8.0%	7.8%	8.2%
Leverage	53.9%	53.6%	54.5%	48.0%	47.9%	60.4%	60.5%	60.2%	60.1%	63.6%	63.5%	56.9%
Unlevered weighted mean	**7.0%**	**6.7%**	**6.2%**	**5.9%**	**5.6%**	**5.1%**	**5.1%**	**5.3%**	**5.4%**	**5.4%**	**5.3%**	**5.7%**

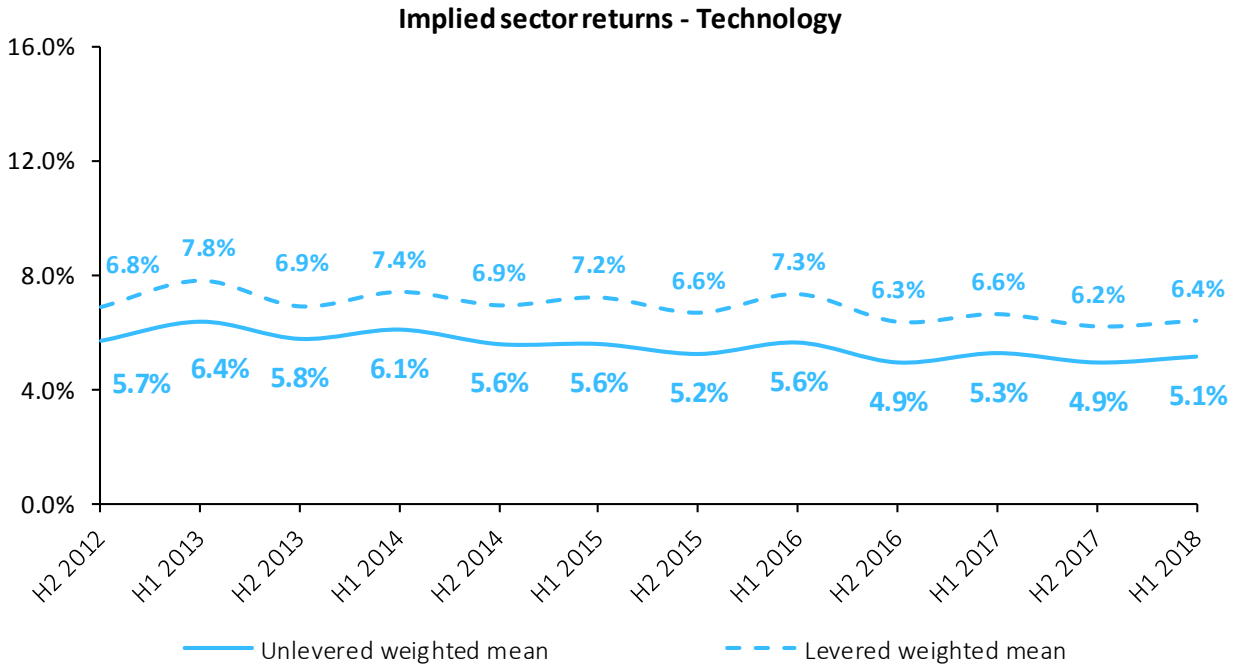


- The weighted mean of the implied sector return (unlevered) in the Healthcare sector has been decreasing from 7.0% as of 31 December 2012 to 5.1% as of 30 June 2015, then stayed consistent at 5.1% for one-year and then showed an increasing trend up to 5.7% as of 30 June 2018.

Implied Sector Returns
Technology

Implied sector returns - Technology

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	6.8%	7.8%	6.9%	7.4%	6.9%	7.2%	6.6%	7.3%	6.3%	6.6%	6.2%	6.4%
Leverage	35.7%	35.6%	36.3%	34.3%	34.2%	36.3%	38.1%	35.1%	34.7%	32.7%	33.5%	31.1%
Unlevered weighted mean	**5.7%**	**6.4%**	**5.8%**	**6.1%**	**5.6%**	**5.6%**	**5.2%**	**5.6%**	**4.9%**	**5.3%**	**4.9%**	**5.1%**

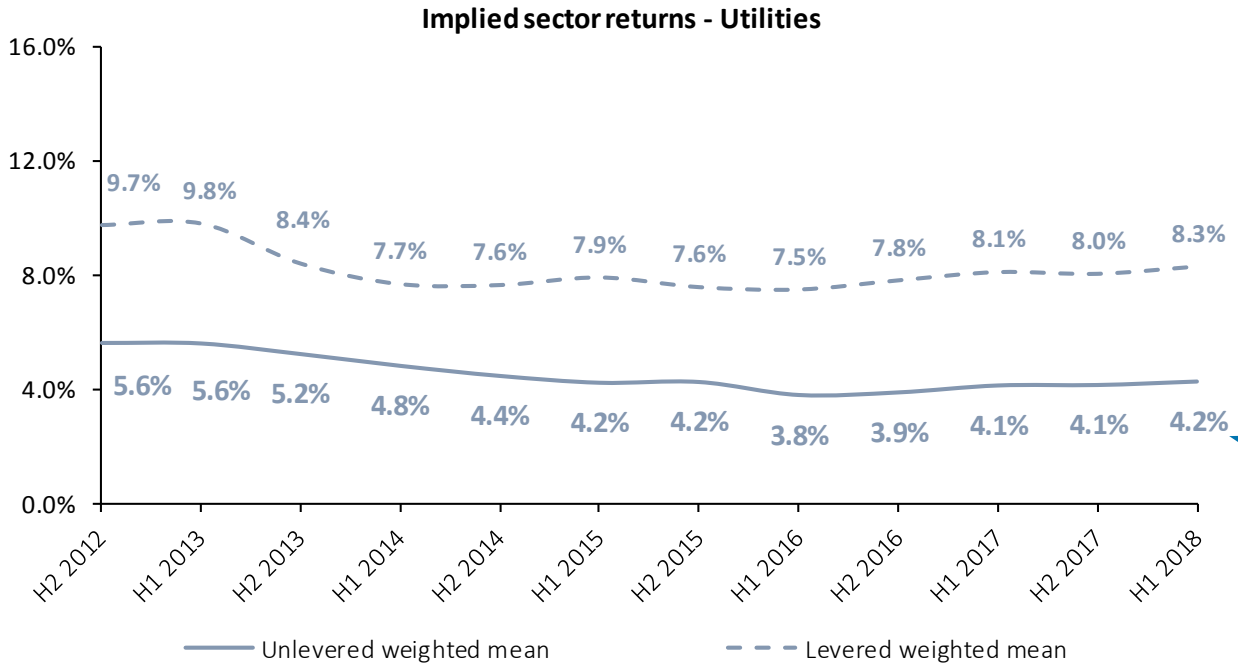


- The weighted mean of the implied sector return (unlevered) in the Technology sector increased from 4.9% as of 31 December 2017 to 5.1% as of 30 June 2018.
- The technology sector has the lowest leverage of the analyzed sectors. This indicates less favorable financing conditions for companies within the Technology sector due to a more pronounced operating risk profile.

Implied Sector Returns
Utilities

Implied sector returns - Utilities

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	9.7%	9.8%	8.4%	7.7%	7.6%	7.9%	7.6%	7.5%	7.8%	8.1%	8.0%	8.3%
Leverage	132.6%	133.9%	128.6%	118.5%	118.6%	124.6%	125.2%	131.9%	136.5%	138.8%	138.8%	135.0%
Unlevered weighted mean	**5.6%**	**5.6%**	**5.2%**	**4.8%**	**4.4%**	**4.2%**	**4.2%**	**3.8%**	**3.9%**	**4.1%**	**4.1%**	**4.2%**

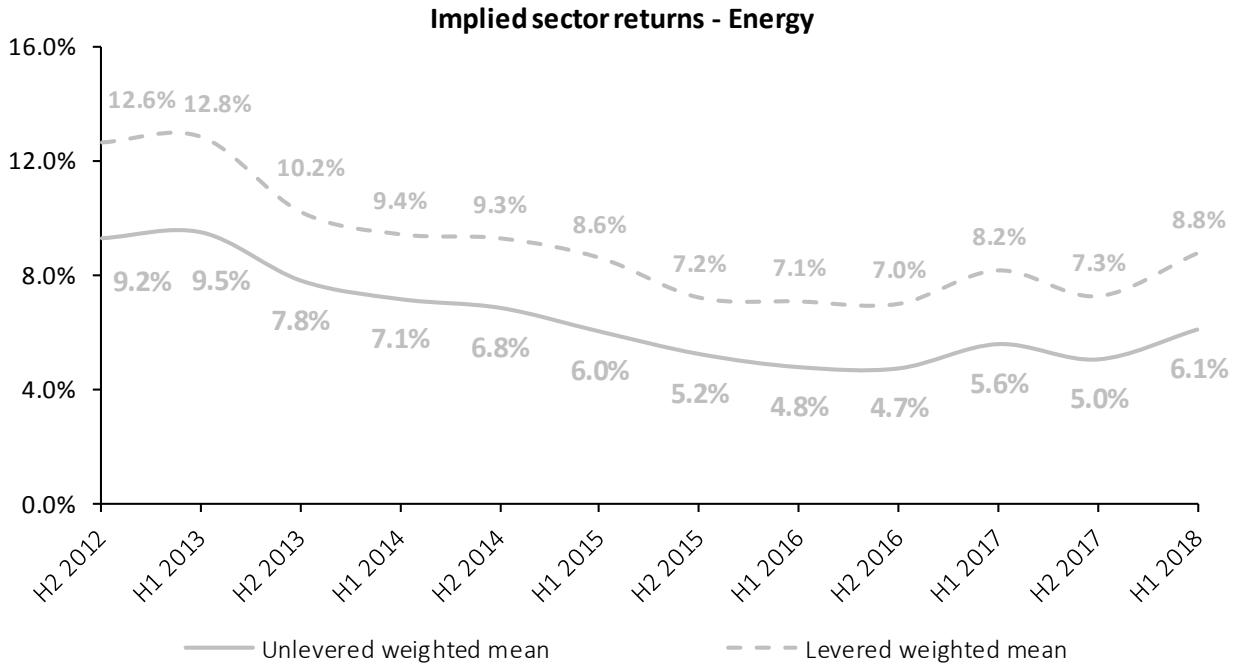


- In comparison to other sectors, the Utilities sector had the lowest unlevered weighted mean at 4.2% as of 30 June 2018, fluctuating only insignificantly since 30 June 2015.
- The high average leverage indicates favorable financing conditions for the companies in the Utilities sector. This can be attributed to the relatively low operating risk profile of the sector.

Implied Sector Returns
Energy

Implied sector returns - Energy

	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018
	31.12.2012	**30.06.2013**	**31.12.2013**	**30.06.2014**	**31.12.2014**	**30.06.2015**	**31.12.2015**	**30.06.2016**	**31.12.2016**	**30.06.2017**	**31.12.2017**	**30.06.2018**
Levered weighted mean	12.6%	12.8%	10.2%	9.4%	9.3%	8.6%	7.2%	7.1%	7.0%	8.2%	7.3%	8.8%
Leverage	50.2%	48.2%	48.2%	48.2%	48.2%	54.2%	54.2%	60.2%	60.2%	59.6%	59.4%	55.6%
Unlevered weighted mean	**9.2%**	**9.5%**	**7.8%**	**7.1%**	**6.8%**	**6.0%**	**5.2%**	**4.8%**	**4.7%**	**5.6%**	**5.0%**	**6.1%**



- The Energy sector, in comparison to other sectors, has the highest unlevered weighted mean (6.1%) as of 30 June 2018.
- Overall, the sector experienced a decreasing trend for the implied sector return (unlevered) from 9.5% as of 30 June 2013 to 4.7% as of 31 December 2016 and then an increasing trend up to 6.1% as of 30 June 2018.

7 Sector Returns

b. Historical returns (ex-post analysis)

Historical Sector Returns
Background & approach

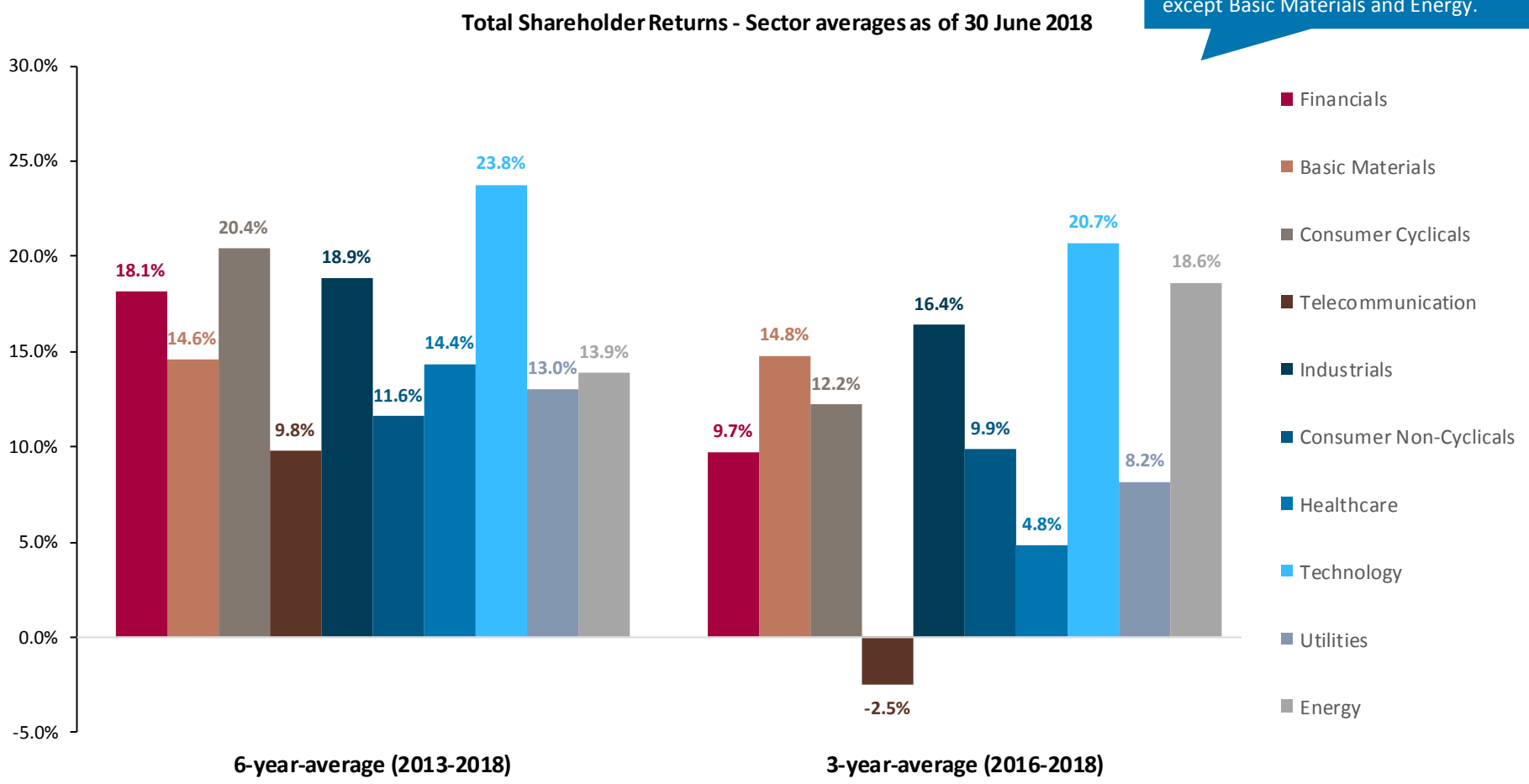
In **addition** to the **determination of historical market returns** (cf. slide 19 et seq.), we are able to calculate the **historical sector returns**. This option creates an **alternative approach,** like the implied sector returns, for the ex-post analysis of the determination of costs of capital based on regression analyses following the **CAPM**.

Our analysis contains so-called **total shareholder returns** analogous to the return triangles for the European 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 30 June** for every STOXX Europe 600 listed company. Afterwards, we aggregate those returns market value-weighted **to sector returns**. Our calculations comprise the time period between 2013 and 2018. 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, we additionally calculate the 3-year (2015-2018) and the 6-year (2012-2018) averages.

Total Shareholder Returns
Sector Overview

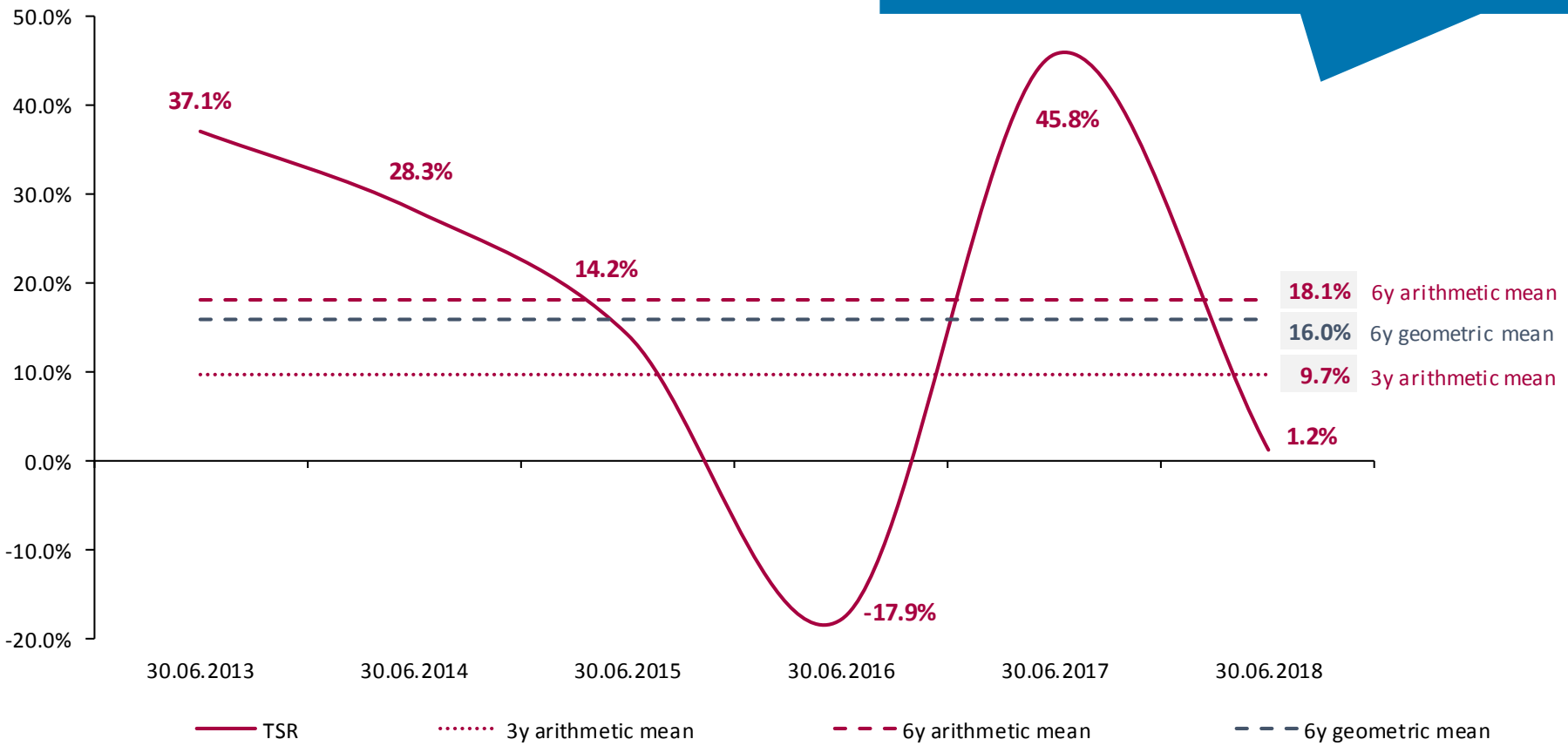
We see a declining trend for average annual total shareholder returns in the European market. The 3y mean is lower than the 6y mean of annual total shareholder returns for all sectors except Basic Materials and Energy.



Total Shareholder Returns
Financials

- In comparison to other sectors, the Financials sector has the second lowest annual total shareholder return as of 30 June 2018.
- The 3y and 6y arithmetic mean of the total shareholder return for the Financials sector are at 9.7% and 18.1%, respective are clearly above the total shareholder return as of 30 June 2018.

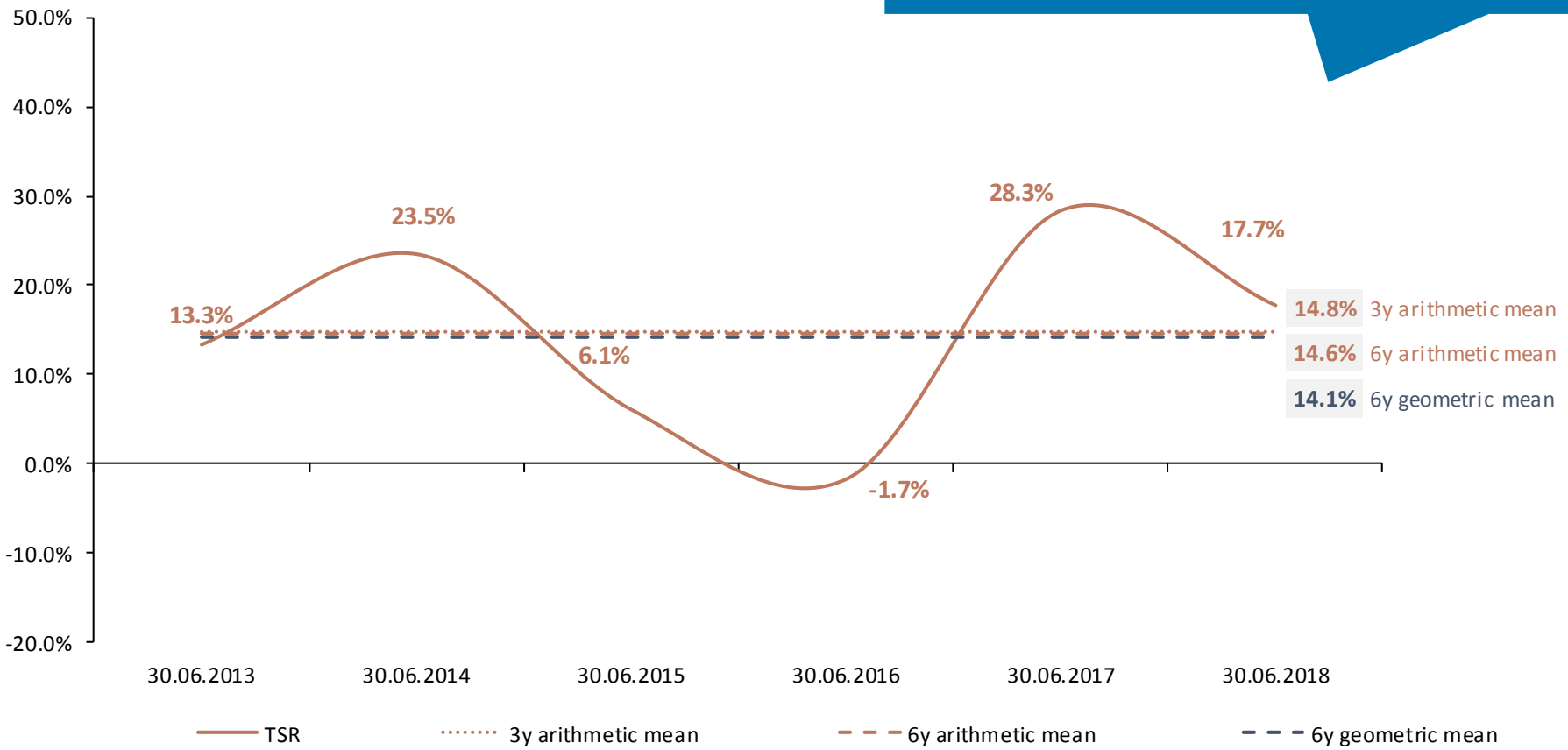
Total shareholder returns - Financials



Total Shareholder Returns
Basic Materials

- For the Basic Materials sector the 3y arithmetic mean is higher than the 6y arithmetic mean as of 30 June 2018.
- In comparison to other sectors, the Basic Materials sector has the third largest total shareholder return as of 30 June 2018.

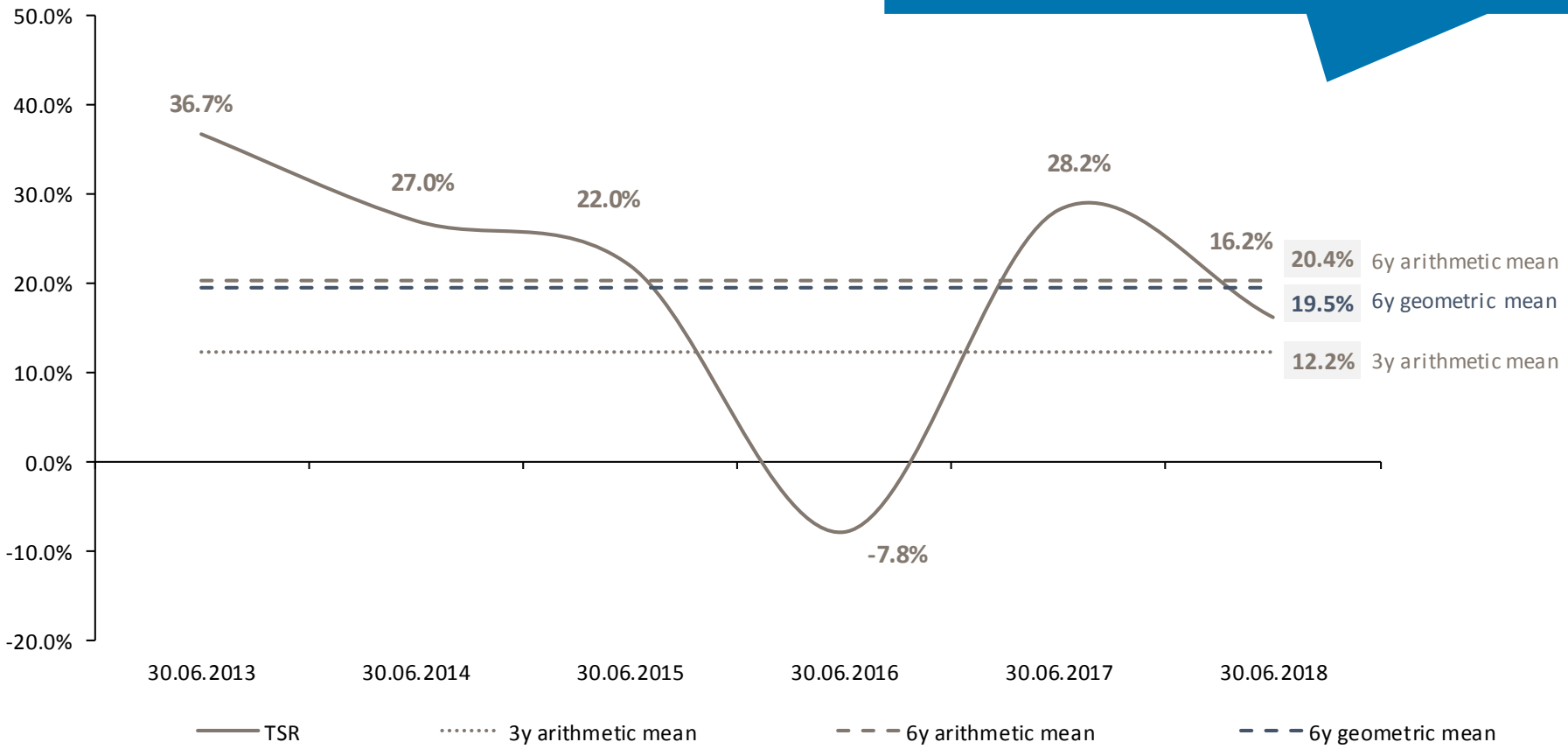
Total shareholder returns - Basic Materials



Total Shareholder Returns
Consumer Cyclicals

- The total shareholder returns in the Consumer Cyclicals sector are at 16.2% as of 30 June 2018, which lies between the 3y arithmetic mean of 12.2% and the 6y arithmetic mean of 20.4%.
- In comparison to other sectors, the Consumer Cyclicals sector has the second highest 6y arithmetic mean.

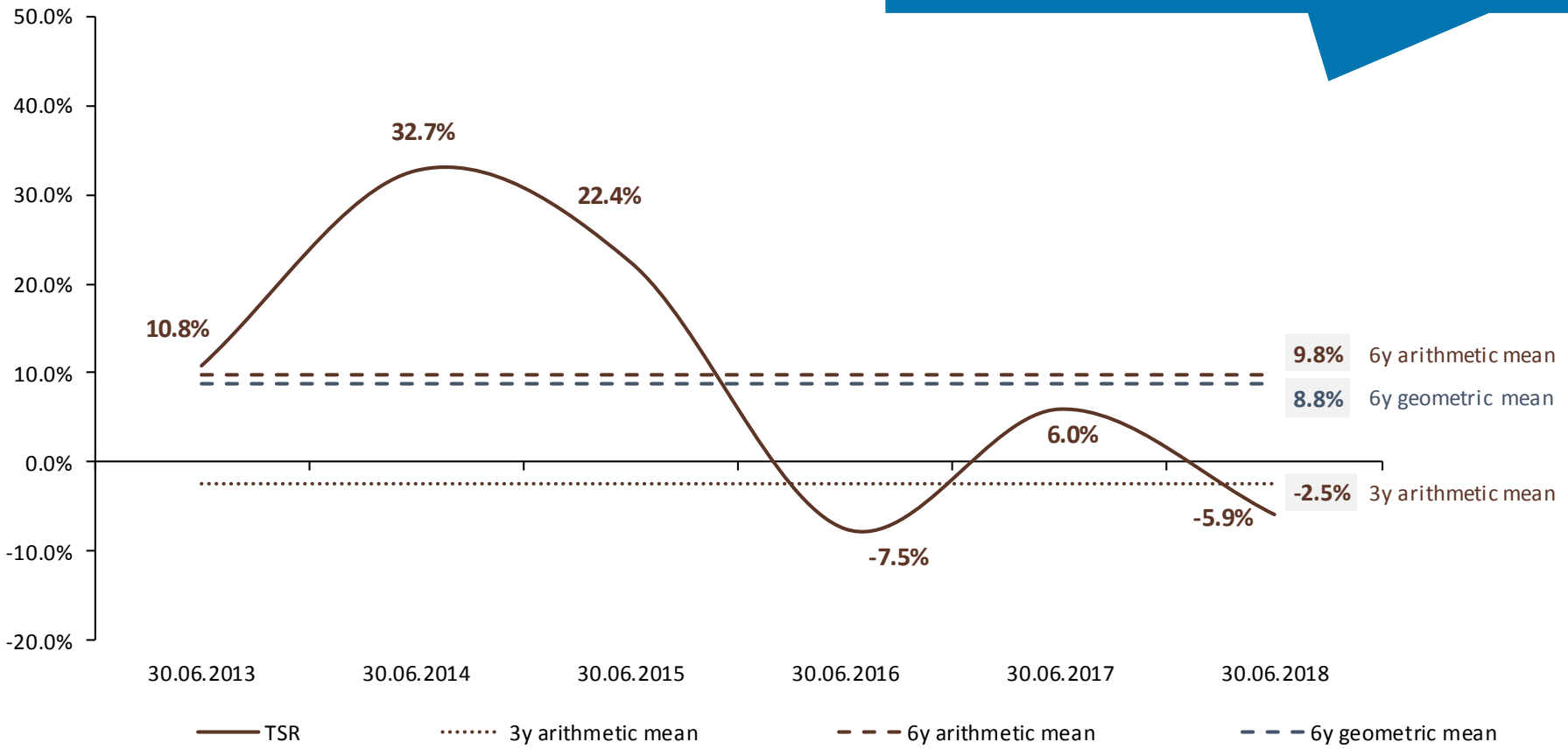
Total shareholder returns - Consumer Cyclicals



Total Shareholder Returns
Telecommunications Services

- In comparison to other sectors, the Telecommunications Services sector showed the weakest performance with 3y and 6y arithmetic means at -2.5% and 9.8%, respectively.
- In addition, the Telecommunication Services sector has the lowest one-year total shareholder return with -5.9 % as of 30 June 2018.

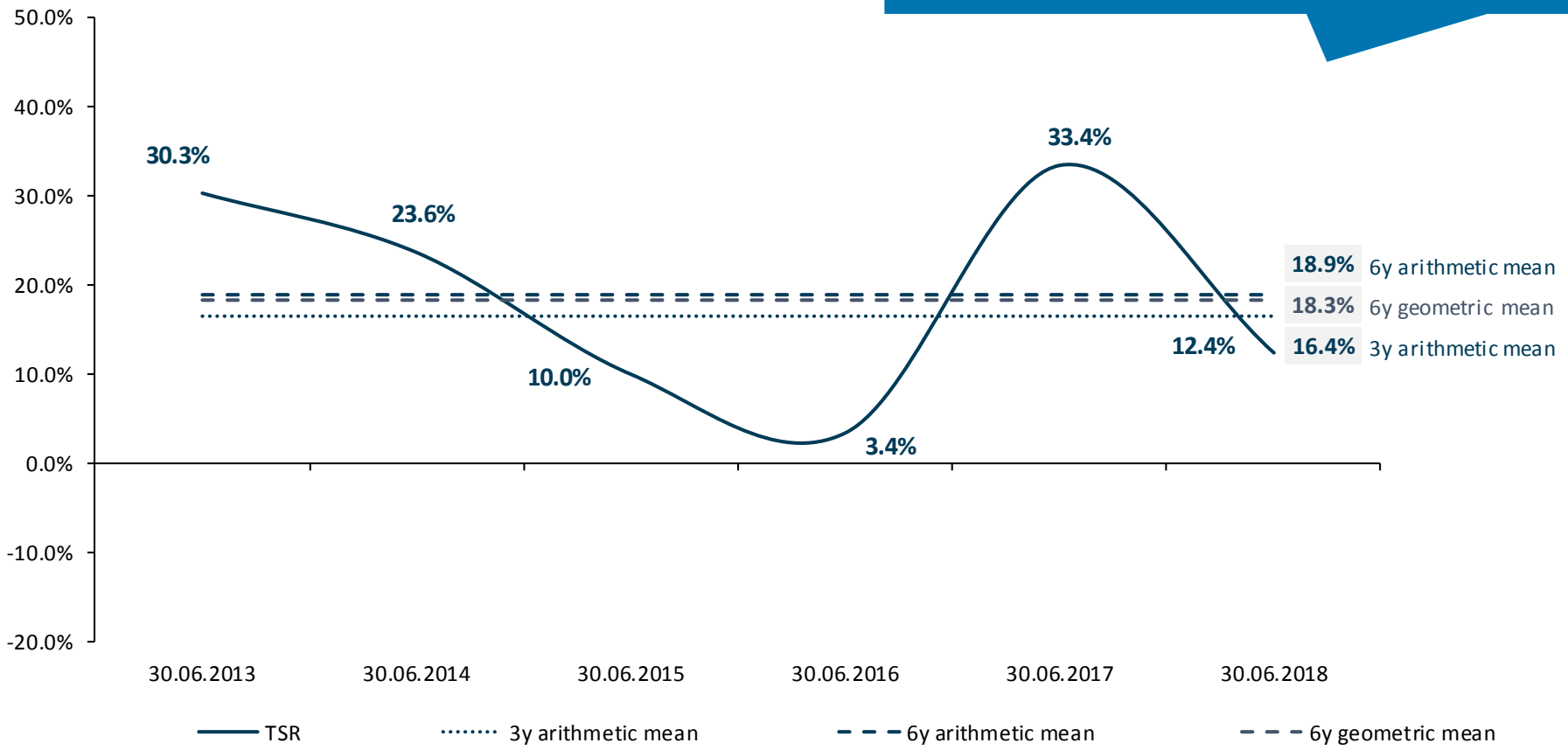
Total shareholder returns - Telecommunications Services



Total Shareholder Returns
Industrials

- In comparison to other sectors, the Industrials sector has the third highest 3y and 6y arithmetic means with 16.4% and 18.9%, respectively.

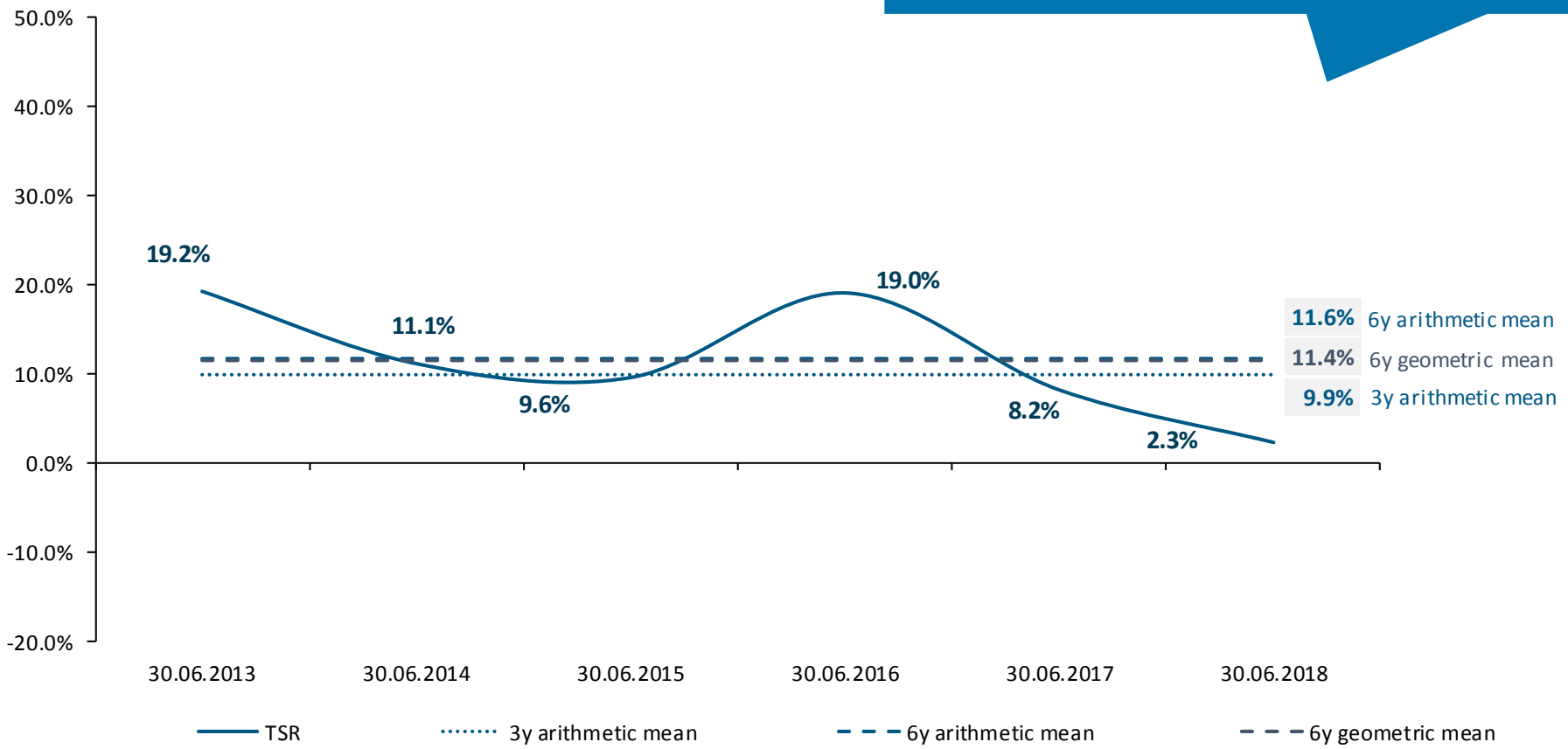
Total shareholder returns - Industrials



Total Shareholder Returns
Consumer Non-Cyclicals

- In comparison to other sectors, the Consumer Non-Cyclicals sector has the second lowest 6y arithmetic mean with 11.6%.
- Overall, the fluctuation of the total shareholder return since 31 December 2013 has been comparably small (2.3% to 19.2%).

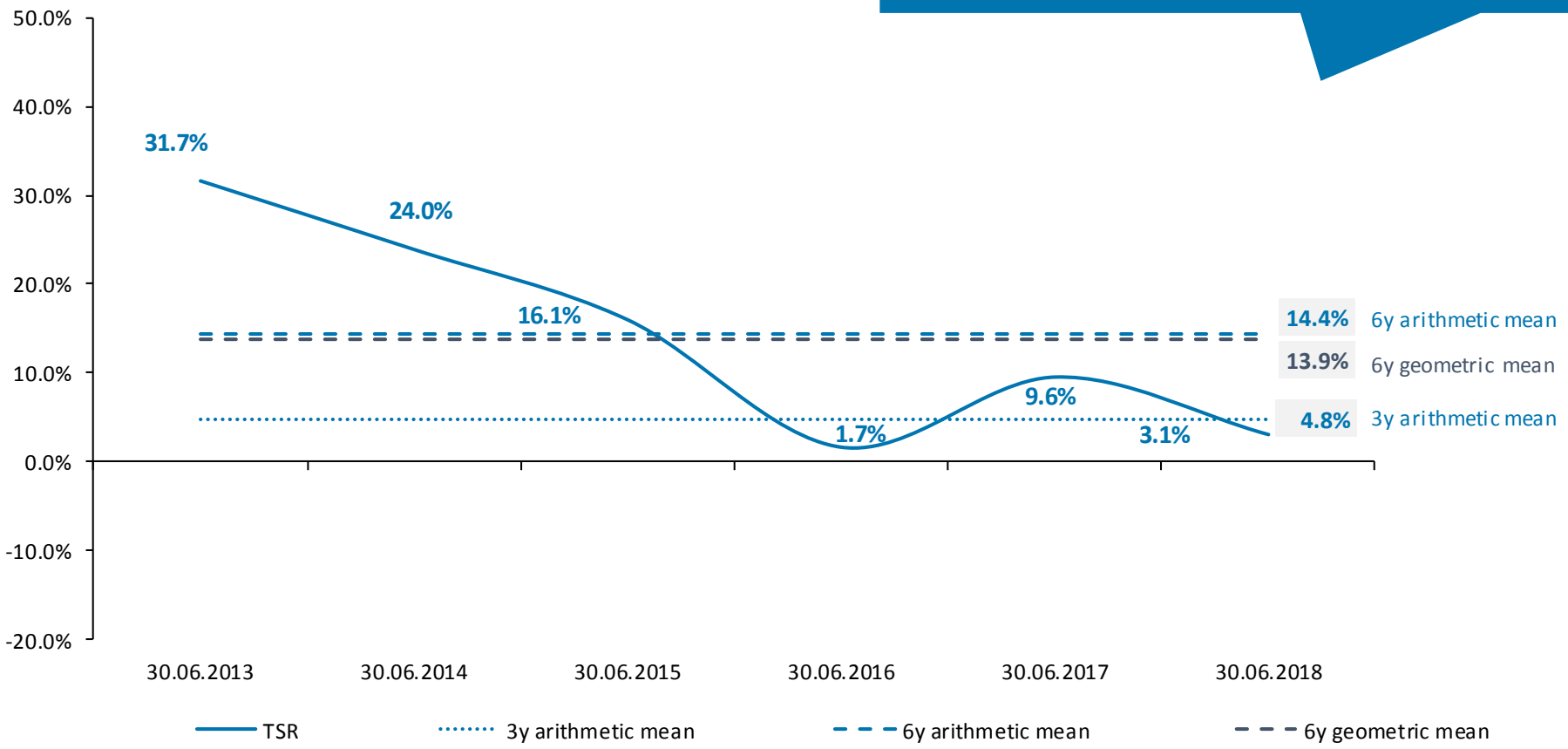
Total shareholder returns - Consumer Non-Cyclicals



Total Shareholder Returns
Healthcare

- In comparison to other sectors, the Healthcare sector has the second lowest 3y arithmetic mean with 4.8%.
- Overall, we can identify a decreasing trend starting at 31.7% as of 30 June 2013 and decreasing to 3.1% as of 30 June 2018.

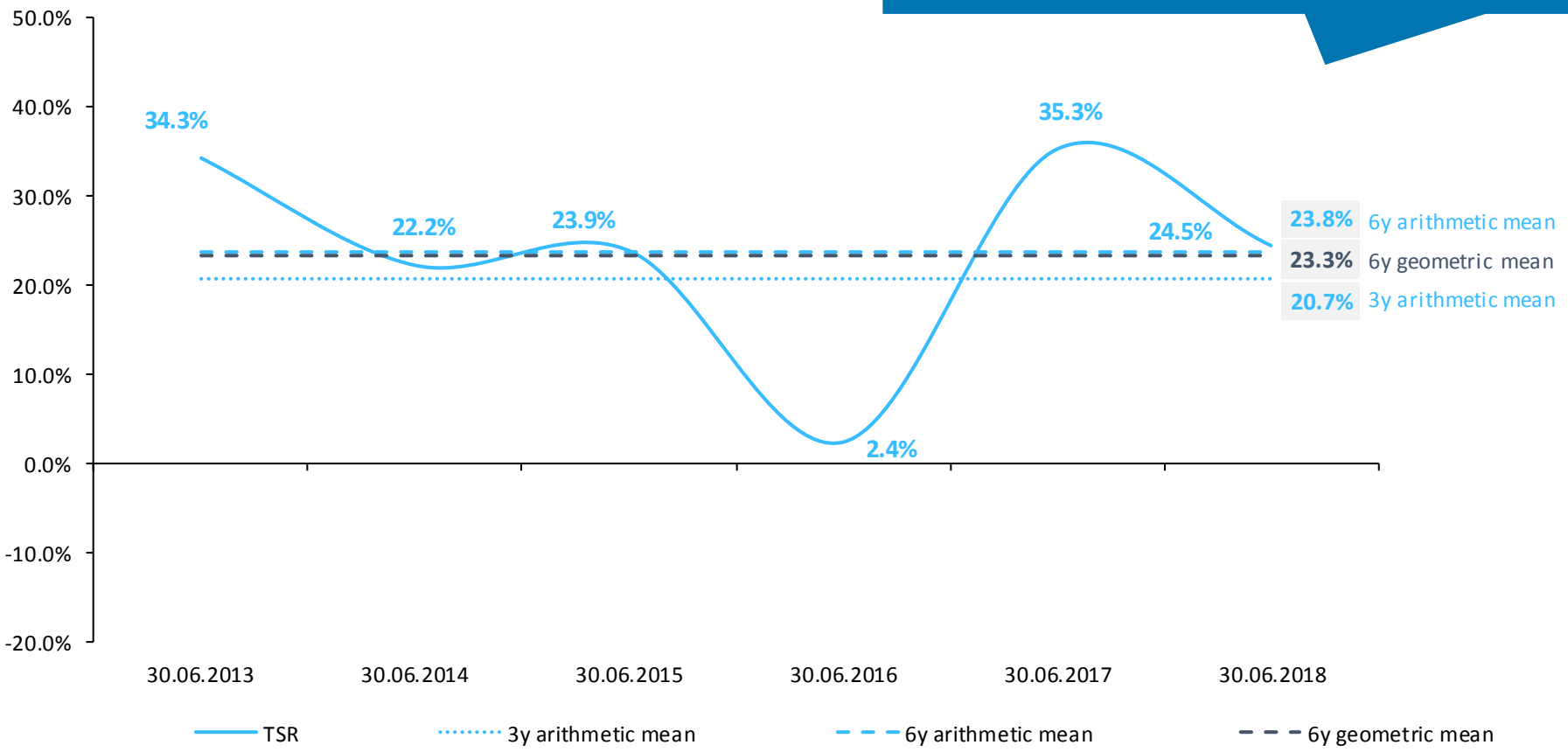
Total shareholder returns - Healthcare



Total Shareholder Returns
Technology

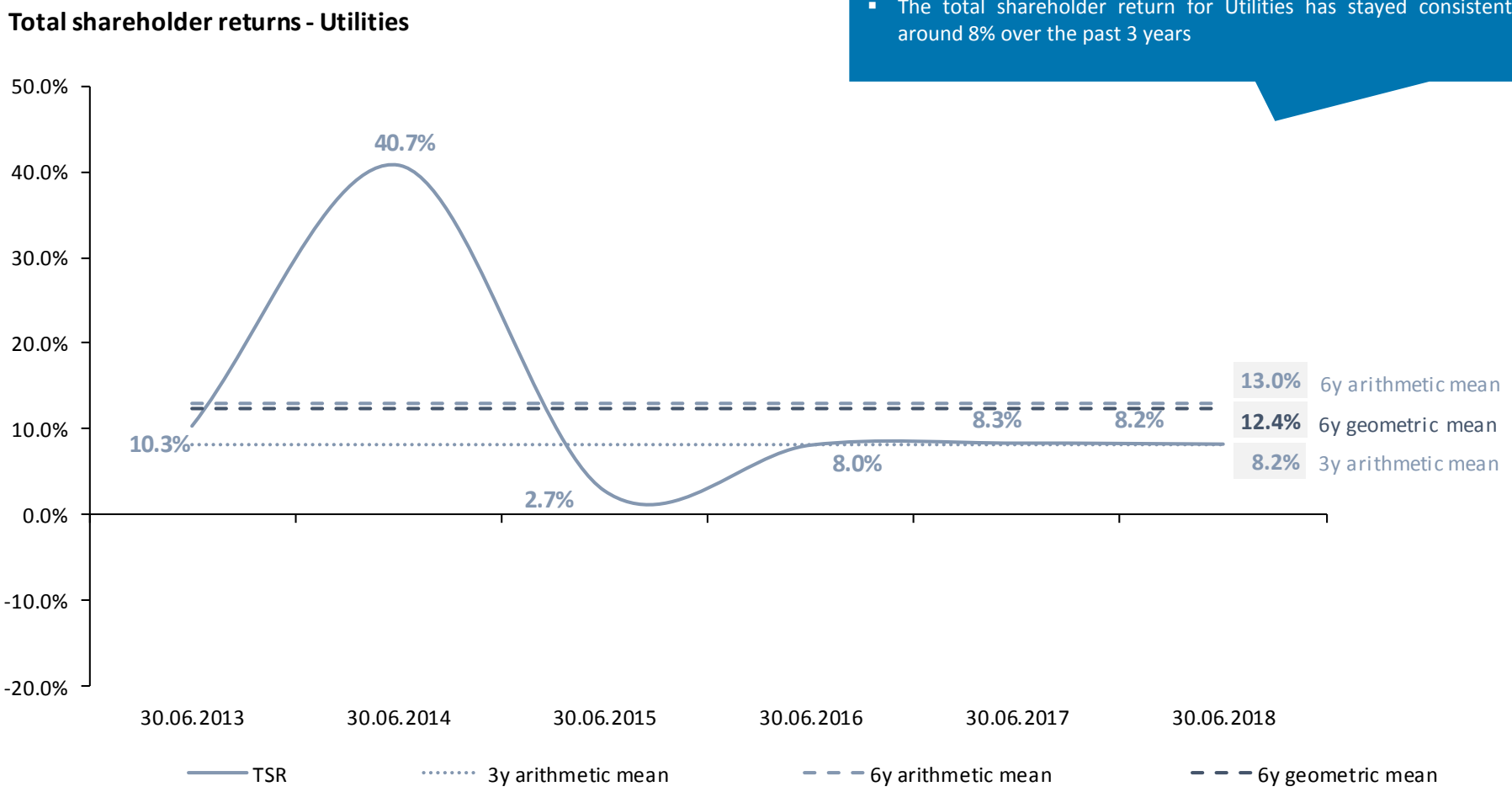
- The Technology sector showed by far the best performance, having the highest 3y and 6y arithmetic mean of total shareholder returns with 20.7% and 23.8%, respectively.

Total shareholder returns - Technology



Total Shareholder Returns
Utilities

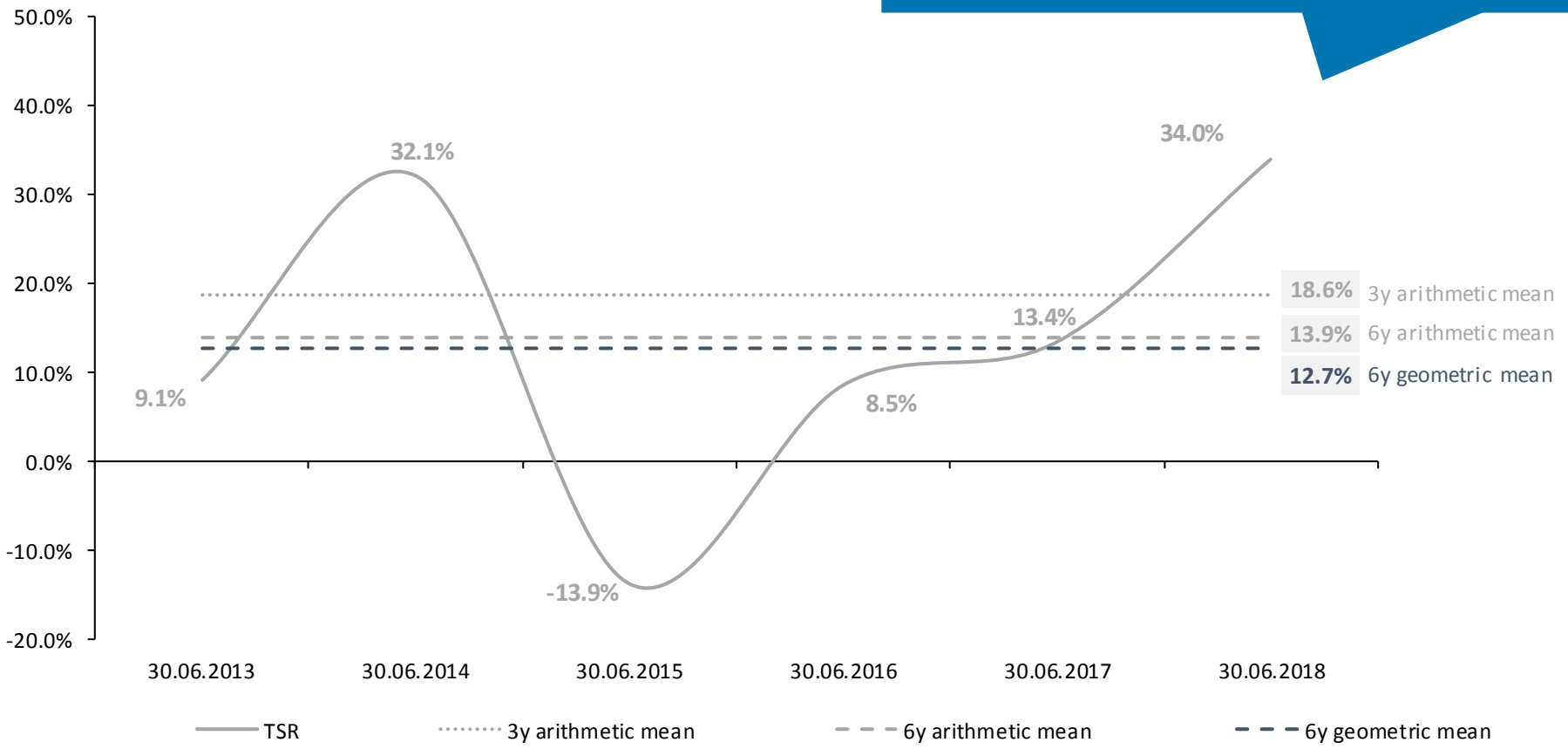
- The total shareholder return for Utilities has stayed consistently around 8% over the past 3 years



Total Shareholder Returns
Energy

- The total shareholder return for the Energy sector has been on an increasing trend starting at -13.9% as of 30 June 2015 and rising up to 34.0% as of 30 June 2018.
- In comparison to other sectors, the Energy sector has the highest total shareholder return as of 30 June 2018 with 34.0%.

Total shareholder returns - Energy



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 STOXX Europe 600 sectors**. 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 two different reference values. Firstly, the reference values are based on a company's realized trailing last 12 months, which represent its financial performance for the past 12-months period (so-called **trailing-multiples,** in the following "**LTM**"). Secondly, the reference values are based on one-year forecasts of analysts (so-called **forward-multiples**, in the following "**1yf**"). Both approaches are typically not limited to the end of the fiscal year. The Price-to-Book Value-Multiples are calculated with the book values as of reference date (30 June 2018).

To calculate the multiples, we source the data from the data provider Thomson Reuters. We provide a tabular illustration of the sector specific weighted averages of the multiples as of 30 June 2018 on the following slide.

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
LTM and 1yf as of 30 June 2018

	EV/Revenue		EV/EBIT		P/E		EqV/BV
Sector	LTM	1yf	LTM	1yf	LTM	1yf	
Financials	n.a.	n.a.	n.a.	n.a.	12.1x	10.7x	0.9x
Basic Materials	1.5x	1.5x	12.6x	11.0x	15.3x	13.9x	2.0x
Consumer Cyclicals	1.1x	1.1x	11.7x	10.8x	12.8x	12.1x	2.0x
Telecommunications Services	1.9x	1.9x	14.5x	13.1x	15.0x	13.7x	1.4x
Industrials	1.3x	1.3x	15.5x	13.5x	17.7x	16.5x	3.0x
Consumer Non-Cyclicals	1.8x	1.9x	17.0x	14.9x	14.8x	17.7x	3.1x
Healthcare	3.5x	3.2x	15.9x	13.2x	23.9x	15.6x	3.6x
Technology	2.5x	3.0x	25.2x	16.6x	63.4x	21.6x	3.8x
Utilities	1.0x	1.2x	14.9x	12.1x	11.9x	13.4x	1.4x
Energy	0.9x	0.8x	14.5x	9.0x	20.0x	12.4x	1.5x
All	1.6x	1.6x	13.7x	11.2x	16.0x	13.7x	1.7x

Reading example:

The weighted average of the Telecommunications Services EV/EBIT ratio calculated on the basis of the last 12 months is 14.5x as of the reference date 30 June 2018.

EUR 200m in EBIT over the last twelve months would hence result in an enterprise value of EUR 2,900m.

Note: For companies in the Financials sector, Revenue- and EBIT-Multiples are not meaningful and thus are not reported.

Trading Multiples

Sector multiples ranking (LTM and 1yf as of 30 June 2018)

	EV/Revenue		EV/EBIT		P/E		EqV/BV	Ø Ranking
Sector	LTM	1yf	LTM	1yf	LTM	1yf		
Financials	n.a.	n.a.	n.a.	n.a.	9	10	10	9.7
Basic Materials	5	5	8	7	5	5	5	5.7
Consumer Cyclicals	7	8	9	8	8	9	6	7.9
Telecommunications Services	3	4	7	5	6	6	9	5.7
Industrials	6	6	4	3	4	3	4	4.3
Consumer Non-Cyclicals	4	3	2	2	7	2	3	3.3
Healthcare	1	1	3	4	2	4	2	2.4
Technology	2	2	1	1	1	1	1	1.3
Utilities	8	7	5	6	10	7	8	7.3
Energy	9	9	6	9	3	8	7	7.3

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

The EqV/BV-Multiple of the Utilities sector ranks 8th highest in a comparison of all sectors. Overall, the average ranking of the Utilities sector is 7.3, indicating a comparably low valuation level.

Note: Multiples are ranked from highest to lowest values: 1 – highest (red), 9/10 – lowest (dark green)).

Appendix

Composition of the sectors as of 30 June 2018

Appendix
Composition of as the STOXX sectors of 30 June 2018

Financials

3I GROUP PLC
AAREAL BANK AG
ABN AMRO GROUP NV
ADMIRAL GROUP PLC
ADYEN NV
AEGON N.V.
AGEAS NV
AIB GROUP PLC
ALLIANZ SE
AMUNDI SA
AROUNDTOWN SA
ASR NEDERLAND NV
ASSICURAZIONI GENERALI SPA
AVIVA PLC
AXA SA
BALOISE HOLDING LTD
BANCO BILBAO VIZCAYA ARGENTARIA SA
BANCO BPM SPA
BANCO COMERCIAL PORTUGUES, S.A.
BANCO SABADELL
BANCO SANTANDER SA
BANK OF IRELAND
BANKIA SAU
BANKINTER, S.A.
BARCLAYS PLC
BEAZLEY PLC
BNP PARIBAS SA
BOLSAS Y MERCADOS ESPANOLES SHMSF SA
BPER BANCA SPA
BRITISH LAND COMPANY PLC (THE)
CAIXABANK, S.A.
CAPITAL & COUNTIES PROPERTIES PLC
CASTELLUM AB
CEMBRA MONEY BANK AG
CLOSE BROTHERS GROUP PLC
CNP ASSURANCES
COFINIMMO S.A.
COMMERZBANK AKTIENGESELLSCHAFT
COVIVIO SA
CREDIT AGRICOLE SA
CREDIT SUISSE GROUP AG
CYBG PLC
DANSKE BANK AS
DERWENT LONDON PLC
DEUTSCHE BANK AKTIENGESELLSCHAFT
DEUTSCHE BOERSE AG
DEUTSCHE WOHNEN SE
DIRECT LINE INSURANCE GROUP PLC
DNB ASA
ERSTE GROUP BANK AG
EURAZEO SE
EURONEXT NV
FABEGE AB
FASTIGHETS AB BALDER
FINECOBANK BANCA FINECO SPA
GAM HOLDING AG
GECINA
GJENSIDIGE FORSIKRING ASA
GREAT PORTLAND ESTATES P.L.C.
GRENKE AG
HAMMERSON PLC
HANNOVER RUECK SE
HARGREAVES LANSDOWN PLC
HELVETIA HOLDING AG
HISCOX PLC
HSBC HOLDINGS PLC
ICADE
IG GROUP HOLDINGS PLC
INDUSTRIVARDEN AB
ING GROEP N.V.
INMOBILIARIA COLONIAL SOCIMI SA
INTERMEDIATE CAPITAL GROUP PLC
INTESA SANPAOLO SPA
INTU PROPERTIES PLC
INVESTEC PLC
INVESTOR AB
IWG PLC
JULIUS BAER GRUPPE AG
JUPITER FUND MANAGEMENT
JYSKE BANK AS
KBC GROUP NV
KINNEVIK AB
KLEPIERRE SA
KOMERCNI BANKA, A.S.
L E LUNDBERGFORETAGEN AB (PUBL)
LAND SECURITIES GROUP PLC
LEG IMMOBILIEN AG
LEGAL & GENERAL GROUP PLC
LLOYDS BANKING GROUP PLC
LONDON STOCK EXCHANGE GROUP PLC
MAN GROUP PLC
MAPFRE SA
MEDIOBANCA SPA
MERLIN PROPERTIES SOCIMI SA
METRO BANK PLC
MUENCHENER RUECK VERSICHERUNGEN
NATIXIS
NEX GROUP PLC
NN GROUP NV
NORDEA BANK AB
OLD MUTUAL LTD
PARGESA HOLDING SA
PARTNERS GROUP HOLDING
PHOENIX GROUP HOLDINGS
PRUDENTIAL PLC
PSP SWISS PROPERTY AG
QUILTER PLC
RAIFFEISEN BANK INTERNATIONAL AG
ROYAL BANK OF SCOTLAND GROUP PLC
RSA INSURANCE GROUP PLC
SAMPO OYJ
SCHRODERS PLC
SCOR SE
SEGRO PLC
SIMCORP AS
SKANDINAVISKA ENSKILDA BANKEN
SOCIETE GENERALE
ST. JAMES'S PLACE PLC
STANDARD CHARTERED PLC
STANDARD LIFE ABERDEEN PLC
STOREBRAND ASA
SVENSKA HANDELSBANKEN AB
SWEDBANK AB
SWISS LIFE HOLDING AG
SWISS PRIME SITE
SWISS RE AG
SYDBANK AS
TAG IMMOBILIEN AG
TP ICAP PLC
TRYG A/S
UBS GROUP AG
UNIBAIL RODAMCO SE
UNICREDIT SPA
UNIONE DI BANCHE ITALIANE SPA
VONOVIA SE
ZURICH INSURANCE GROUP LIMITED

Appendix
Composition of as the STOXX sectors of 30 June 2018

Basic Materials

AIR LIQUIDE
AKZO NOBEL N.V.
ANGLO AMERICAN PLC
ANTOFAGASTA PLC
ARCELORMITTAL SA
ARKEMA SA
AURUBIS AG
BASF SE
BHP BILLITON PLC
BILLERUDKORSNAS AB (PUBL)
BOLIDEN AB
BRENNTAG AG
CLARIANT AG
COVESTRO AG
CRH PLC
CRODA INTERNATIONAL PLC
DS SMITH PLC
EMS-CHEMIE HOLDING AG
EVONIK INDUSTRIES AG
EVRAZ PLC
FRESNILLO PLC
FUCHS PETROLUB SE
GIVAUDAN SA
GROEP BRUSSEL LAMBERT NV
HEIDELBERGCEMENT AG
HENKEL AG AND CO. KGAA
HEXPOL AB
HUHTAMAKI OYJ
IMCD GROUP BV
IMERYS SA
JOHNSON MATTHEY PUBLIC LIMITED COMPANY
K&S AG
KAZ MINERALS PLC
KONINKLIJKE DSM N.V.
LAFARGEHOLCIM LTD
LANXESS AG
LINDE
MONDI PLC
NORSK HYDRO ASA
NOVOZYMES A/S
POLYMETAL INTERNATIONAL PLC
RANDGOLD RESOURCES LIMITED
RIO TINTO PLC
RPC GROUP PLC
SIKA AG
SMURFIT KAPPA GROUP PLC
SOLVAY SOCIETE ANONYME
STORA ENSO OYJ
SYMRISE AG
THYSSENKRUPP AG
TRELLEBORG AB (PUBL.)
UPM-KYMMENE OYJ
VICTREX PLC
VISCOFAN SA
VOEST-ALPINE AG
WACKER CHEMIE AG
WIENERBERGER AG
YARA INTERNATIONAL ASA

Consumer Cyclicals (1/2)

ACCOR
ADIDAS AG
AMER SPORTS OYJ
ASSA ABLOY AB
AXEL SPRINGER AG
B&M EUROPEAN VALUE RETAIL SA
BARRATT DEVELOPMENTS PLC
BAYERISCHE MOTOREN WERKE
BELLWAY P.L.C.
BERKELEY GROUP HOLDINGS PLC
BURBERRY GROUP
CARNIVAL PLC
CHRISTIAN DIOR
CINEWORLD GROUP PLC
COMPAGNIE DE SAINT GOBAIN SA
COMPAGNIE FINANCIERE RICHEMONT SA
COMPAGNIE PLASTIC OMNIUM
COMPASS GROUP PLC
CONTINENTAL AG
DAILY MAIL AND GENERAL TRUST PLC
DAIMLER AG
DIXONS CARPHONE PLC
DUFRY AG
ELECTROLUX AB
EXOR NV
FAURECIA SA
FERGUSON PLC
FERRARI NV
FIAT CHRYSLER AUTOMOBILES NV
GEBERIT AG
GVC HOLDINGS PLC
H & M HENNES & MAURITZ AB
HELLA GMBH & CO KGAA
HERMES INTERNATIONAL SCA
HOWDEN JOINERY GROUP PLC
HUGO BOSS AG
HUSQVARNA
INCHCAPE PLC
INDITEX
INFORMA PLC
INTERCONTINENTAL HOTELS GROUP PLC
ITV PLC
JCDECAUX SA
KERING
KINDRED GROUP PLC
KINGFISHER PLC
KINGSPAN GROUP PLC
LAGARDERE S.C.A.
LUXOTTICA GROUP SPA
LVMH MOET HENNESSY LOUIS VUITTON SE
MARKS AND SPENCER GROUP PLC
MERLIN ENTERTAINMENTS PLC
MICHELIN
MONCLER SPA
NEXT PLC
NOKIAN TYRES PLC
OCADO GROUP PLC
OSRAM LICHT AG
PADDY POWER BETFAIR PLC
PANDORA A/S
PEARSON PLC
PERSIMMON PLC
PEUGEOT S.A.
PIRELLI & C
PORSCHE AUTOMOBIL HOLDING SE
PROSIEBENSAT 1 MEDIA SE
PUBLICIS GROUPE SA
RENAULT (REGIE NATIONALE DES USINES) SA
RHEINMETALL AG
ROCKWOOL INTERNATIONAL A/S

Appendix
Composition of as the STOXX sectors of 30 June 2018

Consumer Cyclicals (2/2)
RTL GROUP
SCHAEFFLER AG
SCHIBSTED ASA
SEB SA
SIGNIFY NV
SKY PLC
SODEXO
SSP GROUP LIMITED
TAYLOR WIMPEY PLC
THE SWATCH GROUP AG
TRAVIS PERKINS PLC
TUI AG
UBISOFT ENTERTAINMENT SA
VALEO SA
VIVENDI SA
VOLKSWAGEN AG
WH SMITH PLC
WHITBREAD PLC
WILLIAM HILL PLC
WPP PLC
ZALANDO SE

Telecommunications Services
1&1 DRILLISCH AG
ALTICE EUROPE NV
BT GROUP PLC
CELLNEX TELECOM SA
DEUTSCHE TELEKOM AG
ELISA OYJ
EUTELSAT COMMUNICATIONS
FREENET AG
ILIAD SA
INMARSAT PLC
KONINKLIJKE KPN NV
ORANGE SA
PROXIMUS NV
SES S.A.
SUNRISE COMMUNICATIONS GROUP AG
SWISSCOM
TELE2 AB
TELECOM ITALIA SPA
TELEFONICA DEUTSCHLAND HOLDING AG
TELEFONICA SA
TELENET GROUP HOLDING NV
TELENOR GROUP ASA
TELIA COMPANY AB
UNITED INTERNET AG
VODAFONE GROUP PUBLIC LIMITED COMPANY

Industrials (1/2)
AALBERTS INDUSTRIES NV
AB SKF
ABB LIMITED
ACKERMANS & VAN HAAREN
ACS GROUP
ADECCO GROUP AG
AENA SME SA
AEROPORTS DE PARIS
AGGREKO PLC
AIR FRANCE KLM SA
AIRBUS SE
ALFA LAVAL AB
ALSTOM SA
ALTRAN TECHNOLOGIES
ANDRITZ AG
AP MOELLER MAERSK A/S
ASHTEAD GROUP PLC
ATLANTIA SPA
ATLAS COPCO AB
BABCOCK INTERNATIONAL GROUP PLC
BAE SYSTEMS PLC
BALFOUR BEATTY PLC
BBA AVIATION PLC
BOLLORE
BOUYGUES SA
BUCHER INDUSTRIES AG
BUNZL PUBLIC LIMITED COMPANY
BUREAU VERITAS SA
CAPITA PLC
CNH INDUSTRIAL NV
COBHAM PLC
DASSAULT AVIATION
DEUTSCHE LUFTHANSA AG
DEUTSCHE POST AG
DKSH HOLDING AG
DOMETIC GROUP AB (PUBL)
DSV A/S
DUERR AG
EASYJET PLC
EDENRED S.A
EIFFAGE
ELECTROCOMPONENTS PLC
ELIS SERVICES SA
EPIROC AB
EUROFINS SCIENTIFIC SE (FRENCH BRANCH)
EXPERIAN PLC
FERROVIAL SA
FLSMIDTH & COMPANY A/S
FLUGHAFEN ZURICH AG
FRAPORT AG
G4S PLC
GEA GROUP AG
GEORG FISCHER AG
GETLINK SE
HALMA P.L.C.
HAYS PLC
HOCHTIEF AG
IMI PLC
INTERNATIONAL AIRLINES GROUP
INTERTEK GROUP PLC
ISS AS
KION GROUP AG
KONE OYJ
KONECRANES ABP
KONINKLIJKE BOSKALIS WESTMINSTER NV
KONINKLIJKE VOPAK NV
KUEHNE UND NAGEL INTERNATIONAL AG
LEGRAND S.A.
LEONARDO SPA
LOOMIS AB

Appendix
Composition of as the STOXX sectors of 30 June 2018

Industrials (2/2)

MAN SE
MEGGITT P.L.C.
MELROSE INDUSTRIES PLC
METSO OYJ
MTU AERO ENGINES AG
NIBE INDUSTRIER AB
OC OERLIKON CORPORATION PFAEFFIKON AG
POSTE ITALIANE SPA
PRYSMIAN SPA
RANDSTAD NV
RELX PLC
RENTOKIL INITIAL PLC
REXEL S.A.
ROLLS ROYCE HOLDINGS PLC
ROTORK P.L.C.
ROYAL MAIL PLC
RYANAIR HOLDINGS PLC
SAAB AB
SAFRAN
SANDVIK AB
SCHINDLER HOLDING AG
SCHNEIDER ELECTRIC SE
SECURITAS AB
SGS SA
SIEMENS AG
SKANSKA AB
SMITHS GROUP PLC
SOCIETE B I C SA
SPECTRIS PLC
SPIE SA
SPIRAX-SARCO ENGINEERING PLC
SUEZ SA
TELEPERFORMANCE SE
THALES SA
UMICORE SA
VAT GROUP AG
VINCI
VOLVO AB
WARTSILA OYJ ABP
WEIR GROUP PLC
WENDEL SE
WIRECARD AG
WOLTERS KLUWER NV

Consumer Non-Cyclicals

ANHEUSER BUSCH INBEV NV
ASSOCIATED BRITISH FOODS PLC
BARRY CALLEBAUT AG
BEIERSDORF AG
BRITISH AMERICAN TOBACCO P.L.C.
BRITVIC PLC
CARLSBERG AS
CARREFOUR S.A.
CASINO, GUICHARD-PERRACHON ET CIE
CHOCOLADEFABRIKEN LINDT & SPRUENGLI AG
CHR HANSEN HOLDING A/S
COCA COLA HBC AG
DANONE SA
DAVIDE CAMPARI MILANO SPA
DIAGEO PLC
ESSITY AB (PUBL)
ETABLISSEMENTS FR. COLRUYT SA
GLANBIA PLC
HEINEKEN HOLDING
HEINEKEN NV
HOMESERVE PLC
ICA GRUPPEN AB
IMPERIAL BRANDS PLC
J SAINSBURY PLC
JERONIMO MARTINS SGPS SA
KERRY GROUP PLC
KESKO OYJ
KONINKLIJKE AHOLD DELHAIZE NV
L'OREAL
MARINE HARVEST ASA
METRO AG
NESTLE S.A.
ORKLA ASA
PERNOD RICARD
RECKITT BENCKISER GROUP PLC
REMY COINTREAU
ROYAL UNIBREW A/S
SVENSKA CELLULOSA SCA AB
SWEDISH MATCH AB
TATE & LYLE PLC
TESCO PLC
UNILEVER N.V.
UNILEVER PLC
WM MORRISON SUPERMARKETS PLC

Appendix
Composition of as the STOXX sectors of 30 June 2018

Healthcare
AMBU A/S
ARGENX SE
ASTRAZENECA PLC
BAYER AG
BB BIOTECH AG
BIOMERIEUX SA
BTG PLC
COLOPLAST AS
CONVATEC GROUP PLC
DECHRA PHARMACEUTICALS PLC
ELEKTA AB (PUBL)
ESSILOR
FRESENIUS MEDICAL CARE AG & CO. KGAA
FRESENIUS SE & CO KGAA
GALAPAGOS NV
GENMAB A/S
GERRESHEIMER AG
GETINGE AB
GLAXOSMITHKLINE PLC
GN STORE NORD A/S
GRIFOLS SA
H. LUNDBECK A/S
INDIVIOR PLC
IPSEN SA
KONINKLIJKE PHILIPS NV
LONZA GROUP AG
MEDICLINIC INTERNATIONAL PLC
MERCK KGAA
MORPHOSYS AG
NMC HEALTHCARE LLC
NOVARTIS AG
NOVO NORDISK AS
ORION OYJ
ORPEA SA
QIAGEN N.V.
RECORDATI SPA
ROCHE HOLDING AKTIENGESELLSCHAFT
SANOFI S.A.
SARTORIUS AG
SHIRE PLC
SIEMENS HEALTHINEERS AG
SMITH & NEPHEW PLC
SONOVA HOLDING AG
STRAUMANN HOLDING AG
SWEDISH ORPHAN BIOVITRUM AB (PUBL)
UCB SA
UDG HEALTHCARE PLC
VIFOR PHARMA AG
WILLIAM DEMANT HOLDING

Technology
ALTEN
AMADEUS IT GROUP SA
AMS AG
ASM INTERNATIONAL NV
ASML HOLDING NV
ATOS SE
AUTO TRADER GROUP PLC
BE SEMICONDUCTOR INDUSTRIES N.V.
CAPGEMINI SE
DASSAULT SYSTEMES SE
DELIVERY HERO SE
DORMAKABA HOLDING AG
GEMALTO N.V.
HEXAGON AB
INFINEON TECHNOLOGIES AG
INGENICO GROUP SA
JUST EAT PLC
LOGITECH INTERNATIONAL SA
MICRO FOCUS INTERNATIONAL PLC
MONEYSUPERMARKET.COM GROUP PLC
NOKIA OY
PLAYTECH PLC
RIGHTMOVE PLC
SAP SE
SCOUT24 AG
SILTRONIC AG
SOFTWARE AG
SOPRA STERIA GROUP
STMICROELECTRONICS NV
TECAN GROUP AG
TELEFONAKTIEBOLAGET LM ERICSSON
TEMENOS AG
THE SAGE GROUP PLC

Utilities
A2A SPA
CENTRICA PLC
CEZ A.S
E.ON SE
EDP - ENERGIAS DE PORTUGAL S.A.
ELECTRICITE DE FRANCE
ENDESA SA
ENEL SPA
ENGIE SA
FORTUM OYJ
IBERDROLA S.A.
INNOGY SE
ITALGAS SPA
NATIONAL GRID PLC
NATURGY ENERGY GROUP SA
OERSTED A/S
PENNON GROUP PLC
RED ELECTRICA CORPORACION SA
RWE AG
SEVERN TRENT PLC
SSE PLC
TERNA RETE ELETTRICA NAZIONALE SPA
UNIPER SE
UNITED UTILITIES GROUP PLC
VEOLIA ENVIRONNEMENT SA

Energy
AKER BP ASA
BP PLC
DCC PLC
ENAGAS SA
ENI - ENTE NAZIONALE IDROCARBURI
EQUINOR ASA
GALP ENERGIA SGPS, S.A.
GLENCORE PLC
JOHN WOOD GROUP PLC
LUNDIN PETROLEUM AB
NESTE OYJ
OMV AKTIENGESELLSCHAFT
REPSOL SA
ROYAL DUTCH SHELL PLC
RUBIS SCA
SAIPEM SPA
SBM OFFSHORE NV
SIEMENS GAMESA RENEWABLE ENERGY SA
SNAM SPA
SUBSEA 7 S.A.
TECHNIPFMC PLC
TENARIS S.A.
TGS-NOPEC GEOPHYSICAL COMPANY ASA
TOTAL SA
TULLOW OIL PLC
VESTAS WIND SYSTEMS AS

VALUETRUST

FINANCIAL EXPERTS IN ACTION

ValueTrust is the sole financial advisory firm in the German-speaking countries that focuses on the core competencies of business valuation and corporate finance advisory. ValueTrust advises management, boards and investors in acquisitions, mergers, restructurings, disputes and litigations as well as value management.

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- Capital structure analysis and optimization

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- Party-related valuation opinions
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- Cost of capital optimization
- CFO and financial expert advice

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