

## ***Convenience Translation***

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This document is a translation of the report "Bericht über die Prüfung der Angemessenheit der Barabfindung für die beabsichtigte Übertragung der Aktien der Minderheitsaktionäre im Rahmen der Konzernverschmelzung der Linde Aktiengesellschaft, München, auf die Linde Intermediate Holding AG, München" which was written in German. The translation was performed by a professional translator. Ebner Stolz GmbH & Co. KG does not assume any responsibility for the correctness of the translation. The German version is authoritative for decision-making purposes.

Report  
on the Audit  
of the Fairness of the Cash Compensation  
for the Intended Squeeze-out  
of Shares Held by Non-Controlling Interests  
within the Framework of the Merger of

**Linde Aktiengesellschaft, Munich,**

and

**Linde Intermediate Holding AG, Munich,**

pursuant to Sec. 62 (5) UmwG in conjunction with  
Sec. 327c (2) sentence 4, Sec. 293e (1) AktG

**List of abbreviations**

<b>Abbreviation</b>	<b>Item</b>
AG	<i>Die Aktiengesellschaft</i> : a German journal for capital market-related law
AktG	<i>Aktiengesetz</i> : German Stock Corporation Act
BB	<i>Betriebs-Berater</i> : a German journal for commercial law
BewG	<i>Bewertungsgesetz</i> : German Valuation Act
BewP	<i>BewertungsPraktiker</i> : a trade journal for valuation professionals
BGH	<i>Bundesgerichtshof</i> : Federal Court of Justice
Bloomberg	Bloomberg Finance L.P., New York, USA
BVerfG	<i>Bundesverfassungsgericht</i> : German Federal Constitutional Court
CAGR	Compounded Annual Growth Rate
CAPM	Capital Asset Pricing Model
CF	Corporate Finance Magazine
DB	<i>Der Betrieb</i> : a German business administration journal
Ebner Stolz	Ebner Stolz GmbH & Co. KG, Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft, Stuttgart
ECJ	European Court of Justice
EMEA	Europe, Middle East and Africa

<b>Abbreviation</b>	<b>Item</b>
EUR	Euro
EURIBOR	European Interbank Offered Rate
EY	Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart
FAUB	Technical committee for business valuations and commerce of the Institute of Public Auditors in Germany
FB	<i>Finanz Betrieb</i> : a German journal on finance
HGB	<i>Handelsgesetzbuch</i> : German Commercial Code
HQ	Headquarters
HR	<i>Hochrechnung</i> : Extrapolation
IDW	Institut der Wirtschaftsprüfer in Deutschland e.V. [Institute of Public Auditors in Germany], Düsseldorf
IDW-FN	<i>IDW Fachnachrichten</i> : Newsletters from the IDW
IFRS	International Financial Reporting Standards
KPMG	KPMG AG Wirtschaftsprüfungsgesellschaft, Berlin
LG	<i>Landgericht</i> : Regional Court
Linde AG	Linde Aktiengesellschaft, Munich
Linde Intermediate	Linde Intermediate Holding AG, Munich
NZG	<i>Neue Zeitschrift für Gesellschaftsrecht</i> : a German journal for company law
OLG	<i>Oberlandesgericht</i> : Higher regional court

<b>Abbreviation</b>	<b>Item</b>
OP	Operating Profit
Praxair	Praxair, Inc., Danbury, USA
RBU	Regional Business Unit
UmwG	<i>Umwandlungsgesetz</i> : German law of reorganizations
WM	<i>Wertpapier-Mitteilung für Wirtschafts- und Bankrecht</i> : a German journal for commercial law and banking law notifications related to securities
WPg	<i>Die Wirtschaftsprüfung</i> : a German journal on public audits
WpÜGAngebV	<i>Verordnung über den Inhalt der Angebotsunterlage, die Gegenleistung bei Übernahmeangeboten und Pflichtangeboten und die Befreiung von der Verpflichtung zur Veröffentlichung und zur Abgabe eines Angebots</i> : Regulation on the Contents of Takeover Bids, the Consideration Paid in Takeover Bids and Mandatory Bids and the Exemption from the Duty to Publish and Tender a Bid
ZIP	<i>Zeitschrift für Wirtschaftsrecht</i> : a German journal for commercial law

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For technical reasons the following tables might include rounding differences of  $\pm$  one unit (EUR, percentage point, etc.)

## **A. Engagement and Performance of the Engagement**

At the request of the majority shareholder

**Linde Intermediate Holding AG, Munich,**

(hereinafter also referred to as "Linde Intermediate")

it is intended that the extraordinary general shareholders' meeting of

**Linde Aktiengesellschaft, Munich,**

(hereinafter also referred to as "Linde AG" or "Company")

should, as the transferor, pass a resolution on 12 December 2018 pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327a (1) AktG on the enforced transfer of shares ("squeeze-out") held by non-controlling shareholders to Linde Intermediate, the majority shareholder, in return for a fair cash compensation within the framework of a corporate merger that excludes non-controlling interests.

Pursuant to Sec. 62 (1) sentence 1 UmwG, the resolution of the shareholders' meeting on the cash compensation shall be passed within three months of concluding the merger agreement. The merger agreement between Linde Intermediate and Linde AG shall be concluded on 1 November 2018.

Pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327c (2) sentence 2 AktG, the fairness of the squeeze-out compensation must be reviewed by one or more court-appointed auditors. The auditors are selected and appointed by the court upon a joint application by Linde Intermediate and Linde AG.

We have been selected by the Regional Court of Munich I, which appointed us as auditor pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327c (2) sentence 3 and Sec. 293c (1) AktG by court order dated 30 April 2018 in the form of the corrective ruling dated 2 May 2018. Pursuant to Sec. 321 (4a) HGB, we confirm that we observed the laws regarding our independence during our fairness review.

In the course of our review, we observed the "Principles for the Performance of Business Valuations" issued by the Institute of Public Auditors in Germany released on 2 April 2008 (IDW S1 2008). Moreover, we observed IDW accounting practice statement 2/2017 "*Beurteilung einer*



*Unternehmensplanung bei Bewertung, Restrukturierungen, Due Diligence und Fairness Opinion*“ (assessment of the business planning for the purposes of valuations, restructuring, due diligence and fairness opinions).

When determining a fair cash compensation, the management board of Linde Intermediate availed of the professional services of EY, who also issued a professional report on their valuation. We inspected the valuation documentation in the course of our review activities.

The management board of Linde AG and the contact people they named to us willingly provided us with all the explanations and supporting documentation we requested. The completeness of the explanations and documentation provided was confirmed to us in a written declaration by the management board of Linde Intermediate and the management board of Linde AG.

We conducted our audit in the offices of Linde AG, the offices of EY in Munich, and in our own offices in Stuttgart, completing our work on 31 October 2018. In the process, we performed our review partly contemporaneously with the work by the independent valuer, EY, basing our review on the interim results of the valuation and the work done to prepare the report on the squeeze-out and the final results. We came to our assessment independently and at our own initiative.

The following meetings were held with the independent valuer and the representatives of Linde AG:

<b>Date</b>	<b>Participants</b>	<b>Topic</b>	<b>Location</b>
24 May 2018	Linde, EY, Ebner Stolz	Kick-Off	Conference call
26 June 2018	Linde, EY, Ebner Stolz	First discussion of various valuation issues, organizational matters	Office of Linde AG, Munich
12 July 2018	Linde, EY, Ebner Stolz	Plant tour	Premises of Linde AG, Leuna
17 July 2018	Linde, EY, Ebner Stolz	Business model, planning process, financing, legal matters	Office of Linde AG, Munich
18 July 2018	Linde, EY, Ebner Stolz	Plant tour	Premises of Linde AG, Unterschleißheim
6 September 2018	EY, Ebner Stolz	Introduction valuation modell & review	Office of Ernst & Young GmbH, Munich
17 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region East Asia	Conference call
18 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region Central Europe	Office of Linde AG, Munich
18 September 2018	Linde, EY, Ebner Stolz	Business planning, meeting with head of M&A	Office of Linde AG, Munich
18 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with CEO Gist	Office of Linde AG, Munich
19 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region South Asia & ASEAN	Office of Linde AG, Munich
19 September 2018	Linde, EY, Ebner Stolz	Market Intelligence	Office of Linde AG, Munich
19 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region Northern Europe	Office of Linde AG, Munich
19 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region UK & Africa	Office of Linde AG, Munich
19 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region Middle East & Eastern Europe	Office of Linde AG, Munich
20 September 2018	Linde, EY, Ebner Stolz	Business planning on RBU level, meeting with head of region South Pacific	Office of Linde AG, Munich
20 September 2018	Linde, EY, Ebner Stolz	Business planning, meeting with head of R&D	Office of Linde AG, Munich
20 September 2018	Linde, EY, Ebner Stolz	Business planning division Engineering, meeting with head of Finance and Controlling LE	Office of Linde AG, Munich
20 September 2018	Linde, EY, Ebner Stolz	Business planning, meeting with CEO/CFO Lincare	Office of Linde AG, Munich
18 October 2018	Linde, Ebner Stolz	Business planning, meeting with CFO Linde AG	Office of Linde AG, Munich

In addition, there were numerous further telephone conversations at a working level on various issues and aspects related to the valuation.

The fairness review was managed and conducted primarily by the auditors signing this report. They were supported by two senior managers, two managers and several experienced assistants.

Should there be any material changes in the financial position, financial performance or cash flows, or any other basis used for the valuation of Linde AG in the period between the conclusion of our review and the prospective date of 12 December 2018 on which the general shareholders' meeting of Linde AG passes a resolution on the forced transfer of shares held by minority shareholders to the majority shareholder (squeeze-out), then these must still be considered in the measurement of the compensation for the squeeze-out.

We make express reference to the fact that our activities did not include a review of the accounting, financial statements, consolidated financial statements, management reports and group management reports or management of Linde AG. Pursuant to Sec. 327c (2) AktG, a review of this nature is not included in the scope of our activities. The compliance of the financial statements and management reports as well as the consolidated financial statements and group management reports of Linde AG with the legal requirements was confirmed by the independent auditors appointed to perform this task, KPMG.

Execution of the assignment and the extent of our responsibility and liability is governed by the "General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften" dated 1 January 2017 attached to this report as Annex 3.

This report solely serves as an informative basis to be used by the parties involved to make a decision with regard to the squeeze-out in the framework of a merger of Linde AG as well as their consultants and legal advisors and the court which engaged us to conduct the review. In addition, a copy of this report may be provided to the minority shareholders of Linde AG. It may not be used for any other purposes.

With regard to the audit of the merger report, please refer to our separate report on the merger audit.

The following documents were made available for our review:

- Draft of the Transfer Report issued by Linde Intermediate on the prerequisites for a forced transfer of shares from the non-controlling interests in Linde AG to Linde Intermediate and the fairness of the cash compensation issued on 23 October 2018 including the prior draft versions of the report.
- Expert report from EY on the calculation of the business value of Linde AG dated 25 October 2018 (including the preceding draft versions) attached to the Transfer Report as Annex 6.
- Reports from KPMG on the audit of the HGB financial statements and combined management report of Linde AG for fiscal years 2015 to 2017

- Reports from KPMG on the audit of the IFRS consolidated financial statements and combined group management report of Linde AG for fiscal years 2015 to 2017
- Report from KPMG on the audit of the carve-out financial information of Linde AG's Americas Business for fiscal years 2016 and 2017
- Extrapolation for fiscal year 2018, planning projections for the individual divisions of Linde AG for fiscal years 2019 to 2022 and underlying planning assumptions
- Internal analyses from the controlling department of Linde AG
- Articles of incorporation of Linde AG, dated 7 August 2018
- Minutes of the meetings of the supervisory board of Linde AG from 28 September 2016 to 13 September 2018 and meetings of the management board of Linde AG from 19 April 2016 to 5 September 2018
- Excerpt from the commercial register of Linde AG and Linde Intermediate dated 2 May 2018
- Valuation documents from EY
- Publicly available information, capital market data in particular

## **B. Purpose, Nature and Scope of the Review Pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327c, Sec. 293e AktG**

### **I. Resolution on the Squeeze-Out**

Pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327b (1) AktG the majority shareholder sets the cash compensation for the squeeze-out. The majority shareholder must consider the circumstances of the company at the time the resolution is passed.

Linde Intermediate has set the cash compensation for the shares of the minority shareholders at EUR 188.24 per no-par value share of Linde AG.

Pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327a AktG the prerequisite for passing a resolution on the squeeze-out of minority interests in the framework of a merger is that the majority shareholder already holds 90 % (or more) of the shares in the common stock. The common stock of Linde AG amounts to EUR 475,476,940.80 and is divided into 185,733,180 no-par shares. By the end of our valuation work, Linde AG held 95,109 own shares. As of 31 October 2018, the majority shareholder directly held 170,874,958 shares or approximately 92.0 % of the subscribed capital pursuant to § 62 (1) UmwG in accordance with the submitted deposit certificate.

Pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327e (3) AktG, the shares of the minority shareholders of Linde AG pass by force of law and without any further formal deed of transfer to the majority shareholder, Linde Intermediate, upon the squeeze-out resolution being filed in the commercial register of Linde AG.

As compensation for the squeeze-out, the minority shareholders of Linde AG have a right under Sec. 62 (5) in conjunction with Sec. 327a (1) AktG to a fair compensation which must be paid out in cash. Pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327c (2) AktG, the fairness of the squeeze-out compensation must be reviewed by one or more court-appointed expert auditors.

## **II. Report of the Majority Shareholder**

According to Sec. 62 (5) UmwG in conjunction with Sec. 327c (2) sentence 1 AktG the majority shareholder of Linde AG – Linde Intermediate – must report to the shareholders' meeting of Linde AG in writing, explaining that the criteria for a squeeze-out are met and justifying the fairness of the compensation for the squeeze-out.

In the course of our activities, we reviewed the disclosures and explanations in the report on the squeeze-out, including the expert report contained therein as Annex 6, and the prior drafts of the report and valuation report, regarding the calculation, nature and amount of the cash compensation, to assess its fairness. Our engagement did not extend to a review of the other prerequisites for a fair compensation, including, but not limited to, a review of the completeness and accuracy of the report of the majority shareholder or an assessment of whether the squeeze-out would have the desired commercial effect.

## **III. Audit Report**

As the court-appointed auditors, we report in writing pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 293e and Sec. 327c (2) AktG on the findings of our audit and in accordance with our professional standards.

The focus of our review lay on an assessment of the fairness of the compensation set by the majority shareholder. In this regard, the auditor must review whether the methods to determine the compensation for the squeeze-out applied by the majority shareholder – in this case Linde Intermediate – are appropriate. In particular, the auditors should examine whether the business valuation used as a basis for determining the compensation complies with the "Principles for the Performance of Business Valuations" (IDW S1 2008) and whether the data on which this was based were properly derived and that the estimates concerning the future are plausible.

According to Sec. 62 (5) UmwG in conjunction with Sec. 293e sentence 2 AktG and Sec. 327c (2) sentence 4 AktG, the auditor's report must conclude with a declaration of whether the proposed cash compensation is fair. These include:

- which methods were used to determine the compensation for the squeeze-out
- the reasons why application of these methods is appropriate
- if more than one method has been applied, the respective cash compensation that would result from the various methods. At the same time, the report must illustrate which weighting has been given to the various methods when determining the proposed cash compensation and the underlying values and
- indicate any particular difficulties arising in the valuation.

## **C. Review of the Appropriateness of the Valuation Methods**

### **I. General Information**

The cash compensation is generally based on the results of a business valuation unless a higher listed price is relevant in light of the rulings handed down by the highest courts. In Sections 6.5 and 8, the report on the transfer contains comments on how the fair cash compensation was arrived at and how it can be justified.

In the valuation report attached to the report on the transfer as Annex 6 it is stated that the valuation standards which have been applied comply with the standards of business valuation now generally accepted in both theory and practice as reflected in the statements issued by the IDW, in particular, the IDW Standard, "Principles for the Performance of Business Valuations" dated 2 April 2008 (IDW S1 2008). In order to calculate the imputed compensation for the squeeze-out, the Company was valued using the discounted earnings method.

According to prevailing court rulings and generally accepted valuation practice, which the business valuation prepared by EY is based on, a fair compensation for the squeeze-out should be derived from an objectified measure of the business value. The objectified business value represents the "inter-subjective" verifiable value of future net earnings from the subjective perspective of the various shareholders which would result upon the company continuing to operate under the existing business concept. Should the business valuation be required by the articles of incorporation or contractual reasons, the valuation is performed from the perspective of the shareholder as a natural domestic tax-payer subject to unrestricted tax in Germany (IDW S1 2008 No. 31).

As explained in more detail below, we are of the opinion that the representations and comments made in the report on the squeeze-out relating to the valuation method used and the decision on the fairness of the cash compensation are accurate.



## **II. Valuation Principles**

### **1. Discounted Earnings Value**

Assuming the exclusive pursuit of financial objectives, a company's value is determined by the net present value of the net inflows associated with the ownership of the business to the owner (net earnings or cash flows from distributions and drawings, repayments of capital and capital contributions). The future net earnings value is basically the result of the cash flow which can be generated from continuing the company's operations. In addition, the liquidation value of any non-operating assets may also be considered. The net present value of these surpluses is derived by applying a discount rate that equates with the return of an investment that can be reasonably taken as an adequate alternative investment to an investment in the company being valued.

The present value of future earnings is thus the theoretically correct value of an enterprise. According to IDW S1 2008 No. 7, the business value can be determined using the discounted earnings method or the discounted cash flow method. In this case the business value of Linde AG has been determined by EY using the discounted earnings method which is most commonly used in Germany, both in practice for business valuations pursuant to stock corporation law and also recognized by the courts. Considering the fact that both methods lead to the same enterprise value if the underlying assumptions are identical, particularly as regards financing and the risk content of the tax shield as well as the use of appropriate formulas for adjusting the beta factor to the capital structure (see IDW S1 2008, No. 101) the discounted cash - flow method has not been used as an additional method of deriving the enterprise value, as permitted under the law.

In spite of the general acceptance of the discounted earnings method, it should be noted that this method is associated with uncertainties. For this reason, the business valuation presented to us by EY cannot determine the exact or true business value as of the valuation date (see BVerfG, 24 May 2012, 1 BvR 3221/10, No. 30 (juris); BGH, 29 September 2015, II ZB 23/14/14, No. 36 (bundesgerichtshof.juris); OLG Munich, 14 July 2009, 31 Wx 121/06, No. 10 (juris)). The numerous estimates and individual methodological decisions involved are not sufficient to justify a ruling on the correctness of the valuation, merely its fairness (see OLG Stuttgart, 17 October 2011, 20 W 7/11, No. 179 (juris)).

Considering potential synergies, the independent valuer EY has made an appropriate differentiation between genuine and pseudo (non-genuine) synergies. Genuine synergies are not realized until the measure underlying the reason for the valuation is executed (here: merger-related squeeze-out). Pseudo synergies are characterized by the fact that they can be realized even without the squeeze-out (see WPH Edition, Bewertung und Transaktionsberatung, 2018, Chapter C, No. 120). The

financial surpluses arising from pseudo synergies should be considered when determining an objectified business value (IDW i. d. F. 2008, No. 34). This only applies to the extent that the measures creating the synergies have already been initiated or documented in the business concept (see OLG Frankfurt, 26 January 2017, 21 W 75/15, No. 60 (BeckRS); OLG Düsseldorf, 10 March 2016, 26 W 14/13, No. 51 (BeckRS)). Genuine synergy effects should not play any role within the scope of an objectified business valuation (see OLG Frankfurt, 28 March 2014, 21 W 15/11, No. 146 (juris); OLG Stuttgart, 19 January 2011, AG 2011, pp. 420, 421; OLG Düsseldorf, 9 September 2009, ZIP 2009, pp. 2055, 2058; OLG Düsseldorf, 27 February 2004, AG 2004, pp. 324, 327; OLG Stuttgart, 4 February 2000, DB 2000, pp. 709, 710).

Pursuant to IDW S1 2008, No. 35, when determining objectified business values, an assumption is made that all financial surpluses which are available for distribution after considering the documented business concept and legal restrictions are distributed. In the continuation phase (known as the terminal value) a standardized assumption is made that the distribution patterns of the valuation object are equivalent to the distribution patterns of an alternative investment. According to IDW S1 2008 the assumption of an adequate alternative investment within the framework of an business valuation could also take the form that any retained earnings are fictitiously allocated directly to the shareholders which would also not affect the value of net earnings (as the shareholders could realize these by means of the higher share price due to the rise in retained earnings). From the perspective of the standardized shareholder subject to a lower personal income tax rate there is a certain value-added in retaining the earnings.

Due to the fact that the business value is determined from the perspective of the shareholders, the shareholders' tax burdens incurred on the dividends from the company and any gains realized from rises in the share price must also be considered. With regard to dividend payments, this only applies to the extent that these do not qualify as repayments of the owners' contribution account for tax purposes, which do not trigger any tax burden.

## **2. Liquidation Value**

According to the Principles for Performing Business Valuations, the liquidation value must be determined alternatively to the discounted earnings value if the net present value of financial surpluses resulting from a liquidation of the company exceeds the discounted earnings value, assuming the company is a going concern (see IDW S1 2008, No. 5).

According to the court rulings, the liquidation value should be applied if there is an intention to actually liquidate the company and the earnings forecasts of the company are negative for a sustained period (see BGH ruling dated 18 September 2006, AG 2006 sentence 887, 889; OLG Düsseldorf,

10 June 2009, 26 W 1/07, No. 96 et seq. (juris); OLG Düsseldorf, 29 July 2009, 26 W 1/08, No. 37 (juris); WP-Handbuch 2014, Vol. II, Part A No. 490). Neither of these are, however, the case here. The earnings forecasts of Linde AG have not been negative for a sustained period. Consequently, the liquidation value of Linde AG does not represent a minimum value.

Based on an approximate derivation of the liquidation value per share, the liquidation value lies below the proposed cash compensation.

### **3. Net Asset Value**

In contrast to the liquidation value, the net asset value is without any informative value when determining the overall value of a going concern, even if there are plans to liquidate the business (see IDW S1 2008, No. 6. OLG Stuttgart, 14 September 2011, 20 W 6/08, No. 202 (juris); OLG Düsseldorf, 28 January 2009, AG 2009, pp. 667, 668; Großfeld/Egger/Tönnies, Recht der Unternehmensbewertung, 8th edition, 2016, p. 329; LG Munich, 14 February 2014, 5 HK O 16505/08, *ratio decidendi* p. 64; LG Munich, 30 December 2009, 5 HK 15746/02 Der Konzern 2010, pp. 188, 194). Even in the case where a liquidation is planned, the liquidation value should be used, not the net asset value. It was not therefore necessary to determine this value.

### **4. Market Value**

In its DAT/ALTANA ruling dated 27 April 1999, the German Federal Constitutional Court [“BVerfG”] (AG 1999, pp. 566 et seq.) underscored the fact that the listed market price of the entity was relevant as it represented a minimum value when measuring a fair compensation in the event that a profit and loss transfer agreement is entered into and the entity is integrated into the structure of the group. The prevailing professional opinion and the court rulings of the Federal Court of Justice [“BGH”] (19 July 2010, AG 2010, pp. 629, 630) confirm that this also applies to a squeeze-out.

However, the duty to consider the market price when setting a fair cash compensation does not apply without restriction. It may be possible to set a cash compensation below the market price if the listed share price, in exceptional cases, does not represent the fair value of the shares. This is primarily the case when there has been no trading of the shares over a long period of time owing to a tight market and the individual shareholder has not been able to sell its shares at the listed price or when the listed share price has been manipulated (see OLG Düsseldorf, 4 October 2006, 26 W 7/06, DB 2006, pp. 2391, 2395, LG Frankenthal, 13 August 2013, 2 HK O 120/10; *ratio decidendi* pp. 13 et seq.). There is no tight market in the trade of shares in Linde AG according to the criteria of Sec. 5 (4) WpÜG-Angebotsverordnung [Regulation on bids].

In its ruling dated 19 July 2010 (II ZR 18/09, AG 2010, pp. 629 et seq., "Stollwerck") the Federal Court of Justice ruled that the market price of the share used to derive a fair cash compensation paid to squeeze-out minority shareholders must be measured on the average share price over a three-month period prior to announcement of the structural measures. With this ruling, the Federal Court of Justice partially overturned its former rulings and has now accepted the prevailing opinion in the technical literature (see, for example, Adolff, Unternehmensbewertung im Recht der börsennotierten Aktiengesellschaft, 2007, pp. 335 et seq.) and valuation practice.

The independent valuer properly determined the average market price to delineate a lower limit to the fair cash compensation.

## **5. Comparative Valuation**

In addition to the discounted earnings approach, valuation practice also uses so-called multiple methods to estimate a preliminary business value, ranges of business values, or to assess plausibility. Like the discounted earnings method, this valuation concept is also based on earnings. However, business value in this case is determined by multiplying earnings by a profit indicator. The multiples method is based on a comparative business valuation in the sense that suitable multiples are derived from the capital market data of publicly listed companies or transactions and transferred to the company being valued.

Such multiple-based valuations only represent a simplified valuation, but in some cases they can provide an indication of the plausibility of other methods (see IDW S1 2008, No. 143; for critical opinions on their informative value see: OLG Frankfurt 2 May 2011, 21 W 3/11, No. 83 (juris); OLG Frankfurt, 15 February 2010, 5 W 52/09; No. 105 (juris)). In addition to the analytical valuations conducted using the discounted earnings method, the independent valuer made a comparative valuation using trading and transaction multiples.

We have verified the plausibility of the multiple-based valuation performed by EY taking our own deliberations into account. In sum, it can be stated that the fundamental business value determined using the principles of IDW S1 2008, lies within the range of the multiple-based market valuation of comparable companies. In conclusion, the plausibility check does not reveal any indication that the calculated business value is too low in comparison to the current situation on the capital markets.

## 6. Prior Acquisitions by Linde Intermediate

In its ruling on 27 April 1999, the Federal Constitutional Court ruled that the price actually paid by a majority shareholder for shares in an entity it controlled could be ignored in the valuation of net equity when calculating a fair cash compensation pursuant to Sec. 305 AktG because they have no relationship to the “true” value of net equity held by the majority shareholder nor to the fair market value of the shares (see BVerfG, 27 April 1999, 1 BvR 1613/94, AG 1999, pp. 566, 568). The deliberations of a majority shareholder prior to taking or preparing any measure to alter the legal structure of the entity, such as making a takeover bid, with the concomitant willingness to pay a higher price, only apply to the situation of the majority shareholder and have no relevance for third parties. From the view of the minority shareholder, the (elevated) price paid by the majority shareholder for individual shares can only be realized if it managed to sell its shares to the majority shareholder. However, the minority shareholder has no constitutional right to force such a sale. This ruling agrees with the prevailing opinion in the technical literature and the rulings from the highest court (see, for all, Paulsen, in: Münchener Kommentar zum AktG, 4<sup>th</sup> edition, 2015, § 305, No. 82, BGH, 19 July 2010, II ZB 18/09, AG 2010, pp. 629, 632).

The European Court of Justice [“ECJ”] came to a similar conclusion in its ruling dated 15 October 2009 ((Rs. C 101/08, AG 2009, pp. 821 et seq.). In the opinion of the ECJ, European law does not contain any legal principle which would protect minority interests to the extent that the majority shareholder is duty-bound to buy shares at the same terms and conditions as those it accepted when it acquired its majority holding to obtain control or reinforce its control of the entity. The irrelevance of prices paid by the majority shareholder was once again expressly confirmed in a ruling handed down by the Federal Court of Justice (19 July 2010, II ZR 18/09, AG 2010, pp. 629, 632), by OLG Munich (26 June 2018, 31 Wx 382/15, No. 34 (BeckRS)), by OLG Düsseldorf (12 November 2015, I-26 W 9/14, No. 49 (BeckRS)), by OLG Stuttgart (4 May 2011, 20 W 11/08, AG 2011, pp. 560, 562), OLG Frankfurt (24 November 2011, 21 W 7/11, No. 30 (juris)), as well as the OLG Hamburg (27 March 2012, 13 W 20/09, *ratio decidendi*, p. 7), (for a similar view see also LG Munich, 21 June 2013, 5 HK O 19183/09, No. 322 et seq. (juris) etc.; and, for a contrary view that diverges from the ruling of the BGH, LG Frankfurt, 25 November 2014, 3-05 O 43/13, No. 86 (juris) and LG Hanover, 22 August 2012, 23 AktE 149/10). In sum, it can be stated that acquisition prices from prior share purchases are not relevant for the valuation.

### **III. Conclusion**

In conclusion, we are of the opinion that the approach of deriving the business value from a discounted earnings perspective to determine the required cash compensation is appropriate in the sense of Sec. 62 (5) UmwG in conjunction with Sec. 327a AktG.

There is no need to weight the various methods pursuant to Sec. 62 (5) UmwG in conjunction with Sec. 327c (2) sentence 4 AktG and Sec. 293e (1) sentence 3 No. 3 AktG due to the sole use of the discounted earnings value (including special items) to determine a point of departure for calculating the cash compensation.

## **D. Methods of Reviewing the Fairness of the Cash Compensation**

The fairness of the cash compensation must relate to the circumstances of the entity at the time the majority shareholder passes the resolution to force the transfer of the shares held by minority interests to the majority shareholder at the extraordinary general shareholders' meeting. The cash compensation is fair if it corresponds to the full value of the shares transferred. This corresponds to the pro rata share held in the objectified total value of the business (see IDW S1 2008 No.13).

The business valuation is based on the business planning of Linde AG for fiscal years 2018 (extrapolation) to 2022. From a technical perspective, fiscal year 2023 is the first year of the terminal value. In the course of our audit we examined the business planning to assess its consistency and review the plausibility of the assumptions made (see IDW AcPS 2/2017, No. 5). We based our examinations on analyses of past performance, explanations on the planning calculations, working papers of the independent valuer and published market data with an informative value. The contact people of Linde AG named to us provided us with detailed explanations on the business activities and basic drivers of the planning calculations. Moreover, to review the plausibility of the planning we calculated a number of indicators and trends in the planning and compared these to the available market data. For more details please see the comments below on the business planning of the Company.

Our analyses of past performance were based on the reports on the audit of the financial statements, management report, consolidated financial statements and group management report of Linde AG for fiscal years 2015 to 2017 as well as the carve-out financials regarding the operations sold in the course of the merger with Praxair which were audited by KPMG. The most significant factors were explained to us in discussions with the people named to us as sources of information.

To review the business valuation, we examined the valuation models provided to us electronically by the independent valuer as well as the valuation report itself. Responses to individual questions were provided to us orally or in writing. We examined whether the principles of IDW S1 2008 were observed in order to assess the methods used in the business valuation. We examined the discount rate using the working papers of the independent valuer and publicly available capital market data. We examined whether non-essential operating assets needed to be recognized separately based on the audit reports on the financial statements and interviews with the information sources named to us.

We put our audit focus on the following items when reviewing the fairness of the cash compensation:

- Complete representation of the company being valued,
- Plausibility of the planning statements and how up to date they were
- Analysis of the eliminations conducted in the analysis of past performance
- Correct application of IDW S1 2008
- Determination of terminal value and retained earnings
- Compilation of the peer group and determination of the beta factor

The differences in opinion that arose for isolated issues were discussed by Ebner Stolz and EY, the independent valuer, during the course of the review.

There were no other differences of opinion between Ebner Stolz and EY on our assessment of the fairness of the compensation by the time the valuation work was finalized. Correspondingly, our review report is not qualified in any regard and confirms in full the appropriateness of the cash compensation.



## **E. Audit Findings in Detail**

The generally accepted standards for the valuation of business enterprises explained in Section C represent abstract parameters that require specification in individual cases. We verified to our satisfaction that the general principles for the performance of business valuations have been appropriately applied in the specific methods used to value Linde AG, as explained below.

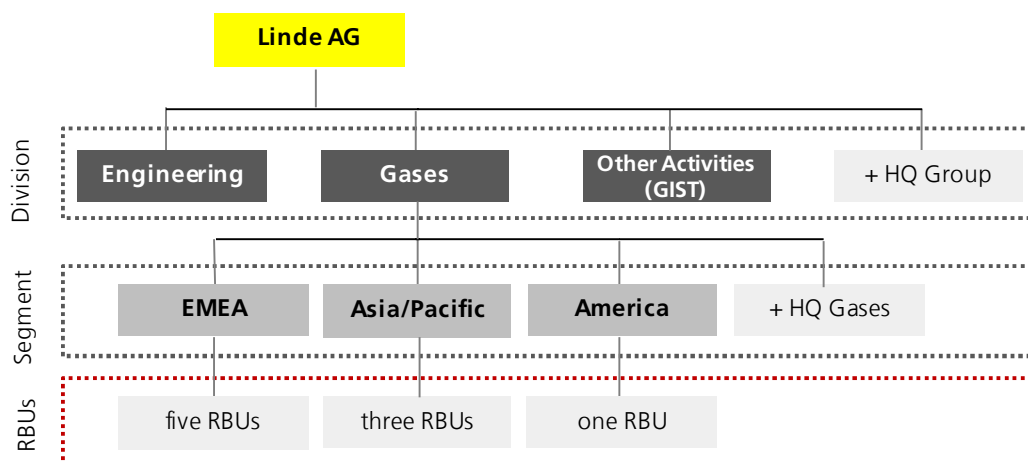
The business value of Linde AG was derived by the independent valuer from the discounted earnings value including separately-valued assets. Based on our findings we are of the opinion that this method is professional and suitably reflects the business value of Linde AG in a valuation model.

We verified all aspects of the valuation, including but not limited to, the derivation of future cash surpluses available for dividend distributions, the derivation of the discount rate and the discounting of future surpluses to the date of the valuation.

### **I. Valuation Object**

Our review relates to the cash compensation set by the majority shareholder – Linde Intermediate – for the forced transfer of shares held by minority interests to the majority shareholder of Linde AG. The valuation object is therefore Linde AG, including its subsidiaries and holdings.

The organizational structure of Linde AG is shown in the following diagram:



Linde AG, including its affiliated companies and holdings, is hereinafter also referred to as the “Linde Group”.

The business activities of the Linde Group mainly relate to the divisions Gases and Engineering and are therefore allocable to the global market for industrial gas. The logistics provider, GIST represents another business activity of the Linde Group which has been recognized under continuing operations since 30 June 2018 and considered in the planning calculations.

The main customers in the gas supply business are active in all fields of industry, wholesale and retail, trades, science and research and healthcare. In this regard, the core product is the production and sale of industrial, process and specialty gases. The Linde Group considers its integrated business model a particular competitive advantage enabling it to offer its customers a complete portfolio of services in the international gas and plant engineering business.

Another advantage over important competitors is the internal expertise with the processes used to plan, design and construct turn-key industrial plant and equipment for gas production. The Engineering division can fall back on the Group’s internal expertise at all levels of the product portfolio and simultaneously reduce the dependence on third parties. The goods and services offered by the Engineering division comprise air separation plant to produce atmospheric gases such as oxygen, nitrogen and inert gases, plant for liquifying and refining natural gas (LNG), petrochemical plant and equipment and plant used to produce hydrogen, carbon monoxide, synthetic gas, ammonium and methanol. Small plants through to major projects are ordered by customers all over the world.

The biggest division Gases comprises the three segments EMEA (Europe, Middle East and Africa), Asia/Pacific and America. Operational management within the segments is regionally structured in Regional Business Units (RBUs). In this division, the Linde Group produces and distributes industrial and medical gases. The industrial and medical gases are delivered to the customer in various forms or provided via on-site plant systems, according to customer needs. The service portfolio of the "Industrial Gases" business unit ranges from air gases such as oxygen, nitrogen and argon through to hydrogen, acetylene, carbon monoxide and carbon dioxide to shielding gases for welding applications, noble gases and high-purity specialty gases. These gases are used in just about every aspect of daily life and therefore cover a wide number of different sectors. In the Healthcare division, Linde offers healthcare products and services associated with respiratory care for patients. The product range comprises medical gases, devices, therapies and associated services. These services are not only provided in hospitals but also in long-term settings at the patient's home ("homecare"). In addition, Linde supplies hospitals with the gases they need ("hospital care").

Basically, there are a number of methods which can be considered for valuing a group of companies, like the Linde Group. Using the sum of the parts approach, each group company is valued separately, and in isolation, with the value of the group being determined by addition of the individual values. Alternatively, the value of the group can be derived directly on the basis of the consolidated earnings. A third form is the dividend distribution model by which the expected investment income in the form of dividend distributions from the various group entities are collated at the level of the parent company, in this case Linde AG.

The business planning of Linde AG prepared by the management board of Linde AG and provided to us comprises a projected consolidated income statement and a corresponding projected consolidated balance sheet as well as a consolidated projected statement of cash flow. The consolidated business planning covers the valuation object adequately.

## **II. Valuation Date**

12 December 2018 was chosen as valuation date. Pursuant to Sec. 327b (1) AktG, this treatment is correct because this is the day on which the extraordinary general shareholders' meeting of Linde AG will pass a resolution on the squeeze-out.

In the valuation model, the independent valuer set the date of the valuation at 1 January 2018 for technical purposes. The future financial surpluses available for distribution were discounted to this date in a first step. Thereafter the resulting net present value of future financial surpluses was

compounded geometrically to 12 December 2018 using the discount rate for the first year of the business plan (see LG Munich, 7 May 2014, 5 HK O 21386/12, *ratio decidendi* p. 59).

Using a discount rate of 5,81 % for the 346 days until the extraordinary shareholders' meeting results in the following interest factor:

$$\text{Geometric compounding: } 1.0550 = (1 + 0,0581)^{346/365}$$

We consider this approach to be appropriate. We verified the computational correctness of the compounding to the date of the valuation.

As an aside, it should be noted that a linear equation to compound the discounted future net earnings would not be correct. A linear equation would multiply the discount rate of the first year in the business plan with the quotient resulting from dividing the number of days to the valuation date with the number of days in the year (365) and would therefore ignore the effect of compounding during the year. Moreover, the result on the technical valuation date compounded to the true date of the valuation must lead to exactly the same result as if the net earnings had been discounted directly to the valuation date (see Popp/Kunowski, Berücksichtigung von Steuern, in Peemöller (Hrsg.), Praxishandbuch der Unternehmensbewertung, 6<sup>th</sup> edition, 2015, pp. 1311, 1320).

### **III. Discounted Earnings Value**

#### **1. Analysis of Historical Performance**

In order to estimate the earnings power of the Company and assess the plausibility of the planning statements, the independent valuer, EY, analyzed the historical results reported in the financial statements of Linde AG for fiscal years 2015 to 2017 and broke them down into income and expenses, with extraordinary items being eliminated and explained, in order to reveal the main profit drivers in the past.

In addition, it was of particular importance to take organizational changes within the Linde Group and accounting changes into consideration to eliminate non-recurring items from earnings. The adjustments and eliminations performed by EY break down into four sections:

- Disposals of parts of companies for regulatory reasons (“antitrust/cartel law disposals”)
- Consideration of the logistics provider GIST that was accounted for as a discontinued operation in certain fiscal years
- Accounting changes regarding goods and services delivered and provided to customers due to IFRS 15 (referred to as “tolling accounting” by the Company)
- Elimination of extraordinary and non-recurring items

The audited consolidated financial statements of Linde AG for fiscal years 2015 to 2017 were the points of departure for the analyses of past performance. Thus, earnings prior to adjustments were as follows:

<b>Linde Group, unadjusted</b>	2015		2016		2017	
	Actual		Actual		Actual	
	mEUR	%	mEUR	%	mEUR	%
Sales	17,944	100.0	16,948	100.0	17,113	100.0
Cost of Sales	11,575	64.5	10,847	64.0	11,274	65.9
<b>Gross profit</b>	<b>6,369</b>	<b>35.5</b>	<b>6,101</b>	<b>36.0</b>	<b>5,839</b>	<b>34.1</b>
Selling expenses	2,711	15.1	2,387	14.1	2,375	13.9
Research and development costs	132	0.7	121	0.7	112	0.7
General and administrative expenses	1,664	9.3	1,720	10.1	1,629	9.5
Other operating income	421	2.3	467	2.8	418	2.4
Other operating expense	252	1.4	278	1.6	216	1.3
Share of profit/loss from associates/ joint ventures	12	0.1	13	0.1	19	0.1
<b>EBIT</b>	<b>2,043</b>	<b>11.4</b>	<b>2,075</b>	<b>12.2</b>	<b>1,944</b>	<b>11.4</b>
Depreciation and amortisation of intangible assets and property, plant and equipment	1,896	10.6	1,897	11.2	1,896	11.1
<b>EBITDA</b>	<b>3,939</b>	<b>22.0</b>	<b>3,972</b>	<b>23.4</b>	<b>3,840</b>	<b>22.4</b>

Moreover, we were provided with analyses from the Linde accounting department regarding the result of operations and net assets of the logistics provider GIST for fiscal years 2016 and 2017. We were also provided with the combined annual financial statements from the business operations disposed of for cartel law reasons (“Carve-out Financial Statements”) for the fiscal years 2016 and 2017, which were audited by KPMG, and the associated list of account balances from the SAP system. We verified the plausibility of the analyses made by the independent valuer on this basis.

Pages 53 et seq. of the valuation report from EY contain explanations of the eliminations performed. For this purpose the independent valuer initially eliminated the effects of the operations **disposed of for cartel law reasons** (“disposals”) and remedied the different accounting treatment at the logistics services provider, GIST, in the annual reports of Linde AG and the effects of the “Tolling Accounting” at the level of revenue and operating profit and carried the effects through to the balance sheets.

According to the documents provided to us by the Company, the Disposals made to comply with cartel law affect the following entities. However, in many cases the disposals do not refer to legal entities but only to certain assets thereof. These are paid into newly founded companies previous to the transfer and only for this reason:

<b>Kartellrechtlich bedingte Veräußerungen</b>		
Betroffene Einheit	Land	Umfang der Veräußerung
<b>Basisverkäufe Amerikageschäft</b>		
Linde North America, Inc.	USA	Teilbereiche
Linde Gas North America, LLC	USA	Teilbereiche
Linde, LLC	USA	Teilbereiche
Linde Energy Services, Inc.	USA	rechtliche Einheit
Linde Merchant Production, Inc.	USA	rechtliche Einheit
Linde Canada Limited	Kanada	rechtliche Einheit
Linde Gas Puerto Rico Inc.	Puerto Rico	rechtliche Einheit
General Gases of the Virgin Islands Inc.	US Virgin Islands	rechtliche Einheit
Linde Gases Ltda	Brasilien	rechtliche Einheit
Linde – BOC Gases Limitada	Brasilien	rechtliche Einheit
Remeo Medical Services S.A.S.	Kolumbien	rechtliche Einheit
Linde Colombia SA.	Kolumbien	rechtliche Einheit
Linde Energy Service S.A.S. ESP.	Kolumbien	rechtliche Einheit
<b>Weitere Verkäufe Amerikageschäft</b>		
La Porte	USA	Vermögenswerte
Clear Lake	USA	Vermögenswerte
Weitere Anlagen	USA	Vermögenswerte
<b>Weitere Verkäufe in China</b>		
Guangkong Industrial Gases Company Limited	China	rechtliche Einheit
Guangzhou Pearl River Industrial Gases Company Limited	China	rechtliche Einheit
Linde GISE Gas (Guangzhou) Co., Ltd.	China	rechtliche Einheit
Linde GISE Gas (Shenzhen) Co., Ltd	China	rechtliche Einheit

Most of the disposals (referred to above as “base disposals Americas business”) are included in the carve-out financial statements audited by KPMG. EY has relied on the carve-out financial statements and eliminated the associated earnings and net assets from the Linde Group. Due to further antitrust/cartel law requirements, the Linde Group has made additional disposals in North America. EY has also eliminated these plus a number of other disposals made in 2018 without any connection to the Praxair merger. The latter disposals include most of all the sale of Tega - Technische Gase und

Gasetechnik GmbH, which was fully executed in 2018 and the sale of the Remeo business in Germany in the second half of 2018. Moreover, the eliminations also include the LPG business in Taiwan and the Iran gases business of the Linde Group.

Since the completion of the business plan on 5 September 2018, further divestments in line with antitrust regulations have become concrete. This concerns further HyCO systems and the laser business in the USA as well as the helium business in China and sites in India and South Korea. The resulting effect on the net assets and financial position of the Linde Group as of 2019 was reflected in an update of the business plan, which was confirmed by the Executive Board on 9 October 2018.

In the annual reports of Linde for the years 2016 and 2017, the logistics provider, **GIST**, was presented as a discontinued operation in light of the sale negotiations being conducted. However, the negotiations on the sale were cancelled in the second quarter of 2018. GIST is therefore a part of the mid-range planning of the Linde Group. In order to allow comparison of the planning with the historical figures, the independent valuer complemented the earnings and net assets reported in the years 2016 and 2017 to include the amounts attributable to GIST.

The first time application of the **new accounting standard, IFRS 15** on 1 January 2018 leads to offsetting the gross contract costs recognized to date against the cost reimbursements recognized through revenue for supply contracts in which the Linde Group does not have the power to dispose of the goods and services delivered (this mainly concerns energy supplies for on-site contracts). In comparison to prior years this results in a reduction of revenue and a corresponding decrease of the cost of sales. This change in the accounting policies therefore does not affect the operating result. However, from a purely technical perspective, the reduction of revenue leads to an increase in the profit margin. To allow comparison to the historical figures after considering the impact of the new IFRS 15 in the mid-range planning, the independent valuer, EY, adjusted the historical figures for revenue accordingly.

Based on the findings of our work, we are satisfied that the procedure chosen by EY is appropriate in all three points and has been properly executed.

In addition to the above adjustments made for technical reasons, EY has also eliminated non-recurring events from the historical figures in order to better allocate them to the planning. The eliminations performed by EY include the following matters:

- Restructuring expenses
- Expenses relating to the merger with Praxair
- Income and expenses from currency translation

We verified the reconciliations and eliminations on the basis of the documents provided to us. Moreover, we reviewed the eliminations in terms of completeness and accuracy and verified the reasons for the developments in the past. We believe that the eliminations performed by EY were appropriate.

The individual eliminations carried out by EY as well as the resulting adjusted revenue and operating results can be presented as follows:

<b>Linde Group</b>	2015 Actual mEUR	2016 Actual mEUR	2017 Actual mEUR
<b>Sales unadjusted</b>	<b>17,944</b>	<b>16,948</b>	<b>17,113</b>
Disposals	-1,820	-1,787	-1,877
GIST	0	587	580
Tolling Accounting	-382	-375	-377
<b>Sales adjusted</b>	<b>15,743</b>	<b>15,374</b>	<b>15,439</b>
<b>EBITDA unadjusted</b>	<b>3,939</b>	<b>3,972</b>	<b>3,840</b>
Expenses for restructuring measures	192	116	280
Expenses related to Praxair Merger	0	10	93
<b>Operating profit according to annual report</b>	<b>4,131</b>	<b>4,098</b>	<b>4,213</b>
Disposals	-385	-390	-411
GIST	0	44	23
<b>Operating profit adjusted</b>	<b>3,746</b>	<b>3,752</b>	<b>3,825</b>

In addition to the adjustments and eliminations performed by EY, in our view it would make sense to eliminate those issues from the historical financial information that, based on their nature, cannot typically be planned for and therefore are not considered in the planning statements of the Company. These include, in particular, some elements of other operating income and expenses reported in the annual reports of Linde AG, such as gains and losses on disposals of fixed assets, income and expenses from exchange rate differences, income from the reversal of provisions and the corresponding additions and income from changes to pension plans. More extensive eliminations of these matters would not have any impact on the result of the business valuation and would result in an annual reduction of the adjusted operating result for the years 2015 to 2017 in the order of high double to low triple digit million euros p.a.



## **2. Business Planning**

### **a) Planning Process**

The planning of Linde AG comprises integrated planning projections for earnings, the balance sheet and cash flow and has been prepared in accordance with IFRS. The planning horizon of Linde AG extends over a period of four years and therefore comprises the years 2019 to 2022. The planning statements provided are based on an extrapolation for the current fiscal year, which include the year-to-date figures for the first six months of 2018 and the budget figures for the second six months adjusted to reflect the latest expectations ("outlook 6+6").

The earnings projections comprise the planning statements for the individual regional units of the Gas business and the planning statements for the additional divisions "Engineering" and "GIST". These planning units (RBU = regional business unit) correspond to the reporting segments used by the management of Linde AG.

In the period from June to September 2018 Linde AG carried out a detailed update of the mid-range planning for the plan year 2019 that had been drawn up in the prior year. In particular, the knowledge of financial developments at the respective RBUs in the first six months of 2018 was considered in the planning. In addition, the regulatory and other operating disposals expected at the time the planning was drawn up were considered in the budget figures for the respective RBUs. The planning statements for the subsequent years, 2020 to 2022 have been rolled forward from the budget figures for 2019 and consider the assumptions on annual growth rates and anticipated developments in the margins at the level of the individual planning units (RBUs).

The planning as of September 2018 was presented to and confirmed by the Executive Board on 5 September 2018.

At the beginning of October 2018, the Company revised its business plan on the basis of more recent information, in particular on the disposals required by antitrust law. In addition to the additional disposal of further parts of the company, this also relates to additional expenses in connection with the disposals as well as the earnings effect from the settlement of interest rate swaps. The final status of the business plan was confirmed by the Executive Board on 9 October 2018.

The Management Board confirmed to us that the planning statements of Linde AG as of 9 October 2018, on which the business valuation is based, as well as the underlying planning assumptions and the related explanations of the planning reflect its expectations of future revenue, expenses and cash flows.

Due to the close proximity of the new planning status to the end of the valuation work, the independent valuer EY, in agreement with the Executive Board, decided to continue to base its valuation report on the planning status as of September 2018. In addition, EY has taken into account the additional expenses in connection with the disposals as well as the earnings effect from a settlement of the interest rate swaps directly in the planning calculation. The effects on sales, earnings and the balance sheet resulting from additional disposals, however, were reported by the independent valuer in agreement with the Executive Board as a separate (negative) value effect from expected lower proceeds from additional disposals due to antitrust regulations. As part of our audit work, we satisfied ourselves of the appropriateness of the independent valuer's approach and consider it appropriate.

**b) Budget Comparisons**

The independent valuer, EY conducted a comparison of the budgeted revenue and earnings in the years 2015 to 2017 with the adjusted revenue and earnings actually generated in the respective first year addressed by the planning. EY has come to the conclusion that, after considering macroeconomic and other social circumstances, the budget figures were observed in almost all cases.

In addition, we examined the budget deviations over a longer period. To this end we looked at the mid-range planning drawn up since November 2013. Where necessary, we adjusted the planning figures or the actual figures to account for the Logistics division, GIST, so as to allow comparison. In contrast to EY we used the originally budgeted exchange rates as a basis for all of the planning figures. EY, by contrast, adjusted the budget figures using the actual development in exchange rates seen in the respective year.

Our analysis of budget deviations can be presented as follows:

<b>Linde Group</b>		Planning Periode				
<b>Sales</b>		2014	2015	2016	2017	2018
Preparation Period	MTP 2014-17	-2.8%	-4.9%	-13.6%	-18.7%	
	MTP 2015-18		0.1%	-8.0%	-12.1%	-21.2%
	MTP 2016-19			-3.3%	-6.9%	-16.4%
	MTP 2017-20				3.3%	-6.0%
Ø Dev.		-2.8%	-2.4%	-8.3%	-8.6%	-14.5%

<b>Linde Group</b>		Planning Periode				
<b>Operating Profit</b>		2014	2015	2016	2017	2018
Preparation Period	MTP 2014-17	-0.6%	-3.3%	-12.9%	-17.8%	
	MTP 2015-18		5.2%	-2.4%	-7.2%	-16.1%
	MTP 2016-19			1.1%	-0.6%	-9.4%
	MTP 2017-20				4.0%	-3.0%
Ø Dev.		-0.6%	0.9%	-4.7%	-5.4%	-9.5%

In the first year of the planning, revenue displays a mixed picture. However, no systematic budget overshoot or undershoot is apparent. At the level of the operating profit, by contrast, there is a tendency towards overshooting the budget targets in the first year addressed by the planning. In the year 2015 this is primarily due to extremely positive developments in exchange rates (see p. 55 of the Annual Report of Linde AG for the year ending 31 December 2015). If the exchange rate changes were eliminated, as EY has done, the budgeted target for operating profit was missed by approximately 5 % in fiscal year 2015 (see EY report p. 55).

Beginning in the second year of the planning, the budget deviations are negative across the board, for both revenue and operating profit. The size of the budget undershoot increases the further removed the projects are from the date on which the budget was drawn up.

In light of this, we do not perceive any indication that the budget planning issued by the management of Linde is too conservative.

In addition to an analysis of budget deviations in the mid-range planning we also examined the developments during the respective years and compared the extrapolation for fiscal year 2018 against the budget for the full year and the corresponding attainment of budget targets over the past three years.

Linde Group	2015			2016		
	1. Half-year (Actual) mEUR	Fiscal Year (Actual) mEUR	1. Half-year (Actual) in %	1. Half-year (Actual) mEUR	Fiscal Year (Actual) mEUR	1. Half-year (Actual) in %
<b>Sales</b>	9,036	17,944	50.4%	8,560	16,948	50.5%
<b>Operating profit</b>	2,104	4,131	50.9%	2,017	4,098	49.2%
<b>EBIT</b>	1,025	2,235	45.9%	1,092	2,201	49.6%
<b>EBT</b>	827	1,646	50.2%	909	1,751	51.9%
<b>Annual result</b>	629	1,252	50.2%	687	1,275	53.9%
<i>Margin in percent of sales</i>						
<i>Operating profit</i>	23.3%	23.0%	-0.3%	23.6%	24.2%	0.6%
<i>EBIT</i>	11.3%	12.5%	1.1%	12.8%	13.0%	0.2%
<i>EBT</i>	9.2%	9.2%	0.0%	10.6%	10.3%	-0.3%

Linde Group	2017			2018		∅ 2015-2017	
	1. Half-year (Actual) mEUR	Fiscal Year (Actual) mEUR	1. Half-year (Actual) in %	1. Half-year (Actual) mEUR	Fiscal Year (FC 6+6) mEUR		1. Half-year (Actual) in %
<b>Sales</b>	8,653	17,113	50.6%	8,640	16,837	51.3%	<b>50.5%</b>
<b>Operating profit</b>	2,123	4,213	50.4%	2,210	4,569	48.4%	<b>50.2%</b>
<b>EBIT</b>	1,168	2,317	50.4%	1,294	2,706	47.8%	<b>48.6%</b>
<b>EBT</b>	863	1,679	51.4%	1,125	2,499	45.0%	<b>51.2%</b>
<b>Annual result</b>	669	1,566	42.7%	883	1,882	46.9%	<b>48.9%</b>
<i>Margin in percent of sales</i>							
<i>Operating profit</i>	24.5%	24.6%	0.1%	25.6%	27.1%	1.6%	<b>0.1%</b>
<i>EBIT</i>	13.5%	13.5%	0.0%	15.0%	16.1%	1.1%	<b>0.5%</b>
<i>EBT</i>	10.0%	9.8%	-0.2%	13.0%	14.8%	1.8%	<b>-0.1%</b>

In the first half of fiscal year 2018, approximately 51.3 % of the revenue for the full year had already been generated. Over the last three years, the budget target was, on average, met by approximately 50.5 % by 30 June of the respective year. Consequently, the Linde Group is performing slightly better at mid-year with respect to full year expectations than in the prior years. This is primarily due to a – for Linde – favorable development in exchange rates.

With regard to all other line items of relevance to the valuation, the Linde Group is, as of 30 June 2018, below 50 % of the respective budget target for the full year and also below the degree to which the budget figures were attained in prior years on the same date.

The same applies to the margins targeted for operating profit, EBIT and EBT. The margins actually generated in the first six months are 1.1 to 1.8 percentage points below budget and also below the degree to which the budget figures were attained in prior years on the same date.

The analysis of business developments in the current fiscal year does (esp. with respect to profit) not provide any indication that the planning is too conservative.

### c) Operative Planning

#### aa) General Review of the Plausibility of the Planning

The following summary presents the planning statements of Linde AG for fiscal years 2018 to 2022 based on the revenue and operating results:

Linde Gruppe	2015	2016	2017	2018	2019	2020	2021	2022
	Ist	Ist	Ist	FC	Plan	Plan	Plan	Plan
	EUR Mio.	EUR Mio.	EUR Mio.	EUR Mio.	EUR Mio.	EUR Mio.	EUR Mio.	EUR Mio.
<b>Umsatz bereinigt</b>	<b>15,743</b>	<b>15,374</b>	<b>15,439</b>	<b>16,836</b>	<b>15,305</b>	<b>15,770</b>	<b>16,372</b>	<b>17,044</b>
Wechselkursanpassung	-1,394	-900	-701	0	0	0	0	0
Anpassung um Veräußerungen	0	0	0	-1,733	0	0	0	0
<b>Umsatz für Planungsanalyse</b>	<b>14,349</b>	<b>14,474</b>	<b>14,738</b>	<b>15,104</b>	<b>15,305</b>	<b>15,770</b>	<b>16,372</b>	<b>17,044</b>
<i>Wachstum der Umsatzerlöse</i>		0.9%	1.8%	2.5%	1.3%	3.0%	3.8%	4.1%
<b>Operatives Ergebnis bereinigt</b>	<b>3,746</b>	<b>3,752</b>	<b>3,825</b>	<b>4,190</b>	<b>3,780</b>	<b>3,991</b>	<b>4,192</b>	<b>4,428</b>
Wechselkursanpassung	-325	-231	-188	0	0	0	0	0
Anpassung um Veräußerungen	0	0	0	-403	0	0	0	0
<b>Operatives Ergebnis laut EY</b>	<b>3,421</b>	<b>3,521</b>	<b>3,637</b>	<b>3,787</b>	<b>3,780</b>	<b>3,991</b>	<b>4,192</b>	<b>4,428</b>
<i>Wachstum des Operativen Ergebnis</i>		2.9%	3.3%	4.1%	-0.2%	5.6%	5.1%	5.6%
Kostensynergien (netto)	0	0	0	-30	-154	63	206	240
Korrektur Planwechselkurse	0	0	0	40	11	-14	-33	-52
Zusätzliche Kosten für Veräußerungen	0	0	0	-144	0	0	0	0
Rückaddition: Veräußerungen	0	0	0	403	0	0	0	0
Bereinigungen	0	0	0	475	0	0	0	0
<b>Operatives Ergebnis lt. Bewertung</b>	<b>3,421</b>	<b>3,521</b>	<b>3,637</b>	<b>4,531</b>	<b>3,638</b>	<b>4,040</b>	<b>4,365</b>	<b>4,616</b>
<b>OP-Marge für Bewertungszwecke</b>	<b>23.8%</b>	<b>24.3%</b>	<b>24.7%</b>	<b>30.0%</b>	<b>23.8%</b>	<b>25.6%</b>	<b>26.7%</b>	<b>27.1%</b>

The planning statements of Linde AG are presented in the lines "Sales adjusted" and "Operating profit adjusted".

In order to identify the impact of fluctuations in exchange rates on the revenue and earnings of the Linde Group, the independent valuer, EY, translated the adjusted historical figures using the exchange rates used in the business planning (listed in the table above as "exchange rate adjustment").

In addition the independent valuer eliminated the disposals realized or expected in 2018 (including those made for antitrust/cartel law reasons), in order to make the result consistent to the other years (referred to in the table above as "Disposal adjustments"). We wish to emphasize that this is only a rough adjustment for analytical purposes. Within the course of determining the business value, the entities disposed of were considered in full in the year 2018 based on their affiliation to the group.

We are satisfied that the approach taken by the independent valuer to adjust the comparative figures is appropriate.

After consulting the management of Linde, the independent valuer added cost synergies and investment synergies after deducting the costs of implementation. These are presented in the line "Cost synergies (net)".

The expected savings from the restructuring programs that have already been initiated ("LIFT" in particular), which are not related to the Praxair merger in any way, have not been included in the line "Cost synergies, net". The benefits that can be realized from these programs were already fully considered in the planning projections of the Company.

The amounts presented above and entered into the valuation for cost synergies are based on detailed analyses of the Linde-Praxair managers and relate to the functions of IT, overlapping countries, shared services, productivity, procurement, engineering, corporate & global functions and also capex. In addition, the Linde and Praxair management conducted a joint allocation of the expected synergies to the two operations. The assessment of the synergies also involved deriving the individual synergies in the start-up phase and an assessment of the expected costs and the time they are expected to be incurred. The independent valuer did not recognize any synergies for corporate & global functions in the valuation as these synergies are genuine synergies which can only be realized after the squeeze-out. Using a list of the expected synergies and comparison with press releases as well as legal analyses by the accompanying lawyers, we are satisfied that the synergies that have been considered in the valuation are appropriate in terms of their amount and on the basis of their merits.

In addition, after consulting the management board, the independent valuer adjusted the exchange rates used in the planning (line item "Correction of plan exchange rates"). EY updated the point when exchange rates apply in the planning and also used the latest spot rates. Moreover, EY made an adjustment for inflation differentials between Germany and other countries. Experience has

shown that inflation rates between countries can differ, which is reflected in the development of exchange rates. Higher inflation rates are associated with a depreciation of the respective currency (the theory of relative purchasing power parity theory).

The planning statements of the Company assume, in keeping with the normal method at Linde, constant exchange rates in all years of the planning. As this method initially leaves the impact of inflation rate differentials on exchange rates out of the equation, Linde performs a corresponding technical adjustment in the course of its internal valuations. In the same way, the independent valuer, EY, considered the expected effect of inflation differentials on the relevant exchange rates for the Linde Group in its valuation. Due to the fact that inflation expectations in other countries are, on average, higher than in Germany, a corresponding depreciation of all other currencies against the euro is expected with a corresponding burden on the earnings of the Linde Group. The net effects on earnings presented in the line "Adjustment of plan exchange rates" represents the net effect of updating the spot rates and considering inflation differentials.

Due to the appreciation of exchange rates in contrast to the exchange rates used in the planning calculations of Linde, particularly of the US dollar against the Mexican peso, this revision of the exchange rates using the latest spot rates leads to additional expected income in 2018 and 2019. In the following years, by contrast, the depreciation trend of foreign currencies caused by inflation predominates, leading to a burden on earnings from adjusting exchange rates.

In the course of our audit we verified the approach taken. In our view, sole reliance on inflation differentials between domestic and foreign economies is just one of a number of possible approaches for forecasting future exchange rates. In addition to purchase price parity, there is also the interest parity approach, which is based on forward rates and a number of additional fundamentals-based approaches which analyze other possible causal interrelationships. The latter are reflected in the exchange rate forecasts used by financial analysts in their analytical models (see Schultheiß/Schultze, Wechselkurse in der Unternehmensbewertung, WPg 2018, 155, 157 et seq.).

In order to verify the plausibility of exchange rates, we determined the forecast exchange rates for the currencies most important to the Linde Group, which together account for roughly 80 % of the operating result, using inflation differentials (the theory of relative purchasing power parity), forward rates (interest parity) and analyst estimates (fundamentals-based models). Based on our findings, the adjustment to earnings on account of the exchange rates is justified in principle and does not result in any disadvantage to the minority shareholders in terms of amount.

After eliminating the disposals and the effects of exchange rates, and considering the projected cost synergies and adjusted exchange rates used in the planning projections, there is a steady rise in revenue. The growth rates in 2018 (2.5 %) and 2019 (1.3 %) are in line with the historic growth rates seen in 2016 (0.9 %) and 2017 (1.8 %). The lower growth in 2019 mainly results from the restrained capital spending policy in recent years. In the ensuing years, the planning assumes a strong rise in revenue with growth rates of 3.0 % (2020), 3.8 % (2021) and 4.1 % (2022). In sum, the compound average growth rate of revenue in the planning period (CAGR 2017-2022) of 3.0 % is significantly above the historical growth rate (CAGR 2015-2017: 1.3 %). Significant growth regions in the Industrial Gases division are found primarily in Southeast Asia as well as Eastern Europe and the Middle East. In addition, the Company anticipates rapid growth in the US healthcare segment ("Lincare"), which is also attributable to acquisitions, as well as in the electronics sector.

There is also a marked improvement in the projected operating result. With the exception of 2019, which is affected by the high implementation costs to realize later synergies, the operating margin rises steadily over the planning period and lies well above the past level. Moreover, with regard to the transition from 2018 to 2019, it must not be forgotten that the current fiscal year is heavily affected by non-recurring events and that the operating result will be much higher without these effects. In addition to the expected cost synergies, the significant rise in the operating margin can also be attributed to production process optimizations as well as to the restructuring programs already implemented ("LIFT" in particular).

## **bb) Market and Competitive Environment**

### Market environment

In order to analyze the market and competitive environment of Linde AG, we referred to both market studies of the markets relevant to Linde AG as well as the expected development of the peer group companies.

The International Monetary Fund forecast in April 2018 that the global economy would grow by 3.9 % in 2018 and 2019. In particular, a resurgence in growth is forecast for the emerging markets and developing countries after a few years of weak growth. In light of the expansive monetary policy of the Federal Reserve stable growth is anticipated, also in the euro area. In the long term, however, a decline in growth rates is expected. The main factors in this regard lie in the closing of output gaps, the negative impact of the expansive monetary policies, the aging demographic, the US trade war



and the high level of sovereign debt. It is uncertain when contrary factors will start to have an effect<sup>1</sup>. In March 2018, the ECB assumed that the economic recovery in the euro area was likely to continue. However, the ECB also forecast that real GDP growth would slow down from 2.5 % in 2017 to 1.7 % in 2020. The reasons for this lie in the weakening influence of the stimulation provided by monetary policies, an expected rise in prudential savings and a decline in employment growth as skilled labor becomes increasingly scarce.

In light of the fact that GDP growth includes the growth of the services sector and that Linde AG, by contrast, is heavily dependent on the industrial sector due to its business model, the growth of industrial production is a significant indicator for future revenue development at Linde AG. The British economics research institute, Oxford Economics, projects year-on-year growth of 3.7 % in global industrial production for the year 2018 and 3.2 % in 2019. Long-term, a reduction in the annual growth rate to 2.6 % is expected, corresponding to the trend in GDP.<sup>2</sup>

Linde AG can be allocated to the processing sector of the chemical industry focusing on the production of chemical products by processing raw materials, such as air, natural gas, oil, metals and minerals. Most of the products of the chemical industry are processed by other industrial sectors and segments. The Business Research Company is projecting average compound annual growth of 3.3 % in the years 2018 to 2021, based on data from Cefic, the European Chemical Industry Council.<sup>3</sup> In addition to increasing M&A activity, the growth in the global economy and the strong dependence of the chemicals sector on other industries are the main drivers for growth in the chemical industry.

Depending on the specific segmentation of the chemicals market, e.g. in basic chemicals, specialty chemicals, consumer chemicals, etc., large disparity in the growth rates of the various segments is expected. For example, the information provider, IHS Markit, is forecasting higher growth in the market for basic chemicals compared to the industry as a whole of 7.8 % (CAGR) for the period 2018 to 2022<sup>4</sup>. The market for basic chemicals includes petrochemicals, polymers and inorganic base compounds, which are generally sold in large quantities to the processing industry. The business activity of Linde AG can be predominantly allocated to the industrial gases market which forms a part of the overall market for basic chemicals. The industrial gases market combines companies that produce large volumes of organic and inorganic gases that are used in a number of manufacturing processes. The Business Research Company expects compound annual growth of 4.4 % in the market for industrial gases over the period 2018 to 2021.<sup>5</sup>

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<sup>1</sup> IMF, World Economic Outlook, April 2018

<sup>2</sup> IHS MarkIT, 2018.

<sup>3</sup> The Business Research Company, Industrial Gas Global Market Report 2018 Including: Hydrogen; Carbon Dioxide; Nitrogen; Oxygen Covering, 2018.

<sup>4</sup> IHS MarkIT, 2018.

<sup>5</sup> Business Research Company, Industrial Gas Market Global Report, 2018.

However, based on the information provided to us by the officers in charge of the planning of the Linde Group, the market studies for the separate specific sectors of the industrial gases market are not suitable for assessing the plausibility of the planning. We were informed that the reasons for this lie in the market studies not tallying with the products sold by Linde and that the actual growth to be expected is extremely specific to the region and customer on account of the local nature of the gas business and therefore regularly diverges from the country-wide perspective of the market studies. According to the officers of Linde, a whole range of available studies are of poor quality. Given these objections, the above market studies can only offer a rough indication of future developments. They do not allow a direct comparison with the figures in the corporate planning.

#### Competitive environment

Based on the estimates made by analysts filed in the database of Bloomberg, the **growth rates** of the peer group companies in the gas sector are as follows: We have allocated the analyst estimates of the sales of the peer group companies to the planning years of Linde AG, which differ from the calendar year, for 2018 to 2020.

	Growth of sales				
	2016	2017	2018	2019	2020
Air Liquide	10.9%	12.2%	1.6%	5.5%	5.1%
Praxair	-2.2%	8.6%	6.7%	5.8%	5.9%
Air Products and Chemicals	-4.1%	9.1%	9.0%	6.9%	11.8%
Taiyo Nippon Sanso	6.3%	-2.2%	6.8%	7.7%	5.3%
<b>Mean</b>	<b>2.7%</b>	<b>6.9%</b>	<b>6.0%</b>	<b>6.5%</b>	<b>7.0%</b>
<b>Linde AG</b>	<b>1.6%</b>	<b>1.9%</b>	<b>2.5%</b>	<b>1.3%</b>	<b>3.0%</b>

The high growth rates of Air Liquide in the years 2016 and 2017 can be attributed to the takeover of Airgas. It was not possible to eliminate this effect owing to a lack of data. However, the annual report of Air Liquide for the fiscal year 2017 reports adjusted growth of 2.9 %, which is significantly below the 12.2 % presented.

The corporate growth rates presented above lie significantly over the growth rates planned by Linde. At the same time, we do not believe that the analyst assessments are very plausible, based solely on organic growth. For example, the relevant macroeconomic indicators for the industrial gases market (primarily GDP and industrial production) are – as presented above – much weaker than the projected sales estimated by the financial analysts of the peer group companies. In our opinion, the growth can be attributed to the expectation of additional acquisitions. This is supported by the fact that the growth rates are at a comparable level to that seen in the past, whereby these could also only be attained by the peer group companies by means of external acquisitions. However, in light of the

fact that no acquisitions are presented in the planning underlying the valuation (with the exception of smaller acquisitions in the healthcare segment in North America) the growth rates presented above are not comparable in our opinion. Moreover, due to the limited geographical radius of the gas locations, regional differences also play a role in achieving growth. We therefore share EY's view that the peer group comparison is insufficiently comparable and meaningful in terms of sales growth rates which is the reason why EY renounced a corresponding presentation.

The historical income statements of the peer group companies and the analyst estimates filed with Bloomberg reveal the following **EBITDA margins** for the peer group companies, as presented in the following tables. We allocated the analyst estimates for the relevant fiscal years to Linde AG.

	EBITDA-Margin					
	2015	2016	2017	2018	2019	2020
Air Liquide	25.2%	25.6%	23.6%	25.6%	26.3%	26.7%
Praxair	32.2%	32.3%	32.2%	33.4%	33.2%	32.7%
Air Products and Chemicals	26.7%	31.8%	28.0%	35.0%	36.2%	36.7%
Taiyo Nippon Sanso	14.0%	15.2%	16.2%	16.2%	17.4%	19.0%
<b>Minimum</b>	<b>14.0%</b>	<b>15.2%</b>	<b>16.2%</b>	<b>16.2%</b>	<b>17.4%</b>	<b>19.0%</b>
<b>Mean</b>	<b>24.5%</b>	<b>26.2%</b>	<b>25.0%</b>	<b>27.5%</b>	<b>28.3%</b>	<b>28.8%</b>
<b>Maximum</b>	<b>32.2%</b>	<b>32.3%</b>	<b>32.2%</b>	<b>35.0%</b>	<b>36.2%</b>	<b>36.7%</b>
<b>EBITDA-Margin (adj.) Linde AG</b>	<b>23.9%</b>	<b>24.3%</b>	<b>24.6%</b>	<b>25.2%</b>	<b>23.8%</b>	<b>25.6%</b>

The peer group companies display a wide range of margins, both in the past and in the planning period. In terms of the EBITDA margin, Linde AG lies within the range of the peer group, both in the planning period and in the past, if slightly below the peer group average. In our opinion, this is largely due to the high share of engineering business in comparison to the competition, as this business displays much lower operating margins than the gas business. To this extent, Air Liquide appears to us to offer the closest comparison as it is also a European company with a significant engineering sector. On this benchmark, the EBITDA margin of the Linde Group lies at a comparable level, whereby it should be considered that the Linde Group will be heavily burdened in 2019 by the implementation costs arising from the merger with Praxair. The expected cost synergies will increase margins, primarily from the year 2021 onwards.

We are therefore of the opinion that the projected EBITDA margin is plausible. In particular, our analyses did not provide any indication that the planning of Linde AG was beneath the market expectations of the peer group companies.

**cc) Findings of our Audit Procedures**

We examined the planning on the basis of normalized past figures after eliminating non-recurring or extraordinary effects. In the process we examined the development of sales revenue and the operating result more closely. The statements made in the valuation report (Section 2.3) on the development of the industry in the markets that are relevant for Linde AG were confirmed in the discussions we had with the management of Linde AG. We compared the assumptions in the planning with the available market data and interviewed the management about the market conditions, the competitors and the business strategy of Linde AG.

We are of the opinion that the planning is plausible and has been derived in a verifiable way from the existing business model and the market environment.

**d) Financial result**

The financial result was calculated by EY on the basis of the income statement and balance sheet planning on the basis of cash flow planning, taking into account the financial income and expenses expected by the company as well as the payout ratio recognized in the detailed planning period.

The financial planning used to determine the net financial result begins with the interest-bearing receivables and liabilities as of 31 December 2017.

In the course of our audit, we verified the net interest result using our own valuation model. This model integrates the income statement, balance sheet and cash flow projections, based on the existing financing structure, future capital requirements and any earnings or distributions assumed by Linde AG.

In accordance with the cut-off-date principle any financial surpluses that have already passed to the owners of the business by payment or where a resolution has already fixed the appropriation of profit, should not be considered when deriving the business value. Dividend distributions that have been passed by resolution and dividend payments reduce the net result and therefore the earnings potential of the entity (see OLG Hamburg, 11 April 2003, AG 2003, pp. 441 et seq.; LG Frankfurt, 4 July 2006, 3-5 O 52/05, *ratio decidendi* p. 10). Conversely, all potential dividends on which no resolution has been passed are available to the shareholders and are therefore considered in the calculation of the discounted earnings value. The dividend payment of EUR 7.00 per no-par value share made in the course of fiscal year 2018 has been properly deducted from securities and cash and the profit brought forward in the opening balance sheet.

Financial income includes interest on cash and cash equivalents, interest from pension assets and finance leases as well as other interest income, such as taxes and derivatives. The interest rates were applied in accordance with the Company's planning. The credit interest rate for cash and cash equivalents is 0.2 %. Financial expenses include interest on bonds and pension obligations as well as other interest components. The borrowing rates are between 1.7 % and 2.4 % p.a. They were derived comprehensively from the existing interest conditions.

The interest result has been appropriately calculated.

#### **e) Corporate Taxes**

Linde AG is subject to tax on the basis of the currently applicable corporate tax legislation. The income taxes of Linde AG consider trade tax and corporate income tax, the solidarity surcharge on corporate income tax, which is incurred on taxable domestic income as well as foreign corporate taxes.

Corporate taxes are calculated in the mid-term using the expected average Group tax rate of 24 %. This is significantly lower than the tax rate observed in the past, when adjusted for deferred taxes, and already includes usable loss carryforwards. The integrated capture of unused tax losses in the business value using the discounted earnings method prevents recognition of a separate item to avoid double-counting in the valuation of future earnings (see Peemöller/Popp, BB 1997, p. 303 ff.; Popp, BB 1999, p. 1154 ff.).

Corporate taxes are derived appropriately.

#### **f) Minority Shares in Net Profit or Loss**

Generally, the projected profits of the entities in which, from the perspective of Linde AG, third parties hold minority interests are fully consolidated in the consolidated income statement projections. In order to derive the minority shareholders' right to future distributable cash flows, the projected profit or loss was corrected by the amount allocable to the non-controlling interests. We verified the derivation of the profits allocable to minority interests. Minority interests in net income were taken into account appropriately.

### g) Terminal Value and Retained Earnings

The following summary supplements the detailed planning already presented by adding the terminal value ("TV"):

Linde Group	2018 FC mEUR	2019 Plan mEUR	2020 Plan mEUR	2021 Plan mEUR	2022 Plan mEUR	2023 ff. TV mEUR
Sales	16,836	15,305	15,770	16,372	17,044	17,215
Operating profit	4,201	3,638	4,040	4,365	4,616	4,662
<b>OP-Margin for planning analysis</b>	<b>24.9%</b>	<b>23.8%</b>	<b>25.6%</b>	<b>26.7%</b>	<b>27.1%</b>	<b>27.1%</b>

When deriving the terminal value (2023 et seq.) the independent valuer has basically assumed that growth as compared to 2022 will equal the sustainable growth rate. However, it modified the following line items of the income statement:

With regard to revenue from the year 2023 onwards, the independent valuer has assumed that annual growth would equate with the growth rate assumed in the terminal value. Due to the long lead times, investments at Linde do not typically result in additional revenue until some years afterwards. Therefore, the growth investments of the later planning years result in additional revenue only after the end of the detailed planning horizon. In order to account for this circumstance, the independent valuer has taken into account the additional cash flows from capital expenditures in the last years of the planning phase when deducting the level of investment assumed in the terminal value. This ensures that the value added by investments in expansion are considered in the business value over the entire duration of the detailed planning phase.

The independent valuer carried forward the operating margin unchanged from the last year of the detailed planning phase into the terminal value. In light of the economic cycles that Linde AG is exposed to on account of its dependence on the development of the wider economy, we believe that this approach is ambitious. The EBITDA margin set in the terminal value exceeds all historical margins recorded by the Company in the past.

In addition, the independent valuer, EY, adjusted the sustainable reinvestment value from the detailed planning phase. The detailed planning phase contains capital expenditure for both maintaining the current level as well as investments in expansion. However, such expansion of capacity is abstracted in the terminal value. The sustainable investment in the terminal value is therefore limited to replacements to maintain the assets carried at the end of the detailed planning phase (see WPH Edition: Bewertung und Transaktionsberatung, 2018, Section A., No. 437) and thus lies well below the investment amounts of the detailed planning phase.

We have examined the determination of sustainable investments and have also convinced ourselves of their appropriateness through discussions with the Executive Board of Linde AG and with managers from the planning and evaluation departments.

The tax advantage from the gradual reduction of depreciation to the sustainable level in the period following the end of the detailed planning phase was taken into account by the independent valuer in the annuity of the sustainable tax rate. In addition, the sustainable tax rate is below that in the detailed planning period, as the independent valuer appropriately did not extrapolate the effects arising in the first planning years from the change in deferred taxes as well as special tax issues into perpetuity.

The assumed sustainable growth in net revenues also leads to a need to extrapolate the items of the projected balance sheet and projected income statement in the terminal period. In order to finance the sustained growth, the independent valuer considered retained earnings during the terminal value at the level required by the planning (see OLG Frankfurt, 5 March 2012, 21 W 11/11 AG 2012, pp. 417, 419; OLG Karlsruhe, 15 November 2012, 12 W 66/06, No. 126 et seq.; Stellbrink, Der Restwert in der Unternehmensbewertung, 2005, p. 230). These funds will remain in the business and serve to generate the growth and the associated rise in the business value after the last year of the detailed planning phase.

We are of the opinion that the distributable dividends in the terminal value have been appropriately derived.

### **3. Discount Rate**

The discounted earnings value is determined by discounting future distributable earnings to the valuation date. The discount rate represents the return on an alternative investment that is equivalent in terms of maturity, risk and taxation to the cash flows emanating from an investment in the company being valued (IDW S 1, 2008, No. 114).

When identifying the return obtainable on an alternative investment, reference is generally first made to the returns available on the capital markets for equity investments (in the form of a stock portfolio). These returns can be split into a risk-free rate and a risk premium expected by the shareholders for their assumption of entrepreneurial risk.

**a) Risk-Free Rate**

The independent valuer, EY, derived the risk-free rate from the interest curve for German government bonds in keeping with the recommendations of the FAUB.

Considering the interest curves data published by the German Central Bank over a three month period and assuming a growth rate of 1.0 % p.a. results in a uniform risk-free rate of rounded 1.25 % upon conclusion of our audit work.

Corresponding to the recommendation of the FAUB (see IDW-FN 2005, pp. 555 et seq.) the uniform risk-free rate was rounded using the standard commercial method to an interval of  $\frac{1}{4}$  percentage point. This found approval in the latest court rulings (see OLG Karlsruhe, 1 April 2015, 12a W 7/15, No. 80 (juris); OLG Saarbrücken, 11 June 2014, 1 W 18/13, AG 2014, pp. 866, 868; OLG Karlsruhe, 15 November 2012, 12 W 66/06, No. 149 (juris)). It can be stated that the current recommendation of rounding up to the nearest  $\frac{1}{4}$  percentage point is neither at the cost of one party nor arbitrary, i.e. without objective justification. Reasons for the rounding-up of the figures are (1) compensation of possible estimation errors, as the Svensson method is an estimation technique (see 86<sup>th</sup> meeting of the AKU, IDW-FN 2005, pp. 555, 556) and (2) compensation of minor changes in the base rate in the decimal place during the valuation process in particularly in the period between the completion of the valuation and auditing work and the date of the general shareholders' meeting (see Popp, WPg 2016, pp. 926, 929).

This risk-free interest rate was adjusted to reflect a standardized income tax rate (25.0 % plus 5.5 % solidarity surcharge). The tax-adjusted risk free rate thus comes to 0.92 %.

We have verified the calculations and came to the conclusion that a rounded risk-free rate of 1.25 % applies to the three month period ending upon conclusion of our audit work.

We are of the opinion that a pre-tax risk-free rate of 1.25 %, or roughly 0.92 % after tax respectively, is appropriate. Please see the next section on the risk premium for a discussion of the consequences of the historically low interest rates for the required return on equity.

With regard to the review of the risk-free rate, we refer, as a purely precautionary measure, to the fact that the risk-free rate refers to an indicator that relates to the respective cut-off date but is not an indicator for a (single) cut-off date (see LG Hamburg, 29 June 2015, 412 HKO 178/12, No. 102 (justizportal Hamburg); LG Munich I; 14 February 2014, 5 HKO 16505/08, *ratio decidendi* p. 33). Moreover, the three-month period preceding the general meeting ends on 11 December 2018, the day before the general meeting (see OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 42 (juris)). Due to the fact that parameters, such as market prices for shares or interest curves, which are not



fixed and published until the end of trading, cannot be used in valuation used by an general meeting that commences in the morning of that day.

## **b) Risk Premium**

The risk premium used to determine an objectified business value is not calculated on the basis of the risk attitude of individual shareholders but on the general pattern of the market. It may be assumed that investors expect a particular risk when investing in companies (investor risk). The risk premium can be derived empirically from equity yields obtainable on the capital markets by using capital asset pricing models (CAPM, tax-CAPM). In spite of some reservations, the capital asset pricing model enjoys extraordinarily high acceptance in both national and international valuation practice and creates a high degree of comparability and legal assurance (see Paulsen, Münchener Kommentar zum Aktiengesetz 4<sup>th</sup> edition Sec. 305 No. 115 et seq.).

The use of the CAPM or the tax-CAPM is viewed by the majority of courts and the general opinion found in the professional literature as the prevailing method for deriving an objectified risk premium (see WPH Edition, Bewertung und Transaktionsberatung, 2018, Chapter C, No. 123; Dörschell et al, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> edition, 2012, pp. 27 et seq.). The use of CAPM and tax-CAPM corresponds to the rulings handed down by the higher regional courts (see OLG Munich, 30 July 2018, 31 Wx 122/161, *ratio decidendi* p. 21; OLG Munich, 30 July 2018, 31 Wx 136/16, *ratio decidendi*, p. 9; OLG Frankfurt, 17 January 2017, 21 W 37/12, No. 105 (BeckRS)).

Where isolated criticism has been made of the use of the CAPM, it generally refers to the fact that CAPM also uses a number of parameters that have to be assumed by the independent valuer. This is equally true of all other capital market models, regardless of their complexity. However, the advantage of CAPM lies in the fact that the relevant parameters have been clearly identified and thoroughly discussed in the professional research and also in practice and in court judgments. For this reason alone, the use of CAPM is preferable to a mere ad hoc estimate without any theoretical foundation. It can also be confirmed that as of today's date, no other capital market model exists that is superior to CAPM (for a critical view on the Arbitrage Pricing Theory and the multi factor model from Fama/French see: LG Munich I, 28 March, 2014, 5 HK O 18925/08, *ratio decidendi* p. 44 et seq.; LG Munich I, 14 February 2014, 5 HKO 16505/08, *ratio decidendi* pp. 43 et seq., and on the Dividend Discount Model: OLG Frankfurt, 30 August 2008, 21 W 14/11, No. 64 et seq.).

Because equity yields and risk premiums are fundamentally affected by income taxes, tax-CAPM offers a more real explanation of empirically observed equity yields as it extends CAPM to consider the explicit effect of personal income taxes. In particular, the model considers the different taxation treatment of interest income, dividends and capital gains.

According to tax-CAPM, the discount rate is composed of a risk-free rate that has been reduced to reflect a standard income tax rate and the after-tax risk premium identified using tax-CAPM. The complex character of a company's specific risk premium is split into two empirically observable resp. deductible factors: the market risk premium and the beta factor.

#### **aa) Market Risk Premium**

The deduction of the Market Risk Premium covers a variety of considerations.

##### **Observation period**

With regard to the **observation period**, a decision has to be made by weighing up between how up-to-date the data is (which argues in favor of a shorter period) and its informative value (which argues for a longer period). Generally, the more observation points are available, the more accurate the estimate (see Pratt/Grabowski, *Cost of Capital*, 2008, p. 96). However, longer observation periods could lead to extraordinary issues that are not expected to recur in future being considered in the estimate. Moreover, in the case of longer observations periods, systemic changes in the market risk premium might be overlooked. On the other hand, in the case of shorter observation periods, there is a risk that the individual events might be given too much weight or that systemic changes in interest rates (e.g. the steady decline in interest rates over a number of recent years with the associated exchange rate gains for fixed-interest securities) could distort the estimate of the market risk premium (see Pratt/Grabowski, *Cost of Capital*, 2008, pp. 98 - 100). For this reason, a number of authors have argued in favor of setting the observation period in the mid to late 1950s (see Stehle, *WPg* 2004, pp. 906, 920; Pratt/Grabowski, *Cost of Capital*, 2008, p. 100). This opinion has met a certain degree of criticism (see Wenger, *AG Sonderheft* 2005, pp. 9, 13). In the opinion of the Higher Regional Court of Stuttgart there is no fundamental reason to exclude the years prior to 1960 from the observation period (see 17 October 2011, 20 W 7/11, No. 337 (juris); supported by OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 48 (juris); and for a critical view of studies that reach back to the 1950s: OLG Düsseldorf, 28 August 2014, 26 W 9/12, No. 135 (juris)). On account of the fact that the market risks premiums observed in past periods are an indicator of future market risk premiums and must therefore cover a whole range of possible developments in the business environment, we are of the opinion that a very long-term historical period should be drawn on in order to include as many potential environmental developments (of the past) as possible in the estimate of the market risk premium.

## Mean value

With regard to the question of whether the market risk premium should be determined using the **arithmetic** or **geometric mean**, the general trend in the professional literature is in favor of the former for the purposes of a business valuation (such as Stehle, WPg 2004, pp. 906, 910; Pratt/Grabowski, Cost of Capital, 2008, p. 96). Moreover the Federal Court of Justice (BGH) is also of the opinion that the arithmetic mean is the better alternative when measuring future returns (see BGH, 27 January 2015, EnVR 37/13, No. 31 ([www.bundesgerichtshof.juris](http://www.bundesgerichtshof.juris))). The preference for the arithmetic mean found in the literature is often justified on the basis of errors made when estimating the mean. In the literature it has been demonstrated that in the discounting calculations used in business valuations, performed on the assumptions of stochastic independence (more on this below), both the arithmetic and the geometric mean of historic returns always lies below the true (unobserved) mean (see, for example, Stehle, WPg 2004, pp. 906, 919; Ruiz de Vargas, DB 2012, pp. 813, 817; Dörschell/Franken/Schulte, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> edition, 2012, p. 103; Drukarczyk/Schüler, Unternehmensbewertung, 6<sup>th</sup> edition, 2009, pp. 223 et seq.; each with reference to the studies of Blume, Journal of the American Statistical Association 1974, pp. 634-638; Cooper, European Financial Management 1996, pp. 157-167). In light of the fact that the geometric mean is always smaller than the arithmetic mean, this estimation error must necessarily be larger using the geometric mean (see Munkert, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2005, p. 235). In other words: given stochastic independence of the share prices, the arithmetic mean is “more exact” (as also argued by Ruiz de Vargas, WPg 2012, pp. 813, 816). Stochastic independence means in this regard that the development of share prices over different periods do not demonstrate any systemic relationship to each other, or, to put it another way, it is not possible to derive the development of share prices in one period from their development in a prior period (referred to as the “random walk hypothesis”). In the case of efficient markets – as assumed under CAPM – this is the proper assumption. Ballwieser/Hachmeister come to the following conclusion in this regard: “According to the professional literature, the arithmetic mean is correct if one bases the calculation of capital returns on the single-period CAPM, applies it to multiple periods and independent identically distributed returns are expected” (Ballwieser/Hachmeister, Unternehmensbewertung, 5<sup>th</sup> edition, 2016, p. 107).

However, some authors indicate that, in practice, there must be a weak inverse auto-correlation between share yields (see, for example, Munkert, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2005, p. 236; Drukarczyk/Schüler, Unternehmensbewertung, 6<sup>th</sup> edition, 2009, p. 223). This implies that, given the development of share prices in any one period, it should be possible to derive a general trend of contrary developments in the following period. If this is the case, both the arithmetic and the geometric mean are distorted indicators, although both would once again be distorted downwards (i.e. the true market risk premium would be higher, see Dörschell/Franken/Schulte, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> edition,

2012, p. 113). Once again, in this case the (higher) arithmetic mean would be preferable (as confirmed by Dörschell/Franken/Schulte, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> edition, 2012, p. 113 with reference to the study by Cooper cited above).

Consequently, it would be proper treatment to use the less distorted arithmetic mean of historic market risk premiums to derive the discount factor used to discount future cash surpluses in a business valuation.

Due to the fact that the professional dispute is still unresolved of whether the arithmetic or geometric mean should be used, a solution amenable to both sides has found acceptance by the higher courts in the judgments they have passed down on estimates of the market risk premium. The values estimated in such cases lie roughly in the middle of the range of the values recommend by the FAUB, depending on the tax system, and are derived as the mean of the arithmetic and the geometric means.

This also applies to the judgment handed down by the regional court of Munich I. On the one hand, the regional court of Munich I views an annual reinvestment of the entire share portfolio as an impractical criterion when applying the arithmetic mean. However, as the geometric mean distorts the business value, the 5th Chamber for Commercial Affairs assumes values that lie between these two values and this is upheld consistently by the courts (see LG Munich I, 29 August 2018, 5 HK 16585/15, pp. 97 et seq.).

### **Empirical mean values**

Furthermore, if one considers the range of pre-tax market risk premiums, the courts have steadily cited the ruling of the 5th Chamber for Commercial Affairs of the District court of Munich I that sets a range of between 4.90 % and 10.43 % based on the arithmetic mean and a range of between 1.79 % and 6.80 % on the basis of the geometric mean (see LG Munich I, 31 July 2015, 5 HK O 16371/13, No. 289 (juris); 6 March 2015, 5 HK O 662/13; 28 May 2014, 5 HK O 22657/12; 7 May 2014, 5 HK O 21386/12; 14 February 2014, 5 HK O 16505/08; 6 November 2013, 5 HK O 2665/12; 28 June 2013, 5 HK O 18685/11).

Obviously the geometric mean of 1.70% is based on a study by Dobberke (Die Bank, 1993, pp. 343-346), which examined the period from 1967 to 1993. In light of the relatively short observation period of 27 years, and most of all on account of its remoteness to the valuation date, this study is viewed as obsolete. The same applies to the arithmetic mean of 4.90 % which is based on the study from Göppl/Herrmann/Kirchner (Risk Book, German Stocks 1976-1995, Risk, Return and Liquidity, 1996) and covers an even shorter period of 20 years from 1976 to 1995. The upper values in the

respective ranges (6.80 % and 10.43 % respectively) appear to be based on the study from Conen/Väth (Die Bank 1993, pp. 642-647) which covered the period from 1949 to 1988 (40 years). Without going into any greater detail, this study must also be viewed as obsolete.

If more recent examinations are considered, they could be based on pure extrapolations of the data series of the CDAX performance index and REXP or other data sources. Moreover, a distinction should be made as to whether the figures relate to pre-tax and post-tax values and whether the calculations were used on the basis of the geometric or the arithmetic mean.

The share prices and performance time series of the CDAX do not include corporate income tax credits for the years 1977 to 2001, which were granted on corporate tax in those years. If this is not corrected for, the share yields derived from the data, and therefore the market risk premium, would be underestimated.

In their work from the year 2015, Stehle and Schmidt did not merely roll forward the index data but reworked the entire data series, primarily to correct the historical data by making a retrospective calculation of previously ignored CIT credits. The **geometric mean for the market risk premium before tax amounts to 6.08 %** for the period 1954 to 2013. In light of the fact that only the geometric mean is presented in Table No. 6 (p. 469), but the arithmetic mean is significant for the business valuation (p. 431), we identified the arithmetic mean for the period from 1954 to 2013 of 13.77 % using the data series used by Stehle/Schmidt using the given share yields. As a simplification, we deducted the risk-free rate of 4.75 % (1954-2013) defined by Stehle/Schmidt from this to arrive at an **arithmetic market risk premium before tax of approximately 9.02 %**.

### **Mark-up pursuant to Sec. 203 BewG**

In the past, the Regional Court of Munich I and the Higher Regional Court of Munich acknowledged that Sec. 203 (1) BewG (prior to the 2016 amendment) only applies to the simplified discounted earnings procedure, but that the constitutional principle and assessment made by the lawmakers may not be totally ignored (see LG Munich I, 8 February 2017, 5 HK 7347/15. No. 124 (juris); LG Munich I, 31 July 2015, 5 HK O 16371/13. No. 300 (juris); OLG Munich, 5 May 2015, 31 Wx 366/13, No. 81 (juris); OLG Munich, 18 February 2014, 31 Wx 211/13, No. 21 (juris)). In a more recent judgment of the Higher Regional Court of Munich, the direction of the argument has now changed and it is stated that an interpretation of Sec. 203 BewG (2016) does not exclude recognition of a higher market risk premium because the simplified discounted earnings procedure cannot be equated with a full valuation using the discounted earnings method (see OLG Munich, 30 June 2018, 31 Wx 122/161, *ratio decidendi*, p. 22).

However, two different perspectives need to be considered in this regard: At first, Sec. 203 (1) BewG does not govern either a “risk premium” or a “market risk premium”. Rather the flat-rate mark-up considers, in addition to the business risk, also all other adjusting items, including the growth rate (see the report of the Parliamentary Finance Committee on ErbStRG, 26 November 2008, BT-Drs. 16/11107, p. 24). This notwithstanding, it should be considered that the mark-up of 4.5 % laid out in Sec. 203 (1) BewG was introduced at the end of 2008 – well before the valuation date.

The lower house of the German parliament [Bundestag] approved a proposed compromise on the inheritance and gift tax act suggested by the Mediation Committee [Vermittlungsausschuss]. On this basis, the capitalization factor of 13.75 to be applied from 1 July 2016 pursuant to Sec. 203 BewG corresponds to a discount rate of roughly 7.27 %. The lawmakers therefore did not stubbornly insist on calculating the discount factor using a mark-up of 4.5 % as set in the past (see OLG Düsseldorf, 30 April 2018, 26 W 4/16, *ratio decidendi* p. 25).

In the opinion of the Regional Court of Munich I (30 June 2017, 5 HK 13182/15, *ratio decidendi* p. 118) a capitalization factor of 13.75 does not automatically imply that the market risk premium amounts to 5.5 % after tax. We agree with this assessment as neither the former nor the latest version of the BewG contains any statement on the amount of the market risk premium and, moreover, the capitalization factor is a pre-income-tax value. Based on the risk-free rate of 1.10 % permitted by the tax legislation applying in 2016 and after considering a premium of 4.50 % results a discount rate of 5.60 %, that translates into an increase of roughly 29.9 % in the expected return using the simplified discounted earnings method defined in Secs. 199 et seq. BewG. The amendment to the law therefore is an indication of how the continuing impact of the financial markets crisis should be presented.

### **Statement of the FAUB on 19 September 2012**

In connection with the financial market and sovereign debt crisis and its continuing effects, the FAUB expressed the opinion in its proclamation dated 19 September 2012 (see IDW-FN 2012, p. 568 et seq.) that **a range of between 5.0 % and 6.0 % (after personal income tax)** would be appropriate when measuring the **market risk premium**.

In this regard we refer to a recent publication on the recommendation of the FAUB of the IDW relating to the increase of the range for the market risk premium (see Castedello/Jonas/Schieszl/Lenckner, Die Marktrisikoprämie im Niedrigzinsumfeld, WPg 2018, pp 806 et seq.). This publication addresses the criticism that the recommendation of the FAUB is not sufficiently justified.

The contents of the essay can be summarized as follows:

The current situation on the capital markets, which has now lasted almost ten years, is unusual in a historical comparison. It is characterized by very low interest rates, even negative interest for (risk-free) government bonds. These are primarily due to the monetary environment created mainly by the asset purchase program of the ECB and the associated monetary expansion as well as a flight of capital into low-risk investments, such as German government bonds.

If the former quantitative recommendation for the market risk premium of the FAUB were adopted without change, the historically low risk-free rate would lead to the market return (the sum of the market risk premium and the risk-free rate) falling substantially. This result does not match the empirically observable situation on the capital market.

The market return is – contrary to the market risk premium – observable on the capital markets. However, there is no single investment vehicle on the basis of which a market return can be directly derived such as government bonds for the risk-free rate. Consequently, the FAUB pursues a number of different conceptual approaches. All approaches have their relative strengths and weaknesses and no single one can be given a clear preference. For this reason, the FAUB takes as broad a perspective as possible and observes, for example, different historical approaches (different periods, different reference investments, different ways of calculating the mean values), different forward-looking approaches, national and international approaches, etc.

In the opinion of the FAUB, the results of these different methods, namely:

- considering historically measured stock yields
- considering long-term real stock yields
- using ex ante analyses of implied cost of capital in
- the CAPM without any risk-free borrowing

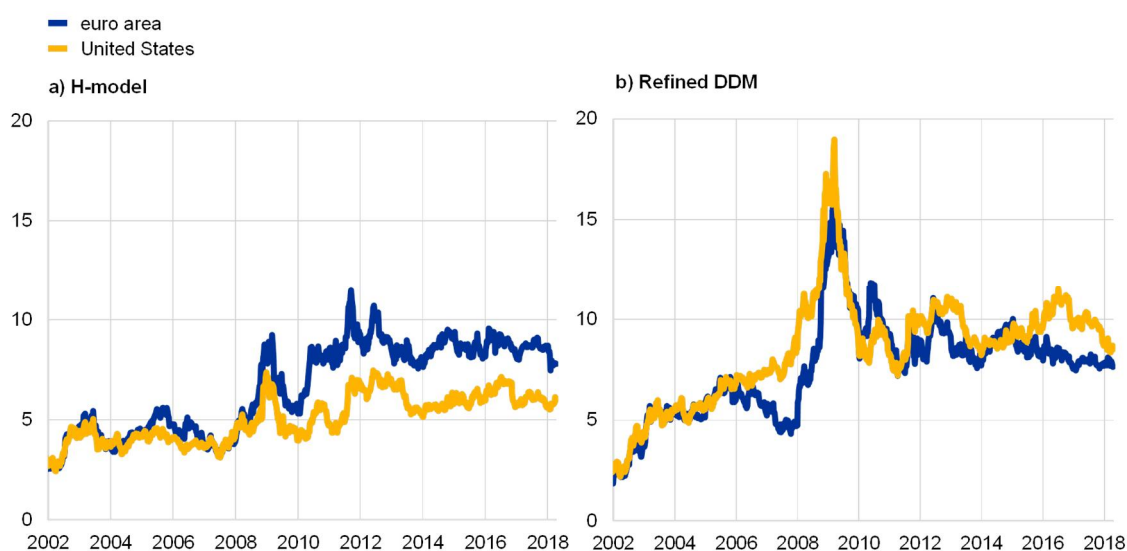
that the overall yield has not fallen by the amount observed for the risk-free rate and that therefore the market risk premium must have risen.

In more detail:

The ex post analyses conducted by the FAUB do not provide any indication that the fall in the risk-free rate is associated with a commensurate decline in the long-term market return. Rather, the reverse must be concluded: the ex-post market risk premium must have risen to approximately 7 %

(geometric) or to roughly 10 % (arithmetic). The ex-post results therefore also support the recommendation of the FAUB and are arguments in favor of an upwards trend.

The ex ante analysis of the implied cost of capital also comes to the conclusion that the market risk premiums has risen sustainably since 2010. For the end of 2017 the implied market risk premium lies at approximately 7% (before tax). Deutsche Bundesbank arrives at very similar values. As an aside, it should be noted that the ECB emphasized on p. 93 of its Economic Bulletin 4/2018 that the cost of equity for euro area corporations in the case of non-banks, in comparison with the cost of debt, has stayed relatively high in recent years. Depending on the model, the estimated market risk premium in the euro area currently comes to between 8.0 % and almost 7.0 % - before tax (ibid p. 106 blue line depicts Euro area).



This finding mirrors the recommendation of the Austrian Working Group on Business Valuations of the “Fachsenat für Betriebswirtschaft der Kammer der Wirtschaftsprüfer” (*Technical Committee for Commerce of the Chamber of Public Auditors in Austria*). In its recommendation issued on 17 October 2017 a market return ranging between 7.5 % and 9.0 % is derived from measurements of the implied cost of capital. On this basis, the market risk premium to be used in the valuation can be derived by deducting the risk-free rate applying on the date of the valuation. The recommendation of the Working Group has oriented its work on the market returns on shares and therefore the implied market risk premium (see Bertl, WPg 2018, p. 805). If the upper limit is taken and given the currently low value risk-free rate, a market risk premium is arrived at that is significantly above the level recommended by the FAUB in Germany (5.5 % to 7.0 %) (see Rabel, BewP 2018, pp. 2, 3).



The FAUB has addressed the objection that in this calculation the implied cost of capital has been derived tautologically from share prices. In the opinion of the FAUB, this objection is not justified. It would only be tautologous if an already known result were used in this way, which would then be reproduced by applying the same logic in the model. Actually, however, the determination of the implied costs of capital does not underlie the known market share prices of the individual companies used. Rather, the market return available on the capital market is determined by averaging a large population of players, such as the entire CDAX. The recommendation to raise the market risk premium is based on a holistic view and considers, in both theory and practice, the circumstances of a higher risk in equity investments compared to risk-free investments and government bonds. The height of the market risk premium is a regular point on the agenda of FAUB meetings. The recommended range has been maintained without change since 2012 and was recently confirmed again at the latest meeting on 12 September 2018.

### **Legal precedents**

We therefore believe that the **after-tax market risk premium of 5.5 %** set by the independent valuer is accurate. To date, an after-tax market risk premium of 5.5 % has also been confirmed by the Regional Courts of Stuttgart, Hanover, Kiel, Koblenz, Cologne and Hamburg (see LG Koblenz, 7 August 2017, 4 HK O 97/14, *ratio decidendi* p. 38; LG Stuttgart, 12 May 2017, Az. 31 O 61/13, *ratio decidendi* p. 23; LG Hanover, 24 Januar 2017, Az. 26 O 106/15, *ratio decidendi* p. 30; LG Hamburg, 11. Januar 2017, Az. 415 HKO 27/15, *ratio decidendi* p. 15; LG Stuttgart, 22 August 2016, 31 O 1/13, *ratio decidendi* p. 22; LG Cologne, 22 March 2016, 91 O 30/14, *ratio decidendi* p. 32; LG Hamburg, 23 February 2016, 403 HKO 152/14, S. 11 (BeckRS); LG Koblenz, 10 September 2015, 4 HK O 166/12, *ratio decidendi* p. 41; LG Hamburg, 12. Juni 2015, Az. 403 HKO 43/14, *ratio decidendi* p.18; LG Kiel, 21 April 2015, 16 O 75/12, *ratio decidendi* p. 44 et seq. (6,0 %); LG Koblenz, 17 March 2015, Az. 4 HK O 166/12, *ratio decidendi* p. 45; LG Hanover, 25 February 2015, 23 AktE 7/13, *ratio decidendi* p. 18 et seq.; LG Hamburg, 26 September 2014, 403 HKO 19/13, S. 10 (BeckRS).

Consequently, the Higher Regional Court of Hamburg (30 June 2016, 13 W 75/14, *ratio decidendi* p. 19), the Higher Regional Court of Celle (17 June 2016, 9 W 42/16, *ratio decidendi* p. 5) and the Higher Regional Court of Dresden (16 August 2016, 8 W 244/17, *ratio decidendi* p. 23) confirmed the 5.5 % applied by the lower court. With reference to the recommendation of the FAUB on 19 September 2012, the Higher Regional Court of Frankfurt also views an after-tax market risk premium of 5.5 % as being appropriate (see OLG Frankfurt, 26 January 2017, 21 W 75/15, p. 11 (Iareda); see also: Rölke, DB 2017, p. 713). In particular, there is no obligation on either the Company nor the court to conduct a comprehensive scientific study of the market risk premium, the result of which would anyway be subject to doubt; at least "when the association of public auditors and therefore the authoritative experts in the field concerned have issued a range that, although subject

to discussion, is at least not fully unfounded” (see OLG Frankfurt, 17 January 2017, 21 W 37/12, No. 108 (BeckRS)). The Higher Regional Court of Düsseldorf also emphasized in a judgment on 30 April 2018 26 W 4/16, principle, No. 39 ff (BeckRS), that in the normal case it is appropriate to follow the recommendation of the FAUB and set the market risk premium within the recommended range (here 5.5 % after tax).

### **Condensing a range of recommended values to the mean value**

When the court judgments fall back on the range of values recommended by the FAUB, this range must then be condensed to one point. In our experience, this normally involves condensing the range to the mean.

A number of higher regional courts have also ruled in favor of using the mean of the range recommended by the FAUB (see OLG Düsseldorf, 30 April 2018, 26 W 4/19, *ratio decidendi* p. 24; OLG Düsseldorf, 22 March 2018, 26 W 20/14, *ratio decidendi* p. 58; OLG Frankfurt, 26 January 2017, 21 W 75/15; No.73 (BeckRS); OLG Hamburg, 30 June 2016, 13 W 75/14, *ratio decidendi* p 19; OLG Frankfurt, 29 January 2016, 21 W 70/15, No. 65 (BeckRS)). For the sake of completeness, it should be mentioned that the Higher Regional Court of Munich, when ruling on the range recommended by the FAUB in 2012, oriented themselves on the lower end of the range within their discretion as the deciding judges (see OLG Munich, 30 Juli 2018, 31 Wx 122/161, *ratio decidendi* p. 21 et seq.; OLG Munich, 26 June 2018, 31 Wx 382/15, No. 109 (BeckRS)).

The reasons for choosing a market risk premium at the higher end of the range might be founded in the higher level of uncertainty recently observed on the capital markets and the associated risk aversion, as was the case underlying the recommendations of the FAUB dated 10 January 2012 in reaction to the situation on the capital markets at the time when calculating the discount rate (see IDW Fachnachrichten: 2/201, p. 122). Arguments in favor of choosing a market risk premium at the lower end of the range could, by the same reasoning, lie in a lower level of uncertainty on the capital markets and waning risk aversion (see also: Großfeld/Egger/Tönnies, Recht der Unternehmensbewertung, 8<sup>th</sup> edition, 2016, p. 250). With reference to the valuation date in this particular case, there is no unusual level of uncertainty currently observable on the stock markets that would suggest choosing a figure at the lower end of the range.

### **Conclusion**

In sum, it should be noted that, in our opinion, the after-tax market risk premium of 5.5 % set by the independent valuer is accurate.

**bb) Beta Factor**

The average risk premium has to be adjusted to reflect the specific risk structure of the respective company being valued. This specific company risk finds its expression in the beta factor used in the CAPM and tax-CAPM models. Any deviations in the actual future cash flows from the expected cash flows represents a risk for the owners (see Franken/Schulte, BewP 2012, pp. 92, 93).

CAPM is a capital market model that is based on portfolio theory. Correspondingly, it is assumed that the investors are able to spread their risks by acquiring investments in a number of different companies ("**diversification**"). For this reason, a distinction is made between the **systemic risk**, which cannot be reduced by diversification and the **non-systemic risk**. As the fluctuations in the cash flows of different companies offset each other because of the non-systemic risk, the cash flow arising from a market portfolio remains unaffected by the non-systemic risk. For this reason, the risk premiums derived using the CAPM only contain a compensation for the systemic risk that cannot be further diversified and this is reflected in the beta factor. Thus non-systemic risks may not be equated with risks specific to the company and systemic risks may not be equated with general macroeconomic risks (see Zeidler et al. BewP 2012, p. 134). Rather, companies react differently to macroeconomic risk drivers and in possibly different directions. Sometimes the reaction of the individual company to risk factors can be totally disparate (see Franken/Schulte, BewP 2012, pp. 92, 97) and therefore different systemic risks need to be reflected in the beta.

The systematic risk of an entity that is relevant for a business valuation can be further broken down into the **operative risk**, i.e. the risk inherent to its operations, and the **financial risk**. The latter is founded on the fact that the volatility of the cash flows paid to the owners increases as leverage rises.

The beta factor is derived from capital market data using regression analysis. This is computed as the slope of trend lines derived from a "data cloud", i.e. the trend line is set through the data coordinates expressing the return on equities and market returns in such a way as to ensure that the gaps from these points to the trend line are as small as possible (best fit). The beta factor is determined on the basis of a linear regression of the company's specific rate of return on share prices (the dependent variable) based on the return of a stock market index as an approximation of the market yield (independent variable).

The beta factor expresses the relationship between the risk of the specific company to the overall market risk. If beta is 1 then the specific company risk is the same as the market average. A beta of less than 1 indicates that the valued company is exposed to less risk than the overall market. If the beta is higher than 1, the company is correspondingly exposed to a risk that is higher than the market average.

In addition to a purely arithmetical derivation of the slope, the issue of the informative power of the regression analysis also needs to be addressed. For this reason, in recent years, audit firms involved in business valuations have taken to using statistical quality analysis to filter the quality of the analysis first. Put graphically, a wide spread of points on the chart makes it difficult to determine the exact slope of the regression as a slight change in the slope can provide a solution that is almost as accurate. In order to measure the quality of the regression, a number of statistical measures are applied which provide an indication of how "good", in the sense of statistically informative, the results of the regression analysis are. Generally, the coefficient of determination ( $r^2$ ) and the T-test are applied to do this. Moreover, the analysis of the quality of the beta factor can be analyzed using the bid/ask spread, as this provides an indication of the informative value of the underlying share prices.

### **Coefficient of determination ( $r^2$ )**

The **coefficient of determination** ( $r^2$ ) is an indicator of the informative power of the regression equation. It indicates what percentage of the rate of return on share prices can be explained by the return on a stock market index. In CAPM, the return on the shares being valued can be fully explained by the development of the market portfolio as it only looks at the systemic risk. Correspondingly, the beta factor measures the fluctuation in the rate of return on share prices relative to fluctuations in the return for the market as a whole. In an ideal case where  $r^2 = 1$ , all observed points lie on the slope of the regression. The question is how to interpret cases where  $r^2$  is less than one. When  $r^2$  is less than one, this means that the share (often a very high share) of the observed returns on share prices in the sample cannot be explained by the development of the market but by other factors (see Dörschell et al., Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> edition, 2012, p. 177; Dörschell et al., WPg 2008, pp. 1152, 1160).

Coefficients of determination determined for calculations of the beta factor from empirical data generally lie in a range from single digit percentages up to approximately 50 % (corresponding to 0.50). With regard to the coefficient of determination, the OLG Stuttgart has found that this lies close to zero for values between 0.051 and 0.054 and therefore is not suitably significant (see OLG Stuttgart, 18 December 2009, 20 W 2/08, *ratio decidendi* No. 247 (juris); see also: OLG Frankfurt, 29 April 2011, 21 W 13/11, No. 77 (juris) for an  $r^2$  of 0.02)). According to the OLG Stuttgart, even the statistical significance of values between 0.07 and 0.11 is considered too low to be used to calculate a company's beta (see OLG Stuttgart, 22 September 2009, 20 W 20/06, AG 2010, pp. 42, 45). Generally, there is no unambiguous lower limit at which a coefficient of determination becomes statistically informative.

**T-test**

In addition to the coefficient of determination, the t-test is another method for testing statistical significance. The t-test is a statistical method for reviewing hypotheses. Very simply put, the test examines whether a beta that has been determined for a sample over a number of years (usually two or five) displays a statistically significant correlation between the return on the share price and the return on a market-based index. However, using this test, the statistical correlation between the development of the share price and the development of the market index can only be presumed to a certain degree of probability (known as the confidence interval, typically 95 % or 99 %).

Depending on the required confidence interval and the number of return combinations between the index and the share price, there exist tables that indicate the required t-values. If, in an individual case, the t-value is higher than the tabular value of the t-distribution (t-critical), then it can be assumed with a high degree of confidence that there is a statistical correlation. In other words, this means that the probability of obtaining the observed spread of points without the market return having a determining influence on the return on the share price is 5 % or 1 % respectively, depending on the confidence level chosen (see Dörschell et al., WPg 2008, pp. 1152, 1160).

**Bid/ask spread**

The beta should reflect the interrelationship between the return on the share and returns available on the market. However, a precondition for the suitability of a forecast valuation derived from the beta using regression analysis is that the share price adjusts objectively and synchronously to changes in the economic environment. However, if the market return on the share only adjusts to such changes at some delay, the statistically measured beta can no longer reflect the interrelationship between the return on the share and the returns from the wider market (see Dörschell/Franken/Schulte, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> ed., 2012, p. 167).

As a measure of the degree to which such adjustment is undistorted, the professional literature applies various liquidity measures, such as free float, trading volume and the bid/ask spread. There is not yet any consensus in the literature as to how high the bid/ask spread can be before it can be assumed that there is no longer sufficient market liquidity (see Dörschell/Franken/Schulte, Der Kapitalisierungszinssatz in der Unternehmensbewertung, 2<sup>nd</sup> ed., 2012, p. 175). Liquidity class 1 for designated sponsors in Xetra trading allows a maximum of 2.5 % (see Deutsche Börse AG, Designated Sponsor Guide, Version 10.1., point 4.2). In the opinion of the Higher Regional Court of Frankfurt, 26 January 2017, 21 W 75/15, No. 34 (BeckRS), there are substantial reservations about the liquidity of the share if the bid/ask spread is significantly above 2 %. 2.37 % is not sufficient (see

OLG Frankfurt, 19 January 2016, 21 W 70/15, No. 69 (BeckRS)). The Regional Court of Munich I, 2 December 2016, 5 HK 4781/15, No 147 (juris), sets an upper limit of 1.0 % to 1.25 % maximum for the bid/ask spread. Any values in excess of this indicates that the price reacts too sluggishly to capital market information, as the transaction costs are too high on account of the bid/ask spread (see LG Munich I, 30 June 2017, 5 HK 13182/15, *ratio decidendi* p. 120). In the case of betas lying above an upper limit, yet to be defined, use of the beta should be rejected.

The share of Linde AG and the shares of the peer group companies we drew on as a plausibility check all display a bid/ask spread under 1.0 % in the various beta calculations and therefore possess sufficient liquidity.

### **Raw and adjusted beta**

The beta derived directly from the returns (on share prices) is frequently referred to as the "raw beta, leveraged". If this is related to the beta of the market as a whole of 1 using a weighting formula, it is referred to as the "adjusted beta, leveraged".

If the beta factors measured on the market are adjusted, the formula takes the levered beta factors as its point of departure. The adjusted beta is derived from the raw beta. Unlevering is only performed thereafter. The levered beta serves as a measure of the systemic risk for a provider of capital taking account of the capital structure risks associated with debt finance (levering) and is by definition 1.0 for the total market.

When making the adjustment, reference was made to a number of empirical studies of equity markets that demonstrate that beta factors trend to the market average over time and thus towards a beta factor of 1 (see Blume, *Journal of Finance*, 1971, Vol. 26, No. 1, pp. 1 et seq.; Zimmermann, *Schätzung und Prognose von Betawerten*, 1997, pp. 241 etc.).

From an economic perspective, this can be explained by the fact that a company will spread its risks due to growth and diversification of its portfolio and therefore its beta will trend towards the market average of 1.0. This effect can start with the operating risk and/or an adjustment of the leverage. In the professional literature this aspect of beta factors is also discussed under the term of "autoregressive behavior". This effect implies that the leveraged beta factor of a share will trend towards the mean of all shares in the following period in comparison to its position in earlier periods. Values lying below the mean therefore trend upwards and values above the mean trend downwards. Due to such autoregressive trends (e.g. as described by Blume), the range of beta factors can become smaller over time (see Zimmermann, *Schätzung und Prognose von Betawerten*, 1997, p. 247).

Statistical estimates always display a number of uncertainties. Autoregressive trending to the market reference (1) can compensate the associated uncertainties, comparable to the use of averages and rounding using the Svensson method. To this extent **underestimates or overestimates** of the beta factor can be significantly reduced by making an adjustment based on Blume (see Scheld, *Fundamental Beta*, 2013, p. 78).

A further justification for the adjustment of raw betas is the general calculation methodology of betas. The fundamental changes to the company in the distant past have already been considered in the *ex post* estimate of the beta factor. By contrast, the risks arising from changes in the recent past are not adequately considered (see Rosenberg/Guy, *Financial Analysts Journal* 1976, pp. 62, 63). In other words, the raw beta derived from the empirical data needs to be adjusted to anticipate the trend expected in future (see Timmreck, FB 2002, S. 300, 304). In the professional literature an adjustment of the raw beta towards the market mean (of 1) is considered justified. This adjustment has the function of ensuring a suitable **orientation to the future** (see Scheld, *Fundamental Beta*, 2013, pp. 76 et seq.).

In finance, a beta adjusted using the method of Blume is the most commonly used definition (see Scheld, *Fundamental Beta*, 2013, p. 77). This method, in which the raw beta is multiplied by 0.667 (=2/3) and 0.333 is added, has become something of a convention. The adjustment made by Vasicek uses a different method (see Vasicek, *A Note on Using Cross-Sectional Information in Bayesian Estimation of Security Betas*, *The Journal of Finance*, 1973, pp. 1233 et seq.; a supporting judgment: OLG Düsseldorf, 24 April 2013, VI-3 Kart 65/08, p. 28 (BeckRS)). According to the adjustment method of Vasicek, the levered raw betas are weighted to move closer towards a known reference value (e.g. market average), depending on the size of the standard error of the beta estimate.

The neutral valuer has applied raw betas. In terms of valuation methodology, both adjusted and raw betas are equally accepted and used in practice (see IDW, WPH Edition, *Bewertung und Transaktionsberatung*, 2018, Chapter A, No. 410). Nor does the jurisprudence provide any indication that any particular method should be given any particular precedence over the other methods (see LG Munich, 28 April 2017, 5 HK O 26513/11, p. 21 (BeckRS); OLG Düsseldorf, 15 August 2016, 26 W 17/13, No. 58 (BeckRS); OLG Karlsruhe, 23 July 2015, 12a W 4/15, No. 66 (juris); OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 51 (juris)). The Federal Court of Justice expressed its favor for the method applied by Vasicek for the purpose of grid regulation (see BGH, 27 January 2015, EnVR 37/13, No.10 (www.bundesgerichts-hof.juris)). In a more recent judgment, the Higher Regional Court of Munich stated that there was no reason to reject the adjustment (see OLG Munich, 30 July 2018, 31 Wx 122/16, *ratio decidendi* p. 23 in conjunction with LG Munich I, 20 November 2015, 5 HK O 5593/14, *ratio decidendi* p. 84). In conclusion, the Regional Court of Munich I expressed the same opinion about the issue, which found no reason to object to the adjustment using the method of Blume (see LG Munich I, 29 August 2018, 5 HK 16585/15, *ratio decidendi* pp.112 et seq.).

To this extent, the use of raw beta by the independent valuer is appropriate.

### **Period used in the calculation of beta**

When assessing how up-to-date and statistically significant the beta is, it is necessary to set the period in which the beta is calculated. A larger sample increases the accuracy of the result from a statistical perspective. In practice, a period of five years with monthly intervals and a period of two years with weekly intervals between returns are mainly applied (OLG Frankfurt, 30 August 2012, 21 W 14/11, No. 80 (juris); OLG Frankfurt, 20 December 2010, 5 W 51/09, No. 63 (juris)).

Generally, a shorter period, such as two years, will be more up-to-date (see OLG Stuttgart, 5 June 2013, 20 W 6/10, No. 214 (juris); OLG Frankfurt, 30 August 2012, 21 W 14/11, No. 80 (juris); LG Frankfurt, 2 September 2010, 3-5 O 279/08, *ratio decidendi* p. 27). Longer periods in which abnormal fluctuations in shares prices occur due to structural changes, such as an IPO or a squeeze-out, are not suitable for determining the beta (see OLG Stuttgart, 4 May 2011, 20 W 11/08, No. 204 (juris)). Corresponding to the time limits set for the share price, the OLG Stuttgart is of the opinion (see the ruling dated 18 December 2009, 20 W 2/08, 4. Guiding principle and *ratio decidendi* No. 239; BGH, 19 July 2010, AG 2010, pp. 629 et seq.) that the company's inherent beta should not be calculated using data from the period after such structural measures have been announced. On the contrary, the period used to measure the **company's own beta** must end on the day on which the measures are announced (supported by OLG Karlsruhe, 13 May 2013, 12 W 77/07 (13), No. 36 (juris); OLG Frankfurt, 30 August 2012, 21 W 14/11, No. 80 (juris)).

Linde AG announced the intended squeeze-out of minority shareholders in an ad hoc announcement on 25 April 2018. As a result, the period for determining the company's own beta ends on the preceding day at the very latest, 24 April 2018.

### **Beta factor of Linde AG**

For publicly listed companies like Linde AG, a historic beta factor can be derived directly from capital market data. Generally it can be stated that the beta factor to be applied for the CAPM is not an empirical value based on past experience but is also an estimated future value (see OLG Frankfurt, 30 August 2012, 21 W 14/11, No. 72 (juris)).

The independent valuer has used the beta of Linde AG over a two-year period using weekly returns. The calculation by the independent valuer is based on market data from Bloomberg, the financial services provider. The betas were derived using linear regression from the returns on the shares of



Linde AG compared to the returns of the CDAX. When calculating the betas, the independent valuer referred to raw betas.

In conclusion, the independent valuer identified a statistically significant unlevered beta for Linde AG of 0.73 based on its analyses of the weekly returns for the two-year period ending 20 April 2018 (the Friday prior to the ad hoc announcement). The period analyzed by the independent valuer ends on 20 April 2018. As a result, the observed data for the share price of Linde AG underlying the calculation of the beta are free of possible distortions related to the announcement of the intended squeeze-out.

In the course of our audit we examined the beta of Linde AG on the basis of a two-year observation period using weekly intervals for the return, supplemented by a five-year observation period and monthly intervals of the return.

According to our analyses, the following statistically significant beta factors for Linde AG result for the periods of investigation and intervals considered.

Name	Index	Return observations	R <sup>2</sup>		Levered Beta	Unlevered Beta
Linde AG	CDAX Index	2 years weekly	0.39	raw	0.93	0.76
Linde AG	CDAX Index	2 years weekly	0.39	adjusted	0.95	0.78
Linde AG	CDAX Index	5 years monthly	0.45	raw	0.85	0.72
Linde AG	CDAX Index	5 years monthly	0.45	adjusted	0.90	0.75
<b>Mean</b>						<b>0.75</b>

As a result, we consider the beta factor of 0.73 used by the independent valuer EY to measure the operating risk of Linde AG to be appropriate.

### Beta factor of the peer group

In order to review the plausibility of the beta factor determined for Linde AG, a peer group beta was determined using the peer group of listed companies. Recourse to the betas of a peer group is recognized by the courts (see OLG Düsseldorf, 15. August 2016, 26 W 17/13, Tz 56 (juris); OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 51f. (juris); OLG Karlsruhe, 22 June 2015, 12a W 5/15, No. 60 (juris); OLG Frankfurt, 30 August 2012, 21 W 14/11, No. 72 (juris); OLG Stuttgart, 19 January 2011, 20 W 3/09, *ratio decidendi* 50; OLG Frankfurt, 21 December 2010, 5 W 15/10, No. 81 (juris); OLG Stuttgart, 17 March 2010, 20 W 9/08, No. 163 (juris); OLG Stuttgart, 18 December 2009, 20 W 2/08, No. 235, 254 (juris); OLG Düsseldorf, 27 May 2009, 26 W 5/07, *ratio decidendi* p. 43). This also applies with regard to the inclusion of foreign entities (see OLG Hamburg, 18 September 2015, 13 W 44/14, *ratio decidendi* p. 12, OLG Düsseldorf, 4 July 2012, 26 W 8/10, No. 64 (juris); OLG Stuttgart,

19 January 2011, 20 W 2/07, No. 224; OLG Düsseldorf, 27 May 2009, 26 W 5/07, *ratio decidendi* p. 43).

The independent valuer, EY, therefore examined the main fields of activity and major influences on the business model of Linde AG. Using these criteria, a group of potential peers was identified for each business segment of Linde AG who are active in comparable fields. EY comes to the conclusion that both the weighted average and the weighted median of the individual peer group segments are well above Linde AG's own beta factor.

Within the course of our audit we verified the plausibility of the beta of Linde AG by conducting a supplementary analysis of the betas of a peer group of comparable publicly listed companies using a two-year observation period and weekly returns. We adjusted the peer group applied by the independent valuer and added additional companies to the peer group.

To eliminate the effects from the financing structure of the companies in the peer group from the specific beta factors of each company, it is customary professional practice to convert the historical beta factors of indebted (leveraged) companies into beta factors for unlevered companies (a process known as "unlevering") to obtain comparability to the operating risk profile of the valuation object (see OLG Stuttgart, 18 December 2009, 20 W 2/09, *ratio decidendi* No. 86; OLG Frankfurt, 20 December 2010, 21 W 26/13, *ratio decidendi* p. 22; OLG Stuttgart, 19 January 2011, AG 2011, pp. 205, 209).

Based on weekly intervals of the return over an observation period of two years, the betas of the peer group are as follows (the monitoring period for determining the betas ends on 14 September 2018).

Name	Index	R <sup>2</sup>	Levered Beta (raw)	Unlevered Beta (raw)	Levered Beta (adj.)	Unlevered Beta (adj.)
<b>GASES</b>						
Air Liquide SA	SBF250R Index	0.72	1.19	0.89	1.13	0.85
Air Products & Chemicals Inc	DWCFT Index	0.45	0.94	0.89	0.96	0.91
Praxair Inc	DWCFT Index	0.46	1.10	0.93	1.07	0.91
Taiyo Nippon Sanso Corp	NDDLJN Index	0.46	1.58	1.05	1.39	0.92
<b>Mean</b>				<b>0.94</b>		<b>0.90</b>
<b>Median</b>				<b>0.91</b>		<b>0.91</b>
Weighting				73%		73%
<b>ENGINEERING</b>						
Tecnicas Reunidas SA	MADX Index	0.08	0.57	0.57	0.71	0.71
Maire Tecnimont SpA	TITLMSE Index	0.19	0.95	0.92	0.97	0.94
Chiyoda Corp	NDDLJN Index	0.18	1.27	1.27	1.18	1.18
JGC Corp	NDDLJN Index	0.38	1.49	1.49	1.33	1.33
Toyo Engineering Corp	NDDLJN Index	0.08	0.78	0.78	0.85	0.85
Hangzhou Hangyang Co Ltd	SZCOMP Index	0.31	1.52	1.37	1.35	1.22
Samsung Engineering Co Ltd	KOSPI Index	0.13	1.36	0.99	1.24	0.90
<b>Mean</b>				<b>1.05</b>		<b>1.02</b>
<b>Median</b>				<b>0.99</b>		<b>0.94</b>
Weighting				6%		6%
<b>HEALTHCARE</b>						
Hill-Rom Holdings Inc	DWCFT Index	0.17	0.85	0.71		0.74
Walgreens Boots Alliance Inc	DWCFT Index	0.20	0.90	0.84		0.87
CVS Health Corp	DWCFT Index	0.13	0.93	0.80		0.82
Invacare Corp	DWCFT Index	0.07	1.13	1.02		0.99
Fisher & Paykel Healthcare Corp Ltd	NZSE Index	0.29	1.41	1.41		1.27
ResMed Inc	DWCFT Index	0.32	1.16	1.14		1.09
Amedisys Inc	DWCFT Index	0.04	0.62	0.61		0.74
Inogen Inc	DWCFT Index	0.13	1.11	1.11		1.08
<b>Mean</b>				<b>0.96</b>		<b>0.95</b>
<b>Median</b>				<b>0.93</b>		<b>0.93</b>
Weighting				20%		20%
<b>LOGISTICS</b>						
MARR SpA	TITLMSE Index	0.21	0.50	0.45		0.59
Kuehne + Nagel International AG	SSIRT Index	0.30	0.71	0.71		0.80
DSV A/S	KAXGI Index	0.23	0.80	0.76		0.82
Wincanton PLC	ASXTR Index	0.20	1.27	1.00		0.93
<b>Mean</b>				<b>0.73</b>		<b>0.79</b>
<b>Median</b>				<b>0.73</b>		<b>0.81</b>
Weighting				1%		1%
<b>Weighted median</b>				<b>0.95</b>		<b>0.91</b>
<b>Weighted mean</b>				<b>0.92</b>		<b>0.91</b>

Based on raw betas this results in a weighted median beta of 0.95 and a weighted average mean of 0.92. Based on adjusted betas this results in in a weighted median beta of 0.91 and a weighted average mean of 0.91.

Furthermore, we determined the betas for the adjusted peer group for a five-year observation period using monthly returns as of 31 August 2018.

Name	Index	R <sup>2</sup>	Levered Beta (raw)	Unlevered Beta (raw)	Levered Beta (adj.)	Unlevered Beta (adj.)
<b>GASES</b>						
Air Liquide SA	SBF250R Index	0.67	1.08	0.85	1.05	0.83
Air Products & Chemicals Inc	DWCFT Index	0.47	1.06	0.94	1.04	0.93
Praxair Inc	DWCFT Index	0.49	1.07	0.89	1.05	0.87
Taiyo Nippon Sanso Corp	NDDLJN Index	0.29	1.17	0.76	1.11	0.72
<b>Mean</b>				<b>0.86</b>		<b>0.84</b>
<b>Median</b>				<b>0.87</b>		<b>0.85</b>
Weighting				73%		73%
<b>ENGINEERING</b>						
Tecnicas Reunidas SA	MADX Index	0.32	0.94	0.94	0.96	0.96
Maire Tecnimont SpA	TITLMSE Index	0.25	1.18	1.03	1.12	0.98
Chiyoda Corp	NDDLJN Index	0.15	0.87	0.87	0.91	0.91
JGC Corp	NDDLJN Index	0.26	1.00	1.00	1.00	1.00
<b>Mean</b>				<b>0.96</b>		<b>0.96</b>
<b>Median</b>				<b>0.97</b>		<b>0.97</b>
Weighting				6%		6%
<b>HEALTHCARE</b>						
Hill-Rom Holdings Inc	DWCFT Index	0.21	0.90	0.70	0.93	0.72
Walgreens Boots Alliance Inc	DWCFT Index	0.18	1.01	0.94	1.01	0.93
CVS Health Corp	DWCFT Index	0.18	0.97	0.86	0.98	0.87
Invacare Corp	DWCFT Index	0.25	2.42	2.25	1.95	1.81
Fisher & Paykel Healthcare Corp Ltd	NZSE Index	0.28	1.33	1.32	1.22	1.21
ResMed Inc	DWCFT Index	0.15	0.87	0.86	0.92	0.90
Amedisys Inc	DWCFT Index	0.07	1.10	1.07	1.06	1.04
<b>Mean</b>				<b>1.14</b>		<b>1.07</b>
<b>Median</b>				<b>0.94</b>		<b>0.93</b>
Weighting				20%		20%
<b>LOGISTICS</b>						
MARR SpA	TITLMSE Index	0.20	0.49	0.44	0.66	0.59
Kuehne + Nagel International AG	SSIRT Index	0.52	0.95	0.94	0.96	0.96
DSV A/S	KAXGI Index	0.09	0.38	0.38	0.59	0.56
Stobart Group Ltd	ASXTR Index	0.21	1.48	1.38	1.32	1.23
<b>Mean</b>				<b>0.79</b>		<b>0.84</b>
<b>Median</b>				<b>0.69</b>		<b>0.78</b>
Weighting				1%		1%
<b>Weighted median</b>				<b>0.92</b>		<b>0.89</b>
<b>Weighted mean</b>				<b>0.89</b>		<b>0.88</b>

Based on raw betas this results in a weighted median beta of 0.92 and a weighted average mean of 0.89. Based on adjusted betas this results in in a weighted median beta of 0.89 and a weighted average mean of 0.88.

In keeping with the overall review, we are of the opinion that the beta of 0.73 applied by the independent valuer, EY, to measure the operating risks of Linde AG is appropriate in light of the beta factors of the peer group.

**c) Growth Factor**

Within the framework of calculating the discounted earnings value using the discounted earnings method, a growth factor has to be set for the terminal value. The independent valuer has set the growth factor at 1.0 % after rounding.

We examined the growth factor chosen by the independent valuer on the basis of price indexes issued by the Federal Office of Statistics and forecasts of the consumer price index in Germany made by bank analysts as well as the International Monetary Fund. The inflation rate in Germany based on the consumer price index (2010 = 100) is as follows:

<b>German Office of Statistics - Consumer Price Index Germany (Base 2010 =100)</b>		<b>Average Change</b>
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August 2015	107.2	
August 2018	111.7	1.38%

<b>Estimates by Bank Analysts - Change Consumer Price Index Germany</b>		<b>Average Change</b>
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**2018**

Lower boundary of estimates	1.60%	
Upper boundary of estimates	2.10%	1.80%

**2019**

Lower boundary of estimates	1.20%	
Upper boundary of estimates	2.20%	1.80%

**2020**

Lower boundary of estimates	1.20%	
Upper boundary of estimates	2.10%	1.80%

<b>Estimates by the International Monetary Fund - Change Consumer Price Index Germany</b>		<b>Average Change</b>
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<b>2018</b>		1.63%
<b>2019</b>		1.67%
<b>2020</b>		2.14%
<b>2021</b>		2.42%
<b>2022</b>		2.58%
<b>2023</b>		2.72%

<b>Inflation Expectations Inferred from the Interest Yields on Inflation Protected German Government Bonds</b>		<b>Inflation expectation</b>
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10-year government bonds		1.30%
15-year government bonds		1.32%
30-year government bonds		1.64%

Taking the development in the consumer price index over the past three years reveals an annual average rise in consumer prices of approximately 1.38 %. According to a summary prepared by Bloomberg of the estimated change in the consumer price index made by bank analysts for the years 2018 to 2020, the inflation rate ranges between 1.20 % and 2.20 %. For 2018 and 2019, the International Monetary Fund is forecasting an increase in consumer prices to values of under 2 % p.a. Expectations for the following years from 2020 are at a slightly higher level. The interest rates on inflation-linked German government bonds reveal that inflation is expected to remain below 2 % in future.

However, when measuring the growth factor, the circumstances of the particular company must also be considered. For this reason, the rates of growth in the future earnings of different companies can, and in fact will, deviate from one another by nature. According to research by Widmann/Schieszl/Jeromin (FB 2003, pp. 800 et seq.) the average growth in the profits is approximately 45 % to 50 % of the average inflation rate, independent of the economic cycle. This lower growth in profits has been confirmed in research by Stellbrink ("Der Restwert in der Unternehmensbewertung", 2005, pp. 125 et seq.). The opinion that the growth factor should be generally lower than the inflation rate is mirrored in the prevailing opinion in the technical literature (see Großfeld/Egger/Tönnies, Recht der Unternehmensbewertung, 8<sup>th</sup> edition, 2016, p. 267; WP-Handbuch 2014, Vol. II, Section A, No. 489 and in particular footnote No. 793 which cites an analysis of the court rulings; for a view contrary to the other studies, see OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 63 (juris); OLG Frankfurt, 30 August 2012, 21 W 14/11, No. 114 (juris); OLG Stuttgart, 8 July 2011, 20 W 14/08, No. 279 et seq. (juris)). This is also partly due to the fact that an investment in a company is not totally immune from the effect of inflation (see OLG Munich, 18 February 2014, 31 Wx 211/13, No. 26 (juris); OLG Düsseldorf, 11 April 1988, 19 W 32/86, WM 1988, pp. 1052, 1059, 31; OLG Düsseldorf, 12 February 1992, 19 W 3/91, AG 1992, pp. 200, 204). The purpose of the growth factor is not to offset inflation at all costs (see OLG Stuttgart, 12 September 2017, 12 W 1/17, Tz 83 (BeckRS), OLG Stuttgart, 19 March 2008, 20 W 3/06, AG 2008, pp. 510, 515).

Thus, given an annual rise in the consumer price index of approximately 1.38 % in the three year period from August 2015 to August 2018 and other estimates and assuming a related growth in profits of between 45 % and 50 % of the inflation rate, the resulting sustained growth rate is just below 1 %.

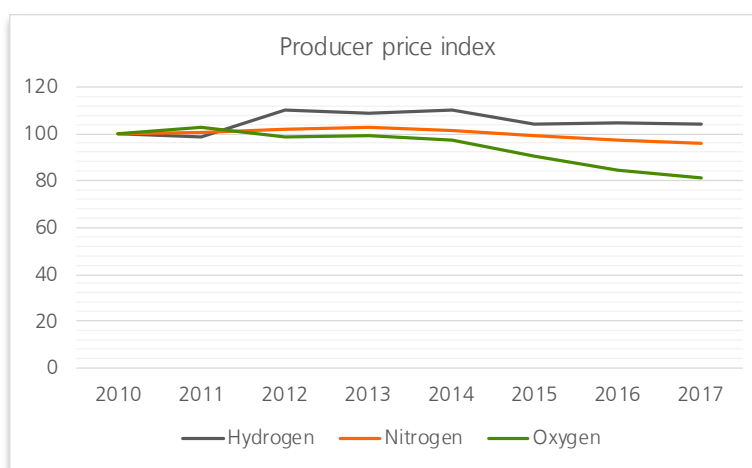


Basically, in addition to the general development of the industrial gases industry, the competitive position of Linde AG within this industry is relevant to measuring its growth prospects. Due to the fact that the growth factor shows the expected average increase in the future profits of all companies, the expected growth of results within the detailed planning phase cannot be simply transferred over to the discount rate of the specific company (see OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 62 (juris)).

We verified the plausibility of the growth factor of 1.0 % applied by the independent valuer by comparing it to the market and competitive position using a range of factors as illustrated below (see the following chart):

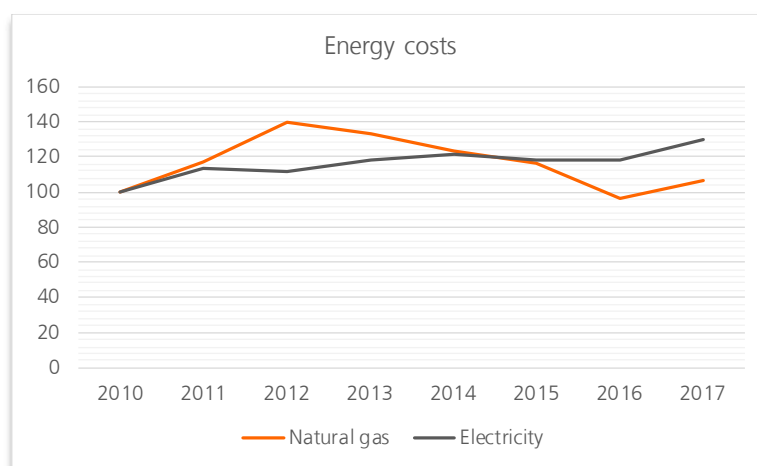
Linde AG has been active on the market for over 130 years and is the second largest producer of industrial gases in the world after Air Liquide (before the merger with Praxair is counted). The Company operates on a geographically distributed market and enjoys a high market share in many regions. Nevertheless, and disregarding the low number of international producers of industrial gases, the Company is under substantial competitive pressure in its segment of the market. Local competitors play an important role in many countries, which reflects the highly local nature of the produced gases.

The prices of the three gases produced by Linde in the past do not display any growth over a long time frame. In fact it can be assumed that there has sooner been a general decline in prices:



Source: Federal Statistical Office; our own chart

On the cost side, rising energy costs play an important role, along with personnel costs, when assessing the earnings of the Linde Group. While the costs of natural gas have shown a great degree of volatility in the historical period under review, the cost of electricity has risen steadily:



Source: Federal Statistical Office; our own chart

Even if the Linde Group can generally pass on rises in energy prices to its customers, thanks to the contractual arrangements, at least in the tonnage business, this especially in the bulk business represents a challenge which forces the Linde Group to constantly improve its productivity.

A growth factor of 1.0 % is considered appropriate with regard to the expected long-term development of the wider economy and the market position of Linde AG.

A comparison to the results of an empirical study in which the average growth rate in squeeze-outs lies in a range between 0.5 % and 1.0 % (Hachmeister et al., WPg 2009, pp. 1234, 1245) also confirms that an appropriate growth has been assumed in this case. Growth rates below the generally expected inflation rate are typically applied and accepted by the courts (see Ruthardt/Hachmeister, DB 2014, pp. 193, 197-202 for commentary and extensive references to court rulings). Empirical analyses of the amount of the growth factor in the course of arbitration proceedings reveal different values, depending on the industry. Frequently, growth rates of between 0.5 % and 1.0 % are applied. The mean growth factor lies at roughly 1.0 % (see Ruthardt/Hachmeister, DB 2014, pp. 193, 199).

The growth factor itself is not adjusted for taxes.

We consider the determination of growth rate used to be appropriate.

**d) Derivation of the Discount Rate**

The discount rate used in the detailed planning phase and the terminal value has been correctly derived. We are satisfied that the financial mathematical calculations are accurate.

As a purely precautionary measure we would like to point out that a change in individual values for the risk-free rate, the market risk premium, the beta factor or the growth rate, any of which might be reasonable in isolation, can in aggregate lead to an unrealistic figure for the discount rate and therefore an unrealistic value for the fair compensation (see OLG Frankfurt, 24 November 2011, 21 W 7/11, No. 40 (juris)). Moreover, there is no need under the constitution to grant the highest benefit for individual inputs of the discounted earnings method, as described by the Higher Regional Court of Stuttgart (see 17 October 2011, 20 W 7/11, No. 188 (juris)).

**4. Calculation of the Discounted Earnings Value**

Based on the financial planning explained in the valuation report, the discounted earnings value has been derived as follows:

**a) Distribution Rate and Taxation of Dividends**

The Company's business plan is based on the assumption that all cash and cash equivalents that are not required will be distributed, taking into account constant a cash position. However, we were informed that there is no explicit distribution policy. The independent valuer has assumed a full distribution of the non-operating cash and cash equivalents beyond the operating cash position. In agreement with the company, the independent valuer assumed a dividend payout ratio that would increase over time. However, he did not apply this ratio to the profit for the year after minority interests, but to the distributable surplus. Accordingly, this distribution ratio only serves to divide the distributable surplus into the distribution and the value contribution from retained earnings to determine personal taxes.

The calculated distribution ratio of the company in the detailed planning phase (based on the Group result) varies between 11 % and 33 %. Given that there are no legal restrictions to this distribution policy, no objection can be made to adopting the distribution ratio for the purposes of the valuation. This opinion is shared by the OLG Frankfurt, which refuses to examine whether specific management decisions, such as its distribution policy, maximizes returns to the owners (see OLG Frankfurt, 5 March 2012, 21 W 11/11, AG 2012, pp. 417, 419, OLG Frankfurt, 29 April 2011, 21 W 13/11, No. 58 (juris); OLG Frankfurt, 9 February 2010, 5 W 33/09; ZIP 2010, pp. 279, 731).

Due to the fact that there is sufficient distributable income available in accordance with Sec. 27 (1) KStG, there are no tax-free repayments. Consequently, there is no need to make an adjustment in this regard.

For the terminal value, the sustainable distribution ratio of 50 % set by the independent valuer lies in the middle of the range of average market distributions (see Wagner/Saur/Willershausen, WPg 2008, p. 733, which refers to average distribution rates of between 40 % and 60 %.) In this approach, the distribution patterns of the company being valued are reflected in a way that is equivalent to the distributions of the alternative investment (see Gorny/Rosenbaum, WPg 2004, pp. 861, 863; OLG Düsseldorf, 11. Mai 2015, 26 W 2/13, No. 47 (juris); OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 37 (juris); OLG Frankfurt, 18 December 2014, 21 W 34/12, No. 57 (juris); OLG Frankfurt, 29 April 2011, 21 W 13/11, No. 62 (juris)). The amounts that are not distributed are considered as added value from retained earnings with the exception of the retained earnings needed to fund growth.

The planned distributions were then reduced to deduct personal income tax of 25 % plus the 5.5 % solidarity surcharge.

Overall, the independent valuer EY has plausibly justified and comprehensibly derived the recognized distribution ratio respectively the recognized distribution amounts.

## **b) Capital Tax Gains upon Disposal**

From the year 2009 the impact of the tax on capital gains upon disposal needs to be considered. Representing the amount of the effective capital gains tax depends both on the assumed duration of the holding, the development of the business value due to the retention of earnings by the company, as well as the alternative investment (see Wiese, WPg 2007, pp. 368, 375). The figures need to be standardized in order to account for the timing of the sales that trigger capital gains tax and the resulting average capital gains tax (see OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 29 (juris)).

Although it is initially intended to only tax all realized gains on sales of assets if the assets were acquired after 31 December 2008, at the same time the taxation of capital gains must be reflected in the prices observed on the capital markets, at least from 1 January 2009, because, since this date, any sale of shares to realize price gains, which is still tax-free, at least temporarily due to the sale of "old" holdings acquired prior to 1 January 2009 is counterbalanced by the fact that, for the buyer, the acquired assets will be subject to capital gains tax upon a later sale. More importantly, the primary factor here is not the rate of capital gains tax due on the cash compensation once the resolution on

the transfer has been registered, but the – prior – calculation of the discounted earnings value assuming an indefinite life for the company when using the discounted earnings method.

On the basis of the professional discussion of the matter it can be assumed that a standardized **effective capital gains tax of 12.5 %** plus solidarity surcharge (13.1875 %) is appropriate (see Zeidler/Schöniger/Tschöpel, FB 2008, p. 281; Wagner/Saur/Willershausen, WPg 2008, p. 736; OLG Munich, 5 May 2015, 31 Wx 366/13, No. 74 (juris); OLG Frankfurt, 26 January 2015, 21 W 26/13, No. 29 (juris); OLG Munich, 18 February 2014, 31 Wx 211/13, No. 16 (juris); OLG Munich, 18 February 2014, 31 Wx 211/13, No. 16 (juris); OLG Stuttgart, 15 October 2013, 20 W 3/13, No. 116 (juris); OLG Stuttgart, 5 June 2013, 20 W 6/10, No. 186 (juris); OLG Munich, 7 February 2013, 31 Wx 122/12, *ratio decidendi* p. 10)). Instead of the nominal tax burden of 25 % plus solidarity surcharge, the independent valuer thus charged **reinvestments in the perpetuity that lead to value increases** with an effective tax of 13.1785 %.

Moreover, **inflation-related gains on sale** need to be considered when deriving the net proceeds. The reason for this can be briefly explained: gains on sale are subject to tax. As a simplification, they are generally only considered in the terminal value. From a purely mathematical point of view the business value rises by a nominal amount each year in the terminal value due to the company's specific inflation rate. This is also true even if it is assumed that all projected earnings are distributed (fictitious full distribution). If, as a typified example, it is assumed that the holding by the shareholder is not for an indefinite period, these inflation-related (phantom) gains on the sale will be realized at the end of the typified holding period and will become subject to the effective capital gains tax plus the solidarity surcharge (see WPH Edition: Bewertung und Transaktionsberatung, 2018, Chapter A No. 453 et seq. and the references contained there). Alternatively, it is possible to deduct the inflation-related growth factor from the denominator (see Tschöpel/Wiese/Willershausen, WPg 2010, 349, 356; Jonas/Wieland-Blöse, Berücksichtigung von Steuern, in: Fleischer/Hüttemann, *Rechtshandbuch*, § 15 Fn. 4). Within the framework of tax-CAPM, the market risk premium is derived from the total market returns on shares. These are, in turn, derived from the long-term nominal increase in the stock index, i.e. due to inflation. The annual change in an index is made up of the dividend yield and the price yield (effectively the capital gains arising from a rise in the share prices of the shares included in the basket). When deriving the after-tax return on shares from the pre-tax return on shares (see WPH Edition: Bewertung und Transaktionsberatung, 2018, Chapter A No. 396) the amount attributable to the dividend yield is subject to the nominal rate of capital gains tax. The difference between the market return on a share and the dividend yield is the price yield. The developments of share prices observed on the market in the past and expected in future, i.e. the price yields, represent nominal indicators. To this extent, rises in share prices due to inflation are already factored into the indicator (for an analysis of inflation-adjusted real returns, see Castedello et al., WPg 2018, pp. 806, 812 et seq.). If the price yield after-tax is now reduced by the effective income tax on any gain on sale when calculating the market risk premium within the framework of

tax-CAPM, the inflation-related changes in the share prices or (phantom) capital gains will be implicitly included when calculating the discount rate. To ensure equivalence between the company being valued and the alternative investment for tax purposes, and in terms of availability, the effective tax on gains on sale due to inflation alone must be included in the measurement of the discounted earnings value. Considering the effective tax on gains on sale due to inflation alone is in our opinion widely practised in business valuations and was confirmed at appeal (LG Düsseldorf, 15 January 2018, 31 O 5/13; LG Koblenz, 7 August 2017, 4 HK O 79/14; LG München I, 30 June 2017, 5 HK 13182/15; LG Munich I, 28 April 2017, 5 HKO 26513/11; LG Munich I, 25 April 2016, 5 HK 20672/14; LG Koblenz, 10 September 2015, 4 HKO 166/12; LG Kiel, 21 April 2015, 16 O 75/12).

As a purely precautionary measure, we refer to the fact that the thesis found in No. 453 of the WPH Edition: Bewertung und Transaktionsberatung, 2018, Chapter A, that the taxation of inflation-related growth in the terminal value does not correspond to the prevailing practice in business valuations is, in our opinion inaccurate and the comments found there are abbreviated and distorted. The full quote reads as follows:

“on the other hand, the increase in business value that is attributable solely to inflation and considered in the calculation of the terminal value is based on a fictitious full distribution of future gains on sale, which are fundamentally subject to the same tax burden as increases in the business value attributable to the retention of earnings from operating activities. This has implications for the prevailing practice applied to date for business valuations, by which the discount rate after personal tax is reduced by a growth factor – which is not marked down to reflect tax effects – and a tax burden on the gains on sale due to inflation alone is not generally considered.” (underscored by the author of this report).

(WPH Edition: Bewertung und Transaktionsberatung, 2018, Chapter A No. 453; the identical passage can be found in: WP-Handbuch 2014, Vol. II, Part A. No. 398).

The independent valuer EY has taken the deduction of capital tax gains upon disposal into account appropriately.

### **c) Discounting Net Cash Inflows**

We examined the discounting of net cash inflows, on the one hand, and the fictitious assumption that the value added by retained earnings will be directly allocated to the owners, on the other.

When discounting the annual distributions, the independent valuer has assumed that distributions are made at the end of the year. The distribution amounts in the business model were therefore initially discounted from the end of the respective year to the technical valuation date (1 January 2018) and subsequently compounded to the formal valuation date. This approach is in line with the ruling handed down by the OLG Stuttgart, which states that the business valuation may not be based solely on actual cash flows but must also take account of the value contributed by retained earnings (see OLG Stuttgart, 19 March 2008, 20 W 3/06, AG 2008, pp. 510, 515). Discounting the value added from retaining earnings in the terminal value follows the same procedure.

The forecast distributions for the first plan year must therefore be discounted to the beginning of the year 2018. The profits in later years of the planning period are treated correspondingly so that the net earnings value represents the value on the technical valuation date, i.e. the beginning of the first year of the planning period, 2018. In a second step, the discounted earnings value must be compounded (unwound) to the valuation date later in the year (see BGH, 19 July 2010, II ZB 18/09, AG 2010, pp. 629, 631).

We are of the opinion that the two phase model has been applied correctly. After checking the accuracy of the mathematical calculation of the discounted earnings value, we are satisfied that the results are correct.

#### **IV. Separately-Valued Assets**

##### **Land and buildings**

Worldwide, the Linde Group holds non-operating land and buildings, which have not been considered in the planning calculations. We were informed that all of the properties are either intended for a future sale or a resolution on their sale has already been passed.

The independent valuer, EY, has considered non-operating land and buildings using a separate value equal to the probability-weighted proceeds from the sale, taking account of the carrying amount as a lower limit.

EY has deducted corporate taxes from the paper gain on the sale, which is the proper treatment. With all other factors being equal, the rise in income due to the assumed sale of non-operating land and buildings was reduced by the standardized income tax.

**Other financial assets**

On the one hand, Linde AG carries investment holdings in various companies that are not consolidated or carried at cost in the statement of financial position whose earnings are not considered in the planning calculations as investment income. The independent valuer has recognized these investment holdings at the respective share in equity held by Linde AG as a separate asset valued at EUR 18 million. Within the framework of our work we reviewed whether the surpluses generated by these companies stand in a reasonable relationship to the value of the separate assets. Corporate taxes have not been deducted.

In addition, other financial assets contain securities carried at a fair value of EUR 38 million. Accordingly, the independent valuer has recognized the carrying amount as a separate asset. Here too, no corporate taxes have been deducted.

With all other factors being equal, the rise in income due to the assumed sale of other financial assets was reduced by the standardized income tax.

We verified the approach taken by the independent valuer and are of the opinion it is appropriate.

**Securities and held-for-sale assets**

As of the cut-off date, the Linde Group holds securities. No income has been considered in the planning for securities valued at EUR 17 million. The independent valuer has consequently recognized the carrying amount of the securities as a separate asset. As the securities are measured at fair value, this is the proper treatment. The other securities presented in the consolidated financial statements of Linde AG as of 30 June 2018 were used in the planning to cover the payment of dividends for 2017 and are therefore not available to be recognized as a separate asset.

To a small extent of app. EUR 5 million, Linde AG carries held-for-sale assets that are not considered in the planning calculations. This relates to shares in Remeo Germany, which were sold in August 2018. The independent valuer recognized these shares at their carrying amount..

With all other factors being equal, the rise in income due to the assumed sale of held-for-sale assets was reduced by the standardized income tax.



**Other non-operating assets**

According to the Management Board of Linde AG, the Company does not have any other non-operating assets. Based on the findings gained in the course of preparing this valuation report, there are no indications of the existence of any other non-operating assets.

**V. Value effect from further antitrust divestitures**

The independent valuer took the value effect of the additional disposals due to antitrust law shown in the planning calculation as of 9 October 2018 into account separately when determining the business value. To do this, the independent valuer considered the differences at the level of cash flows after taxes. The negative value contribution recognized corresponds to the net present value of the residual changes in cash flows after taxes resulting from the additional disposals and thus already takes into account the inflows from the purchase price payment.

We have reconstructed the determination of this value effect and, in addition, examined both the complete value determination on the basis of the planning calculation as of 5 September 2018 and the complete value determination on the basis of the planning calculation as of 9 October 2018 and consider the value effect to be appropriate.

**VI. Business Value**

Based on the presentations made in the valuation report, the business value of Linde AG as of the valuation date of 12 December 2018, derived using the discounted earnings model and taking account of the separate assets amounts to approximately EUR 34,944 million. This corresponds to a value per share of EUR 188.24.

We verified the per share calculation. It has been derived correctly.

## **VII. Market Price**

The requirements arising from court rulings on the relevance of a market price (in this case of Linde AG) for determining a fair compensation for the squeeze-out were examined using a range of criteria and are discussed below.

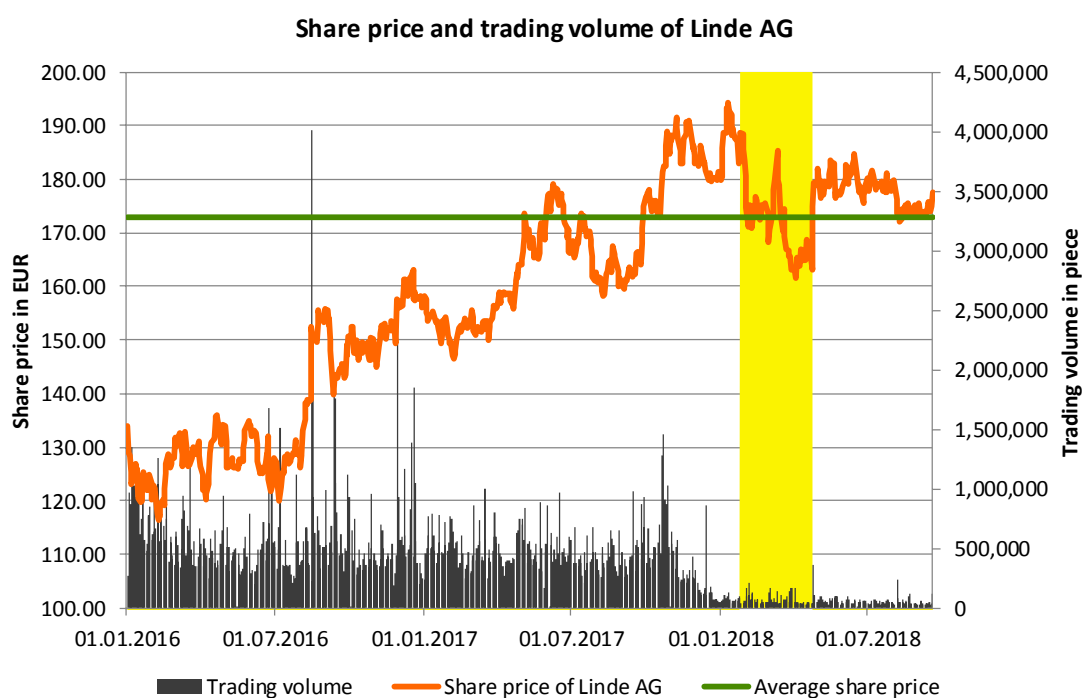
In its ruling dated 19 July 2010 (II ZB 18/09, AG 2010, pp. 629 et seq., “Stollwerck”) the Federal Court of Justice ruled that the market price of the share used to derive a fair cash compensation paid to squeeze-out minority shareholders must be measured on the average market value over a three-month period **prior to announcement of the structural measures**. With this ruling the Federal Court of Justice partially overturned its earlier rulings and has now accepted the prevailing opinion in the technical literature (see, for example, Adolff, Unternehmensbewertung im Recht der börsennotierten Aktiengesellschaft, 2007, pp. 335 et seq.) and valuation practice.

This interpretation is already reflected in Sec. 5 (1) WpÜGAngebV which determines that counter-performance in the case of a takeover bid must at least correspond to the average market price of the shares in the target for the three months prior to the decision to make a bid.

With its ad hoc announcement dated 25 April 2018, Linde AG announced the intention to squeeze-out minority shareholders of Linde AG in return for a fair cash compensation in accordance with Sec. 62 (1) and (5) UmwG in conjunction with Sec. 327a et seq. AktG.

In accordance with the approach described on the internet site of BaFin the independent valuer based the calculation on a three month period **prior** to the public announcement of the intended squeeze-out. Thus, the three-month period ends on Tuesday, 24 April 2018. We believe that this approach is appropriate.

The following chart displays the development of the share price and trading volume of the Linde AG share prior to the end of our audit. The three-month period prior to announcement of the intention to carry out a squeeze-out is highlighted. Moreover the three-month average as of 24 April 2018 of EUR 172.79 is presented:



### **Adjusting the market share price**

In the judgment mentioned above, the Federal Court of Justice restricted the scope of its statement to the effect that the share price should be extrapolated in line with the general market or sector trends if there is a longer period between the announcement of the structural measure and the date on which the general meeting passes the corresponding resolution – and developments on the stock exchange suggest that such an adjustment would be appropriate.

Approximately 7.7 months lie between the ad hoc announcement mentioned above (25 April 2018) and the date of 12 December 2018 scheduled for the general shareholders' meeting passing the resolution.

Generally a period of less than six months is not considered to be a “longer period” in the sense of the Stollwerck judgment (see OLG Stuttgart, 19 January 2011, AG 2011, pp. 420, 422; Bungert, BB 2010, pp. 2227, 2229; Bückner, NZG 2010, pp. 967, 970; Bungert/Wettich, BB 2010, pp. 2227, 2229, do not consider a period of seven months to be a longer period; Decher, ZIP 2010, pp. 1673, 1675, considers a longer period starts from seven and a half months; a list can be found in Ruthardt/Hachmeister, CF 2014, pp. 174, 183). In the decisive case, the Federal Court of Justice assumed that a “longer period” refers to a period of seven and a half months or more (see AG 2010, pp. 629, 632). The Higher Regional Court of Saarbrücken does not consider a period of six and a half months to qualify as a longer period (see OLG Saarbrücken, 11 June 2014, 1 W 18/13, AG 2014, pp. 866, 867 et seq.). From a purely arithmetic perspective, the time interval between the date of the ad hoc announcement and the date of the general shareholders’ meeting passing the resolution is therefore slightly longer than the period stipulated in the court judgments.

In Section 6.6 of its expert report, the independent valuer, EY, has stated that there is nevertheless no requirement in this case to extrapolate the market share price. It justifies this assessment on the basis that the theoretical foundation for the extrapolation of the exchange price must be seen in preventing a delay in executing a squeeze-out without any objective reason for doing so. In the process, the independent valuer centers its argument on the exceptional character of extrapolating the market prices listed on the exchange. Based on an analysis of the matter at hand, EY comes to the conclusion that none of the exceptional cases found in the jurisprudence applies to Linde AG and that the squeeze-out is not comparable to the “normal and customary” examinations performed by the Federal Court of Justice due to the corporate structure, the synergies that need to be considered, the influence of the disposals required by cartel/antitrust authorities and the number of consulting and auditing processes involved.

In our assessment, the arguments presented by EY are basically understandable. Ultimately, however, a decision on this is not necessary for the following reasons.

With regard to the revision of the valuation on the cut-off date of the valuation, and the need to revise the audit of the fairness of the cash compensation decided upon, it should be stated that any extrapolation of the market price of the shares to the cut-off date that “marks down” the value to below the amount of the original cash compensation offered is not permitted on account of the ban on revising a court judgment to the detriment of the appellant. In this constellation, it would therefore be of no consequence whether a longer period, in the sense of the Stollwerck judgment of the Federal Court of Justice, applies in the case of Linde AG or not.

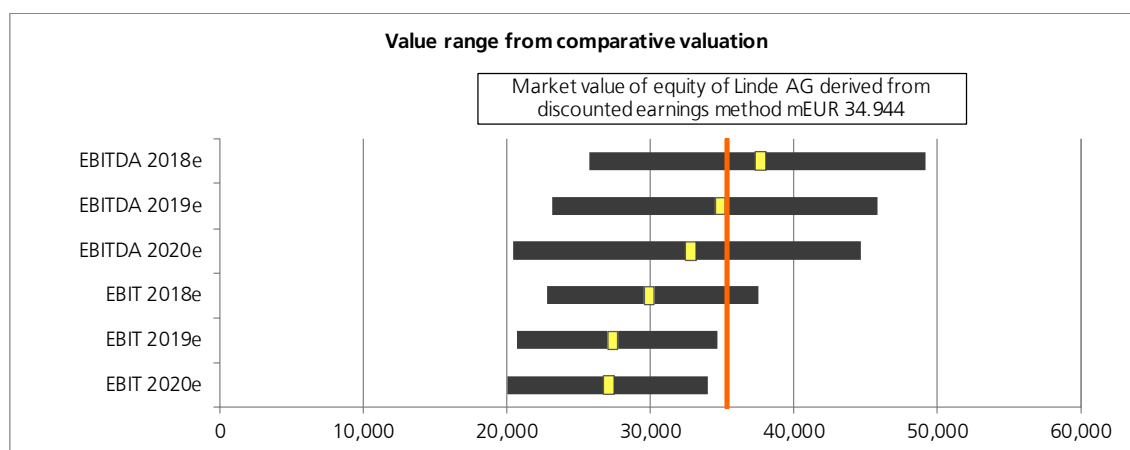
As part of our work, we examined whether an extrapolation of the market price from the day of the announcement of the squeeze-out to the end of our audit work would lead to a value higher than the discounted earnings value of Linde AG. This is not the case.

### VIII. Comparative Valuation

In addition to the capitalized earnings approach, valuation practice also uses so-called multiple methods to estimate a preliminary business value, ranges of business values, or to assess plausibility. Like the discounted earnings method, this valuation concept is also based on earnings. However, enterprise value in this case is determined by multiplying earnings or a assets base by an indicator. The multiples method is based on a comparative business valuation in the sense that suitable multiples are derived from the capital market data of publicly listed companies or transactions and applied to the company being valued.

Such multiplier-based valuations only represent a simplified valuation, but in some cases they can provide an indication of the plausibility of other methods (see IDW S 1, 2008, No. 143).

We have both reviewed the derivation of the comparative valuation by the independent valuer as well as performed our own comparative calculation on the basis of trading multiples using data from the information service provider Bloomberg. In contrast to EY, we have weighted the respective segment peer groups on the basis of their average operating profit over the planning period. The value ratios are shown graphically as follows:



In sum, it can be stated that this plausibility check reveals that the fundamental business value determined using the principles of IDW S1 2008, lies within the multiplier-based market valuation of comparable companies. In conclusion, the plausibility check does not reveal any indication that the business value calculated by EY is too low in comparison to the current situation on the capital markets (for a critical comment on the informative power of multiplier-based valuations in general, see: OLG Frankfurt, 2 May 2011, 21 W 3/11, No. 83 juris (where not already printed in AG 2011, pp. 828 et seq.); OLG Frankfurt, 15 February 2010, AG 2010, pp. 798, 802; for a ruling on the

irrelevance of a review of the capitalized earnings value, see: OLG Munich, 9 September 2014, 31 Wx 128/14, ratio decidendi p. 6).

## **IX. Sensitivities**

We verified the sensitivity analyses of the independent valuer and complemented these with a range of different sensitivity analyses of our own in order to review the influence of a change in the parameters on the value per share. As parameters for this analysis we selected the components of the discount rate – risk-free rate, market risk premium and beta – because these parameters have a high impact on the business value.

As a precautionary measure, we would like to point out that the following sensitivity analysis and their arithmetically derived results are provided solely for information purposes for the benefit of the minority shareholders and the regional court which engaged us to perform the audit. Moreover, the resulting values should not be interpreted as appropriate cash compensation and therefore in contradiction to our fairness opinion.

### **Risk-free rate / growth factor matrix**

We varied the risk-free rate (before tax) within a range from 0.90 % to 1.75 %. We varied the growth factor within a range from 0.5 % to 1.5 %.

The following table shows the resulting value per share.

<b>Value per share in EUR</b>		<b>Risk free interest rate</b>				
		0.90%	1.00%	1.25%	1.50%	1.75%
<b>Growth discount</b>	0.50%	182.25	178.53	169.75	161.67	154.19
	0.75%	192.24	188.15	178.53	169.70	161.57
	1.00%	203.38	198.85	188.24	178.55	169.66
	1.25%	215.85	210.81	199.04	188.35	178.59
	1.50%	229.92	224.27	211.13	199.26	188.48
	Change of value per share with change of risk free interest rate (Growth discount = 1.00%)		8.0%	5.6%	0.0%	-5.1%

Related to the growth factor of 1.00 %, a decrease in the risk-free interest rate to 1.00 %, for example, leads to an imputed increase of approximately 5.6% in the value per share.

### Risk-free rate/ market risk premium matrix

We varied the risk premium (after tax) within a range from 5.00 % to 6.00 %.

Value per share in EUR		Market risk premium				
		5.00%	5.25%	5.50%	5.75%	6.00%
Risk free interest rate	0.90%	228.69	215.40	203.38	192.45	182.48
	1.00%	223.16	210.40	198.85	188.32	178.70
	1.25%	210.30	198.75	188.24	178.63	169.81
	1.50%	198.66	188.15	178.55	169.73	161.62
	1.75%	188.07	178.47	169.66	161.55	154.05

Change of value per share with change of market risk premium (Risk free interest rate = 1.25%)	11.7%	5.6%	0.0%	-5.1%	-9.8%
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Related to the risk-free rate of 1.25 %, a fall in the market risk premium to 5.0 %, for example, leads to an imputed increase of approximately 11.7 % in the value per share.

### Beta/market risk premium matrix

We varied the unlevered beta factor within a range from 0.65 to 0.80. The following table shows the respective value per share.

Value per share in EUR		Beta factor				
		0.65	0.70	0.73	0.75	0.80
Market risk premium	5.00%	240.08	220.68	210.30	203.83	189.07
	5.25%	227.15	208.65	198.75	192.58	178.50
	5.50%	215.38	197.70	188.24	182.34	168.88
	5.75%	204.62	187.69	178.63	172.98	160.09
	6.00%	194.75	178.50	169.81	164.39	152.03

Change of value per share with change of beta factor (Market risk premium = 5.50%)	14.4%	5.0%	0.0%	-3.1%	-10.3%
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Related to the risk premium of 5.50 %, an increase in the beta factor to 0.75, for example, leads to an imputed reduction of approximately 3.1 % in the value per share. A decrease in the beta factor to 0.70 leads to an increase in the value per share of roughly 5.0%.

**X. Particular Difficulties in the Valuation**

On the basis of our knowledge of the relevant parts of the report on the squeeze-out issued by the main shareholder, the information provided to us and our meetings with the Management Board, the audit firm engaged by the main shareholder to assist with determining the business value, our review of the planning projections underlyng the calculation of the business value, and other documents, we have come to the conclusion that no particular difficulties arose during the valuation of Linde AG.



## **F. Calculation of a Fair Compensation for the Squeeze-Out**

The figures on which the cash compensation is based are explained in detail in the expert report from EY attached as Annex 6 to the transfer report.

Taking a business value of approximately EUR 34,944 million as the point of departure, the neutral valuer has derived a value of EUR 188.24 per share after rounding.

The market share price did not need to be considered as a minimum limit on the cash compensation.

The majority shareholder of Linde AG has fixed the compensation for the squeeze-out at

**EUR 188.24**

per share.

In our opinion, the cash compensation for the squeeze-out is fair.

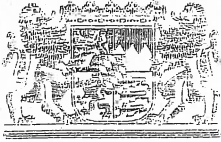
**G. Concluding Declaration on the Fairness of the Cash Compensation for  
the Squeeze-out**

“On the basis of our findings and the reasons explained above, we believe the cash compensation granted to the minority shareholders in Linde AG, Munich, in the course of the squeeze-out in return for assignment of their shares pursuant to Sec. 62 (5) UmwG in conjunction with Secs. 327a et seq. AktG of EUR 188.24 per no-par value share is fair.”

Stuttgart, 31 October 2018

Ebner Stolz GmbH & Co. KG  
Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft

Dr. Matthias Popp	Alexander Sobanski
Wirtschaftsprüfer	Wirtschaftsprüfer
[German Public Auditor]	[German Public Auditor]



**Landgericht München I**

Justizgebäude Lenbachplatz 7  
80316 München

**5 HK O 5973/18**

**B e s c h l u s s**

vom 30.4.2018:



1. Auf Antrag der

**Linde Intermediate Holding AG**

Klosterhofstraße 1  
80331 München

bestellt der Vorsitzende der 5. Kammer für Handelssachen beim LG München I gem. § 62 Abs. 5 UmwG i.V.m. §§ 327 c Abs. 2 Satz 3 und Satz 4, 293 c Abs. 1 AktG

**Ebner Stolz Mönning Bachen**

Wirtschaftsprüfer Steuerberater Rechtsanwälte Partnerschaft mbB

Herr Dr. Matthias Popp

Kronenstraße 30  
70174 Stuttgart

zum Prüfer für die Überprüfung der Angemessenheit einer zu gewährenden Barabfindung an die Aktionäre der Linde AG, eingetragen im Handelsregister des Amtsgerichts – Registergericht – München HRB 169850.

2. Auf gemeinsamen Antrag der

**Linde Intermediate Holding AG**

Klosterhofstraße 1  
80331 München

und der

**Linde AG**

Klosterhofstraße 1  
80331 München

bestellt der Vorsitzende der 5. Kammer für Handelssachen beim LG München I gem. §§ 60, 10 UmwG

**Ebner Stolz Mönning Bachen**

Wirtschaftsprüfer Steuerberater Rechtsanwälte Partnerschaft mbB

Herr Dr. Matthias Popp



Kronenstraße 30  
70174 Stuttgart

zum Prüfer des Verschmelzungsvertrages zwischen diesen beiden Gesellschaften.

3. Der Geschäftswert wird auf € 5.000,-- festgesetzt, § 36 Abs. 3 GNotKG.

### **G r ü n d e :**

Die von der Hauptaktionärin bzw. den am Verschmelzungsvertrag beteiligten Gesellschaften benannte Wirtschaftsprüfungsgesellschaft ist für die Prüfung geeignet. Hinderungsgründe bestehen nicht. Es konnte daher der Anregung gefolgt werden, diese Wirtschaftsprüfungsgesellschaft aus den von der Antragstellerin benannten drei Wirtschaftsprüfungsgesellschaften durch das Gericht auszuwählen.

Dr. Krenek  
Vorsitzender Richter  
am Landgericht

# Landgericht München I

Az.: 5 HK O 5973/18



In dem Verfahren

- 1) **Linde Intermediate Holding AG**, vertreten durch den Vorstand, Klosterhofstraße 1, 80331 München  
- Antragstellerin -
- 2) **Linde AG**, vertreten durch den Vorstand, Klosterhofstraße 1, 80331 München  
- Antragstellerin -

Verfahrensbevollmächtigte zu 1:

Rechtsanwälte **Sullivan & Cromwell LLP**, Neue Mainzer Straße 52, 60311 Frankfurt am Main

Verfahrensbevollmächtigte zu 2:

Rechtsanwälte **Hengeler Mueller**, Leopoldstraße 8-10, 80802 München

wegen Bestellung eines Prüfers

erlässt das Landgericht München I - 5. Kammer für Handelssachen - durch Vorsitzenden Richter am Landgericht Dr. Krenek am 02.05.2018 folgenden

## Beschluss

Der Beschluss vom 30.4.2018 wird dahingehend berichtigt, dass zum Prüfer unter Ziffern 1. und 2. jeweils bestellt wird.

**Ebner Stolz GmbH & Co. KG**

Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft

Kronenstraße 30

70174 Stuttgart

gez.

Dr. Krenek  
Vorsitzender Richter am Landgericht



Für die Richtigkeit der Abschrift  
München, 02.05.2018

Spensberger, JAng  
Urkundsbeamtin der Geschäftsstelle  
Durch maschinelle Bearbeitung beglaubigt  
- ohne Unterschrift gültig

# General Engagement Terms

## for

### Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften

#### [German Public Auditors and Public Audit Firms]

#### as of January 1, 2017

DokID:

#### 1. Scope of application

(1) These engagement terms apply to contracts between German Public Auditors (*Wirtschaftsprüfer*) or German Public Audit Firms (*Wirtschaftsprüfungsgesellschaften*) – hereinafter collectively referred to as "German Public Auditors" – and their engaging parties for assurance services, tax advisory services, advice on business matters and other engagements except as otherwise agreed in writing or prescribed by a mandatory rule.

(2) Third parties may derive claims from contracts between German Public Auditors and engaging parties only when this is expressly agreed or results from mandatory rules prescribed by law. In relation to such claims, these engagement terms also apply to these third parties.

#### 2. Scope and execution of the engagement

(1) Object of the engagement is the agreed service – not a particular economic result. The engagement will be performed in accordance with the German Principles of Proper Professional Conduct (*Grundsätze ordnungsmäßiger Berufsausübung*). The German Public Auditor does not assume any management functions in connection with his services. The German Public Auditor is not responsible for the use or implementation of the results of his services. The German Public Auditor is entitled to make use of competent persons to conduct the engagement.

(2) Except for assurance engagements (*betriebswirtschaftliche Prüfungen*), the consideration of foreign law requires an express written agreement.

(3) If circumstances or the legal situation change subsequent to the release of the final professional statement, the German Public Auditor is not obligated to refer the engaging party to changes or any consequences resulting therefrom.

#### 3. The obligations of the engaging party to cooperate

(1) The engaging party shall ensure that all documents and further information necessary for the performance of the engagement are provided to the German Public Auditor on a timely basis, and that he is informed of all events and circumstances that may be of significance to the performance of the engagement. This also applies to those documents and further information, events and circumstances that first become known during the German Public Auditor's work. The engaging party will also designate suitable persons to provide information.

(2) Upon the request of the German Public Auditor, the engaging party shall confirm the completeness of the documents and further information provided as well as the explanations and statements, in a written statement drafted by the German Public Auditor.

#### 4. Ensuring independence

(1) The engaging party shall refrain from anything that endangers the independence of the German Public Auditor's staff. This applies throughout the term of the engagement, and in particular to offers of employment or to assume an executive or non-executive role, and to offers to accept engagements on their own behalf.

(2) Were the performance of the engagement to impair the independence of the German Public Auditor, of related firms, firms within his network, or such firms associated with him, to which the independence requirements apply in the same way as to the German Public Auditor in other engagement relationships, the German Public Auditor is entitled to terminate the engagement for good cause.

#### 5. Reporting and oral information

To the extent that the German Public Auditor is required to present results in writing as part of the work in executing the engagement, only that written work is authoritative. Drafts are non-binding. Except as otherwise agreed, oral statements and explanations by the German Public Auditor are binding only when they are confirmed in writing. Statements and information of the German Public Auditor outside of the engagement are always non-binding.

#### 6. Distribution of a German Public Auditor's professional statement

(1) The distribution to a third party of professional statements of the German Public Auditor (results of work or extracts of the results of work whether in draft or in a final version) or information about the German Public Auditor acting for the engaging party requires the German Public Auditor's written consent, unless the engaging party is obligated to distribute or inform due to law or a regulatory requirement.

(2) The use by the engaging party for promotional purposes of the German Public Auditor's professional statements and of information about the German Public Auditor acting for the engaging party is prohibited.

#### 7. Deficiency rectification

(1) In case there are any deficiencies, the engaging party is entitled to specific subsequent performance by the German Public Auditor. The engaging party may reduce the fees or cancel the contract for failure of such subsequent performance, for subsequent non-performance or unjustified refusal to perform subsequently, or for unconscionability or impossibility of subsequent performance. If the engagement was not commissioned by a consumer, the engaging party may only cancel the contract due to a deficiency if the service rendered is not relevant to him due to failure of subsequent performance, to subsequent non-performance, to unconscionability or impossibility of subsequent performance. No. 9 applies to the extent that further claims for damages exist.

(2) The engaging party must assert a claim for the rectification of deficiencies in writing (*Textform*) [Translator's Note: *The German term "Textform" means in written form, but without requiring a signature*] without delay. Claims pursuant to paragraph 1 not arising from an intentional act expire after one year subsequent to the commencement of the time limit under the statute of limitations.

(3) Apparent deficiencies, such as clerical errors, arithmetical errors and deficiencies associated with technicalities contained in a German Public Auditor's professional statement (long-form reports, expert opinions etc.) may be corrected – also versus third parties – by the German Public Auditor at any time. Misstatements which may call into question the results contained in a German Public Auditor's professional statement entitle the German Public Auditor to withdraw such statement – also versus third parties. In such cases the German Public Auditor should first hear the engaging party, if practicable.

#### 8. Confidentiality towards third parties, and data protection

(1) Pursuant to the law (§ [Article] 323 Abs 1 [paragraph 1] HGB [German Commercial Code: *Handelsgesetzbuch*], § 43 WPO [German Law regulating the Profession of *Wirtschaftsprüfer*: *Wirtschaftsprüferordnung*], § 203 StGB [German Criminal Code: *Strafgesetzbuch*]) the German Public Auditor is obligated to maintain confidentiality regarding facts and circumstances confided to him or of which he becomes aware in the course of his professional work, unless the engaging party releases him from this confidentiality obligation.

(2) When processing personal data, the German Public Auditor will observe national and European legal provisions on data protection.

#### 9. Liability

(1) For legally required services by German Public Auditors, in particular audits, the respective legal limitations of liability, in particular the limitation of liability pursuant to § 323 Abs. 2 HGB, apply.

(2) Insofar neither a statutory limitation of liability is applicable, nor an individual contractual limitation of liability exists, the liability of the German Public Auditor for claims for damages of any other kind, except for damages resulting from injury to life, body or health as well as for damages that constitute a duty of replacement by a producer pursuant to § 1 ProdHaftG [German Product Liability Act: *Produkthaftungsgesetz*], for an individual case of damages caused by negligence is limited to € 4 million pursuant to § 54 a Abs. 1 Nr. 2 WPO.

(3) The German Public Auditor is entitled to invoke demurs and defenses based on the contractual relationship with the engaging party also towards third parties.

(4) When multiple claimants assert a claim for damages arising from an existing contractual relationship with the German Public Auditor due to the German Public Auditor's negligent breach of duty, the maximum amount stipulated in paragraph 2 applies to the respective claims of all claimants collectively.

(5) An individual case of damages within the meaning of paragraph 2 also exists in relation to a uniform damage arising from a number of breaches of duty. The individual case of damages encompasses all consequences from a breach of duty regardless of whether the damages occurred in one year or in a number of successive years. In this case, multiple acts or omissions based on the same source of error or on a source of error of an equivalent nature are deemed to be a single breach of duty if the matters in question are legally or economically connected to one another. In this event the claim against the German Public Auditor is limited to € 5 million. The limitation to the fivefold of the minimum amount insured does not apply to compulsory audits required by law.

(6) A claim for damages expires if a suit is not filed within six months subsequent to the written refusal of acceptance of the indemnity and the engaging party has been informed of this consequence. This does not apply to claims for damages resulting from scienter, a culpable injury to life, body or health as well as for damages that constitute a liability for replacement by a producer pursuant to § 1 ProdHaftG. The right to invoke a plea of the statute of limitations remains unaffected.

## 10. Supplementary provisions for audit engagements

(1) If the engaging party subsequently amends the financial statements or management report audited by a German Public Auditor and accompanied by an auditor's report, he may no longer use this auditor's report.

If the German Public Auditor has not issued an auditor's report, a reference to the audit conducted by the German Public Auditor in the management report or any other public reference is permitted only with the German Public Auditor's written consent and with a wording authorized by him.

(2) If the German Public Auditor revokes the auditor's report, it may no longer be used. If the engaging party has already made use of the auditor's report, then upon the request of the German Public Auditor he must give notification of the revocation.

(3) The engaging party has a right to five official copies of the report. Additional official copies will be charged separately.

## 11. Supplementary provisions for assistance in tax matters

(1) When advising on an individual tax issue as well as when providing ongoing tax advice, the German Public Auditor is entitled to use as a correct and complete basis the facts provided by the engaging party – especially numerical disclosures; this also applies to bookkeeping engagements. Nevertheless, he is obligated to indicate to the engaging party any errors he has identified.

(2) The tax advisory engagement does not encompass procedures required to observe deadlines, unless the German Public Auditor has explicitly accepted a corresponding engagement. In this case the engaging party must provide the German Public Auditor with all documents required to observe deadlines – in particular tax assessments – on such a timely basis that the German Public Auditor has an appropriate lead time.

(3) Except as agreed otherwise in writing, ongoing tax advice encompasses the following work during the contract period:

- a) preparation of annual tax returns for income tax, corporate tax and business tax, as well as wealth tax returns, namely on the basis of the annual financial statements, and on other schedules and evidence documents required for the taxation, to be provided by the engaging party
- b) examination of tax assessments in relation to the taxes referred to in (a)
- c) negotiations with tax authorities in connection with the returns and assessments mentioned in (a) and (b)
- d) support in tax audits and evaluation of the results of tax audits with respect to the taxes referred to in (a)
- e) participation in petition or protest and appeal procedures with respect to the taxes mentioned in (a).

In the aforementioned tasks the German Public Auditor takes into account material published legal decisions and administrative interpretations.

(4) If the German Public auditor receives a fixed fee for ongoing tax advice, the work mentioned under paragraph 3 (d) and (e) is to be remunerated separately, except as agreed otherwise in writing.

(5) Insofar the German Public Auditor is also a German Tax Advisor and the German Tax Advice Remuneration Regulation (*Steuerberatungsvergütungsverordnung*) is to be applied to calculate the remuneration, a greater or lesser remuneration than the legal default remuneration can be agreed in writing (*Textform*).

(6) Work relating to special individual issues for income tax, corporate tax, business tax, valuation assessments for property units, wealth tax, as well as all issues in relation to sales tax, payroll tax, other taxes and dues requires a separate engagement. This also applies to:

- a) work on non-recurring tax matters, e.g. in the field of estate tax, capital transactions tax, and real estate sales tax;
- b) support and representation in proceedings before tax and administrative courts and in criminal tax matters;
- c) advisory work and work related to expert opinions in connection with changes in legal form and other re-organizations, capital increases and reductions, insolvency related business reorganizations, admission and retirement of owners, sale of a business, liquidations and the like, and
- d) support in complying with disclosure and documentation obligations.

(7) To the extent that the preparation of the annual sales tax return is undertaken as additional work, this includes neither the review of any special accounting prerequisites nor the issue as to whether all potential sales tax allowances have been identified. No guarantee is given for the complete compilation of documents to claim the input tax credit.

## 12. Electronic communication

Communication between the German Public Auditor and the engaging party may be via e-mail. In the event that the engaging party does not wish to communicate via e-mail or sets special security requirements, such as the encryption of e-mails, the engaging party will inform the German Public Auditor in writing (*Textform*) accordingly.

## 13. Remuneration

(1) In addition to his claims for fees, the German Public Auditor is entitled to claim reimbursement of his expenses; sales tax will be billed additionally. He may claim appropriate advances on remuneration and reimbursement of expenses and may make the delivery of his services dependent upon the complete satisfaction of his claims. Multiple engaging parties are jointly and severally liable.

(2) If the engaging party is not a consumer, then a set-off against the German Public Auditor's claims for remuneration and reimbursement of expenses is admissible only for undisputed claims or claims determined to be legally binding.

## 14. Dispute Settlement

The German Public Auditor is not prepared to participate in dispute settlement procedures before a consumer arbitration board (*Verbraucherschlichtungsstelle*) within the meaning of § 2 of the German Act on Consumer Dispute Settlements (*Verbraucherstreitbeilegungsgesetz*).

## 15. Applicable law

The contract, the performance of the services and all claims resulting therefrom are exclusively governed by German law.